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SOCIAL COHESION AND LIVING CONDITIONS IN THE CANADIAN ARCTIC: FROM THEORY TO MEASUREMENT*

(Accepted 10 December 2002)

ABSTRACT. Social cohesion has emerged as a powerful hybrid concept used by academics and policy analysts. Academics use the concept to underline the social and economic failings of modernity, linking it to the decline of communal values and civic participation. Policy analysts use it to highlight the social and economic inequities caused by globalization. The desired effect of using this concept is often to influence governments to implement policies that will enhance social cohesion by reducing social and economic disparities. Despite its widespread use, however, statistical measures of social cohesion tend to overlook local, non-Western strategies of social inclusion as well as the social impact of non-Western economic systems, such as the mixed economy typical of many Aboriginal communities in North America. In this paper, we develop a model of social cohesion that addresses these omissions through the use of social indicators that measure both the behavior and perceptions of Inuit living in the Canadian Arctic with respect to the social, cultural and economic conditions of Arctic communities. We explain how and why measuring social cohesion is optimized by combining both culturally-specific and non-specific social indicators.

INTRODUCTION

The concept of social cohesion has recently emerged as a powerful "hybrid" concept, one that is "grounded in data analysis, benefiting from the legitimacy conferred by scientific method but also flexible enough to follow the meanderings of everyday policy making" (Jenson, 2001). The concept of social cohesion has received considerable attention by those studying globalization, because decline in social cohesion is often regarded as an index of the social impact caused by globalization in much the same way that ozone depletion is used as an index used to measure global warming. Liberal economic practices favoring globalization continue to drive the policies of many of the world's richest nations, although there is

Social Indicators Research **66:** 295–317, 2004.

a growing concern that the inequalities and imbalances caused by globalization will not help those countries and regions of the world wracked by generations of poverty and slow economic growth.

The problem of economic inequality is not news for observers of social development, who have long recognized the need to develop a new set of indicators to measure social development and the social situation of societies and nations (Noll, 1997; Westerndorff and Ghai, 1995). What is more concern, however, is that many regard globalization as a force that is actually intensifying social and economic inequities, causing unforeseen fractures and fissions in the very social and moral fabric of even the most affluent nations. It is for this reason that a number of international organizations, including the Organization for Economic Co-operation and Development (OECD), the World Bank, and the Council of Europe, are trying to identify those policies that promote social cohesion. Seen from this perspective, social cohesion is at once an instrument of political ideology and an analytical tool used to highlight the uneven distribution of wealth and opportunity and the growing social problems of a global society.

In Canada, social cohesion has become a major policy issue because of the widespread perception that globalization has only sharpened the divisions separating the wealthy from the poor, immigrants from non-immigrants, rural from urban, and Aboriginal from non-Aboriginal persons in Canada (Osberg, 1992). The effort underway in Canada to promote research that identifies the consequences of these social divisions is part of a larger political strategy to promote social cohesion in Canada. Given the economic and policy focus of research on globalization, however, the *social* dimensions of social cohesion are often left undefined or under analyzed.

Our goal in this article is to provide an alternative model of social cohesion, one that transcends the biases of contemporary political debates, adheres to the principles of social indicator research, and allows for the social dimensions of social cohesion to be properly analyzed. This model of social cohesion is an amalgamation of indices included in a major survey (see Usher, Duhaime and Searles, 2003 for an explanation of indicators identifying the social and economic parameters of household production and reproduc-

tion). The target sample is a specific Aboriginal group, the Inuit of the Canadian Arctic.[1] This model, we assert, is a general measure of social cohesion and is therefore widely applicable, especially to other small-scale societies living in industrialized nations.

Following the lead of the pioneers in social indicator research, this model is based on the measurement of perceptual and behavioural variables, designed to produce "data which enlighten us in some way about structure and processes, goals and achievements, values and opinions" (Zapf, 1977). This model treats social cohesion neither as a social good nor a social evil (which is where it often stands within political science debates), but as potentially both, a point we shall clarify later. In addition, this model of social cohesion includes indicators of social support, subjective well-being and quality of life (e.g., Larson, 1993; Diener and Suh, 1997; Davis and Fine-Davis, 1991). Our interest in social cohesion is motivated not only by theoretical considerations, however, but by the concerns of major stakeholders in the Arctic who have made sustainable (social and economic) development a dominant political agenda. These stakeholders include government agencies and institutions, Aboriginal organizations, private corporations, and the residents of the Arctic. Identifying the ingredients of social cohesion and social well-being is of particular concern in an era of globalization, as many scholars have shown that the quality of life in Circumpolar communities is affected by a combination of global environmental and economic factors (Duhaime, 1983; Graburn, 1969; Irwin, 1988; Matthiasson, 1992; Nuttall, 1998; Paine, 1977). One poignant example is the contamination of Arctic ecosystems by pesticides and other pollutants originating in heavily industrialized regions of North America and Europe.

The organization of the paper is as follows. After presenting a brief review of the demographic trends of Inuit living in the Canadian Arctic, we shift our focus to exploring the concepts of social cohesion. We identify our model of social cohesion, and finally, we discuss what this model can contribute to the study of socioeconomic conditions in the Circumpolar Arctic and to the study of social indicators.

HISTORICAL BACKGROUND

Until the first few decades of the 20th century, most Canadian Inuit lived in self-regulating and self-sufficient nomadic bands that were held together by kinship and non-kinship based alliances (Willmott, 1960). These bands, consisting of several extended families joined together for parts of the year, worked together to secure their material existence. Such institutions enabled families to work together to secure the resources necessary for food, shelter and clothing, a practice that continues today despite the presence of a cash economy marked by wage labour and government-regulated support programs (Duhaime, 1991, 1992; Kishigami, 2000). The arrival of the commercial fur trade in the Canadian Arctic beginning in the 1920s, combined with a series of population declines caused by famine and epidemics caused an unprecedented expansion of government, commercial, and military activity beginning in the 1950s. The combination of periodic declines in animal populations and government intervention led to a more centralized, less nomadic way of life in government-built settlements (Duhaime, 1983; Graburn, 1969; cf. Usher et al., 2003). Local systems of social organization and control were affected as well, as government officials, missionaries, and others attempted to impose new value systems and new forms of social control.

Today, most Canadian Inuit live in one of the 55 permanent settlements and towns that extend from the southern coast of Labrador to the northwestern border of the Northwest Territories. Wage labour and the consumption of mass produced goods are daily realities for Inuit, and various public and private institutions are the dominant employers. Although traditional productive activities such as hunting and fishing for country food continue to be important for much of the population, the monetary value of these activities are often underestimated in large part because country food can rarely be purchased or sold in the formal market sector. Standard social and economic indicator studies reveal that economic growth in the Arctic is slower and more narrow in scope than in other parts of Canada, a situation that has led to chronically high unemployment rates in many Arctic communities (DIAND, 2000).

Much of the recent economic growth in the Arctic has been fueled by a few large corporations in the mining, oil and gas,

and hydro-electric sectors. Although the exploitation of these resources offer considerable benefits to Arctic residents, many Arctic communities continue to suffer what is typical of peripheral economic regions around the world, slow economic growth and high rates of unemployment. Unemployment rates in most Canadian Arctic villages and towns, for example, are two to three times higher than the national average, a problem that is destined to intensify as a young population (more than 50% is under the age of 25) begins to enter the labour force (DIAND, 2000). Given the rather unusual economic conditions of Arctic communities, however, most Inuit choose to remain in their communities, a trend that is actually typical of many rural communities, where high salaries and upward mobility are not as valued as other conditions, such as living in rural setting and/or close to family. Indeed, with few exceptions, the populations of Arctic communities have been steadily increasing, suggesting that other conditions and factors are at play in the creation of social cohesion (for a pan-Circumpolar perspective on this demographic phenomenon, see Andersen and Jensen, 1998).

SOCIAL COHESION: FROM SOCIAL THEORY TO PUBLIC POLICY

Recent concerns about the fragmenting and alienating effects of global economic integration parallel the concerns of Durkheim, Marx, and Weber in the 19th century – the transformation of autonomous, subsistence-based communities into highly urbanized, industrialized, and modern nation-states. Whereas Durkheim identified the presence of two distinct systems of solidarity to explain the social dimensions of this transformation, one mechanical (based on family ties and personal, face-to-face relations typical of subsistence-based communities), the other organic (based on impersonal, abstract social ties typical of more urban and industrial settings), more recent theorists have opened up the study of solidarity to include class, race, gender and ethnic-based social groupings in modern nation-states. One offshoot of this research is the pursuit of a method for measuring the social dimensions of group membership and action, and the concept of social capital has become a key analytical tool in this quest to measure social solidarity and group cohesiveness (Coleman, 1990; Portes, 1998; Putnam, 2001).

Robert Putnam brought the concept of social capital into the public spotlight when he published an article declaring that social capital in the United States had declined dramatically since World War II (1995). Putnam's definition of social capital is based on a Toquevillean model of the United States as a society built on participation and trust in a wide range of civic institutions and associations, and for Putnam, these are the building blocks of social capital (Putnam, 2001). Furthermore, large stocks of social capital lead to socially cohesive societies (Kawachi and Berkmann, 2000), and socially cohesive societies are better able to achieve sustained economic growth and human development (Stanley, 1997).

Although Putnam's definition of social capital has generated much criticism for being too tautological (e.g., Portes, 1998), he inspired an innovative approach to measuring the well-being of a society, one that complements the usual economic, health, and demographic indicators used to measure human development. Although Putnam never intended his model to replace the conventional measurements of human development (e.g., infant mortality rates, average life expectancy, rates of poverty and unemployment, and per capita GDP), he did show that indicators of social capital can provide additional means for gauging how well a society is doing, in a way that standard indicators of development and welfare do not.[2] Whereas standard indicators like per capita income and Gross National Product, average life expectancy and infant mortality rates, may reveal something about the state of a national economy and the overall health of its population, they do not reveal what some consider to be the more important indicators of development and social well-being, including indicators derived from living conditions studies. Some examples include participation in civic organizations, participation in volunteer activities and voting records.[3] However, even if the concept and measurements of social capital have merits, they are not designed to take into consideration all aspects of social cohesion in the way we define it. Therefore, the measurement of social capital is a necessary part of such an attempt but not sufficient itself to meet our objectives.

Recent policy initiatives to promote social cohesion in Canada, evident in the formation of the Social Cohesion Network and other government programs designed to reduce social and economic

inequality and promote a commitment to shared values and goals, reveal a growing interest in the creation of those social and economic conditions that lead to social cohesion (Policy Research Initiative, 1999). This government-level interest in social cohesion is based on definitions of social cohesion that are normative and almost utopian in character. Social cohesion is regarded as a political objective, regardless of its effects on individual liberties or the vitality of cultural and ethnic diversity. Our approach to social cohesion maintains a neutral and objective stance towards social cohesion, one that treats it neither as a social good nor a social evil, but rather as the interplay of two types of social solidarity.

AN ARCTIC-SPECIFIC MODEL OF SOCIAL COHESION

Our model of social cohesion provided the foundation for our selection of specific items and other measures to be used in a survey designed measuring the living conditions of indigenous peoples living in the Circumpolar Arctic.[4] Despite less favorable economic, educational, and even entrepreneurial conditions in the smaller towns and villages of the Circumpolar Arctic, it is unclear why the demography of these regions has remained relatively stable since the second World War. To explain this, it is necessary to look beyond the usual spectrum of indicators found in standard development studies to find indicators that treat living conditions as a combination of material and symbolic factors, e.g., the means of making a living and the means of making a meaningful life. As a heuristic concept, social cohesion encompasses these two factors, access to making a living and access to a meaningful life.

Following Durkheim's classic distinction between mechanical and organic solidarity, we assert that solidarity among Inuit living in the Canadian Arctic, and therefore social cohesion itself, are structured by access to formal economic and governmental institutions (i.e., those that give rise to organic solidarity) as well as by access to family and community-based, face-to-face relations (i.e., those that provide mechanical solidarity). In the former category are social ties produced and reproduced by participation in income-producing activities (e.g., wage labor, self-employment) and political activities (e.g., voting or running for public office) and access to government

and/or community association-sponsored programs and services (such as schools, public housing, recreational leagues and employment insurance). In the latter category are social ties produced and reproduced by participation in family and community-based activities related to the non-commercial production and exchange of subsistence resources, specifically those related to domestic activities within the household (e.g., taking care of children and elders, repairing and building houses, etc.) and outside of it (e.g., hunting, fishing, gathering, and trapping non-domesticated animals and plants). These ties are produced and sustained by an ethos of reciprocity and sharing manifested by the regular exchange of various types of support, including material (e.g., caribou meat and gasoline), emotional, and even spiritual (e.g., celebration of first catch ceremonies, community-wide grieving following the death of an individual).

Since the introduction of wage employment and the cash economy in the 1950s, more opportunities for organic solidarity have emerged. But ties based on mechanical solidarity have also remained strong in many communities, evident in the high percentage of households that consume and/or produce and share subsistence resources (Conference Board of Canada, 2000; Duhaime et al., 2001). Indeed, these two systems of solidarity are not mutually exclusive but often complement one another, as in the case when more money is available to purchase more modern and efficient hunting and fishing equipment. The balance between them can change, however, given certain economic and political conditions. In periods of high employment, there may not be enough persons to participate in subsistence production, and ties based on mechanical solidarity may decrease in quantity and quality. But the reverse is also true, as Bone's study of harvesting activity during the building of a pipeline in the Northwest Territories of Canada reveals (Bone, 1988). On the other hand, during periods of high unemployment, such is the case with many of the towns and settlements in the Circumpolar Arctic, social ties may be more strongly mechanical than organic.

According to our model, social cohesion requires the measurement of two processes: (1) the access individuals have to the two different types of solidarity; and (2) the successful calibration of

these two types of solidarity. Our hypothesis is that when these two systems are both present and in balance, i.e., when individuals have access to both forms of solidarity and when the systems are not working against each other, the society as a whole remains relatively stable and can endure difficult periods of stress and strain caused by economic recession, social deviance, and even episodes of widespread trauma caused by disease, death and/or suicide.

Conversely, societies which lack a combination of mechanical and organic solidarity are less likely to remain together during periods of stress and strain, and breakdown is manifested by more intense episodes of emigration and/or by various forms of trauma, anguish, and deviance (e.g., the widespread use of inhalants by youth in Davis Inlet, Labrador is one example). According to our model, a lack of equilibrium between the two systems of solidarity can produce an effect of either too little or too much cohesion. The latter condition, in its worst extremes, is marked by excessive constraints and pressure on the individual which tend to force certain individuals to withdraw from society altogether. For example, in a small-scale society in which social ties based on mechanical solidarity dominate personal and public life, a person may feel that family obligations are actually inhibiting one's ability to achieve personal well-being and life satisfaction, including one's desire for self-expression and self-expansion, a trend that might explain the steady out-migration of women from small coastal villages in Greenland and Alaska (Hamilton et al., 1996). Therefore, our model asserts that too much social cohesion can be a negative feature of social life.

The model of social cohesion is an amalgamation of different indices. They are combined in a single survey which includes sections measuring aboriginal language use, access to formal education, mobility, individual health, labor force participation, access to information technology, political participation, individual and household income levels, participation in the subsistence economy, and individual and community well-being. The survey is a paper and pencil interview designed to be administered to a representative sample of self-identified Aboriginal persons, or those of Aboriginal descent, including Inuit, aged 15 and older. Statistics Canada is administering the Survey. Through a research partner-

ship involving Université Laval, the University of Northern British Columbia, Statistics Canada, the Inuvialuit Regional Corporation (IRC), Nunavut Tunngavik Incorporated (NTI), Makivik Corporation, the Labrador Inuit Association (LIA), and Inuit Tapiriit Kanatami (ITK), and Statistics Canada, the Arctic Questionnaire of the 2001 Aboriginal Peoples Survey was integrated into the design of the other sections of the Survey, which were also modified. The data from this survey will be released in 2003.[5]

DIMENSIONS OF SOCIAL COHESION

Our model of social cohesion comprises six specific indices that measure access to and participation in the two dominant types of solidarity, mechanical and organic. These six indices include presence of social capital, demographic stability, social inclusion, economic inclusion; community quality of life, and individual quality of life. Social capital is defined as the existence of trust, confidence and willingness to participate in civic institutions and voluntary associations (Jenson, 1998; Policy Research Initiative, 1999; Putnam, 2001; Woolcock, 2001), and it is a measure of whether mechanical solidarity is present within a community or society. Demographic stability is a measure of individual mobility into and out of the community of residence in the past five years as well as population growth rates in Arctic communities. Social inclusion is a measure of access to and participation in various networks of emotional, social and material support (Phipps, 1998), as well as the types of support which are accessed (e.g., government-based or family-based). This index includes a number of variables measuring individual and household participation in the production and exchange of subsistence resources (animal, fish, and plant species harvested locally for domestic use), as well as certain domestic activities which are vital to the functioning of a household (Usher et al., 2003; Lonner, 1986).

The economic inclusion index is measured by a number of variables, including labour activity as well as access to income in the form of employment insurance, social assistance and other transfer payments. The community quality of life index includes a number of variables measuring domain-specific satisfaction with various

TABLE I

Index of Social Capital

Variable	Behavioural measures	Perceptual measures
Trust and confidence in civic institutions	1. Vote in most recent municipal elections; 2. Vote in most recent regional government elections; 3. Vote in most recent Inuit organization elections	1. level of satisfaction with regional government; 2. level of satisfaction with local police force; 3. level of satisfaction with regional government's court system
Participation in volunteer organizations and other related activities in the last 12 months	1. Volunteer for community organization or group; 2. Work at a community event; 3. Attend a local community or board meeting; 4. Attend a public meeting in community of residence; 5. Attend or participate in a sports event.	

community-based institutions and conditions, such as employment opportunities, housing, healthcare, education, justice, personal safety, and general quality of life at the community level. The individual quality of life index includes several variables measuring subjective well-being along two gradients: cognitive and affective. The cognitive gradient is measured by variables measuring general life satisfaction and reasons leaving the community. The affective gradient is measured by a standard five-item survey (MHI-5) used to measure mental health and to detect depression and affective and anxiety disorders (Berwick et al., 1991). Each index will be aggregated into a composite sum ranging in value from 0 to 1, with one being an indication of increased cohesion and 0 an indication of decreased cohesion.

The first index of the model of social cohesion, social capital, includes both perceptual and behavioural measures of trust, confidence and willingness to participate in civic institutions and voluntary associations (see Table I). This condition follows with Putnam's thesis that civic participation is a key ingredient in the creation of social capital in contemporary democratic societies and with

TABLE II

Demography

Variable	Behavioural measures	Perceptual measures
Demography	1. Number of moves in the last five years	1. Reason for moving to present community of residence
	2. Time in community of residence.	2. Reasons for wanting to leave community in past five years
	3. Population growth rate of community since the 1991 census	3. Reasons for staying in the community

the corollary hypothesis that societies with large amounts of social capital are cohesive (Putnam, 2001; Kawachi and Berkman, 2000). There are 11 items to measure this condition, including satisfaction with various civic institutions, direct participation in community events and volunteer organizations, and voting activity (self-reported) in the elections of three major institutional regimes in the Arctic: provincial/territorial government, municipal government, and Inuit-run land claims organizations. These items constitute the index of social capital as it relates to civic participation and satisfaction with civic institutions, itself a measure of the presence of and access to mechanical solidarity.

The second index, demography, includes measures of in- and out-migration of individuals as well as the population growth rates of Arctic communities (see Table II). The demographic structure of a community is an indicator of social cohesion. This is particularly true in regions like the Arctic where high population growth rates combined with slow economic growth have made high unemployment rates the norm rather than the exception. One preliminary hypothesis that can be tested is how population growth correlates with the other indicators of social cohesion. Are communities with a high growth rate likely to have more or less cohesion than communities with a lower growth rate? Are those communities with higher rates of out-migration experiencing an increase or a decrease with respect to the other five indices of social cohesion?

The third index, social inclusion, is defined by two major variables: (1) access to affective, cognitive and material forms of social support; and (2) level of participation in the subsistence economy

(see Table III). The first variable, access to social support, includes a number of items measuring perceived access to affective, cognitive and material support (cf. House, 1981). Rather than trying to measure the quantity of contacts available in one's social network, our index is based on measures of the perception of the quality of contacts (i.e., frequency of perceived available support for specific affective, cognitive and material needs). This index also includes items that identify the sources of affective, cognitive, and material support, thereby enabling us to distinguish between the availability of organic and mechanical social ties. Historically, support has been provided mechanically (i.e., by the extended family), a trend that may be changing as a result of the presence of various kinds of government and church-sponsored counseling services and assistance programs, particularly services offered by health professionals (e.g., social workers, psychotherapists and psychiatrists) and by local clergy and by the increased mobility of Inuit.

The second variable of social inclusion, participation in the subsistence economy, includes a series of items that measure both individual and household participation in the production and exchange of subsistence resources. Although participation in the subsistence economy is indicative of economic inclusion, we decided to include it in the index of social inclusion because it is, for the most part, a non-monetized system of production and exchange in which social as well as economic values are realized. Furthermore, as many Inuit assert, the production and exchange of country food (i.e. food hunted, fished, and harvested locally, including caribou, marine mammals, arctic char, and wild plants and berries) are vital cultural activities practiced by a wide range of Inuit of all ages and backgrounds, and many Inuit claim that these activities are necessary for the survival of Inuit tradition and for the well-being of Inuit communities (see Freeman et al., 1998). They are often conducted in groups and generate products that are shared, thus contributing to social inclusion. Therefore, we include participation in the subsistence economy within the index of social inclusion using a number of items to identify the level of participation in subsistence activities.

The fourth index, 'economic inclusion,' includes variables that measure an individual's involvement in the market economy through

TABLE III

Index of Social Inclusion

Variable	Behavioural measures	Perceptual measures
Access to informal networks of emotional, social and material support	1. Degree of participation in the subsistence economy through the receiving or giving of country food – measured by receiving and/or giving country food for free.	1. Access to affective support (through love and affection and friendship; through leisure activities and other forms of relaxation)
	2. Degree of participation in common household activities, including the care of children and seniors, cleaning and preparing country food for consumption, repairing and constructing hunting equipment, home appliances and the home itself	2. Access to cognitive support (through advice, help with important life decisions)
		3. Access to material support (through assistance with specific physical assistance)
		4. Identity of who provides affective support
	3. Access to and use of subsistence harvesting equipment	6. Identity of who provides cognitive support
		7. Identity of who provides material support

labour activity, employment insurance, social assistance, pension cheques and/or other forms of transfer payments (see Table IV). Economic inclusion includes variables that measure inclusion both in the monetary economy as well as in the subsistence economy, because the two are not mutually exclusive categories of production. In fact, some argue that they are mutually reinforcing (Langdon, 1986; Duhaime, 1998). The labour force activity variable measures the employment activity of those who consider themselves to be active in the labour force. This measure excludes those individuals not actively seeking employment and those who are not involved in the production and sale of locally produced arts and crafts. In many communities in Nunavut, the number of employment opportunities has remained significantly lower than the size of the actual labour force since Inuit moved into settlements fifty years ago,

TABLE IV

Index of Economic Inclusion

Variable	Behavioural measures
Labour force activity	1. Employment activity in the past 12 months for those who consider themselves to be in the labour force (including commodity production) 2. Individual per capita income and its sources

TABLE V

Index of Community Quality of Life (QOL)

Variable	Perceptual measures
Community QOL	1. Five-point scale measures of satisfaction with a series of conditions and services in the community; 2. Behavioural-specific measure of personal safety (four items); 3. Three open-ended questions to identify personal significance of various community QOL domains: (1) reasons for leaving the community; (2) reasons for staying in the community; and (3) suggestions for improving the community as a whole.

and for this reason many Inuit do not actively seek employment in their communities. This disqualifies them from being part of the labour force for statistical reasons. However, our measure takes this discrepancy into consideration, identifying those who are unemployed but who feel like they can obtain work versus those who know they cannot.

The fifth index, community quality of life, measures domain-specific satisfaction with various conditions and services identified as key domains of satisfaction for Inuit and Inuvialuit living in the Canadian Arctic (see Table V). The domains in this measure include specific elements of organic and mechanical solidarity, including current job satisfaction as well as satisfaction with job opportunities in the community of residence, education, availability of health

TABLE VI

Index of Subjective Well-Being

Indicator	Perceptual measures
Individual QOL	1. Five-item mental health inventory
	2. General subjective QOL (or happiness) measure

services, quality of housing, cost of rent or house payments, quality of recreational facilities, freshness of foods in local stores, availability of country food (i.e., food obtained through subsistence activities), and personal safety. This index also includes several items measuring satisfaction with personal safety. A five-point response scale is used to measure satisfaction for each of these items. These domains will be cross-referenced with several open-ended questions, including one asking the respondent to identify ways of improving the quality of life in the community as a whole, one identifying reasons for moving out of the community, and one for identifying reasons for staying in the community. These questions will provide a validity check of whether or not the domains included in the community quality of life index are domains the respondent considers to be important (Chamberlain, 1985), but they will also be useful to government leaders and policy makers trying to determine key areas of concern and interest for residents living in the Arctic (see Davis and Fine-Davis, 1991: p. 108).

The sixth index, subjective well-being, includes a standardized subjective well-being measure as well as a five-item screening instrument used to detect the presence of clinical depression as well as affective and anxiety disorder disorders (see Table VI). The inclusion of this dimension corresponds to the argument that " 'being well-off' does not necessarily lead to a sense of 'well-being' " (Davis and Fine-Davis, 1991: p. 103), and that measuring social cohesion must include subjective measures as well as objective ones.

When tabulated individually and aggregated collectively, these six indexes will provide a complex, yet powerful tool for measuring the dual solidarities that constitute the social cohesion of Inuit living in the Canadian Arctic. This operation is the next phase of developing the model. Even if it is too early in the process to give a

detailed operationalization plan, we can at least explain the general orientation. In the first phase of analysis, through the application of the relevant scientific models, we will build a list of propositions and hypotheses that measure the significance and contribution of each index to our generalized model of social cohesion. For example, high levels of participation in networks of subsistence production and country food exchange might support the hypothesis that the presence of these networks are favorable for cohesion derived from social ties based on mechanical solidarity while the inverse situation, i.e., a lack of participation in these networks, might indicate either a strong presence of organic solidarity or the lack of cohesion altogether. A strong presence of organic solidarity would be indicated by high levels of social capital and economic inclusion, including participation in the labour force.

The second phase of analysis involves translating these indexes into numeric and graphic models that measure social cohesion according to a series of hypotheses that specify the interaction and relationship of the six indexes, hypotheses that will generate a set of empirical models of social cohesion and various configurations of social solidarity. Testing these hypotheses will also allow for the identification of the differences that exist, if indeed they do, between small villages that have been abandoned or are in the process of being abandoned and those villages that have stable populations or are growing, to name just one example (cf. Duhaime, 1997).

DISCUSSION AND CONCLUSION

Our emphasis on both objective and subjective criteria of social cohesion is significant. Following the leading pioneers of social indicator studies, it is apparent that measuring the health and sustainability of both individuals and the communities in which they live requires the use of both perceptual and behavioural measures of well-being (Davis and Fine-Davis, 1991; Deiner and Suh, 1997). The advantage of using perceptual measures in indicator-based studies of social and economic well-being is well-documented. These indicators accomplish what behavioural measures cannot, including: (1) they provide direct measures of an individual's assessment of his own well-being; (2) they provide

data along a single dimension, like 'satisfaction with healthcare', that objective measures, like number of hospital beds per 100000, cannot measure; (3) they facilitate the identification of problems that merit special attention and social action, both with regard to particular aspects of life and for particular sub-groups of the poopulation (list represents a modification of Davis and Fine-Davis, 1991: p. 108).

Standard economic indicators of development are no longer regarded as sufficient measures of how well a society is functioning (Diener and Suh, 1997), much less a measure of how cohesive a society is. Secondly, our use of subjective measures for social cohesion corresponds to the idea that it is built on social and psychological conditions, including the existence of shared values and common goals, the existence of trust and confidence in civic institutions, and the existence of access to affective, cognitive and material components of social support.

Our use of perceptual indicators will facilitate an examination of how social inclusion and exclusion are experienced at the personal level, independent of socioeconomic status and what other objective variables reveal about the state of the community (including crime rates). Measures of subjectivity are needed precisely because cohesion is experienced as a social asset by those who have access to networks of support but a hindrance to those who lack this support. Social cohesion can lead to stable and nurturing networks of mutual support and cooperation, but it can also lead to rather rigidly maintained boundaries of exclusion and segregation, which are usually translated into feelings of isolation and alienation (Portes, 1998). Indicators that reveal perceived access to affective, cognitive, and material support as well as level of satisfaction with government institutions and other important domains of community life reveals to what extent individuals feel they belong to their communities, regardless of their ability to achieve economic prosperity or success.

Furthermore, our model of social cohesion (and similarly what constitutes a cohesive society) is calibrated to adjust to the *values, goals, and norms of trust and reciprocity* that are thought to exist among Inuit and Inuvialuit families living in the Canadian Arctic (e.g., Wenzel et al., 2000). The continued use of a subsistence economy suggests that many Inuit and Inuvialuit share a common set of values and goals associated with this system, including norms

of generalized reciprocity associated with procuring, processing and sharing food and other resources. Indeed, for those who participate in this economy, an important source of social inclusion involve activities related to the harvesting, processing, and distribution (by sharing, bartering and selling) of locally harvested resources, including mammals, fish, and plants for food, fuel, clothing and medicine.

Subsistence is more than a mode of production, however, it is a powerful ideology (Wenzel, 1991) that extends into other areas of life, including the raising of children and the treatment of elders. It also contributes to the structure of social relations, community leadership and moral authority (Searles, 1998, 2001). How the integrity of networks are affected by changes in the employment structure, by mobility, or by educational opportunities is not clear. Although more and more Inuit are entering the labor force as independent wage earners or as small business owners, it is still unclear how this trend is affecting personal or community-level decisions with respect to social and economic development.

Our model follows the principle that social cohesion is derived from civic participation (as expressed through participation in elections and through other community-based events and associations), demographic stability, social inclusion, economic inclusion, and quality of life measured by satisfaction with community life and other psychological indices. This model, albeit more complex and perhaps more cumbersome than other models of human and social development, treats social cohesion as the outcome of various social, economic, and political processes, and not as a social goal in itself (cf. Jenson, 2000).

NOTES

* This material is based upon work supported by the National Science Foundation under Grant No. 0002402 and by a strategic grant funded by the Social Sciences and Humanities Research Council of Canada under its program, "Exploring Social Cohesion in a Globalizing Era."

[1] There are four major populations of Inuit in Canada occupying distinct regions, including the Inuit of Labrador (pop. 3700), the Inuit of Nunavik, Arctic Quebec (pop. 7700), the Inuit of the Nunavut Territory (pop. 25000), and the Inuvialuit (pop. 3200) of the Western Arctic. All figures are based on 1996 census estimates.

[2] See the report issued by the Federation of Canadian Municipalities in 2001 for a recent example.
[3] In Canada, there is a concern about climbing poverty and unemployment rates among certain subgroups in Canada (i.e., declining social and human capital), problems blamed on a general lack of social cohesion (Policy Research Initiative, 1999). Indeed, recent studies reveal Aboriginal peoples in Canada being much less well-off socially and economically than non-Aboriginal peoples, a gap that continues to increase despite government to efforts to reduce these gaps.
[4] For more information about the project, including its history, see www.arcticlivingconditions.com.
[5] For more information about the details about the Aboriginal Peoples Survey, see www.aps.ca.

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