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RESEARCH REPORT

FIRST NATION ECONOMIES : A COMPARATIVE PERSPECTIVE



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First Nation Economies: A Comparative Perspective

**A Socio-Economic Baseline Study
Between Cities and First Nation Communities**

Prepared for

Canada Mortgage and Housing Corporation

By

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Executive Summary

First Nation Economies: A Comparative Perspective

This study presents a descriptive model of the economy of a small community and applies this model in a comparative analysis of First Nation and mainstream communities that are similar in population size and location.

The paper develops a model of the economy of a small community based on a review of the literature on regional and aboriginal economic development. The model is a framework for analysis of local economic development consisting of five factors:

1. Connection to cities

Large cities are the dynamic engine of economic growth. Large cities with specialised production factors and industry clusters that generate new products are where the action is greatest. For small communities, a key factor is the extent to which they can participate in this dynamic environment. Most First Nation communities do not have strong economic ties to cities.

2. The economic base of rural and remote communities

The nature of the economic base of the communities, the state of markets for their products, and the competitiveness of the community in those markets influence economic development. The economic base may be some combination of natural resources, tourism, government institutions, regional transportation hub and service centre. Major influences on competitiveness are the quality and state of depletion of the resource in resource-based local economies, the quality of the tourist attractions, the location.

3. Local capacity

The availability and quality of production factors, local infrastructure, the presence of a small business sector, and capacity to generate and implement economic development strategies all determine the economic performance of a community. Capacity varies between First Nation and mainstream communities, and within both groups of communities.

4. Housing

Housing and residential construction are not considered to be among the main factors affecting economic development of small communities. However, we examine the roles they may play in local development.

5. Recent growth

First Nation communities generally have a high rate of population growth. Mainstream communities of similar size and location have modest growth and many are in decline.

The study applies this framework to 239 First Nation communities for which data are available and a similar number of mainstream communities that are matched to the First Nation communities with respect to location and population size. The selected mainstream communities are not representative of the overall non-Aboriginal population, which lives for the most part in metropolitan and large urban areas. The selected communities are not as affluent and they are not growing as rapidly as the cities; many are in decline.

In spite of the similarity in size and location, the economies of the First Nation communities have only just over one-half the level of economic development of the mainstream communities, measured by average earnings from employment. Using factor analysis, the study finds differences between First Nation and mainstream communities in many variables representing the five factors of economic development. Cluster analysis is used to sort the communities into ten different groups based on the five factors. A number of different economic development “stories” emerge, with First Nation communities generally following a story line of slow economic development.

The mainstream communities have an economic rationale for their existence that gives them a certain level of employment, and recent growth or decline according to whether the economic base is shrinking or expanding. This is not the case for the First Nation communities, where a lack of jobs, low education, isolation, and high fertility are the order of the day for most communities, and growth is not clearly connected to the economic base.

The findings of the study illustrate the lack of an economic base for many First Nation communities, and are consistent with historical exclusion, the cultural and institutional distinctness of First Nation people, and the high incidence of physical and mental health problems in First Nation communities highlighted by the Royal Commission on Aboriginal Peoples.

The study differs from earlier comparative studies in that it shifts the focus away from disparities in wellbeing to differences in economic development. The findings of the quantitative analysis are suggestive rather than definitive. The framework set out in this paper could lead to more compelling results with additional data on:

- Measures of economic capacity, in particular the many dimensions that the Royal Commission identified as important.
- Location in relation to cities as distinct from integration with cities.
- Variables that better capture the specifics of the economic base of communities, including subsistence activities, variables that identify regional transportation and service centres, and measures of the potential for tourism.

Résumé

Les économies des Premières nations : une perspective comparative

Cette étude présente un modèle descriptif de l'économie d'une petite collectivité, puis applique ce même modèle en vue d'effectuer une analyse comparative des communautés des Premières nations et des autres collectivités classiques, ayant une population et un emplacement similaires.

En s'inspirant de publications antérieures sur le développement économique à l'échelle régionale et dans les communautés autochtones, on élabore un modèle de l'économie d'une petite collectivité. Celui-ci sert de cadre de référence pour l'analyse de l'expansion économique à l'échelle locale et comprend les cinq facteurs suivants :

1. Lien avec les villes

Les grandes agglomérations constituent un moteur dynamique du progrès économique; celles possédant des facteurs de production spécialisés et des grappes d'industries qui fabriquent de nouveaux produits manifestent la plus grande vitalité. Dans le cas des petites collectivités, l'un des facteurs déterminants est la mesure dans laquelle elles peuvent participer à cet environnement dynamique. La plupart des collectivités des Premières nations n'ont pas de solides liens économiques avec les villes.

2. L'assise économique des collectivités rurales et éloignées

La nature de l'assise économique des collectivités, l'état des marchés pour leurs produits et la compétitivité de la communauté dans ces secteurs sont autant d'éléments qui influent sur l'expansion économique. La base économique peut comprendre une combinaison d'éléments tels que des ressources naturelles, un secteur du tourisme, des institutions gouvernementales, une plaque tournante des transports régionale et un centre de services. Pour ce qui concerne la compétitivité, les principaux facteurs sont, notamment la qualité et la quantité restante des ressources dans les économies tributaires de l'industrie primaire, la qualité des attraits touristiques et l'emplacement.

3. Capacité communautaire

La disponibilité et la qualité des facteurs de production, l'infrastructure locale, la présence d'un petit secteur commercial et la capacité d'élaborer et de mettre en œuvre des stratégies de développement économique sont des éléments qui se répercutent sur les résultats économiques de la collectivité. On constate que la capacité des communautés autochtones varie en regard de celle des autres collectivités; des variations existent aussi au sein même de ces deux groupes.

4. Logement

On ne considère pas le logement et la construction résidentielle en tant que facteurs déterminants du progrès économique des petites collectivités. Nous examinons cependant leur rôle éventuel dans le développement communautaire.

5. Croissance récente

Les collectivités des Premières nations affichent habituellement un taux de croissance démographique élevé. Par comparaison, les autres collectivités de taille similaire, situées dans un endroit comparable, enregistrent une modeste croissance, et bon nombre subissent un déclin.

L'étude applique ce cadre de référence à 239 collectivités autochtones pour lesquelles des données sont disponibles; celles-ci sont jumelées à un nombre similaire de collectivités non autochtones, ayant un emplacement et une population comparables. Les collectivités non autochtones choisies ne sont pas représentatives de la population globale dans cette catégorie, qui habite surtout dans des régions métropolitaines et de grands centres urbains. Par comparaison, les collectivités sélectionnées sont moins nanties, enregistrent un rythme de croissance inférieur aux villes, et bon nombre sont en déclin.

Malgré leur similitude par rapport à la taille et à l'emplacement, les collectivités des Premières nations affichent un taux d'expansion économique, à peine plus de la moitié de celui des autres collectivités, si l'on considère les gains moyens provenant de l'emploi. À l'aide de l'analyse factorielle, l'étude cerne les différences entre les communautés des Premières nations et les collectivités non autochtones pour ce qui concerne les nombreuses variables représentant les cinq facteurs de l'expansion économique. Quant à l'analyse par grappes, elle sert à classer les collectivités en dix groupes, en fonction des cinq facteurs choisis. Il en ressort un certain nombre de « scénarios » en ce qui a trait au développement économique; les communautés des Premières nations suivent généralement une tendance de lente expansion économique.

Pour leur part, les collectivités non autochtones étudiées ont une raison d'être économique qui leur procure un certain taux d'emploi; on y trouve aussi une croissance récente ou un déclin d'activité, selon que la base économique diminue ou s'accroît. Mais il n'en est rien dans les communautés des Premières nations, généralement caractérisées par un manque d'emplois, un faible niveau de scolarité, l'isolation et un taux de fécondité élevé. De plus, leur croissance ne résulte pas forcément de l'assise économique.

Les résultats de l'étude mettent en évidence le manque de base économique dans bon nombre de communautés autochtones et reflètent l'exclusion historique, le caractère distinctif des Premières nations sur le plan culturel et institutionnel, ainsi que l'incidence élevée de problèmes physiques et de santé mentale dans les collectivités — toutes des questions soulevées par la Commission royale sur les peuples autochtones.

Cette étude diffère des études comparatives antérieures en ce sens qu'elle examine moins les disparités sur le plan du bien-être pour favoriser davantage les différences qui existent dans le développement économique. De plus, les résultats de l'analyse quantitative sont suggestifs plutôt que définitifs. Avec des données additionnelles, le cadre de référence utilisé pourrait donner lieu à des résultats plus concluants sur :

- les mesures de la capacité économique, en particulier concernant les nombreux aspects jugés importants par la Commission royale sur les peuples autochtones;
- l'emplacement par rapport aux villes en tant que facteur distinct de l'intégration avec les villes;
- des variables permettant de mieux cerner les caractéristiques de l'assise économique des collectivités, notamment les activités liées à la subsistance; des variables portant sur le transport régional et les centres de services, ainsi que les mesures du potentiel touristique.



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Introduction

This is the report of a comparative study of economic development of First Nation communities in Canada. The purpose of the study is to develop a descriptive model of the economies of First Nation communities and to identify similarities and differences with mainstream communities.

The paper begins with a discussion of regional economic development as the context for local development. We draw on some major recent studies to provide this context, and identify three factors as critical to economic development of small communities. We then go on to gather highlights of recent studies of economic development of First Nation communities. Next, we briefly describe on-reserve housing programs, and consider the connection between housing and economic development. Based on this extensive discussion we propose a five-factor framework for the analysis of local economic development.

In Part II of the study we apply this framework to community data drawn mainly from the 2001 census. We select a large number of First Nation communities based on data availability, and then select mainstream communities that are similar in population size and are located close to the First Nation communities. We explore similarities and differences between these two sets of communities, beginning with the level of economic development. We use our framework to identify variables of interest, and apply factor analysis to find common patterns of variation in these data. Finally, we group the communities using cluster analysis, describe and interpret the clusters, and examine the clusters in relation to the level of economic development.

The role of housing in relation to economic development is a focus of this study, and housing is one factor in the framework for local economic development developed in this study. We include a number of measures of the quality and growth of the housing stock and the size of the residential construction sector among the variables describing the local economies. However, we argue that housing plays only a modest role in economic development, and the results of the quantitative analysis bear this out.

PART I: A framework for analysing local economic development

A. Economic development and First Nation communities

Regional economic development

It is instructive to start a discussion of the economies of First Nation communities with a review of regional economic development. Today, economic development tends to take place at the level of regions within countries or entire countries, and small communities tend to be participants in these larger developments.

There is a vast literature on regional economic development. Many analysts have tried to understand differences in wealth and economic growth between countries and between regions within countries. There is an almost endless variety of success stories and models, and a long history of failed or only moderately successful attempts to stimulate economic growth. In a recent review volume, Higgins and Savoie (1997) review the main theories, describe some policies that have been tried over the years, and offer some broad directions.

Most theories about regional economic development focus on the physical assets of regions, whether natural resources, favourable location, the advantages of large agglomerations, or the structure of industry. Human resources are seen as an enabling factor rather than a driving force. The quality of human resources is important for development, more so today than in the past. The quantity of human resources matters as well. The deep labour markets of large cities are considered a significant advantage in the competition for large, sophisticated businesses.

The history of the development of Canada is well described by the “staple theory” of Harold Innis, who saw settlement of Canada resulting from an abundance of natural resources that were in demand in the world. Today, with only modest trend growth in world demand for most resource products, and intense competition from producers in other countries, natural resources are not the engine of growth they were when Canada was a frontier society. Natural resources still can be a major force for economic development in some regions – oil and gas in Alberta and offshore in the Atlantic region, diamond mines in the north, for instance – but for the most part the regions of Canada have to look to other sources of economic growth. As Higgins and Savoie put it, the challenge of economic development for Canada, in the past few decades and at present, is to transform the economy from exploitation of natural resources to exploitation of new technologies and development of new products and services, i.e., from a natural-resource-based to a human-resource-based economy.¹

Perhaps the best known and most influential of current models of economic growth is that of Michael Porter. In his book “The Competitive Advantage of Nations”, Porter has

¹ Higgins and Savoie, Chapter 2: “Geography, Culture and Regional Development”. The authors note that the need for a leap from natural-resource-based to human-resource-based growth may arise when there are still significant natural resources left to exploit (p.22).

focused attention on the concept of industrial clusters, groups of related industrial sectors that are concentrated in a region. The interactions between the members of the cluster and linkages between these firms and regional industry may generate a competitive advantage for the region and a leading role in world markets.

Porter's analysis focuses particularly on the structure and interactions within and around the cluster that are conducive to competitiveness and growth. Porter argues that the basic factors that have determined location of industry "for so long – a ready source of energy, literate workers, and so on – are now available anywhere in the world. A region's success in the modern economy increasingly depends on factor conditions that are man-made, specialised and the result of long-term investments. Examples include workers with uncommon expertise and research institutions specialising in key technologies. Porter refers to such factors as advanced factors."²

Thus, according to Porter, the quality of human resources is of vital importance to economic success. However, it is not a high level of education in general, but specialisation that matters. Specialisation is developed over time through the presence of industry clusters and other conditions propitious to international competitiveness.

Another leading set of ideas about economic development is the profit cycle theory of Ann Markusen. This model sees industries move through a life cycle with successive stages of birth, growth, stagnation and decline. In this theory, the location of industrial activity depends on the stage of its development. In the early stages of development of new products, an industry is necessarily concentrated in one or a few areas. Chance plays a large role in determining these areas, although regions can enhance their chance of harbouring a new industry by creating favourable conditions.

During the "super profit" stage, the industry, protected by patents and with limited competition may grow fast, with only a few regions sharing in these gains. As related firms gather to the regions where the super-profit industry is located, the industry is likely to remain highly concentrated geographically and the regions where it is located experience very rapid growth. As the industry matures, competition increases, substitute products are developed, and success depends more on cost of production. Firms would then locate in lower-cost areas or close to large markets. At some point, growth levels off and decline may set in. Many countries and regions are vying to be the place where industries are born, as success at this brings high incomes and rapid growth. This is also known as the "first mover advantage".

In a recent study of second-tier cities, Markusen et al (1999) found that "governmental decision makers at all levels and other organised agents for change are major shapers of the evolving spatial hierarchy of cities (p.336)". National governments and international agencies potentially have a major influence on regional development, but local and regional initiatives are also important. Markusen et al espouse six policy goals at the national and sub-national level:

² Russ Devlin (1995), p.4. The description of Porter's and Markusen's approaches in this section are based on Devlin's summary.

- Equalisation of sub-national finances
- Educational investment
- Constraints on tax base competition
- Building strong sub-national governance capability,
- Measures to discourage corruption
- More data gathering.

For policy makers at the urban and regional levels, the authors advocate strategic economic development planning, encouragement of innovation and entrepreneurship, and enhancement of quality of life to attract and retain skilled residents.

The idea that size and concentration of population make a difference has been a main theme of regional economic development theory and practice. Larger size allows for more diversity of economic activity, certain efficiencies, and cross-fertilisation, known in economic science as agglomeration economies. Urban size is also regarded as a determinant of economic growth. Jane Jacobs, for instance, regards cities as the locus of innovation and hence the source of economic growth. More specifically, she sees import replacement as the engine that can generate explosive growth. Synergy and invention result from the interaction of all kinds of economic activity in close proximity. They can only take place on a sufficient scale within cities, as Jane Jacobs sees it.³

Many regions lagging in economic development lack a large urban centre. Much effort has been invested in selecting and stimulating growth poles, urban centres that would serve as the economic engine for the surrounding region. However, this approach has not delivered the benefits anticipated. As Markusen's study of second-tier cities shows, the economic activity of cities is not always closely linked to that of the surrounding area. The major economic ties may be with other, distant cities. As well, it has been very difficult politically to concentrate development in growth poles over a period of time long enough to make a difference.

The differences in average income among Canada's regions, although they have been diminishing, are consistent with the idea that a small population and lack of a large city are a disadvantage with respect to productivity and the level of employment. Small changes in size may not have much effect, however. For lagging regions to become more dynamic and capable of more or less autonomous economic growth, a doubling or more in size may be required. In addition, size alone does not guarantee further growth, as large cities, and even larger concentrations of population may experience stagnation and decline over long periods.

To sum up, modern analyses of economic development regard industry structure as the driving force of economic growth. Large urban centres are where the action is. Regions that want to be economically competitive need to have specialised human resources of high quality, as well as good physical infrastructure.

³ Jane Jacobs: *The Economy of Cities*, 1970. See in particular Chapter 5: "Explosive City Growth".

Local economic development

Economic development of small communities is best understood as being subject to the forces of regional development. Historically, natural resources were the main driving force. Communities developed in the hinterland around sawmills, pulp and paper plants and mines, or scattered throughout agricultural regions. Gateways to the hinterland grew into small towns and cities. Transportation hubs emerged. Many small communities had a single industry or a single employer.

If the resources were exhausted communities fell into decline. The main employer would close its operations. Efforts were then made to stem the decline and maintain an economic base. Subsidies were used to attract “footloose” industries. This proved to be a high-cost strategy, because tax and subsidy competition for investment was difficult to control, and industry that could be readily attracted to a location could readily move on to another one. Increasingly, economic development efforts turned to community economic development, meaning stimulating small business development, developing local talent and building local capacity. Today, local, regional and provincial governments commit significant resources to this form of economic development. The federal regional economic development agencies⁴ support and supplement this effort. There is a very large network of community development corporations engaged in small business development and financing, management training and local economic planning.

In the past several decades, in spite of considerable efforts by governments, smaller rural and remote communities have generally not fared well, as noted in the study by Higgins and Savoie mentioned earlier. In agricultural areas, small communities have declined and disappeared as farming required ever fewer workers, the family farm made way for farming corporations, and distance became less important. Similarly, mechanisation and automation reduced the amount of local labour involved in mining and forestry and replaced it with highly trained operators brought in from urban centres. Provinces struggle to define rural strategies to maintain and bolster some rural and remote communities amidst the general decline.

This discussion suggests a number of factors that are important to the economic development of communities:

- **Location in relation to cities.** Cities, in particular large cities, are centres of economic dynamism. Small communities that are part of large cities can participate in the economic activity that takes place there.
- **The economic base of rural and remote communities.** The nature of economic activity in the region or community, the state of markets for the products, the comparative advantage or competitiveness of the community in this economic role. As we have just noted, the economic base of many rural and remote communities has been in stagnation and decline for decades.
- **Local capacity.** The quality of human resources and the small business base, the ability of the community to foster economic development, the size of the community.

⁴ The Atlantic Canada Opportunities Agency (ACOA), Canada Economic Development for Quebec Regions, Federal Economic Development Initiative in Northern Ontario (FedNor), and Western Economic Diversification Canada.

Economic development of First Nation communities

The federal government has been an active player in regional economic development, and through this in local development efforts. Economic development for aboriginal communities has evolved out of these regional development efforts as a separate set of policies and programs, as it was realised that economic disparities between aboriginal communities and the cities were quite large, accounted for a significant part of overall urban-rural and regional disparities, and required special efforts. In the 1970s, the federal and provincial governments concluded Special Agricultural and Regional Development Agreements (Special ARDA) to promote economic development in Aboriginal communities. These were followed by the federal government's Native Economic Development Program (NEDP) in the early 1980s and the Canadian Aboriginal Economic Development Strategy (CAEDS) in 1989. Efforts continued with Aboriginal Business Canada (a branch of Industry Canada), the Pathways training strategy, and the Aboriginal Procurement Strategy. These programs and strategies contribute to small business development, training, and building capacity in aboriginal communities including First Nation communities.

In spite of this substantial effort by the federal government and supplemental policies and programs of the provinces, aboriginal communities and especially First Nation communities, remain well behind in terms of economic development. Let us briefly explore to what extent this gap is particular to Aboriginal communities, and review what some major studies have had to say about the reasons behind it.

There are 630 First Nations in Canada⁵ that own 3,000 parcels of land of various sizes. According to the 2001 census, there were 581 separate First Nation territories (Census Subdivisions) with a population of 40 or more. The average size of these communities is 478 people. The communities are very small indeed. They are scattered everywhere, and most communities are not close to large urban centres.

Accordingly, some part of the economic disparities between Canadians generally and those living on Indian reserves can be attributed to the size and location of the reserves. In order to estimate this component, Indian and Northern Affairs Canada (INAC) examined a number of economic indicators, drawn from several censuses, for reserves and carefully selected "comparable communities" (INAC 1997). The disparities between the Canadian average and the comparable communities are taken as a measure of the contribution of small size and rural/remote location to the disparities between Canada and Indian reserves.

Using this method, the INAC study found that 23% of the male and 38% of the female participation rate gap between Canada and Indian reserves is due to size and location, and 42% of the gap in average individual total income as well of the income of those who report employment income as the main source. As regards education, 69% of the

⁵ This is the number of the First Nation Profiles listed on the web site of Indian and Northern Affairs Canada.

difference in the proportion of on-reserve residents and other Canadians having some university education can be accounted for by community size and remoteness, and 38% of the difference in the share having less than grade 9. However, no part of the gaps in the unemployment rate, self-employment activity, and overcrowding could be attributed to size and location of the reserve communities. In short, population size and location explain part of the economic disparities between Indian reserves and the rest of Canada. This part is less than one-half, and the larger part of the disparities therefore has other causes.

These other causes of disparities have been examined many times. Major reviews are contained in Elias (1991) and in the Report of the Royal Commission on Aboriginal Peoples (RCAP 1996). Both reviews emphasise historical exclusion and institutional factors. More recently, some limited work has been done in connection with research on the “New Rural Economy”. We now briefly review these sources in turn.

Elias stresses the mixed nature of Aboriginal economies (meaning mixed between a wage and cash economy and an in-kind economy in which household production dominates and goods and services are shared or bartered), the importance of kinship, and the central role of the household, often consisting of an extended family, as the basic economic unit. Living off the land is a major economic activity in many Aboriginal and remote and northern communities, one that is not measured on an ongoing basis, as it is not a market-based activity involving money wages and prices.

RCAP devotes a large chapter of its report to economic development. The chapter deals with all Aboriginal communities and Aboriginal people living in urban areas, and finds that reserves stand out as the poorest and least developed communities. RCAP’s main points:

- The economic history of Aboriginal communities is a history of failure caused by intervention by non-Aboriginals. Examples are given of intervention intended to limit competition by Aboriginal people with settlers. There are also legal impediments to economic development owing to the inalienability of property on reserve.
- The roots of dependence lie in various disruptions: relocations, the introduction of welfare payments designed for urban environments, use of reserve and hunting/gathering areas by mining and forestry companies, restructuring of the fisheries that reduced Aboriginal participation. Dependence is evident in the reliance on social assistance and on public sector jobs.
- The collectivity is important on reserve. There is a tradition of sharing the fruits of labour and the harvest within the extended family and the community.
- In remote areas and especially in the north, income in kind, derived from hunting and gathering, is an important part of economic activity.
- Economic success requires good governance. Self-government is seen by RCAP as a vital part of the answer to the challenge of economic development. U.S. research has demonstrated the important role played by band governments.
- Many Aboriginal communities are isolated, with little employment in the surrounding area.

- Many reserves are located in regions that are in economic decline. In the north, everything is subsidised, both in Aboriginal and non-aboriginal settlements: infrastructure, exploration, and tourism.

We would add to this that there is a high incidence of physical and mental health problems in First Nation communities. This includes physical injuries, addictions to alcohol and drugs, foetal alcohol syndrome, as well as social problems like family violence. RCAP reports on these matters, but does not explicitly link these to economic development⁶. However, the availability and readiness of the adult population for employment is affected by the incidence of health and social problems.

There has been a steady exodus of people from reserves over the years. The reserve population generally did not increase in spite of a high birth rate. Many Aboriginal persons migrated to the cities, as do many others born and raised in rural and small-town Canada. In recent years, this trend was interrupted by a return flow of persons who acquired Indian status because of Bill C-31.

Reimer and Trott (1997) examined the integration and isolation of First Nation economies. They find:

- Domestic production and informal economic activities are important in First Nation communities, a point also made by RCAP and Elias.
- First Nation economies are related in many ways to the economies of their surrounding regions.
- First Nation economies are related to their geographic location. Their economies reflect their urban, rural or northern character.

All sources stress the importance of informal economic activity in Aboriginal communities. The non-cash economy is an important part of the economies of Aboriginal and remote and northern communities, but the value of household output is not included in measures of economic activity and income. The importance of the non-monetary economy extends beyond its unmeasured size, its share of total activity. Living on the land is part of the Aboriginal tradition, in conformity with the pre-European lifestyle, a lifestyle that Aboriginal people aimed to preserve through the treaties. It ties in with Aboriginal rights to natural resources and access to land, rights that have been upheld in the courts and have led to new land claim settlements. To many First Nation people living

⁶ RCAP reviews the evidence in Volume 3, "Gathering Strength" of its report. For instance, family violence is mentioned as a social problem by 44 per cent of the on-reserve population (Chapter 2 "The Family", page 59). One third of deaths of Registered Indian men are due to injuries including accidents, suicides and homicides. In the total male population the rate is less than 10 per cent (Chapter 3 "Health and Healing, page 122). This suggests that non-lethal injury is also more common among Aboriginal people. Thirty-one per cent of Aboriginal people have some form of disability, more than twice the national average (page 148). The evidence on alcohol abuse, however, is called "contradictory" (page 159). RCAP finds that a majority of studies point to disproportionate rates of social and community ill health among Aboriginal people (page 122).

on reserves, this lifestyle and these rights may be more important than development of a wage economy⁷.

The second point of Reimer and Trott directly contradicts RCAP. Reimer and Trott view similarities between First Nation locations and CSDs within 60 kilometres of those locations in industrial employment patterns, the extent of part-time and part-year employment, the level of government transfers, and several other economic indicators as evidence of integration. Strictly speaking, this is only evidence of similarity, which supports their third observation about the connection between economic activity and geographic location, a point that is not unique to Indian reserves. They claim more direct evidence is provided by the fact that movement of labour and patterns of consumption vary by the characteristics of nearby locales. This evidence, in our view, is at best suggestive.

Reimer and Trott have linked Aboriginal communities to what they call “radius communities, presumably regional service centres, and examine information about exchanges with the radius community. This is interesting, as we have personally observed how proximity does not necessarily imply joint development. It is common for daily purchases by households on reserve to be made in nearby communities. First Nations have often shied away from competing directly with such businesses off reserve. At the same time, it may be difficult for people living on reserve to get jobs in the off-reserve stores, gas stations and restaurants that are frequented by First Nation people. The result is more economic activity off reserve, with First Nation people in the role of consumers only.

RCAP and Elias go on to develop frameworks for economic development, and RCAP makes recommendations to foster such development. To RCAP, renewing the treaty relationship, with a significant transfer of land and resources to Aboriginal nations, and involving self-government with powers significantly exceeding those of municipal governments is a sine qua non of economic development⁸. Further, RCAP sees a need for long-term agreements, development of institutional capacity to manage and develop lands and resources as well as sectors and business development, measures to enhance access to capital, education and training, and restructuring of social assistance to make it more conducive to economic development.

To conclude this section, let us summarise this brief review in terms of the three key factors affecting local economic development:

⁷ The economic value of the products of hunting and harvesting may also be significant. For instance, for Nunavut this value is estimated to be \$30 million annually, or more than \$10,000 per capita (Conference Board of Canada (2001), page 32).

⁸ One of the commission’s key recommendations reads: “Federal, provincial and territorial governments, through negotiation, provide Aboriginal nations with lands that are sufficient in size and quality to foster Aboriginal economic self-reliance and cultural and political autonomy” (Rec. 2.4.2, Volume 2, Part Two, page 1052).

- Location in relation to cities: First Nation territories are predominantly in rural and remote areas, and only few are able to participate in the more dynamic economic environment larger urban centres provide.
- The economic base of rural and remote communities: Whereas mainstream communities emerged because they provided an opportunity to make a living, and many still have an economic base even if it does not make for dynamic growth, Indian reserves were located away from the economic opportunities that attracted settlers. These reserves were expected to decline and disappear as Aboriginal people were absorbed into the settler society. No reserves were ever relocated in light of economic opportunity. Economic success generally has not come to these communities in the past, and if it did, it was not allowed to continue, according to RCAP.
- Local capacity: A history of isolation and exclusion from mainstream activity and of absence of economic success is not fertile soil for building local capacity, and isolation and exclusion continue in various forms. Government at the local or regional (Tribal Council) level has a far larger role in First Nation communities than in small mainstream communities far from the cities where governments reside. Aboriginal traditions of sharing, the importance of the collectivity, and living on the land may not be conducive to economic development based on the mainstream model. High incidence of health and behavioural problems limit the employability of the population of working age.

B. Housing

Housing programs on reserve

Housing conditions on reserve remain well below Canadian standards in spite of \$3.8 billion in government funding over the past ten years, according to the April 2003 Report of the Auditor General of Canada. The federal money resulted in construction of 29,000 homes and 33,000 renovations⁹.

There were 89,000 housing units for 97,500 households on reserve at the end of 2001. Almost half of the units require renovations¹⁰. The current federal government effort helps fund construction of 2,600 homes and 3,300 renovations, while 4,500 new households are formed every year¹¹.

The on-reserve housing policy was revamped in 1996-97 with both INAC and CMHC changing their approach. INAC moved away from capital subsidies to a more flexible approach, allowing use of funds for maintenance and insurance, with more control by First Nations. CMHC moved from the “two-per cent write-down¹²” to a deep subsidy, requiring a minimum revenue contribution from the First Nation that may or may not involve payments by occupants. CMHC spends about \$75 million annually on its main Section 95 Construction program, involving the addition of around 800 new homes per year. The corporation also spends \$12 million under the Residential Rehabilitation Assistance Program (RRAP). INAC’s core housing budget is \$138 million, and the department spends another \$66 million on roads and sewers. INAC has spent an additional \$240 million since 1996 as one-time contributions to First Nations switching to the new program. The department further spends some \$75 million per year in shelter allowances for social assistance recipients.

Recently the Auditor General expressed concern about the delivery of the programs of INAC and CMHC, and called for clear and simple rules, well-defined responsibilities for the parties, clear medium-term objectives, measurement of results, and building capacity in First Nations and Tribal Councils to deliver the programs and manage housing.

The RCAP report takes a much broader view of housing. It finds housing important for the preservation of cultural identity, and sees an impact on family stability and access to

⁹ Auditor General for Canada (2003), paragraphs 6.2 and 6.18. Judging by the date of this report, the “last ten years” probably refers to the years 1992-2001 or 1993-2002.

¹⁰ According to the 2001 Census Community Profiles, the number of dwellings was given for 558 populated reserves. On these reserves, there were 76,600 dwellings, of which 6,500 or 8.5% housed more than one family. Statistics Canada equates the number of households with the number of occupied private dwellings, but the incidence of multi-family households may be similar to the Auditor General’s gap between the numbers of households and the number of housing units. According to Statistics Canada, nearly one-third of the dwellings on reserve (32.8%) required major repairs, a lower share than indicated by the Auditor General. By contrast, only 1.7% of dwellings on 4248 populated non-reserve CSDs house more than one family, and 8% required major repairs.

¹¹ Auditor General of Canada (2003), paragraph 6.11.

¹² The subsidy was calculated in such a way that it reduced the interest rate on the mortgage loan to 2 per cent.

education. One of the root causes of the ongoing housing crisis on reserve, a cause also acknowledged by the Auditor General, is disagreement about who is responsible for providing housing. Many First Nations see housing as a treaty right, compensation for giving up the land. A number of First Nations do not participate in the CMHC program and the current INAC housing program because these programs do not provide housing as a matter of right but based on need. The Auditor General notes that 400 of the more than 600 First Nations are participating in the current INAC program; others have remained under an earlier program. RCAP finesses the issue of who is responsible for housing by placing on governments the onus of making First Nations economically self-sufficient so that they could then provide their own housing:

“At the root of the housing problem is the poverty that has resulted from the dispossession of Aboriginal people from their ancestral lands and their exclusion from mainstream economic activity, with the added complications on reserve of a lack of clarity about ownership rights and ineffective government programs. In Volume 2, Chapter 4, we argued that because of the Crown’s historical obligation to protect Aboriginal lands and resources, governments have an obligation to restore an economic and land base for Aboriginal people. In Volume 2, Chapter 2 we concluded that a fiduciary obligation exists on the part of all Crown institutions to reverse the condition of dependency and foster self-reliance and self-sufficiency among Aboriginal nations. The evident failure of governments to make such an economic base available to Aboriginal people, in accordance with their obligations, adds force to the argument that governments should bear the main burden of financing adequate shelter for these communities until such time as this economic base is restored.”¹³

Optimistically, RCAP then calls for a ten-year program with two-to-one cost sharing to fix the problem. RCAP also calls for changes in the social assistance program to facilitate the funding of local labour in activities like residential construction.

Housing and economic development

The provision of housing is an economic activity that accounts for about 19 per cent of Gross Domestic Product (GDP). It involves construction and renovation, maintenance and cleaning, financing of construction and home purchases, renting, and related activities like development planning, provision of urban and rural infrastructure, production of materials for construction. Residential construction is a small but volatile part of GDP (about 6 per cent), and its economic impact has been studied using economic models, e.g., as reported in a recent CMHC Research Highlights issue (CMHC 2000). Regarding residential construction and economic development in small communities, we would comment as follows:

- Residential construction is not sufficient to be the economic base of a community, except perhaps in a community that is part of a much larger urban agglomeration. In

¹³ Chapter 4: “Housing”, in *Gathering Strength*, Volume 3 of the Report of the Royal Commission on Aboriginal Peoples, pp. 375-6.

First Nation communities, residential construction is important as a source of employment income not because the communities are important suppliers to the region where they are located, but for lack of adequate other sources of employment.

In a study of the capability of the Aboriginal construction sector, Informetrica Limited found that construction is a major source of employment on reserve, as each First Nation attempts to maximise participation by members of the community in construction activity on its territory (Informetrica Limited 1997). The study also found that construction businesses and workers on reserve are rather isolated from those outside the community. In certain parts of the country, it was found, the industry had reached its maximum development as a local provider and needed to become competitive with and participate in the broader regional construction market.

- The productivity of the residential construction industry contributes to overall productivity and earned income in proportion to the size of the sector. Generally, given the size of the residential construction sector, this contribution is small or modest.
- Residential construction is not a driver of economic development or a leading sector, but a sector that responds, a sector whose activity is affected by economic growth or the lack thereof. While availability of sufficient dwellings of some quality may help attract people to a location, building homes in the hope people will come is like pushing on a string.

The relationship between the availability and quality of housing and economic development runs primarily from economic development to housing, and much less in the opposite direction. The size and quality of dwellings reflects the level of income or economic development in a community. As families become better off, they spend more on housing.

However, there are effects in the other direction. The form of tenure may affect economic development in various ways. Homeowners become familiar with ownership of valuable assets, the need for maintenance and insurance, borrowing against the value of the home. This will foster attitudes and familiarity with financial matters that can contribute to development of small business. Homeowners may have better access to capital. The poor state of housing on reserves has been attributed in part to a lack of clarity of ownership in the case of band housing.

Small communities in the Canadian hinterland, where many First Nation communities are located, do not have a housing market like the cities. There may be little rental accommodation, and, for lack of a resale market, the family home may not be as good a store of value as it tends to be in the cities. Many small rural and remote communities are in decline, and people who leave cannot cash in the value of their homes. The revival of these communities may be hampered by an unwillingness of people to build homes that cannot be sold at a reasonable price at a time of their choosing.

These types of problems have been felt acutely in single-industry towns. A recent study of two single-industry towns in British Columbia commented on the role of housing as follows:

- Personal satisfaction with housing is a primary determinant of employee and housing stability, secondary economic development, and the sustainability of single-industry towns.
- The small-town atmosphere is often a significant attraction for young families.
- Renovation activity, which is often restricted by company ownership contracts and high employee turnover, tracks changes in ownership policies and economic cycles.
- Tax rates can be excessive if property values do not decrease to reflect declines in single-industry economies.

The first of these observations is perhaps the most important: the quality of housing affects people's desire to continue to live in the community, and to make the effort to keep the community going.

Many studies have explored the idea that the quality of housing affects health, educational attainment, and other outcomes that influence economic development. For example, a home that is too small or in bad repair may lack a place for children to concentrate on homework, and limit their educational attainment. Health may be affected by poor housing. Psychological effects of housing may be important. A recent study found significant correlations between specific aspects of housing quality and behaviour problems of children in two Canadian cities (CMHC 2003). In another study, Anthony King adopts a lifetime perspective for effects of housing, arguing that the effects are cumulative (better housing leads to better education, which leads to greater labour force attachments, higher earnings and saving and ultimately higher retirement income (King 2001).

While one would not want to question the existence of such effects, it is not clear that they are important in practice. It is difficult to isolate the effects of housing from those of other aspects of the living environment. Accordingly, it is not clear that investments in housing have a larger pay-off than investments in public facilities in the community or any other factor thought to influence socio-economic well-being. A recent study for CMHC about the connection between housing and population health takes this view, and calls for better studies and surveys (CMHC 2004)¹⁴. The study on behaviour problems in children mentioned earlier found a clear effect, but it was rather small.

Our study takes not persons or families, but communities as the unit of observation. There are large differences in housing conditions between First Nation and mainstream communities, and these seem large enough to have some effect on the behaviour and outlook of many in the community. These in turn may affect educational outcomes,

¹⁴ The CMHC Research Highlight on Housing and Population Health reflects on the dwelling as a "home" with an important psychological meaning: a place where they alone are able to exercise control, something that can be very important for those who have little control in their work environment and experience stress as a result. In this context, the First Nation community may have important effects as a refuge controlled by its inhabitants, but also as a place that is isolated from the mainstream by dint of different customs, ethnic make-up and a long history of separateness. Any effects of housing quality on behaviour and economic development may well be difficult to discern in this setting.

labour force attachment and earnings, and this with a cumulative effect over a lifetime as suggested by King (2001).

C. A framework for examining local economic development

By way of summary and conclusion of the first part of the paper, we restate the three-pronged framework for analysing economic development at the level of the small community, add the housing dimension, and add recent growth as a fifth factor.

1. Connection to cities

Large cities are the dynamic engine of economic growth. Large cities with specialised production factors and industry clusters that generate new products are where the action is greatest. For small communities, a key factor is the extent to which they can participate in this dynamic environment.

For mainstream communities this is foremost a matter of location, of distance from the larger urban centres. For First Nation communities, however, proximity is not enough, as we have seen. These communities have tended to be isolated from mainstream activity.

2. The economic base of rural and remote communities

The nature of the economic base of the communities, the state of markets for their products, and the competitiveness of the community in those markets are the second important set of factors governing local economic development. Major influences on competitiveness are the quality and state of depletion of the resource in resource-based local economies, the quality of the tourist attractions. The state of world markets determines demand and prices for many products of Canada's rural and remote communities. Other communities may be dependent on the presence of government institutions or the economic success of the surrounding region. First Nation communities may not have an economic base.

3. Local capacity

This concerns the availability and quality of production factors, local infrastructure, the presence of a small business sector, capacity to generate and implement economic development strategies. We should take a very broad approach, and take account of the history of exclusion of First Nations, their lack of economic development in the past, the different traditions and orientation of First Nation people, the different institutions and local government powers, physical and mental health and work experience of the population of working age.

4. Housing

As noted, housing and residential construction are not key factors determining economic development. Residential construction tends to follow rather than lead, and the influence of housing on development is probably not strong. We include housing in this framework to allow housing to find its place in the quantitative analysis in the second part of this paper.

5. Recent growth

Economic development is fundamentally dynamic, with short-term successes and failures, with large shifts over longer periods. Places that have been successful for

decades may fall into decline. We want to avoid looking at economic development of First Nation communities as being given, and explicitly take account of change over time. One would hope to find some success stories.

This framework is quite broad and flexible. It is intended to provide a basis for the quantitative analysis that follows, for the selection of variables and the exploration of relationships between those variables. It is not in the form of a rigorous theory with testable hypothesis, but should be seen as a way of putting some order in a very large set of possible influences.

PART II: Quantitative analysis

D. Preparing to apply the framework

Plan of analysis

We gather many variables that describe the various attributes deemed important to economic success for a large number of First Nation and mainstream communities according to the five-factor framework developed in Part I, and proceed to analyse these data. The sources of data are described in the next section. The availability of data determines to quite a degree what communities we study. This is discussed in the Data section and in a section called “Selection of communities”.

Next, we describe some of the attributes of the First Nation and mainstream communities selected for comparative study. We find some very large differences, both between First Nation communities and mainstream communities, and some differences within each of these groups.

We then apply factor analysis, a well-known data reduction technique. The method identifies linear combinations of the variables that account for a large share of the variance in the variables. We aim to discover factors that we can interpret. By rotating the factors, we seek to find factors that are closely associated with some of the variables and not associated with other variables. In this way, we discover patterns in the data. We examine how these patterns relate to the level of economic development.

Next, we group the communities using cluster analysis. The variables used to form clusters are once again based on our framework for economic development. We describe and interpret the groups and the differences between them. We also relate the resulting clusters to the level of economic development.

The Armstrong/Rogers study of socio-economic conditions in First Nation communities applied factor analysis and cluster analysis successfully in much the same way (Armstrong and Rogers 1996). We follow their example, using a similar approach. This study, however, offers a different perspective, focusing on economic structure and development rather than on wellbeing, and having a set of mainstream communities for comparison.

In a recent study, Alessandro Alasia applies factor analysis with grouping in a different way (Alasia 2004). He finds six factors accounting for 78 per cent of the variance in 27 variables describing socio-economic conditions in Canada’s 288 Census Divisions as of the 1996 census. For each factor, he divides the CDs into seven equal groups based on the sum of factor scores, (the z-scores as discussed in connection with Table 15 below), ranking the seven groups from high to low. He then examines how different types of

CDs¹⁵ are distributed over the seven groups. The author finds considerable diversity within each type of CD, with regions ranking high on some attributes and low on other attributes, and concludes that regional diversity is not one-dimensional. The variables comprise demographic indicators including population growth, education, transfers as a share of income, the unemployment rate, housing characteristics, labour force participation, and the sectoral distribution of employment.

Like the present study, Alasia applies factor analysis and groups geographic units, and he includes many of the same variables. However, this study focuses on selected small communities, where Alasia examines larger geographic units covering all of Canada. Alasia includes 27 socio-economic indicators he considers “commonly used and understood¹⁶”. In this study, variables are selected based on a framework for analysing local economic development. Finally, grouping of regions is not imposed in this study, which instead uses an algorithm (non-hierarchical cluster analysis) to find natural groups in the data, predominantly urban regions, intermediate regions, and rural metro-adjacent regions.

The data

The core data set for this study consists of the Community Profiles of the 2001 census. A community profile consists of 1709 data points drawn from the census questionnaire. Some of the information, such as population by age and gender, reflects responses to the census questionnaire by the entire population, but most of the data are drawn from the long census form that is sent to one in five households.

Profiles are available for Census Subdivisions (CSDs) and various geographic aggregations thereof: Census Divisions, provinces and territories, Canada, Census Metropolitan Areas, Census Agglomerations. In this study, we deal exclusively with CSDs.

A Community Profile is quite a rich data set, but it does have certain limitations:

- It is not possible to make cross-tabulations of the various data, as is possible with the complete census files or with micro data files. For instance, the profile contains average earnings for the population of 15 and over, and population by gender and five-year age group. However, it does not contain average income by age-gender groups and this cannot be calculated from the data included in the profile.
- Statistics Canada does not release information for areas with a population of less than 40.
- Statistics Canada does not release information about income unless the population is at least 250.

There are 1,052 Indian reserves and 28 Indian settlements that are classified as CSDs, and 581 of these have a population of 40 or more, while 317 have a population of at least 250.

¹⁵ 25 predominantly urban regions, 37 intermediate regions, 86 rural metro-adjacent regions, 117 rural non-metro-adjacent regions, and 23 rural northern regions

¹⁶ Alasia (2004), page 3

Non-reserve or mainstream CSDs number 4,503, and of these, 4,263 have a population of 40 or more and 3,711 have a population of 250 or more.¹⁷

In order to include measures of population and economic growth we have added the 1996 community profiles to this core data set. The 1996 Census Community Profiles differ from their 2001 counterparts both in content and in geographic detail:

- Statistics Canada changes the content of community profiles from census to census. For instance, the 1996 profiles include nearly 300 variables describing ethnic origin that are completely absent from the 2001 profiles which instead give more information about mother tongue and other language items. However, most of the variables describing population, family and household structure, housing conditions, employment, earnings and incomes are present in the profiles of both censuses.
- Statistics Canada's geographic areas are based on municipal and other political boundaries, and these boundaries change quite frequently. The municipal amalgamations in Ontario have reduced the number of urban CSDs considerably: the new large city of Ottawa combines 11 former CSDs into a single CSD. In British Columbia, many CSDs have been rearranged because of municipal restructuring. Other provinces have seen fewer changes during the 1996-2001 period.

Boundary changes may affect the population of the CSD, in which case growth rates calculated over unadjusted data are not meaningful. To exclude these CSDs as well as CSDs that were newly created, we have limited our analysis to CSDs that had the same geographic code in 1996 as in 2001 and had the same population in 1996 even if the boundary of the CSD changed¹⁸.

The 1996 profiles are subject to the same release constraints as the 2001 profiles. In order to arrive at a complete set of 1996 variables and change variables, we excluded CSDs for which income data were not released for the year 1996. These CSDs had a population of less than 250 in 1996.

We have also added the 2001 Business Register to the database. We selected employment by industry at the four-digit level, i.e. for 85 manufacturing and 242 non-manufacturing sectors. The Business Register is a comprehensive list of businesses, individuals and institutions engaged in production activities. It pulls together corporate tax filers, employers filing for payroll deductions, and the GST register, i.e. a list of businesses and individuals with \$30,000 or more in annual sales subject to GST.

¹⁷ The 1080 Indian reserves and settlements are populated or potentially populated Indian territories, a subset of 2,800 Indian reserves across Canada. This large number of units is a result of historic treaties and land grants, subsequent alienation of reserve land by the government, and modern land claim settlements. Mainstream territories defined by political (municipal, county etc) boundaries are not as fragmented as Indian reserves, and their number is therefore much smaller in relation to the population than the number of Indian reserves.

¹⁸ The geographic code number of each CSD is included with both the 1996 and the 2001 Census Community Profiles Data used in this study. As well, the 2001 data include the 1996 CSD population based on 2001 boundaries. We selected CSDs that have the same geographic code number in 1996 and 2001, and for which the 1996 population according to the 2001 profiles is equal to the 1996 population as per the 1996 profiles.

The Business Register gives a positive number for employment in 4023 CSDs, out of 5600 CSDs of which 4844 have a population of 40 or more. Of 1093 reserve CSDs, 294 have employment located on reserve. Of the 581 populated reserves, 263 have some employment, and of the 317 with a population of 250 or more, 196 have some employment within their boundaries and 121 do not. For mainstream areas, the numbers are 3,714 CSDs with employment among 4503 CSDs, and 3,286 out of 3,711 CSDs with a population of 250 or more.

The fourth and final component of the database for this study is taken from the First Nations Profile Data Base of Indian and Northern Affairs Canada (INAC). It has two elements:

- A correspondence between reserve territories (CSDs) and First Nations, the latter being political entities.
- The on- and off-reserve population of status Indians for each First Nation.

Selection of communities for comparative analysis

As noted above in the section describing the database for this study, there are 317 reserve CSDs and 3711 mainstream CSDs with a population of 250 or more in 2001. These sets are reduced to 267 and 3005 respectively by excluding CSDs that have no 1996 counterpart with a population unaffected by boundary changes.

We intend to include all 267 First Nation communities in the comparative analysis, and select the same number of mainstream communities, matched one-to-one to First Nation communities based on proximity and similarity in population size. Proximity is determined based on the CSD code, with communities in the same CD being treated as being closest together. To determine similarity in population, we have defined five size ranges, and we try to find a community that is in the same size range as the First Nation community. If we cannot find any community that is close and is in the same population size range, we relax one or the other selection criterion until we find such a community.

The population size ranges and the number of First Nation and mainstream communities in each size range are given in Table 1.

Table 1: Number of CSDs by population size range

Population size	First Nation	Mainstream
2500 and over	8	794
1000-2499	51	768
750-999	35	344
500-749	77	457
250-499	96	642
Total	267	3005

The CSD code for the City of Ottawa is 3506014. The first two digits (35) of the code stand for the province the CSD is located in - Ontario. The next two digits (06) represent

the CD that the CSD belongs to - the Ottawa-Carleton Regional Municipality, Census Division number 6. Finally, the last 3 digits (014) represent the actual Census Sub Division identifier. The Census Division and Census Subdivision (CSD) codes typically follow an east to west pattern in horizontal bands across each province.

Mainstream communities were selected to match each individual First Nation community as follows:

1. A mainstream CSD within the same CD and with the same first CSD identifier digit as the First Nation community. As well, the CSD must have a population within the same population size range as the first Nation community. In the event of more than one such community, the one with the population size closest to the reserve was taken. In the case of reserves with a population of more than 2500, the population of the mainstream CSD was restricted to be within 2000 persons from the reserve CSD's population. In this step, 35 mainstream communities were selected.
2. A mainstream CSD within the same CD and with the same first CSD identifier digit as the First Nation community. The population is in a different size range but is larger or smaller by no more than 350 persons. In the event of more than one such CSD, the one with the closest population to the first Nation community was selected. In this step, 5 mainstream CSDs were selected.
3. A mainstream CSD within the same CD and within the same population size range as the First Nation community. In the event of more than one such CSD, the one with the population size closest to the population of the First Nation community was selected. In this step, 62 mainstream CSDs were selected.
4. A mainstream CSD within the same CD and with a different population size range but with a population that is larger or smaller by no more than 350. In the event of more than one such CSD, the one with the closest population to the First Nation community was selected. In this step, 4 mainstream CSDs were selected.
5. Maintaining the population criterion established in the previous step, we then selected mainstream communities in other CDs, starting with CD codes that differ by one from the CD code of the First Nation community, then by 2, and so on. If no community could be found in the same province, a community in an adjacent province or territory was selected. If more than one mainstream CSD met the selection criteria, the one nearest in population size was selected. In this step, all remaining 161 mainstream CSDs were selected.

The population size ranges of the selected communities are given in Table 2. The two distributions are quite similar, due to the rules for population size for mainstream communities, including the rule that the largest mainstream communities could not exceed the size of their counterparts by more than 2000.

Table 2: Selected communities by population size range

Population size	First Nation	Mainstream	First Nation share
2500 and over	8	8	50%
1000-2499	51	59	46%
750-999	35	36	49%
500-749	77	73	51%
250-499	96	91	51%
Total	267	267	50%

In terms of total population, our two samples are quite similar, as we would expect (Table 3). On average, mainstream communities are larger than their counterparts in the highest population size range, and smaller in the other size ranges except the very smallest.

Table 3: Populations of selected communities

Population size	First Nation		Mainstream		First Nation share
	Total	Average	Total	Average	of Total
2500 and over	26,911	3,364	30,248	3,781	47%
1000-2499	76,602	1,502	83,983	1,423	48%
750-999	30,484	871	31,132	865	49%
500-749	46,994	610	43,455	595	52%
250-499	35,831	373	34,344	377	51%
Total	216,822	812	223,162	836	49%

The geographic distribution of the two samples is given in Table 4. Where matched communities are not in the same province (mainly in British Columbia, Nova Scotia, New Brunswick, and the Territories), the communities are small, with populations of less than 500. Northern British Columbia, for example, had an abundance of first Nation communities with populations of 250-499, but very few mainstream communities with populations of the same size. As a result, mainstream communities in the Territories and in Alberta were selected as counterparts to the First Nation communities in northern B.C.

Table 4: Count of CSDs by Province

Province	First Nation	Mainstream
Newfoundland and Labrador	1	1
Nova Scotia	9	4
New Brunswick	6	11
Quebec	26	26
Ontario	31	29
Manitoba	50	52
Saskatchewan	59	59
Alberta	34	39
British Columbia	50	32
Yukon	0	8
Northwest Territories	1	6
Total	267	267

Finally, during the factor analysis we found that some of the data were not available for all CSDs, and we had to drop 28 First Nation and 16 mainstream CSDs from the sample. Most of these communities are small, and this is why complete data were not available. The remainder of the study deals with the reduced samples of 239 First Nation and 251 comparable mainstream CSDs.

First Nations and First Nation communities

The First Nation community in the sense this term is used in this paper is a single geographic area that has Indian reserve status. In many ways, it is not the ideal community for analysis. We would have preferred to use a First Nation, i.e., the smallest political unit in which status Indians organise themselves, as the analytical unit for our study. Governance, which in First Nations is far more extensive than in small mainstream communities, exists at the First Nation level, and the sense of identity and community is at that level rather than at the level of the individual reserve territory.

While initially using CSDs as the individual unit for this study, we have attempted to construct data at the First Nation level but in the end were frustrated in this for lack of data availability. Using the First Nations Profile Data Base of Indian and Northern Affairs Canada (INAC), we found that of the 581 reserve territories with a population of 40 or more, 189 are not the single populated territory of a First Nation, but one of two or more such territories. Of the 317 reserve CSDs with a population of 250 or more, 48 are not the only such territory of a First Nation. These 48 CSDs belong to 20 First Nations. Further, data for 1996 were not available for a number of the 48 CSDs being part of First Nations, so that for only 12 First Nations comprising 26 reserve communities with a population of 250 or more our database includes all necessary information. This is very different from the 189 reserves that are part of First Nations with more than a single populated territory.

There seems little point in combining a handful of the 239 First Nation communities into First Nations. It is unlikely to lead to substantially different results, also because the

database holds little or no information about the way in which communities are organised. We have therefore abandoned this quest and limited the study to First Nation communities, i.e., individual CSDs, as the unit of observation.

The aboriginal share of the population

Not all residents of Indian reserves are status Indians, and some non-reserve communities are dominated by aboriginal people, whether status Indians, non-status Indians, Metis or Inuit.

Among the 251 in our sample, there are 18 non-reserve communities whose population is overwhelmingly (90 per cent or more) aboriginal. Six of these communities are in the Nunavik region of northern Quebec, and they are almost entirely Inuit. Another six are in northern Saskatchewan, and four of these are predominantly Metis. More than 90 per cent of the population of the other two consists of First Nation people. One community in northern Alberta also consists almost entirely of First Nation people. The remaining five communities are in the Northwest Territories, and in four of these First Nation people make up the majority, while in two they account for more than 90 per cent.

Should some of these communities be classified as First Nation communities? Reserves are virtually unknown in the territories¹⁹, yet some of the communities are clearly overwhelmingly First Nation communities that resemble reserves in many ways. The three communities in the northern prairies with First Nation populations may also be reserves in all but name.

One may also wonder whether other predominantly aboriginal communities should be classified with the reserves. The Inuit have access to some of the same federal benefits status Indians enjoy, such as Non-Insured Health Benefits. Paulatuk, an Inuit community in the Northwest Territories included in the sample, is party to the Inuvialuit land claim agreement, and the Inuit communities in northern Quebec are party to the James Bay land claim agreement.

This question of classification would be important if communities are considered individually, or in a study that focuses on institutional matters. This study does neither, in part because of data limitations. Accordingly, we will not reconsider the classification of communities but take account of the aboriginal share of the population of mainstream communities.

The sample for this study also includes the opposite situation. Among the 239 on-reserve communities, there are 15 with a non-Aboriginal majority. These are all in British Columbia, and 13 of the 15 are part of a metropolitan or urban area. They are bedroom communities for the non-Aboriginal urban population. In this case, too, we have not reclassified the communities. Being landlords to non-aboriginal people may be seen as an economic base for the First Nation people of the community. We cannot really examine this, however, since the community data pertain to all residents, not just the First Nation

¹⁹ There are four reserves in the Yukon, and two in the Northwest Territories.

people. As with mainstream communities that are predominantly aboriginal, we will use the aboriginal share of the population as a way of identifying these communities in the analysis.

E. The level of economic development

Earnings and employment

As discussed in Part I, a good measure of economic development is earnings per employed person of 15 years and over. We can analyse the level of economic development by focusing on average earnings from employment per person of working age and examining how the earnings are generated. In a first pass, we compare the employment ratio – the level of employment relative to the population of working age – and the level of earnings per employed worker. We take this a step further by considering full-time full-year employment and the earnings of these workers, and the earnings of those who work part-time or part-year.

For the communities in the two samples, average earnings from employment during the year 2000 per person of 15 years or over in First Nation communities are a little more than one-half of the average for the mainstream communities (Table 5). The gap is very large indeed. Behind this gap lies a larger difference in the level of earnings than in employment. The employment ratio in the selected First Nation communities is 78 per cent of that of the mainstream communities, while the ratio of earnings per worker is 71 per cent.

When we consider employment not over an entire year, but at a given point in time (the week before the census), we see a larger difference²⁰. Employment in First Nation communities is two-thirds (66%) of that in mainstream communities. Thus, employment in First Nation communities is more short-term than in mainstream communities. This is also borne out by the fact that the share of jobs in 2000 that were full-time and full-year jobs is smaller in First Nation than in mainstream communities (Table 5).

Table 5: Earnings and employment

CSDs with complete data	First Nation	Mainstream	Ratio
Number of communities	239	251	
Earnings from employment per person of 15 and over	\$ 9,000	\$ 16,300	55%
Earnings per employed person	\$ 17,200	\$ 24,100	71%
Employment ratio (year before census)	52%	67%	78%
Employment ratio (week before census)	37%	57%	66%
Share of jobs that is full time, full year	39%	47%	82%
Earnings in full time full year jobs	\$ 27,700	\$ 34,800	80%
Earnings in part-time or part year jobs	\$ 11,600	\$ 16,500	70%

Earnings amounts rounded to nearest one hundred dollars.

This brief and global analysis gives us a valuable insight into differences in economic development. Let us take the level of employment to be a reflection primarily of the availability of jobs or of economic opportunity, and the rate of pay a reflection of the

²⁰ In the factor and cluster analysis the employment ratio for the week is used.

quality of jobs, reflecting both economic opportunity and capacity (education and work experience). Interpreted in this way, the values reported in Table 7 suggest that difference in opportunity is a more important cause of the very large economic disparities between First Nation and mainstream communities than difference in capacity.

Three levels of economic development

We now turn our attention from the average to the distribution of employment earnings. Although First Nation communities on average have a much lower level of economic development than mainstream communities, this may not be true for all First Nation communities. Conversely, some of the mainstream communities may have a low level of development. If we group communities according to level of economic development, we may learn something from the way both types of communities are grouped.

The large majority of First Nation communities have average income in the range of \$4,000 to \$10,000, while mainstream communities for the most part have incomes between \$10,000 and \$20,000 (Figure 1 and Table 6). Hence, we have selected \$10,000 and \$20,000 in average income from employment as boundaries for development levels.

Figure 1: Average employment earnings, by type of community

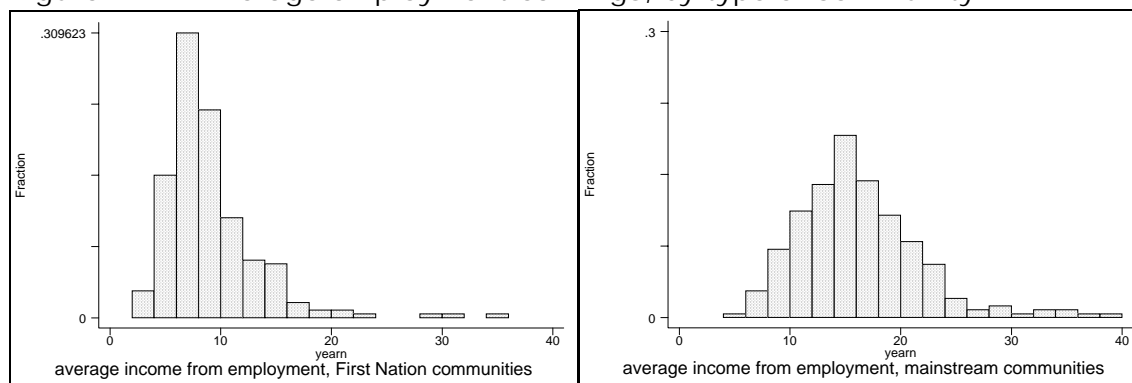


Table 6: Three levels of economic development

CSDs with complete data	First Nation	Mainstream
Less than \$10,000	172	26
\$10,000 to \$20,000	61	174
More than \$20,000	6	51
	239	251

F. Comparing the local economies

In this section we compare the First Nation and mainstream communities selected for analysis, using the five-factor framework proposed in Part I in a selective way. First, we describe the population, its growth and recent migration. We then consider the connection of the local economies to cities and the surrounding region, and finally housing. The employment ratio has been examined in the previous section. Industrial structure and educational attainment are not reviewed here, but in subsequent sections.

Population size and growth

Population size and growth, for CSDs for which the census profiles contain the necessary data, are given in Table 7. While average population is much larger in the mainstream CSDs because cities are included, population growth is much higher on reserves. This reflects the higher birth rate as well, in the first half of the 1990s, a large inflow of persons who obtained Indian status because of Bill C-31.

As regards the samples of CSDs, the sample of First Nation territories has a larger population than reserves in general, and similar rates of population growth. The larger size, of course, is a result of exclusion of reserves with populations of less than 250.

Table 7: Population size and growth

CSDs with complete data	First Nation		Mainstream	
	1996	2001	1996	2001
All populated CSDs	456		3761	
Average population	476	515	5,792	6,039
Population growth last 5 years	22.5%	8.1%	5.6%	4.3%
Study sample	239		251	
Average population	753	815	829	800
Population growth last 5 years	23.7%	8.3%	0.6%	-3.6%

The sample of mainstream CSDs differs not just in terms of average population – which we chose to be similar to the population of reserves in the sample – but also in population growth rates. Clearly, the mainstream CSDs in the sample are small and more rural and remote than the average CSD, and the low and negative rates of population growth for the CSDs in the sample reflect the increasing concentration of the population in urban areas.

The difference in population growth rates points to a profound difference between reserves and mainstream CSDs with similar population size and location. In First Nation CSDs, population growth seems to be primarily a function of non-economic factors. Changes in the population of mainstream CSDs are governed mostly by economic opportunities in those communities and elsewhere. The gap in population growth provides a measure of the economic development challenge facing reserves.

Stability of population

Over five-year periods, First Nation people on reserve do not move in and out of their communities as much as other Canadians, and of those who do move to the community, a larger share came from within the same province (Table 8).

Table 8: Migration

CSDs with data	First Nation		Mainstream	
	1996	2001	1996	2001
All populated CSDs	456		3761	
Outmigration less natural change*	11%	17%	22%	22%
Inmigration	17%	14%	20%	20%
from same province	78%	80%	67%	69%
from outside province	19%	15%	17%	17%
from other countries	3%	4%	15%	15%
Study sample	239		251	
Outmigration less natural change*	9%	16%	27%	29%
Inmigration	15%	12%	21%	20%
from same province	78%	80%	67%	72%
from outside province	18%	14%	17%	24%
from other countries	4%	5%	15%	4%

* Calculated as one less the ratio of the population excluding in-migrants to the population five years previous. Natural change means births less deaths.

In mainstream CSDs, including those in the study sample, about one-fifth of the population moved into the CSD from elsewhere in the previous five years. About two-thirds came from the same province, and the remainder came from other provinces and from other countries. Few immigrants move to the sample communities, as they tend to live in large cities.

The rate of in-migration is not as high on reserves, and it was lower in the second half than in the first half of the 1990s. The higher rate in the early 1990s may reflect the effect of Bill C-31. Bill C-31 resulted in the reinstatement of Indian status of more than 100,000 persons over a number of years starting in the late 1980s. Many of these also obtained membership in First Nations and a number chose to live in First Nation communities.

We cannot separate natural growth of the population from out-migration. Out-migration less natural growth seems somewhat greater than in-migration, but this is mainly because we calculate the rate as share of the lower population counts of the census five years earlier. We see, however, that the communities selected in our sample have a higher rate of out-migration than all CSDs on average, and this reflects migration to the cities. There appears to be less out-migration from reserves than from mainstream CSDs, but the difference also reflects differences in natural growth of the population.

In short, people living on reserves probably move in and out of these communities somewhat less than the average Canadian does. This may be a mark of less opportunity

on reserve as well as in the cities. It may also point to greater attachment to the community on the part of First Nation people.

We have also examined migration during the twelve months preceding the census, and find that mainstream and reserve communities are quite alike in this regard. The one-year migration statistics do not capture, and perhaps cannot capture, short-term seasonal movement of First Nation people between reserves and urban areas for the sake of employment and family contacts, which is thought to be quite common.

Connection to cities

In Part I, we stressed the importance of the regional economy for local economic development, and in particular the integration of communities with nearby urban centres. This is measured by an indicator called “Metropolitan area and census agglomeration Influenced Zones (MIZ)”. This indicator characterises CSDs by their economic ties to Census Metropolitan Areas (CMAs, urban cores with a population of 100,000 or more) and Census Agglomerations (CAs, urban core with population of 10,000 to 100,000). A code of 1 indicates that the CSD is part of a metropolitan centre. Higher codes pertain to smaller urban centres (2-3), through to CSDs with close economic links to urban centres (4-5), all the way out to very remote communities (6-7) and communities in the territories (8).

Table 9: Communities by MIZ code and type of community

Location / Influence	First Nation		Mainstream	
	Number	Share	Number	Share
CMA	14	6%	12	5%
Tracted CA	8	3%	1	0%
Non-tracted CA	20	8%	9	4%
Strongly influenced zone	7	3%	24	10%
Moderately Influenced zone	45	19%	60	24%
Weakly influenced zone	70	29%	84	33%
Not influenced zone	74	31%	49	20%
Territories	1	0%	12	5%
Total	239	100%	251	100%

We find that despite selection of mainstream communities based on close proximity to selected reserves, their connection to urban areas is different (Table 9, left panel).

Reserves are relatively concentrated in two groups: part of urban centres, and remote "uninfluenced" zones. Non-reserves are more likely to fall into the in-between range of strongly, moderately or weakly influenced. The codes are based on data about commuting. Hence, they are measures of economic integration, not just of geographic proximity. Higher codes for reserve communities indicate less employment by residents of the community in nearby urban centres.

Employment inside and outside the community

Perhaps the most striking differences between the two sets of communities are found in whether people are employed inside or outside the CSD. We compare two measures:

- The share of employed people residing in the community whose place of employment is outside the community;
- The number of jobs located in the community, from the Business Register, compared to the population of 15 and over living in the community. Note that those who work in the community do not necessarily live there.

Table 10: Employment inside and outside the community

Location / Influence	Number of communities		Share employed outside CSD		Employment inside CSD as share of pop 15 and over	
	A	B	A	B	A	B
1 CMA	14	12	0.50	0.67	0.36	0.64
2 Tracted CA	8	1	0.54	0.20	0.59	0.48
3 Non-tracted CA	20	9	0.34	0.62	0.35	0.44
4 Strongly influenced zone	7	24	0.27	0.59	0.66	0.44
5 Moderately Influenced zone	45	60	0.24	0.35	0.07	0.67
6 Weakly influenced zone	70	84	0.17	0.25	0.23	0.71
7 Not influenced zone	74	49	0.14	0.27	0.15	0.64
8 Territories	1	12	0.39	0.07	1.35	0.54
Total	239	251	0.23	0.33	0.22	0.64
A: First Nation lands B: Mainstream CSDs						

People on reserve who are employed are less likely to work outside their community than those in comparable mainstream communities (Table 10). Less than one-quarter of reserve residents work off reserve, while one-third of people in comparable mainstream communities commute to another CSD.

This is true in spite of the fact that there are far fewer jobs on reserve in comparison to the number of persons of working age who live there than is the case in comparable mainstream communities. The differences between First Nation CSDs and their mainstream counterparts with respect to this second indicator are even more striking. On reserve, there is less than one job for four residents of working age; while in comparable mainstream communities there are nearly two jobs for every three residents of working age.

Table 10 also gives the indicators for communities subdivided by their relationship to large urban areas. It is clear that the large differences between reserves and mainstream communities are always present (except for single communities). We have come across a difference that is universal and does not reflect differences in contact with large urban areas.

However, we are pushing the limits of the data. Recall that Statistics Canada does not measure informal activity and that businesses and self-employed persons with taxable sales of less than \$30,000 do not register for GST and hence are not included. Communities in both samples probably have a number of people who make a living in

ways that do not meet Statistics Canada's rules for inclusion, and the number is probably substantially greater in First Nation communities, which biases the comparison.

Housing

The stock of housing kept pace with population growth on reserve during the second half of the 1990s (Table 11). However, the state of repair of housing on reserve deteriorated²¹. The number of persons per room is more than 50 per cent larger in First Nation than in mainstream communities. This difference does not only reflect the larger number of children in households on reserve, but also more adults per room.

Table 11: Housing characteristics

CSDs with data	First Nation		Mainstream	
	1996	2001	1996	2001
All populated CSDs	456		3761	
Dwellings: number	127	145	2,178	2,336
change		14%		7%
share requiring major repairs	31%	33%	8%	8%
Average number of rooms	5.4	5.5	6.2	6.3
Persons per room	0.69	0.64	0.43	0.40
Study sample	239		251	
Dwellings: number	195	223	302	305
change		14%		1%
share requiring major repairs	31%	34%	13%	13%
Average number of rooms	5.4	5.5	6.2	6.4
Persons per room	0.70	0.64	0.43	0.40

Change in number of dwellings, share requiring repairs, average number of rooms and persons per room based on weighted averages

The average number of rooms increased, and the number of persons per room declined, both on reserve and off, and in all CSDs as well as in the samples. The sample of reserves closely resembles the universe of populated reserves for which we have data. The sample of mainstream communities is quite different from the corresponding universe with regard to size, growth and state of repair of the housing stock, but similar with respect to the number of rooms per dwelling unit and the number of persons per room.

²¹ Included are only those CSDs for which all data referred to in this paragraph were available both in 1996 and in 2001. Between 1996 and 2001, the share of dwellings in the 484 reserve communities in the table that was home to more than one family almost doubled from 4.7% to 8.9%. This, however, reflects changes in the definition of families introduced by Statistics Canada with the 2001 census that had the effect of increasing the number of families in the country by about 5 per cent. The occupant of the home who fills out the census questionnaire subjectively assesses the need for major repairs; changes over time may reflect changes in people's perceptions.

G. Finding patterns of variation using factor analysis

We now apply factor analysis to a large set of variables describing the economies of the communities. Once again, we use the framework for local economic development as a basis for selecting and organising variables. This gives us six sets of variables, starting with **reporting variables**. The central variable here is the level of economic development, measured by earnings from employment averaged over the entire population of 15 years and over (yearn). Also included is the change in average earnings from employment since the previous census (yecha) and the aboriginal share of the population (aborsha). These two variables are not part of the five-factor framework, yet they are of considerable interest. We do want to include them in factor analysis to explore how they are related to framework variables.

Next, we have variables representing the five factors of our framework for local economic development:

1. **Connectedness.** This is the first of the factors in our framework, represented by two variables: the relationship to cities (zsac)²², and the share of jobs of residents of the community that are located outside the community (excsd).
2. **The economic base.** Two dimensions of the economic base are depicted: the number and types of jobs, and industrial structure. The number and types of jobs are represented by the employment ratio (employr: the number of jobs divided by the population of 15 and over), the share of workers that are self-employed (selfemp) and the number of part-time jobs as a share of the number of jobs. Industrial structure is measured by the Herfindahl index of industrial diversity (herfind); an index of dominant industries (cdominant); the shares of jobs that are in the primary, public and tourism sectors (primsha, pubsha and toursha); and the share of construction trades among occupations (cowsha). This last variable might also be classified as a housing variable.
3. **Capacity.** Three aspects of local capacity are depicted: population structure, opportunity and dependency, and education. Population structure is described by: average number of children per family (avenrchi), children, youths and seniors as a share of the population (childsha, youthsha, oldsha), census families with children as a share of all census families (famchisha), the share of the adult population that is married (marrshare), single-parent families as a share of all families (loneparsha). The female participation rate (fempart) and transfer payment income as a share of total income (inctrasha) are included as measures of economic opportunity and dependency. Education is represented by three measures: an index of educational attainment, based on the distribution of level of education weighted by average

²² The variable “connection to cities” (zsac) is a categorical and ordinal variable; the higher the value, the weaker the connection to cities. The value is not a scale, however, and the variable is not continuous. In factor analysis. In cluster analysis, the variable is treated as a continuous variable.

earnings for each level (educat), the share of people without a high school diploma (lowed), and average years of schooling (schoyrave)

4. **Housing.** We have selected recently constructed dwellings as a share of the stock (honest), the average age of the stock (agehouse), the need for major repairs (housest), the growth rate of the housing stock of the five years since the previous census (dwelcha), the number of persons per room (crowdi), and band housing as a share of the stock (bandshare).
5. **Growth.** Here we have the change in the population over the past five years (popcha), the change in the adult population (aducha), the share of the population that moved into the community in the past year (migrants1) and in the past five years (migra5), and the change in the employment ratio (eratcha).

We find that six factors with eigenvalues in excess of unity account for nearly 90 per cent of the variance in this set of variables (Table 12). The first factor explains more than one-half of the variance. It relates very strongly to the age and family structure of the population, crowding and the quality of the housing stock, and to the aboriginal share of the population. This factor captures the very large differences between First Nation communities and other aboriginal communities on the one hand and mainstream communities on the other in demographic make-up and housing characteristics. The factor is also associated with the incidence of self-employment and the size of the public sector. Interestingly, the association with earned income is not very strong.

Table 12: Results of factor analysis on entire sample of communities

Factor	Eigenvalue	Difference	Proportion	Cumulative
1	13.9	10.5	52.3%	52.3%
2	3.4	1.0	12.7%	65.0%
3	2.3	0.5	8.8%	73.7%
4	1.8	0.6	6.8%	80.6%
5	1.2	0.2	4.7%	85.2%
6	1.1	0.1	4.0%	89.2%
7	0.9	0.2	3.5%	92.7%
8	0.7	0.1	2.7%	95.4%
9	0.6	0.1	2.2%	97.6%
10	0.4	0.0	1.7%	99.2%

The second, third and fifth factors represent the economic base and capacity.

- The second factor, accounting for 13 per cent of the variation, primarily reflects differences in educational attainment, as measured by the three education variables. It also reflects job availability: the employment ratio, the female participation rate, income transfers as a share of income.
- The third factor, accounting for 9 per cent of the variation, even more strongly captures job availability, with high factor loadings for the employment ratio, the female participation rate and income transfers as a share of income. Earnings from employment and educational attainment also are strongly associated with this factor.

Secondary elements are the incidence of self-employment and primary sector jobs, a small size of the public sector, few lone parents.

Table 13: Factor coefficients and uniqueness

Variable	1	2	3	4	5	6	Uniqueness
Proportion (89.2%)	0.52	0.13	0.09	0.07	0.05	0.04	
Reporting Var.							
yearn	-0.26	0.43	0.69	0.03	-0.16	0.12	0.23
yecha	0.07	0.03	0.05	0.20	-0.10	-0.07	0.94
aborsha	0.86	-0.12	-0.37	0.13	0.06	-0.09	0.08
Connectedness							
zsac	0.23	-0.38	0.08	-0.23	0.19	0.11	0.69
excsd	-0.39	0.33	0.01	0.14	-0.19	-0.09	0.67
Economic Base							
employr	-0.33	0.36	0.81	-0.06	0.06	0.06	0.09
selfemp	-0.60	0.03	0.42	-0.10	0.25	-0.14	0.37
parttime	0.34	-0.12	-0.41	-0.08	-0.12	0.11	0.67
herfind	0.11	-0.18	0.05	-0.04	0.81	-0.08	0.29
cdominant	0.38	0.04	-0.31	0.07	0.56	0.15	0.42
primsha	-0.32	-0.22	0.47	-0.17	0.36	-0.28	0.39
cowsha	0.31	0.04	-0.25	0.09	-0.02	-0.02	0.83
toursha	-0.18	0.19	0.06	-0.06	-0.11	0.41	0.74
pubsha	0.65	0.05	-0.45	0.13	0.37	-0.03	0.21
Capacity							
avenrchi	0.85	-0.35	-0.14	0.12	0.07	-0.12	0.10
childsha	0.86	-0.28	-0.16	0.14	0.06	-0.08	0.13
youthsha	0.72	-0.23	0.02	0.04	0.14	0.11	0.40
oldsha	-0.87	-0.01	-0.23	-0.10	-0.01	0.02	0.19
famchisha	0.90	-0.18	-0.10	0.06	-0.01	-0.14	0.12
marrshare	-0.72	0.07	0.39	-0.03	0.01	-0.15	0.30
loneparsha	0.53	0.01	-0.50	0.02	-0.07	0.10	0.46
fempart	-0.01	0.46	0.72	-0.07	0.07	0.05	0.26
intrasha	0.30	-0.43	-0.73	0.03	0.14	-0.10	0.16
educat	-0.44	0.75	0.24	0.00	-0.05	0.09	0.18
schoyrave	-0.23	0.86	0.27	-0.04	-0.05	0.12	0.11
lowed	0.17	-0.89	-0.23	0.04	0.07	-0.09	0.11
Housing							
honestsha	0.60	-0.02	-0.26	0.48	0.05	-0.08	0.33
agehouse	-0.71	-0.03	0.30	-0.33	-0.03	0.04	0.29
housest	0.67	-0.30	-0.25	-0.05	0.12	-0.08	0.38
dwelcha	0.26	-0.01	-0.07	0.86	-0.04	-0.02	0.18
crowdi	0.75	-0.42	-0.22	0.21	0.04	-0.06	0.16
bandshare	0.69	-0.24	-0.38	0.21	0.13	-0.05	0.26
Growth							
popcha	0.14	-0.01	0.03	0.53	0.10	0.10	0.68
aducha	0.22	-0.08	-0.01	0.87	-0.01	0.03	0.19
migrants1	-0.12	0.18	0.10	-0.04	0.01	0.69	0.46
migra5	-0.33	0.29	0.10	0.08	-0.07	0.68	0.33
eratcha	-0.03	0.05	0.03	0.13	-0.11	-0.04	0.97

- The fifth factor, accounting for five per cent of the variation, represents specialised industrial structure. The Herfindahl index and the indicator of dominant industries have high loadings, and both the primary sector share of employment and the public

sector share have moderate loadings. The variable average earnings from employment has a small and negative coefficient, which indicates that this type of specialisation is not a measure of economic success.

The fourth factor, accounting for seven per cent of the variation, represents growth, with high loadings for growth in the number of dwellings (and thus in the number of households), and in the adult population. The many low factor loadings indicate that recent growth is not associated with connectedness, the economic base or capacity as represented by the selected variables.

The sixth and final factor represents in-migration over the past one and five years. Again, the factor loadings for the other variables are generally very low, so the rate of in-migration does not seem to be connected to economic development and recent growth.

It is important to note that the factors and their significance depend on the selection of variables. For instance, the first factor accounts for such a large part of the variance in the data set in part because that set includes a number of variables that describe age and family structure. With fewer variables of that kind, the factor would have been less important, and at some point might have ceded its role as the most important contributor to common variation among the variables to some other factor.

While the reduction of the large number of variables to a limited set of factors is the main purpose of the analysis, examining the extent to which each variable is related to the factors is also of interest. The last column of Table 13 gives the uniqueness of each variable, i.e., the extent to which the variable is not participating in the six factors that jointly explain almost 90 per cent of the variation in the variables. Remarkably, the growth of earnings from employment, and growth of the employment ratio are not at all captured by the six factors. This means that these variables have their own distribution of values across the 490 communities, distributions that are quite different from those of most other variables. The two measures of connectedness also appear to have little in common with other variables.

When we apply the same method separately to the First Nation and mainstream communities, we get very different results (not shown). This is to be expected, as the large differences in economic development, population structure and connectedness are removed by separating the communities.

However, we do find that for First Nation communities, the first factor is similar to the first factor of the combined communities. It has high loadings for aboriginal share of the population, age and family structure, and moderately high loadings for housing quality, crowding and the bandshare of housing. Educational attainment and the two connectedness variables also have moderately high loadings. This factor accounts for 41 per cent of the variance among First Nation communities. This indicates that there are differences in population structure among First Nations that are associated with housing quality and isolation.

For mainstream communities the first factor is also more or less the same factor, but with a weaker association with openness. This factor accounts for 30 per cent of the variance in the data for mainstream communities.

To conclude this section, let us recall that the variation in the selected variables is dominated by a combination of population structure and housing variables that is not very closely associated with the level of earnings from employment, but very much with aboriginality. This pattern is not central to the differences in economic development, and we will reduce the number of population and housing variables in the cluster analysis to focus more on economic structure, opportunity and capacity.

H. Grouping communities by five factors of economic development

We now report on cluster analysis performed on the communities in the two samples. We take First Nation and mainstream communities together, as we aim to find similarities as well as differences between the two groups. If we find that most clusters contain both types of communities in equal numbers, then there are greater differences within the two groups than between them. We have already seen that there are very large differences between the two sets of communities, so we would expect to find some groups that consist primarily of First Nation communities and other groups consisting mainly of mainstream communities. We hope to learn something of interest from the combinations that we find.

In clustering, the communities are sorted into groups based on their similarity. Communities are similar if the values of the variables are similar. If we clustered on a single variable, the clustering algorithm would find the largest breaks in the range of values for that variable, and take these breaks as boundaries of clusters. Clustering focuses on the distance of a value of a variable from its mean. As we do not want the clusters to be defined by just one or two variables, we have ensured that all clustering variables are similar in scale, or more precisely, that they have a similar standard deviation. Thus, shares and growth rates and the Herfindahl index are expressed as fractions, not percentages. The values 1 to 8 of the variable describing connection to cities were divided by 10 to obtain a standard deviation of 0.16. This value falls within the range of standard deviations of all clustering variables, which is from .07 to .24²³. In the factor analysis, we used variables in the form in which they appear in the cluster analysis. This was not strictly necessary, as factor analysis is not sensitive to scaling. However, this was done to simplify exposition.

One could also normalise all variables to ensure that any single variable does not unduly dominate the grouping process, but we preferred to keep the variables in their original form for ease of interpretation. We have, however, chosen the number of variables for each of the five factors in order to achieve a certain balance. First, we have excluded many variables describing capacity since we do not want the clusters to be dominated by socio-economic disparities, as we are interested in economic structure and development. This leaves us with more variables describing the economic base than variables for the other factors. To arrive at a balanced set, we included both measures of connectedness and two measures of education, a comprehensive one that uses average earnings by level of education as weights (educat), and the share of persons without a high school diploma (lowed). By contrast, as we do not think that housing has a major influence on economic development, we have only one housing variable, the number of persons per room (crowdi).

Note that we have not included among the variables for determining clusters the level of average employment earnings (yearn), the change in average employment earnings (yecha), and the aboriginal share of the population (aborsha). The first two are outcomes that we are interested in: the level of economic development and the change in that level

²³ Recall the caution stated in footnote 22 that the variable zsac is a categorical, not a continuous variable.

over the past five years. If we include these variables in the grouping process, they will play a role in determining the clusters in the same way as the other variables. It is of more interest, in our view, to form groups based on variables describing the five factors, and then to examine the level of economic development and recent growth for each cluster. Given our interest in the level of economic development, we will order the clusters by average level of earnings from employment in the presentation of the results. In this way, we can readily see if other variables also are ordered from low to high or the reverse. This would indicate a connection to the level of economic development.

As discussed in Part I, the aboriginal share of the population has a value close to one for a handful of First Nation communities or to zero for the overwhelming majority of mainstream communities. If we include this variable, we are asking groups to consist of one or the other type of community, and we do not want to impose this outcome. Instead, we want to examine the aboriginal / non-aboriginal composition of groups formed based on the five factors²⁴.

The number of clusters is determined by the analyst and is a matter of judgement, as are so many other aspects of cluster analysis. We chose ten clusters in an effort to allow for a number of different “stories” based on the diverse variables selected. Some stories might be very specific, and as it turns out, one of the clusters is a single community that is quite extraordinary. Other stories may be more general, such as isolation and little economic activity other than public sector jobs inside the CSD. If we opted for fewer groups, some of the groups might be too heterogeneous; a greater number of groups might lead to groups that are not different in some important way.

The result of the cluster analysis is presented in Table 14. The top left of the table gives the number of communities in each cluster, in total and subdivided by reserve and mainstream. To the right and below one finds the cluster means of the three reporting variables and the 15 clustering variables, organised according to the framework for local economic development. The overall mean and standard deviation of each variable are also presented.

Table 15 gives the same detail, but the each cluster mean is expressed in terms of distance from the overall mean, using the “z-score”, i.e., the number of standard deviations (of the total population of 490 communities) by which the cluster mean differs from the overall mean. Generally, one would characterise a cluster by the largest z-scores, as these indicate in which respect the cluster is different from the communities taken together. If all z-scores are low, the cluster contains communities with average characteristics.

²⁴ As discussed in Part I, the First Nations in Canada have a history and legacy that affects their economic development in many ways. To quite an extent, this is true for aboriginal communities generally. Our data do not capture many dimensions of the different background, societal structures and outlook that one finds in aboriginal communities, nor their different health status. Thus, the variable aboriginal share of the population might be included as a shorthand way of describing an entire complex of factors. We prefer to abstain from such a massive generalisation.

Table 16 presents cluster and overall means by type of community. This table shows similarities and differences between the two types of communities by cluster. It gives clues as to why certain communities from the two sets are combined into certain clusters, and also shows how different these communities are, for instance in terms of average earnings from employment.

A glance at the left top panel of Table 14 confirms that First Nation and mainstream communities have been sorted into separate clusters. The first four clusters are made up mainly of First Nation communities, and the next six clusters of mainstream communities. If there is an exception, it is cluster 8, which combines 23 First Nation communities with 61 mainstream communities. One can also readily observe a large gap in average earnings from employment between clusters 4 and 5, the dividing line between the two types of communities.

Table 14: Composition and mean values for ten clusters

Number of Communities				Reporting variables			Clustering variables				
Cluster	First Nation	Main-stream	Total	yearn	yecha	aborsha	Housing Growth				
							crowdi	aducha	eratcha	migra5	
1	59	9	68	7.85	0.21	0.98	0.89	0.16	0.04	0.09	
2	36	2	38	8.78	0.25	0.95	0.70	0.18	-0.04	0.14	
3	36	5	41	8.97	0.54	0.84	0.61	0.05	0.51	0.13	
4	70	10	80	9.30	0.15	0.97	0.65	0.06	-0.10	0.13	
5	4	53	57	12.55	0.10	0.15	0.38	-0.02	-0.08	0.20	
6	8	36	44	15.01	0.28	0.25	0.38	0.02	0.21	0.23	
7		35	35	15.06	0.24	0.08	0.39	-0.03	0.03	0.11	
8	23	61	84	17.30	0.22	0.19	0.41	0.09	0.08	0.23	
9		1	1	19.33	0.08	0.07	0.44	0.14	0.06	0.71	
10	3	39	42	21.07	0.09	0.30	0.43	-0.07	-0.02	0.22	
Total	239	251	490	Mean	12.73	0.22	0.54	0.55	0.06	0.05	0.17
				St. dev.	6.11	0.30	0.44	0.20	0.16	0.24	0.10
Clustering variables											
Connectedness				Economic base				Capacity			
	zsac	excsd	employr	herfind	pubsha	primsha	cowsha	selfemp	educat	lowed	childsha
1	0.65	0.07	0.33	0.19	0.25	0.07	0.05	0.03	0.65	0.69	0.41
2	0.44	0.41	0.35	0.17	0.27	0.09	0.06	0.03	0.72	0.48	0.36
3	0.55	0.21	0.39	0.18	0.25	0.10	0.06	0.06	0.74	0.53	0.33
4	0.63	0.14	0.38	0.18	0.27	0.10	0.05	0.05	0.74	0.51	0.35
5	0.56	0.29	0.44	0.14	0.05	0.18	0.03	0.18	0.77	0.52	0.18
6	0.56	0.23	0.58	0.12	0.08	0.14	0.03	0.19	0.85	0.41	0.20
7	0.58	0.32	0.72	0.28	0.02	0.51	0.01	0.42	0.80	0.48	0.20
8	0.35	0.65	0.57	0.11	0.08	0.08	0.04	0.14	0.88	0.34	0.21
9	0.60	0.24	0.98	0.60	0.06	0.00	0.01	0.02	0.96	0.13	0.02
10	0.63	0.10	0.61	0.14	0.11	0.14	0.03	0.14	0.87	0.32	0.23
Mean	0.54	0.28	0.47	0.16	0.16	0.14	0.04	0.12	0.78	0.48	0.28
St. dev.	0.16	0.23	0.16	0.07	0.14	0.14	0.04	0.13	0.10	0.16	0.10

The means for persons per room (crowdi) are unweighted and therefore are not the same as in Table 11.

Let us try to characterise each cluster using the information presented in Tables 14, 15 and 16.

- 1. Remote and isolated aboriginal communities with many children and very low education.** These communities are not connected to cities, and what little employment their residents enjoy is found within the community. More than two in five residents are children under 15 years. The nine mainstream communities in this cluster have a population that is 95 per cent aboriginal.

Table 15: Distances from overall mean values for ten clusters (z-scores)

Communities			Reporting variables			Clustering variables				
Cluster	First Nation	Main-stream	Total	yearn	yecha	aborsha	Housing		Growth	
							crowdi	aducha	eratcha	migra5
1	59	9	68	-0.8	0.0	1.0	1.7	0.6	0.0	-0.8
2	36	2	38	-0.6	0.1	0.9	0.8	0.8	-0.4	-0.3
3	36	5	41	-0.6	1.1	0.7	0.3	-0.1	1.9	-0.4
4	70	10	80	-0.6	-0.2	1.0	0.5	0.0	-0.6	-0.4
5	4	53	57	0.0	-0.4	-0.9	-0.9	-0.5	-0.5	0.3
6	8	36	44	0.4	0.2	-0.7	-0.9	-0.3	0.7	0.6
7	0	35	35	0.4	0.1	-1.0	-0.8	-0.6	-0.1	-0.6
8	23	61	84	0.7	0.0	-0.8	-0.7	0.2	0.1	0.6
9	0	1	1	1.1	-0.5	-1.1	-0.6	0.5	0.0	5.4
10	3	39	42	1.4	-0.4	-0.5	-0.6	-0.8	-0.3	0.5

Clustering variables											
Cluster	Connectedness		Economic base			Capacity					
	zsac	excscd	employr	herfind	pubsha	primsha	cowsha	selfemp	educat	lowed	childsha
1	0.7	-0.9	-0.9	0.4	0.6	-0.5	0.3	-0.7	-1.3	1.3	1.3
2	-0.6	0.6	-0.8	0.1	0.8	-0.4	0.5	-0.7	-0.6	0.0	0.8
3	0.1	-0.3	-0.5	0.3	0.6	-0.3	0.5	-0.5	-0.4	0.3	0.5
4	0.6	-0.6	-0.6	0.3	0.8	-0.3	0.3	-0.5	-0.4	0.2	0.7
5	0.1	0.0	-0.2	-0.3	-0.8	0.3	-0.3	0.5	-0.1	0.3	-1.0
6	0.1	-0.2	0.7	-0.6	-0.6	0.0	-0.3	0.5	0.7	-0.4	-0.8
7	0.3	0.2	1.6	1.7	-1.0	2.6	-0.8	2.3	0.2	0.0	-0.8
8	-1.2	1.6	0.6	-0.7	-0.6	-0.4	0.0	0.2	1.0	-0.9	-0.7
9	0.4	-0.2	3.2	6.3	-0.7	-1.0	-0.8	-0.8	1.8	-2.2	-2.6
10	0.6	-0.8	0.9	-0.3	-0.4	0.0	-0.3	0.2	0.9	-1.0	-0.5

- 2. Open aboriginal communities with links to urban centres but a weak economic base and many children.** These communities also have few jobs and low earned income. They differ from the first cluster mainly with respect to connectedness: they are more integrated with cities and have a relatively high proportion of employment outside the community. In most respects, these communities are typical reserves, i.e. the cluster mean is very close to the mean for all First Nation communities. These communities have some opportunities but they do not have a high level of economic development. The population of the two mainstream communities is almost entirely aboriginal.
- 3. Communities with rapid employment growth.** The employment ratio shows an increase of 50 per cent over the five years since the 1996 census, and average real earnings from employment increased by about one half. In all other respects, these communities are typical average reserve communities. The five mainstream communities in this cluster are not aboriginal.

4. **Typical reserve communities with declining employment.** Here too we find little that sets these communities apart from other reserve communities. The one large difference with the previous cluster is that the employment ratio is declining. The communities are relatively closed and remote even for reserve communities.
5. **Mainstream communities with a weak and declining employment base.** These communities are characterised by a shrinking population and employment base. They have a lower level of education than mainstream communities generally, and a very weak employment base, with an employment ratio of 45 per cent compared to a 57 per cent average for mainstream communities in the sample.
6. **Typical mainstream community with some employment growth.** There is little about this groups that really stands out. Most group means are close to the mean for all mainstream communities. Employment and real income have above-average growth for mainstream communities.
7. **Farming communities.** This cluster is characterised by a high level of employment with many jobs in the primary sectors, and much self-employment, all characteristics of farming communities. The population is declining. None of the First Nation communities are found in this cluster.
8. **Open urban communities.** This is the largest cluster, combining 23 First Nation and 61 mainstream communities. What they have in common is integration into an urban environment. Almost two-thirds of the jobs are outside the community, and this is true for the First Nation communities as well. The level of education is high, and the economy is quite diverse, with the public sector providing few jobs in the First Nation communities.
9. **Banff National Park.** This cluster consists of a single community. It happens to be Banff National Park without the town of Banff, a place full of young, working college and university graduates who have not yet started families. The place is special in many ways.
10. **Isolated communities in decline.** The adult population is declining rapidly in these communities that have a relatively well-educated population and above-average employment, but not a pronounced industrial structure. These are the communities with the highest average earnings the source of which is not immediately obvious. Almost all employment is within the community.

There is clearly a strong link between the variables included in the cluster analysis and the descriptive variables. The values of average earnings from employment and the aboriginal share of the population vary considerably among the clusters. The growth of average earnings from employment does not appear to be closely connected to the variables representing the five factors.

Table 16: Cluster means by type of community

First Nation communities							Mainstream communities					
Cluster	yearn	yecha	aborsha	crowdi	aducha	eratcha	yearn	yecha	aborsha	crowdi	aducha	eratcha
1	7.02	0.20	0.98	0.88	0.17	0.05	13.28	0.24	0.95	0.89	0.13	-0.03
2	8.78	0.25	0.95	0.69	0.18	-0.03	8.93	0.17	0.96	0.91	0.34	-0.08
3	8.51	0.55	0.95	0.64	0.06	0.50	12.29	0.50	0.07	0.39	-0.03	0.63
4	8.44	0.14	0.97	0.65	0.07	-0.10	15.31	0.24	0.91	0.67	0.01	-0.03
5	10.86	0.01	0.84	0.48	0.07	-0.14	12.68	0.11	0.10	0.37	-0.03	-0.08
6	11.75	0.35	0.86	0.45	0.03	0.25	15.74	0.26	0.11	0.37	0.02	0.20
7							15.06	0.24	0.08	0.39	-0.03	0.03
8	15.63	0.20	0.50	0.44	0.15	0.08	17.92	0.23	0.07	0.39	0.06	0.08
9							19.33	0.08	0.07	0.44	0.14	0.06
10	11.53	0.16	0.94	0.55	-0.04	0.05	21.81	0.08	0.25	0.42	-0.07	-0.03
Total	9.03	0.24	0.92	0.68	0.11	0.07	16.26	0.19	0.18	0.42	0.00	0.04
Cluster	migra5	zsac	excsd	employr	herfind	pubsha	migra5	zsac	excsd	employr	herfind	pubsha
1	0.09	0.64	0.07	0.31	0.19	0.25	0.09	0.70	0.10	0.45	0.19	0.24
2	0.14	0.43	0.41	0.36	0.17	0.28	0.09	0.60	0.53	0.33	0.15	0.19
3	0.13	0.55	0.20	0.38	0.18	0.28	0.12	0.54	0.28	0.44	0.16	0.03
4	0.13	0.62	0.15	0.37	0.18	0.28	0.16	0.73	0.08	0.48	0.18	0.26
5	0.11	0.55	0.31	0.40	0.11	0.17	0.20	0.56	0.29	0.45	0.14	0.04
6	0.15	0.48	0.21	0.52	0.15	0.24	0.25	0.58	0.24	0.59	0.11	0.05
7							0.11	0.58	0.32	0.72	0.28	0.02
8	0.22	0.22	0.62	0.51	0.11	0.13	0.23	0.40	0.66	0.59	0.12	0.06
9							0.71	0.60	0.24	0.98	0.60	0.06
10	0.15	0.57	0.13	0.44	0.13	0.19	0.23	0.64	0.09	0.62	0.14	0.10
Total	0.13	0.54	0.23	0.37	0.17	0.25	0.20	0.55	0.33	0.57	0.16	0.07
Cluster	primsha	cowsha	selfemp	educat	lowed	childsha	primsha	cowsha	selfemp	educat	lowed	childsha
1	0.07	0.05	0.03	0.64	0.7	0.41	0.07	0.04	0.03	0.69	0.64	0.41
2	0.08	0.06	0.03	0.72	0.48	0.35	0.13	0.02	0.07	0.72	0.52	0.46
3	0.1	0.06	0.05	0.73	0.52	0.35	0.15	0.05	0.13	0.78	0.60	0.15
4	0.1	0.05	0.05	0.73	0.52	0.35	0.09	0.07	0.05	0.78	0.48	0.32
5	0.16	0.06	0.12	0.82	0.38	0.24	0.18	0.03	0.19	0.77	0.53	0.18
6	0.09	0.05	0.09	0.86	0.30	0.27	0.15	0.03	0.21	0.85	0.43	0.18
7							0.51	0.01	0.42	0.80	0.48	0.20
8	0.03	0.04	0.13	0.89	0.30	0.21	0.10	0.04	0.15	0.87	0.36	0.21
9							0.00	0.01	0.02	0.96	0.13	0.02
10	0.08	0.07	0.09	0.84	0.31	0.31	0.14	0.02	0.14	0.88	0.32	0.22
Total	0.08	0.05	0.05	0.73	0.53	0.35	0.19	0.03	0.19	0.82	0.44	0.21

The strongest association appears to be that between the clusters and the aboriginal share of the population. This share is either very high or very low, and few communities have equal shares of Aboriginal and non-Aboriginal persons. When a cluster consists predominantly of reserves, the mainstream communities in the cluster tend to have large aboriginal populations. Vice versa, in a cluster consisting mainly of mainstream communities, the First Nation communities tend to be bedroom communities for non-Aboriginal persons, located in or near urban areas.

The clusters are reasonably well defined. By this we mean that the dividing lines between the clusters are reasonably clear, resulting in different “stories”, some about growth or decline, some about the economic base, some about isolation or integration. The stories give clues about economic success or lack thereof, but no complete account. One may wonder, for instance, why the communities in cluster 10 have high earnings and employment. Among the communities are Haines Junction, Tofino, Stewart, The Pas, Flin Flon and Churchill. These are all small regional centres that are gateways to the hinterland or service centres, and some thrive on tourism due to their location in areas of great natural beauty. They clearly have an economic base that is reflected in the census community profiles only in a general way. It would be of interest to try to collect the more specific stories about the economic base and the capacity of the communities in various clusters, and to ask how census and other community-level data can bring these stories to the fore.

As we have ordered the clusters by level of economic development, we would expect the communities in the first few clusters to have the lowest level of economic development, and the communities in the last few clusters to have the highest level. This is the general pattern (Table 17). However, there are exceptions. For instance, some communities in cluster 8 have average earnings from employment of less than \$10,000. It would seem that something interesting and useful for policy might be learned from investigating the specific circumstances of these communities. Why do they have characteristics similar to those of other communities in the cluster, but a different level of economic development?

Table 17: Number of communities by economic development level

ED level	First Nation communities				Mainstream communities			
	1	2	3	Total	1	2	3	Total
Cluster								
1	57	2		59	2	7		9
2	27	8	1	36	1	1		2
3	27	9		36	1	4		5
4	52	18		70	1	8	1	10
5	2	2		4	12	40	1	53
6	4	3	1	8	3	27	6	36
7				0	4	27	4	35
8	2	17	4	23	2	45	14	61
9				0		1		1
10	1	2		3		14	25	39
Total	172	61	6	239	26	174	51	251

Conclusion

For the purposes of this study, we selected mainstream communities based on similarity of location and population size to First Nation communities. These mainstream communities are not representative of the overall non-Aboriginal population, which lives for the most part in metropolitan and large urban areas. The selected mainstream communities are not as affluent and they are not growing as rapidly as the cities; many are in decline.

Our most striking finding is how different First Nation communities are from the selected mainstream communities. We find large differences when we compare the two types of communities with respect to level of economic development and demographic and economic characteristics. We see those differences a second time, when we reduce a large set of variables to common factors. We see them a third time when each of the groups of communities is made up predominantly by one or the other type of community.

The analysis highlights certain aspects of the differences. The findings suggest that the mainstream communities have an economic rationale for their existence that gives them a certain level of employment, and recent growth or decline according to whether the economic base is shrinking or expanding. We do not see this for the First Nation communities, where a lack of jobs, low education, isolation, and high fertility are the order of the day for most communities, and growth is not clearly connected to the economic base. These features are consistent with the royal commission's economic analysis, and stress the lack of an economic base for many First Nation communities, while hinting at but not giving an in-depth account of the influence of the institutional, cultural, social and psychological distinctness of First Nation people in their communities.

The key features of our approach are:

- A framework for analysing local economic development that is based on the large literature on regional and local development, including development of aboriginal communities.
- Comparative analysis of all First Nation communities for which relevant data are available and a similar number of mainstream communities that have more or less the same population size and location. We find large differences between the two sets of communities, but also between the selected mainstream communities and mainstream communities in general.
- A focus away from socio-economic disparities and on the factors lying behind the disparities, factors identified in our analytical framework.
- Application of factor analysis to find patterns in the data, and of cluster analysis to sort communities by economic attributes and to find "stories" about economic development and recent fortunes.

We have not updated earlier studies that focussed on disparities among reserves, but established a new direction. We find that this approach is productive, and could be more productive if we could expand the data to include:

- Measures of economic capacity, in particular the many dimensions that the royal commission identified as important.
- Location in relation to cities as distinct from integration with cities.
- Variables that better capture the specifics of the economic base of communities, including subsistence activities, variables that identify regional transportation and service centres, measures of the potential for tourism.

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Appendix: List of variables included in factor analysis

Variable name	Type	Definition
<u>Reporting Variables</u>		
yearn	amount	Income from employment averaged over the total population of 15 and over, in thousands of dollars.
yecha	%change	Income from employment averaged over the total population of 15 and over, in thousands of dollars, change 1996-2001.
aborsha	share	Aboriginal persons as a share of the population.
<u>Connectedness</u>		
zsac	indicator	Location in or connection to urban centre, indicator with values 1 (inside CMA) to 8 (in territories), then scaled down by a factor of 10.
excsd	share	Share of employed persons living in the CSD who work in another CSD.
<u>Economic Base</u>		
employr	share	Employment Ratio: Number of employed as share of the population of 15 and over.
selfemp	share	Self-employed as share of total employment.
parttime	share	Those who predominantly worked part-time or part-year as share of those who earned employment income during the year.
herfind	indicator	Herfindahl Index of industrial diversity, using census employment data.
cdominant	indicator	Indicator of abnormally large industries using census data on employment. Standard deviations of the relatively largest industry in the CSD are used (rounded to the lowest integer and not exceeding 10).
primsha	share	Number of persons employed in the primary sectors as a share of total employment.
cowsha	share	Number of persons employed in the construction sector as a share of total employment.
toursha	share	Number of persons employed in the tourism sector as a share of total employment.
pubsha	share	Number of persons employed in the public sector as a share of total employment.
<u>Capacity</u>		
avenrchi	number	Average number of children per census family.
childsha	share	Proportion of population that is less than 15 years old.
youthsha	share	Proportion of population that is 15-24 years old.
oldsha	share	Proportion of population that is 65 or over.
famchisha	share	Census families with children as share of total census families.
marrshare	share	Proportion of adult population (ages 15+) that is legally married and not separated
loneparsha	share	Single parent census families as share of census families with children.
fempart	share	Female participation rate.
intrasha	share	Government transfer payments as % of total income.
educat	indicator	Level of educational attainment weighted by expected earnings scaled to one, per capita. A typical person will have an attainment score of 1.
schoyrave	indicator	Average years of schooling attained.
lowed	share	Proportion of those in the population that have an educational attainment which is less than highschool.
<u>Housing</u>		
honestwsha	share	Dwellings built in last ten years as a share of the total housing stock.
agehouse	number	Average age of the housing stock (based on year of construction).
housest	share	Dwellings reported as requiring major repairs as a share of the total housing stock.
dwelcha	%change	Change in the housing stock from 1996-2001.
crowdi	ratio	Average household size divided by the average number of rooms per dwelling.
bandshare	share	Band housing as share of the number of dwellings.
<u>Growth</u>		
popcha	%change	Total population, change 1996-2001.
aducha	%change	Population 15 and over, change 1996-2001.
migrants1	share	People who moved into the CSD over the last year as share of CSD population.
migra5	share	People who moved into the CSD over the last five years as share of CSD population.
eratcha	share	Employment Ratio: Number of employed as share of the population of 15 and over, change 1996-2001.

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