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The System of Community Accounts:
An Application to Newfoundland and Labrador

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An Application to Newfoundland and Labrador
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1. Introduction

The System of Community Accounts (SCA) (www.communityaccounts.ca) was developed out a perceived need to track the contribution of government programs to regional economic development within a province or state.   However, it was the introduction of the "Strategic Social Plan for Newfoundland and Labrador 1998" (SSP) which truly spurred development of the SCA framework and brought the Community Accounts into the Province's bureaucratic and public consciousness. The SSP introduced a "vision" for the province, which was for a "healthy, educated, self-reliant and prosperous people living in vibrant, supportive communities within sustainable regions". The SSP also specified values for our society that included social justice, equity and fairness and four goals that included "safe, nurturing communities" as well as integrated and evidence-based policy development. In order to "ensure the accountability of all partners"[1] the SSP expressed the need to provide evidence by measuring outputs and outcomes through the use of indicators. In addition, the SSP committed to produce a Social Audit within five years that would report back to citizens on the social progress that had been achieved, that is, on the "overall well-being of our residents" .[2]

A decade (almost to the day) has passed since the SSP was introduced. Governments have changed and the SSP is no longer in existence. What does continue to exist and to develop under the new Government are the Community Accounts.   During this period the Accounts have received both national and international recognition.   The system exists in another Canadian province, Nova Scotia, and is being introduced in a third province while under active investigation by a territory (Nunavut). We have also held many discussions with members of the First Nations Statistical Institute (FNSI) as to how the Community Accounts (CAs) might be an ideal system from an aboriginal perspective. FNSI has indicated strong interest in the CAs for sharing data and as a data system that has the potential to reflect aboriginal values, society, and economy

The purpose of this paper is to describe the spatial dimensions as well as the accounting framework of the Community Accounts and to outline some of the analytical tools that have been developed to help policy-makers and citizens intervene to improve the quality of their lives. Since many other papers in this session are focusing on issues of poverty and income inequalities we shall as very briefly outline some of our efforts in that area down to a neighbourhood level.

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[1] Page 35 Government of Newfoundland and Labrador (1998)
[2] Ibid Page 36

2. Spatial Dimensions

Returning to the SSP, the implication of the "vision" statement is that we would have output and outcome indicators associated with communities. In Newfoundland and Labrador communities are divided into incorporated and unincorporated the former being somewhat larger, but "large" may still only be a few hundred people. The Community Accounts only reports data separately for incorporated communities; data for unincorporated communities are combined with a near-by incorporated community and then data for the combined community are reported under the name of the name of the incorporated community[3]. There are about 400 communities reported in the Community Accounts.

The first data collected for the Community Accounts were from income tax records and these are collected on the basis of postal codes. A conversion file was used to assign postal codes to communities. Census data use their own geographic units and since the Community Accounts makes use of such census data then these data are converted into community data by converting basic units into postal codes. Since the 2006 Census, Statistics Canada is able to report census data on both bases.

The dissemination of data in the Community Accounts for smaller communities always gives rise to the issue of confidentiality. Since the Newfoundland and Labrador Statistics Agency (NLSA) is a government agency we follow the guidelines of Statistics Canada governing privacy and the use of rounding to protect privacy. Confidentiality in the published data should therefore not be a concern.

For the larger towns and urban areas, it was decided to produce neighbourhood level data. The original request for such data came from non-governmental, anti-poverty organizations in St. John's (the Province's capital and largest urban area). In order to maintain confidentiality but be able to report income for these geographies neighbourhoods were defined to be about 1000 people. Discussions with community organizations and municipal officials helped to determine boundaries within this general guideline.   The provision of data at the neighbourhood level has provided quantitative evidence to our understanding that inequalities and differences can occur on a variety of dimensions/domains within an urban area and that the levels of the various dimensions are often highly correlated. For example, populations in poorer neighbourhoods often experience lower levels of health and lower educational attainment levels than those of richer neighbourhoods.

The SSP Vision also mentioned "regions" as collections of communities. The Community Accounts provides data for a number of administratively defined regions. "Local areas"[4] are Census Consolidated Subdivisions as defined by Statistics Canada. "Economic zones"[5] were defined originally by the Provincial Government and are used

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[3] Still the names of the all the communities included under the name of the incorporated community are noted when accessing data on the combined "community".

[4] There are 80 within the Province.

[5] There are 20 within the Province.

mainly by the Federal Government for the purpose of guiding regional economic development. Originally, there were six SSP regions. With a change of governments, the present Rural Secretariat replaced the SSP Secretariat. The Rural Secretariat modified the structure and intent of the former SSP Secretariat but the vision for the Province and the accountability process remain largely intact. There are nine regions associated with the Rural Secretariat. Other administrative areas within the Province include Health Regions, School Board Regions, and geographies associated with Human Resources and Development Canada, a federal agency. The most general statement is that administrative boundaries reflect the independence of the agencies, the mandate of that agency and to some extent the historic infrastructure of the agency. In any event, the mandate of the Community Accounts is to provide information on a geographic basis that will support evidence-based decision-making for management and this is what the Accounts do.

The Community Accounts also provides information for the entire Province and permits key indicators, called "Headline Indicators"[6] to be compared from amongst Canada's provinces and territories. In addition, data for many of the key indicators have already been collected for many countries and will be included in the Community Accounts.

There are three other major thrusts within the Community Accounts associated with spatial analysis at the sub-provincial level, which should be commented upon. These features can be viewed from the front page of the Community Accounts website under the row "Map Centre". The first feature relates to "infrastructure maps" in which the user can see the location of large capital infrastructure assets such as schools, airports, and hospitals. This can be done either through the use of a map or a satellite image or a hybrid combination of both. Zooming in on the building and then "clicking" it gives some of the characteristics of the building and the services it offers. In future, usage of the building relating to residents can be provided such as the catchment area of a school or hospital.

A second spatial feature shows the geography associated with a particular activity, which typically is not bounded by fixed administrative boundaries. An example of this type of spatial flow analysis that might be provided is shown in migration flow diagrams or commute-to-work (workflow) diagrams. Such analysis permits us to understand the flows between areas and might be used to better understand the socio-economic sustainability of a region. For example, when residents of an area travel to work outside the region their buying habits and use of services also change. The result is that the socio-economic structure of the community changes.

The final feature uses the software program, Instant Atlas. to provide Dynamic Mapping capabilities. One can view local areas throughout the Province for an indicator and then differentiate amongst these areas according to a specific range that the value for that indicator falls into. The program also permits one to see how values for the selected area change over time and to rank geographies. The program also permits simple regression of one indicator with another.

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[6] Following a British tradition.

In summary, the Community Accounts permits one to see if the Vision is being attained at the community and regional level and it permits users to obtain data at levels of geography where intervention may be beneficial. More importantly analytical tools are being incorporated into the Community Accounts which permits increasingly sophisticated spatial analysis.

3. Well-Being and Its Domains

The Strategic Social Plan specifically mentions "well-being" as an outcome indicator. In addition, the SSP differentiates between overall well-being and general well-being. The former concept as defined in the SSP includes the latter as well as employment and economic security, and community stability. One gets the general impression that what was envisioned was a more objective concept of well-being that could be represented as a composite of indicators in the three areas just noted. Interestingly, the promotion of well-being is also mentioned in Canada's Constitution[7]. The question is what do we mean by well-being and how does it relate to other concepts such as happiness, utility, life satisfaction and the quality of life?

In economics, the concept of utility finds its roots in the writings of the social philosopher Jeremy Bentham (1789). According to Bentham, the things that give us happiness lies in those things in our life that gives us pleasure; this is basically a hedonistic approach, which is connected to materialism. Implicit in Bentham's concept is the understanding that utility is subjective rather than objective and that we act in our individual self-interest. This restricted form of utilitarianism is not primarily an ethical principle but an assumption concerning human behaviour. In this form, individuals are maximizing self-interested egotists concerned with material well-being.

John Stuart Mill, expanded upon Bentham's ideas by arguing in his 1863 book on *Utilitarianism* that happiness involves more than sensual pleasure. For Mill, utilitarianism also involved intellectual, spiritual and cultural pleasure and, therefore, was more than just the pursuit of maximizing material gain. In fact, Mill argued that these other sources of pleasure were more important determinants. In this regard, Mill seems to follow Aristotle's notion of *eudaimonia* in that the pursuit of "happiness" is associated with the excellence of virtuous activities (ethical, intellectual and political). Pigou (1920) also seems to go further when he distinguishes between economic welfare and total welfare by assuming that total welfare can include the satisfaction of altruistic desires. Armatya Sen also seems to be somewhat consistent with this notion of well-being in his capabilities approach. It is this approach that we are following here in that well-being involves much more that materialistic possessions, it also involves relationships, contributing and enjoying community vitality, political freedom and involvement, a supportive work environment. Good health, personal safety, education and knowledge

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[7] See Section 36.(1)(a) of the Constitution Act, 1982.

increase our capability of achieving our individual potential/self-excellence whereas poverty and intolerance acts as barriers towards that end.

Clearly, any indicators on well-being to be reported in the Community Accounts must be reported at some level of aggregation. The answer to the question as to how do we measure social progress in terms of social preferences also demands aggregation. The questions as to whether individual levels of well-being (utility) can be aggregated[8] and if so how[9] have been discussed for most of the last century. The answer coming out of welfare economics is not a pretty one. In order to derive a social welfare function one has to have individual utility functions that make assumptions about measurability and comparability. At this time only a limited set of welfare functions are possible under fairly restrictive assumptions. The search for greater generality continues. While the discussion may seem esoteric, the reality is that analytical tools such as benefit-cost analysis or the use of "poverty lines" ignore the conceptual difficulties or accept weaker partial rankings in order to deal with practical social issues. At this time our approach in the Community Accounts is basically to ignore[10] the interpersonal utility and aggregation problem outlined in the preceding paragraph when it comes to reporting life satisfaction indicators such as the one found in Statistics Canada's Canadian Community Health Survey (CCHS) [11],[12].

The implication of the discussion thus far is that we believe well-being is subjective and best gauged by the individual. Data for an associated indicator would be gathered by surveys, which ask people directly about the quality of their lives. Accordingly, the Newfoundland and Labrador Statistics Agency conducted their own Labour Activity Surveys (NLLAS) in which people were asked about the quality of their lives. Question 62a of the NLLAS asked, "…On a scale of 1 to 10, where 1 is poor and 10 is excellent how would you rate your quality of life?" Ratings were coded in three ordered categories: Poor Quality of Life, Average Quality of Life and Good Quality Of Life. "Poor" equaled the combined counts of ratings 1, 2, 3 and 4; average equaled the combined counts of ratings of 5, 6, and 7; "Good" equaled the combined counts of ratings of 8, 9 and 10. The survey results were never published for any level of geography but, as will be explained later, the individual responses were employed in a "General Model of the Determinants of the Quality of Life". Our approach, we believe, is consistent with the one argued for forcefully by Layard (2005). An implication of this approach is that individuals judge their quality of life to their own particular circumstances and relative to

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[8] See for example Robbins (1932) and Hicks (1939)

[9] Roberts (1980a,b) and Sen (1986)

[10] More correctly to implicitly assume a weaker utilitarianism view that all individuals are given equal weights.

[11] See GEN_Q02

[12] The warning to users of the Community Accounts or to anyone who references aggregate quality of life, happiness or well-being indicators, is that one has to be very careful in interpreting changes in the subjective indicators for aggregate groupings over time or when comparing one community/neighbourhood to another.

those in their more immediate environment[13].   As noted earlier, geographic comparisons across jurisdictions of well-being or quality-of-life comparisons may seem suspect if communities have differing value systems.

An alternative approach is the objective one associated more recently with the writings of Sen (1999). Under this approach the quality of life and well-being depend on functions, states and capabilities such as those enunciated by Mill. The SSP Vision implicitly acknowledges these states and capabilities when it explicitly calls for a healthy, educated, distinctive self-reliant and prosperous people etc.

Figure 1 below illustrates our understanding of the various domains of well-being as represented in the Community Accounts. Most of the domains are ones that we have come to expect over time (health, education, working conditions).   For example, traditional economic theory would predict that as income and consumption increase that the quality of life of the individual or household would also increase.

Figure 1

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[13] One could imagine a spatial distance measure related to relative incomes in that the incomes of those further away are relatively less important.

Deaton (2008) reviews many articles, which deal with this issue and adds to the discussion by examining the 2006 Gallop World Poll on life satisfaction. Other domains such as "Demographics" are not ones one might normally expect to see. To some extent demographic issues might be subsumed as part of Community Safety and Social Vitality and yet we treat it separately since sustainable communities and regions are included as part of the SSP societal Vision. People in our Province do care about the sustainability of rural communities.

Community: Safety and Social Vitality must be considered in conjunction with the Society: Culture, Politics and Justice domain. Both domains in our opinion go beyond the individual self and relate to civil society. Our belief system is therefore closer Aristotle's *eudaimonia* in respect of these domains and yet perhaps closer to Mill's in our Social Relationships domain if we interpret Nussbaum (2005) correctly on these matters. In the case of Community, it is our conjecture that people value what occurs in their community or neighbourhood. For example, in the case of Social Relationships individuals may value the existence of family or close friends who are there to provide assistance. However, these same individuals may believe that the community or neighbourhood is a supportive one and the existence of such support within the community is important to them even though they may not directly use it. In a similar manner, an individual feel safe in their community while recognizing that others do not. Living in a community in which people generally feel safe may be of value to this individual and therefore increases in community safety will increase his/her well-being. Some issues that might affect the individual either directly or indirectly and that are wider than community issues include issues associated with justice, general social and economic equity as well as cultural issues. The fact that people are interested in political freedom or the existence of natural disasters in countries far away must imply that their well-being in some wider sense is affected by the existence of such events.

As will be discussed, each of the domains is complex in their own right and have multi-dimensions to them. The question arises what attributes or indicators should one use to represent this domain. Take income for example. What indicator should we use: real GDP per capita? Or should it be real GDI or GNI or real after-tax and which taxes? Should we use personal incomes or family incomes? And if we use family incomes should it be equivalent family incomes and what equivalent scaling factors should be employed? The answer must to some extent be arbitrary in the first instance. As more research is carried out and more data become available, it should be possible to better understand which indicators are more capable of representing the determinants of an individual's well-being.

Having selected the indicators for the domains, the question arises under which conditions should composite indicators be developed? Possible answers to this complex topic are included in Nado's et al. (2005) review of the literature as well as the reviews done by Salzman and Sharpe (2003) and Sharpe (2004). Our response to this issue is to investigate the formation of composite indicators for each of the domains but to not have

a single composite index as the proposed Canadian Index of Well-Being (CIW), the Genuine Progress Index (GPI), or as Index of Economic Well-being (IEWB) developed by Osberg and Sharpe (2003). Nor is our approach to use a complementary composite, comprised of two separate indices: a conglomerative index and a deprivational index as was developed by Anand and Sen (1997). Our rejection of an objective composite index is consistent with the position enunciated by the OECD at its Istanbul Conference in 2007.

What we do propose is to combine the subjective and objective dimensions of well-being so as to better understand human and social development and the overall quality of life and well-being.[14] This comprehensive and proactive approach would be of specific interest to policy planners and makers particularly in the areas of economic and labour market development. For example, a shift to a quality of life based economic development strategy offers a balance between the desire for diversified business development and community concerns over areas like public safety, the environment and loss of the feelings of community. Taking this approach allows for the successful attraction and retention of business while preventing such things as congestion, loss of green space and public safety hazards that are often generated as a by-product of growth. As well, policy makers can better balance the need for business tax abatements and incentives against ensuring that resources are available for infrastructure, cultural investment, education and social equity, all of which are important in maintaining the quality of life for citizens (Salvesen and Renski, 2003). Overall, a quality of life-economic development paradigm is a long-term investment in the sustainable development and smart growth of communities.

From the point of view of labour market development the use of quality of life measures allow for an evaluation of the widespread effects of government expenditure policies. Welfare and anti-poverty policy are good examples in that a quality of life approach would provide a better understanding of the relationships between financial support and the various social characteristics of communities and families that determine quality of life levels. Similar studies could investigate the relationships between income and unemployment. Another pertinent field of research related to quality of life is work satisfaction. For instance, traditionally, economists have viewed wages as the only return from employment. More recent theories suggest that wages are only part of the total utility generated by a job and that non-monetary occupation benefits in combination with family satisfaction and community integration can have far reaching effects on achieving higher worker satisfaction and consequently higher levels of quality of life.[15]

To demonstrate the feasibility of the combined approach we developed a general model of the determinants of the quality of life. The quality of life[16] variable used in our model has already been described. The objective variables were taken from the same 2001

[14] See Lingjiang (1998) and Cummins (2000) for example.

15 See Groot and Massen Van Den Brink, 2000, Duxbury and Higgins, 2003.

[16] Quality of life indicator is somewhat narrower than one measuring well-being primarily because of "existence value" indicators or conditions. For example we may experience an increase in well-being due to a reduction in health inequalities within society even though we personally are well taken care of.

Newfoundland and Labrador Labour Activity Survey. A random sample of 2,600 Newfoundlander and Labradorians aged 18-64 were chosen using an electronic listing of private households telephone numbers. A pivot report was produced in order to gain a first round understanding of which variables might affect one's quality of life. The next stage was to use these results to run a multinomial ordered logit model based on such factors as age, gender, family status, age and number of dependent children, education, employment status and occupation, household income including source, residency, volunteering and home and vehicle ownership. The results of the analysis were quite promising and the reference categories for base case can be found on the Community Accounts website (see **Figure 2** below). In order to generate user interest users are permitted to select alternative values for each determinant variable. For example, the base case is for a male aged 60-64 who is unemployed and separated or divorced and whose income is less than $15,000 per year. There is a 52% probability that his quality of life will be good (level 8 or better). If we have this individual marry then the probability of the good life increases to 60%.   We can leave the individual divorced but try to compensate him with a higher income and indeed we find that increasing his income to 25,001 - $35,000 will increase his probability of enjoying the good life to 64%. If he had his time back and did not marry then the probability of having a good quality of life would be 66% leaving us to question the old adage: "Better to have loved and lost than never to have loved at all."

This model is a prototype but it does aid us in our understanding of what is important in determining a person's quality of life and the model begins to help us understand the relative importance of various factors. Moreover the prototype can help us develop other determinant models such as a health model.

Figure 2
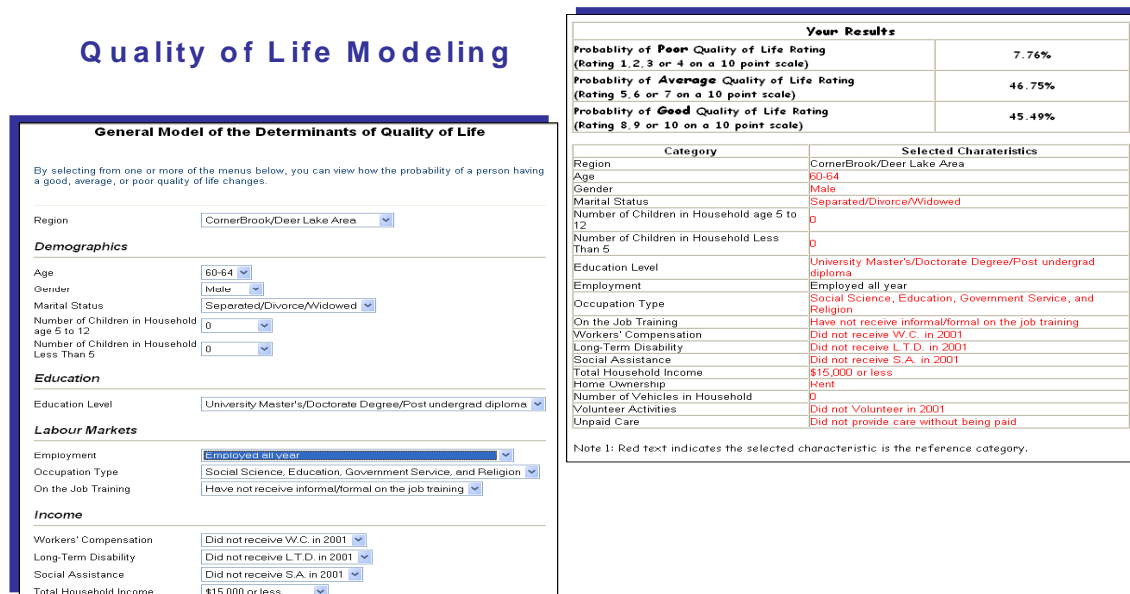
Frequency distributions for each headline indicators were calculated based

Figure 3
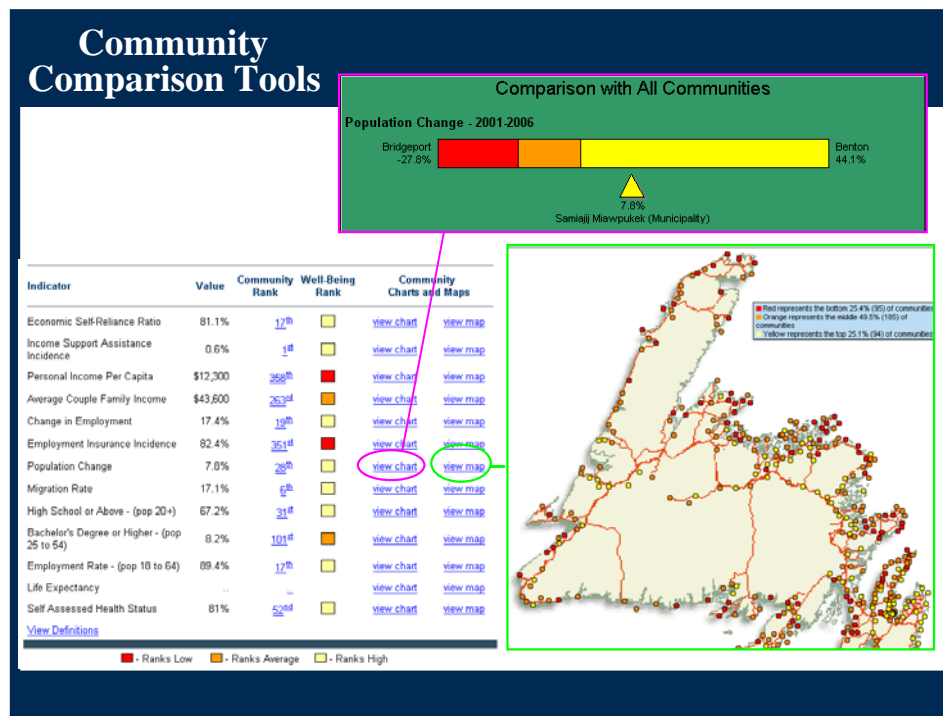
upon indicator values for each of the 400 communities. The illustrative example in Figure 3 is for "population change". The headline indicator was chosen to illustrate the concept of sustainable communities. Communities with greater population increase were deemed to be more sustainable. The horizontal bar chart at the top of **Figure 3** above divides the distribution into three parts: the top 25% (in yellow), the bottom 25% (in red) and the middle 50% (orange). The chart also shows the range of community values and the yellow triangle show where this community (Samiajij Miawpukek)[17] population change falls relative to all other 400 communities in Newfoundland and Labrador. This community grew by almost 8 percent during the period 2001-2006 according to our latest Census results.

Figure 3 also shows that in the Community Accounts we have calculated where this community falls with respect to each of twelve headline indicators that were initially chosen to represent well-being according to objective indicators. The table on the left of the figure lists the indicator, its value for that community, the rank of this community amongst the 400 and where roughly in the distribution as indicated by the colours noted above where this community falls. Users are able to access the bar chart for each indicator and see how this community relates to others by reference to a map of the Province with all the communities as is shown on the map located on the right hand side

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[17] A Micmac aboriginal community.

of **Figure 3**. The map clearly shows that many of the smaller coastal communities have experienced and continue to experience steep population decline over the past 15 years. This decline has largely been due to the collapse of the fisheries and associated moratoria during the 1990's and young people leaving their smaller communities in order to obtain post secondary education.

Figure 4 illustrates a "Well-Being Summary" table shown on the right side where the rows are the communities located in a particular region (in this case an Economic Zone 08) and the columns are the 12 headline indicators. The cells present the colour indicating that part of the indicator community distribution the particular community fell into.

Figure 4
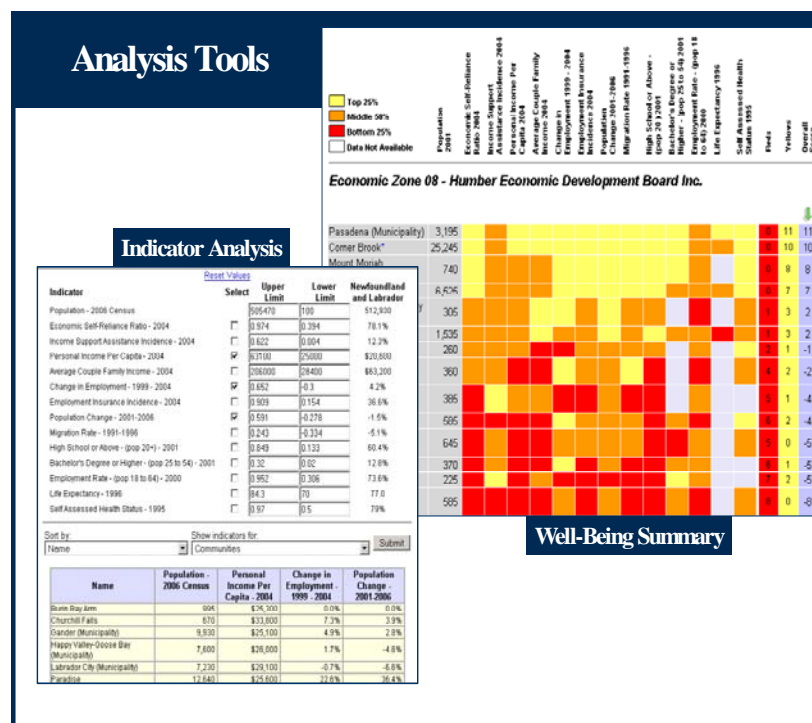
While we have stated that we reject the notion of a composite indicator, there does exist a crude static composite indicator of sorts.   This composite was created in response to the Community Accounts team receiving a request from SSP Regional Planning Committees. These Committees wanted a quick way of initially identifying those communities most in need. The composite indicator was developed using the Well-Being Summary table just discussed and is shown in the last column (blue fill) of that table. The composite was calculated for each community very simply. There are twelve[18] well-being indicators and

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[18] There are 13 but life expectancy cannot be filled in for smaller communities.

each indicator that fell in the top 25% received a score of 1, and scores of 0 and –1 for the middle and bottom ranges. The composite "well-being" indicator for each community is simply the aggregation of these scores for the 12 indicators.   So crudely in that table in **Figure 4**, one counted along the row for that community the number of indicators in red (indicated in the third last column) and then subtracted that number from the number of indicators in yellow. For example, Corner Brook has ten indicators that were in the top 25% (yellow) and none in the bottom 25 % and so it received a composite score of 10 as shown in the last column.

We stated that the composite was "initially" used to determine those communities most in need since the next step in the process was to talk with front-line service providers and municipal officials to obtain their reactions and views as to these results. In most cases the results were thought to accurately represent the state of the community but at times individuals felt that the results were not representative. There was one telling and interesting response by the individuals in one community which found they had amongst the lowest per capita income in the Province: "We never knew we were that poor." Visiting the community would tend to confirm that judgment that perhaps the community was not poor since the houses, although modest in size, were very well maintained. It may be that income in this community as in many rural communities was not accurately measured since the value of household production is not included in income. Moreover, the cost of living and in particular housing costs will be much lower in these communities primarily due to the cost of land.

The corollary to identifying those communities most in need is that successes are also identified. The interesting cases are those in which two communities are geographically very close to one another and seem to have the same resource base but have quite different values of the composite indicator.   Some research using the Community Accounts as well as community surveys and qualitative analysis indicates the importance of local leadership and social capital in promoting community development.

The composite indicator does tend to reflect the population health model and the general view that many communities that have problems in one area also will have problems in other areas. For example, low incomes, low levels of formal education, decreasing employment, poor health and low social capital may all appear in the same community. One can construct causal models as to why this might be the case but the composite indicator tends to reflect this. Maps are available that show composite indicators by ranges for individual communities in a Rural Secretariat region. These maps, which are colour-coded help the analyst to see patterns. Generally it is the more remote rural communities, which are experiencing the most difficulties and show the lowest values of the composite well-being indicator.

In the Well-being domain one can view the individual "dashboard" values for each of the headline indicators for the various domains as well as the composite value and then select the geographies for comparison. Analytical tools permit one to arrange the communities by rank, that is, from the highest positive values for the composite to the largest negative

number. These same tools permit one to sort the communities by one of the headline indicators such as "self-reliance".

Unlike the Canadian Index of Well-Being (CIW) there is no aggregate composite index for local areas or regions and there is no comparison over time.

Finally, in the Well-Being Account it is possible to use our Well-Being Indicator Analysis (see **Figure 4** below) in which the user selects which of the well-being indicators one wishes to consider and sets the search parameters for that indicator. To assist the user, the average value of the parameter for all communities is provided along with the upper and lower limits.

The analytical tool has been found to be very useful. For example, people in rural areas of the Province often find that it is difficult to find seasonal work to financially support themselves. In addition to employment income, fairly generous unemployment insurance (called Employment Insurance) is available to seasonal workers after relatively short periods of employment (420 hours). Still in poor fishing seasons some plant (fish processing) workers may have difficulty finding enough hours of work to qualify for unemployment insurance. To discover which communities may experience difficulties if there are resource issues in the fisheries we use two indicators: EI incidence (the percentage of those employed who receive EI income) and those communities that have experienced a population decrease. We set the EI incidence parameter at 80% and above and the population change parameter to be greater than a 20% decrease. We find that two communities meet these criteria and both are remote and with small populations.

In discussing indicators associated with the well-being domain we have noted that ideally we want to be able to present such data down to the community or neighbourhood level. The discussion just concluded in the paragraphs above indicates that we want to be able to follow the indicators over time. This dimension naturally arises from any discussion on social progress. Recall that the SSP (Strategic Social Plan) of the Government of Newfoundland and Labrador called for a Social audit that would indicate those interventions that were working, why they were working, and for whom. **Figure 5** below lists some of the groups that were mentioned in the Strategic Social Plan. The approach advocated in the Community Accounts is to provide enough flexibility to permit them to drill down to be better able to understand the nature of the problem as well as the impacts on targeted groups.

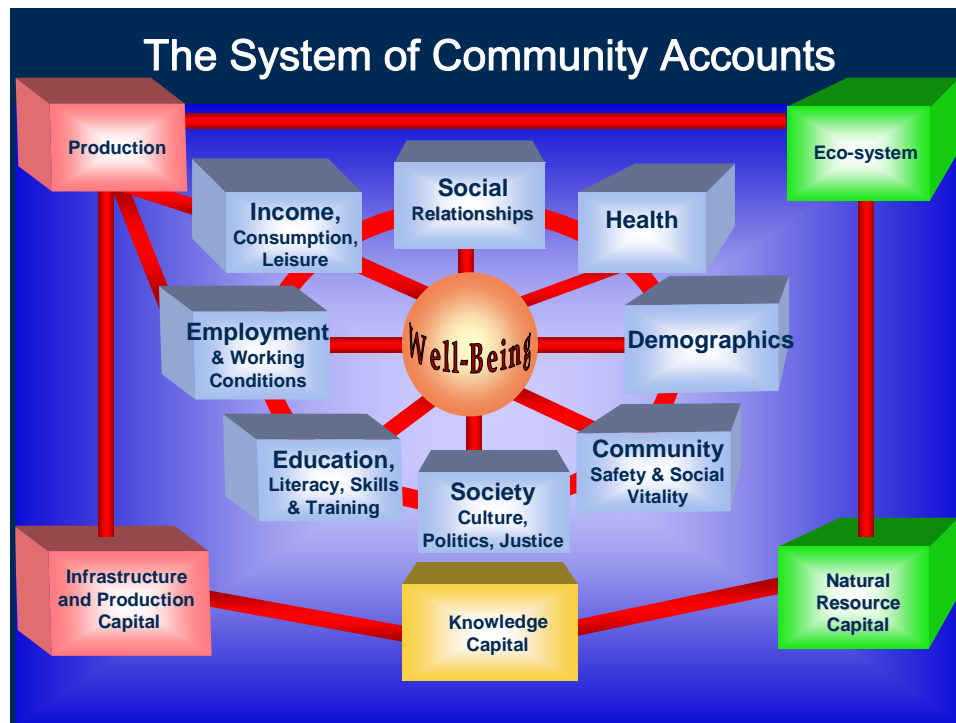**Figure 5**

Domain Dimensions:
Groups, Time and Space
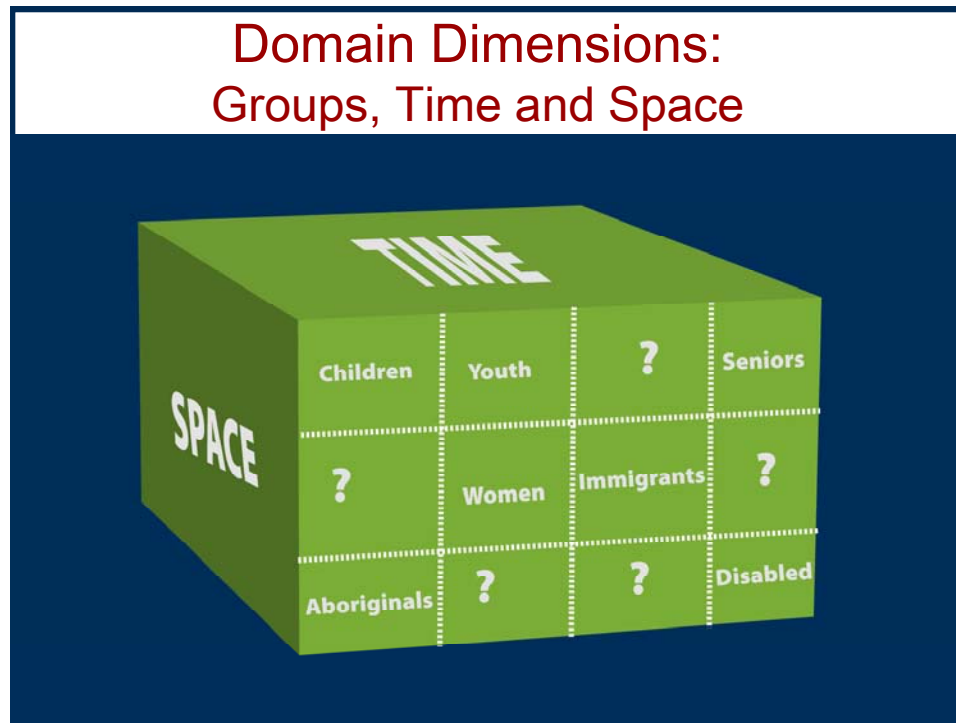
This section provides a brief overview of our concept of well-being and those domains in our lives that affect well-being. For us, the concept while subjective obviously has objective parts to it. Moreover, it is more than our happiness and the quality-of-our lives since it involves a societal collective concern, which strives to achieve excellence within technical, environmental, physical and human knowledge capabilities. Our concern over well-being is not just an abstract intellectual concept but rather one that guides our vision for ourselves and society and in doing so permits us to set targets for our interventions and actions.

4. The System of Community Accounts

The Community Accounts are designed to be a social accounting system, which show how social and economic forces interact with natural resources and our environment to determine our individual and collective well-being[19]. It is not just a collection of indicators associated with well-being. **Figure 6** below shows the full system with all of its domains. The red "pipelines" between the accounts represent relationships amongst the accounts and are meant to be illustrative rather than definitive.

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[19] This perspective was gained many years ago while working with Dale Jorgenson, Erwin Diewert and Michael Denny.

Figure 6

The System of Community Accounts

A somewhat more accurate representation of the system is provided in **Figure 7**. The perspective shown here is that the productive economy is intertwined with those domains that determine well-being but as a recent conference of the OECD noted, measuring social progress means going beyond GDP. Many social activists have noted that increases in per capita GDP do not necessarily translate into increases in the standard-of-living let alone increases in well-being. Economists have long recognized that to measure well-being we must go beyond GDP. Most notably in 1975 Richard Stone wrote *Towards a System of Social and Demographic Statistics*, which was published by the UN. For their part non-economists have tended to dismiss GDP and the System of National Accounts (SNA). The perspective of the System of Community Accounts (SCA) is that the System of National Accounts (SNA) can be thought of a sub-accounting system of the SCA.

Figure 7

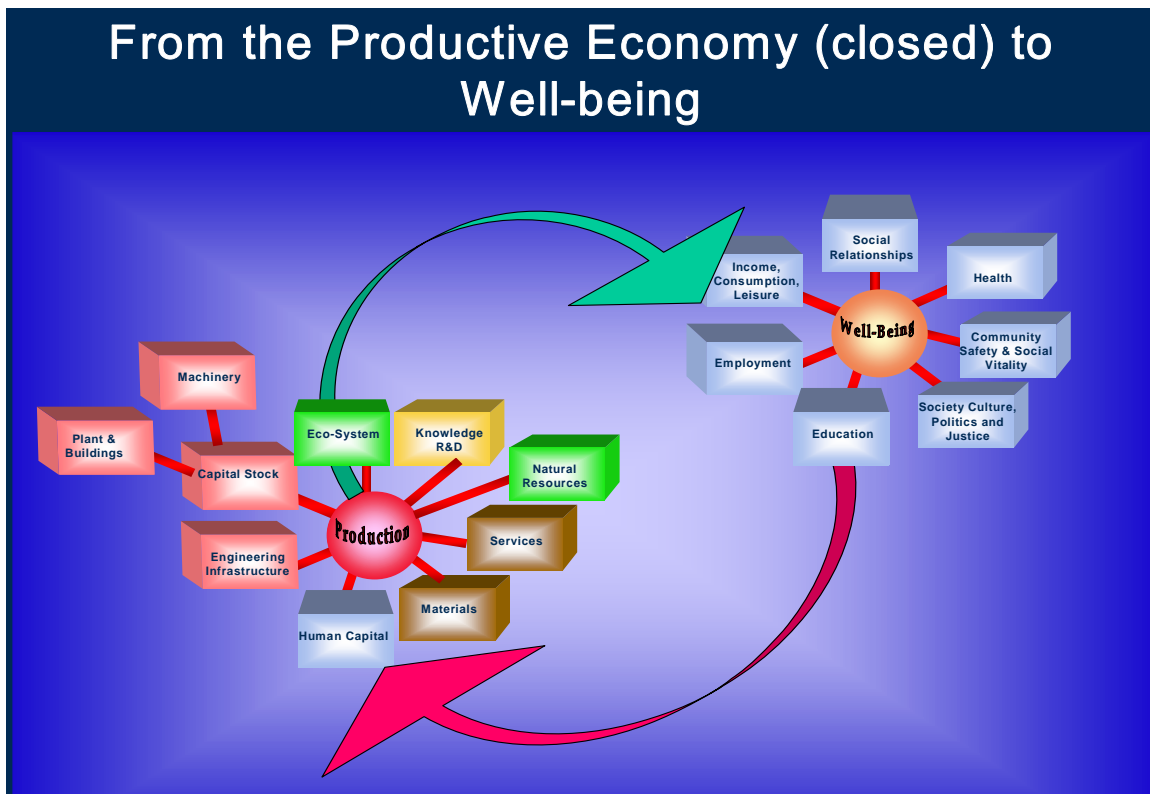From the Productive Economy (closed) to Well-being

Figure 7 emphasizes that the production aspect of the economy feeds into economic well-being through income and consumption. In return individuals provide labour services to the production process and own capital and resources[20]. The conditions under which they provide those services, that is, the working conditions, can also affect the well-being of the individual. Individuals and households can also provide loans and the financial capital for production. Human capital (education, literacy, skills and training) determines the quality of labour services provided by employees but it also determines the quality of labour services provided by entrepreneurs and organizers. This dynamic seems to us to be extremely important when considering community development since such development often depends critically on local leadership and organizational skills as well as personal and community social capital.

The various domains are stocks from which the service flows are inputs into the production process adjusted for utilization rates. The outputs are goods and services that can be consumed by households, used as investments by firms, exported or be classified as expenditures by government. Produced services inputs and material inputs are either produced by other organizations or are imported from other jurisdictions[21]. Our general

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[20] In some cases simply the rights to exploitation.

[21] At the aggregate level they could only be imported from other jurisdictions.

underlying production function is a KLEMSR a modified KLEMS with *in situ* natural resource stocks be added as service flows from these resources (R) are part of the production process. In our Province, as in most of Canada, natural resource usages are important sources of income.

We break from national accounting convention in that new home construction would result in a durable stock of an asset whose services would be consumed by households. In our model, some government expenditures would be classified as transfers-in-kind to households and would therefore increase the consumption in that jurisdiction. For example, health care services would be counted as a transfer-in-kind that would increase income and consumption for the individual and household. When comparing the degree of income inequality with other jurisdictions such as those in the United States these transfers would affect the comparison since in some US jurisdictions (mainly in the southern US) poorer families would not receive these transfers. Access to administrative records permits us to locate the residence of users of the health care system and of course the type of service they have received. As yet we have not calculated the administrative cost of the transfers since the administrative budget records are organized so as to fund operating units and pay health care providers rather than assign the value of service provided to users.

Development of the "Production Accounts" was carried out by a different technical team in an attempt to develop a prototype of what structures domains within the accounts might have. Therefore one clearly sees the analytical framework of the Production Accounts when one enters the site. The separate website[22] has a framework that is consistent with KLEMS and is on a NAICS[23] industry basis. The Microeconomic Analysis Division of Statistics Canada has supplied the data and methodology although that methodology is one consistent with the works of Dale Jorgenson. The result is that our Production Accounts are not integrated into the System of Community Accounts at the present time. When one does access the Production Account domain through the Community Accounts you find a connection to the Business Registry and other business related information such as that on exports. Integration of the production Accounts into the Community Accounts will occur and much more conceptual development will take place following the general guidelines advocated by Jorgenson et al (2006).

Resources are not included as an input at this time but eventually they will be. The incorporation might be conceptually challenging since some of the resources such as oil and fish are collected offshore. Ideally, one should be able to identify the location and size of the stock with the amount of resource flow or depletion. Another aspect of production that is very important in understanding the Newfoundland and Labrador economy is household production, which goes well beyond our understanding of the concept in an urban industrialized environment[24]. For many living in the rural areas traditional lifestyles are evolving into more industrialized and commercial settings but

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[22] See www.productionaccounts.ca
[23] North American Industry Classification System
[24] This concept of household production, which is probably the norm in most of the world, derives from the growth of a subsistence existence in which some surplus can be sold or traded.

many aspects of the older lifestyles still exist. Activities are often related to the seasons and occupational pluralism was required for survival. To ignore household production is to presume that the level of economic well-being and degree of economic inequality is greater than it is since it is based only on market valuations. Having said that, many middle-aged workers are abandoning traditional seasonal working patterns to move to other provinces or to become long distance commuters[25]. At the same time high school students are encouraged to go to university. The end result is that there is out-migration from the rural communities and presumably a loss in well-being in an aging population as family and friends leave and traditional support mechanisms disappear.

As a general comment the social accounting in the system of community accounts (SCA) may be just as, if not more, complex than in the system of national accounts(SNA) since we are not only concerned with the levels of and changes in production but also with the distribution in consumption. In addition our focus is on the well-being of individuals and households who are normally resident within a set geographic area. In national accounts parlance our perspective is "national" rather than "domestic" and in terms of economic well-being the concern is consumption rather than production.   Ideally, our accounting adjustments will make the adjustments transparent.

5. The Structure of Domains

Each domain should reflect the same outline, which is shown in Figure 8 below. For many of the domains there is a clear accounting framework and logically there is where we should begin. The Accounting Structure is the most important part of the outline since it provides the overlying architecture by which all other information is obtained.
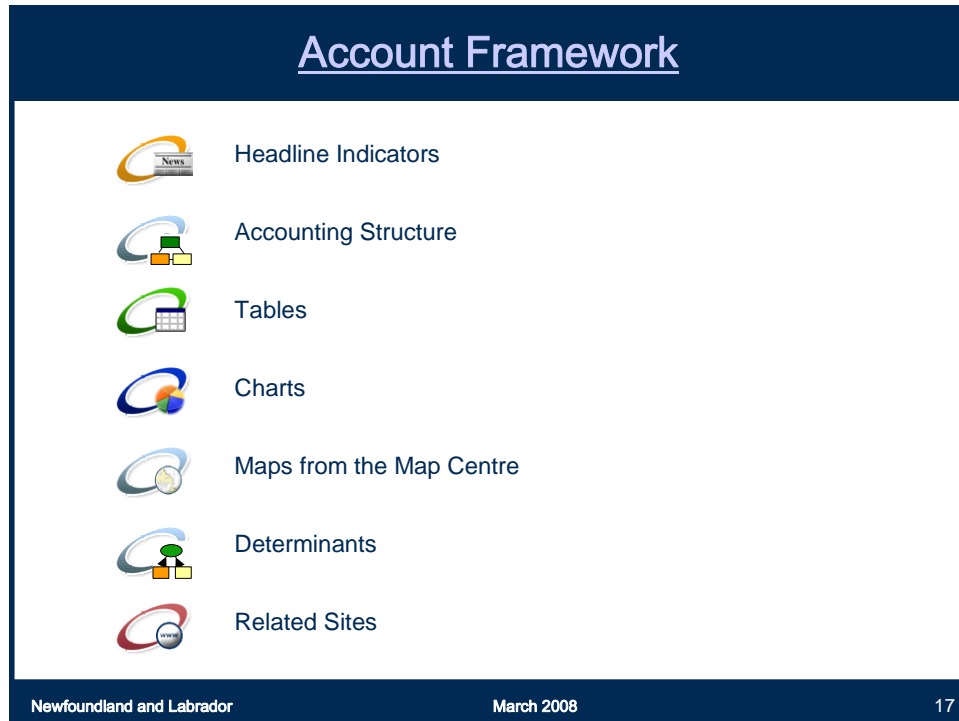
Coming out of the Accounting Structure are the Headline Indicators for each domain. Like the well-being headline indicators discussed in the previous section these domain headline indicators[26] should represent the various facets of the analytical structure. There however is a trade-off between this objective and the one of information overload. If there are too many indicators the ordinary user potentially will become overwhelmed and discouraged from exploring further. Part of the role of the Headline Indicators is as a "hook" to try to obtain the interest of the non-professional analyst, that is the general public and by doing so try to have them explore the topic in more detail.   In the outline for each of the domains we placed headline Indicators at the top since we believed that many users might not venture much further than these headline indicators.   Reinforcing this belief is the fact that we will base our profiles of a selected geography based on these headline indicators. The Community Accounts are a work in progress and therefore there is a "loose" connection between the well-being indicators and headline indicators in the sense that the well-being indicators represented an earlier version of the headline indicators.

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[25] These workers move away for say six weeks and then home for two weeks. Often their employers pay for transportation. While away they work for long hours but the pay is very good.

[26] The earlier well-being indicators came from a period when the accounts were far simpler.

The issue has arisen as to whether or not there should be a composite indicator of the headline indicators in each of the domains.   Recall that we have rejected on theoretical grounds the idea of a composite indicator for well-being but we do acknowledge that such an indicator may generate interest. A partial approach therefore might be to have a composite indicator for each domain. We will probably adopt this approach in order to judge the appropriateness and impact of it.

Figure 8

We shall attempt to illustrate the various sections of our domain outline by using the Health Accounts as an example. **Figure 9** provides the accounting structure for the Health Accounts. Note, for example that upper part of the structure (in pink) relates to the delivery of health services both formal and informal and therefore corresponding parts should be in the production accounts and the production system.   **Figure 10** illustrates that we can use our dynamic mapping tool already mentioned to show a hybrid image of the heath care facilities in St. John's and then to select one of those facilities, the General Hospital, Health Sciences facilities. We can also show what services it provides and some of the capital characteristics.

Figure 9 also illustrates that we wish to provide information on both objective and subjective health states of the patient and that we can calculate health outcomes from interventions. We are reminded that genetics plays a role in determining health states. Because of the relatively isolated nature of our Province there exists interesting genetic data, which are being collected by the NLSA for researchers at Memorial University.
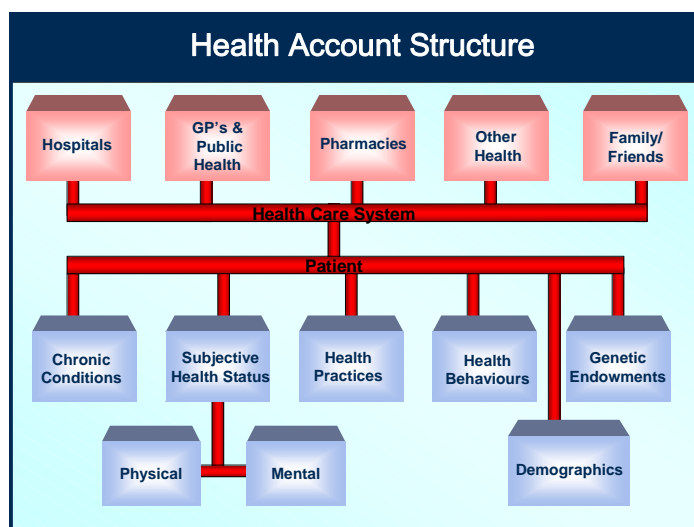
Figure 9
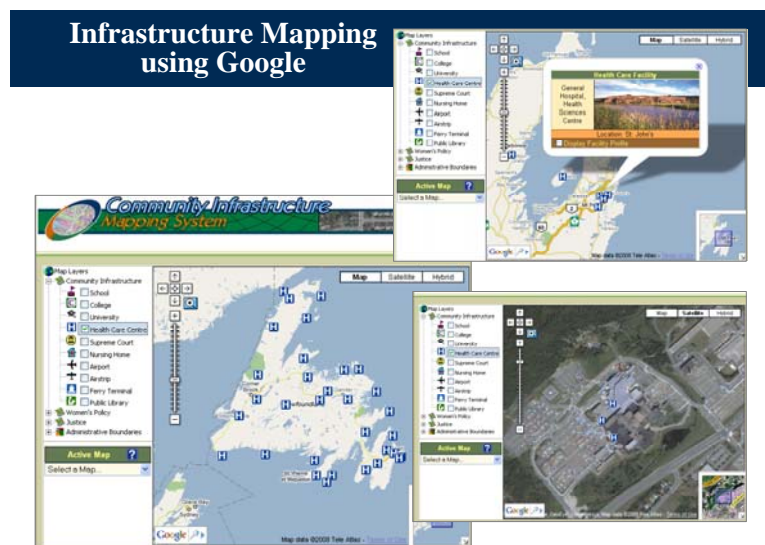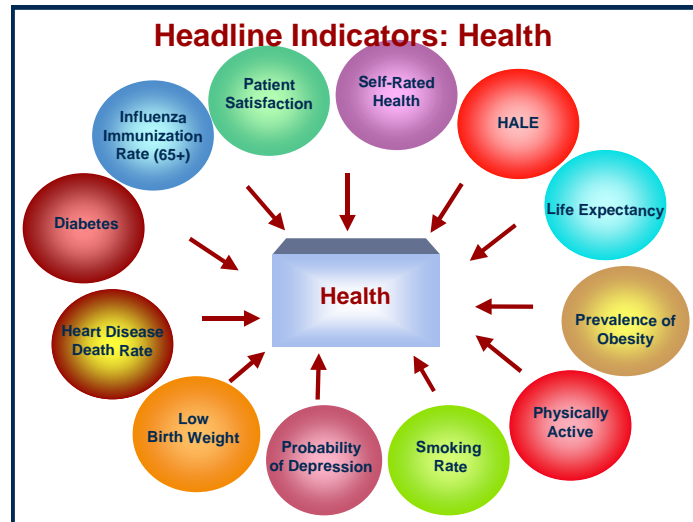

Figure 10

Figure 11

Headline Indicators: Health

Coming out of the Accounting Structure are 12 health indicators. Many of our health indicators are commonly used in Canada and these particular ones have been chosen for the Canadian Index of Well-being (CIW). We deliberately did this in order to make some cross-Canada comparisons as **Figure 12** illustrates. In the Community Accounts one can select which jurisdictions one wishes to compare. As one can see it is possible to link to the exact source of the data. Even a limited amount of data can illustrate some interesting

Figure 12
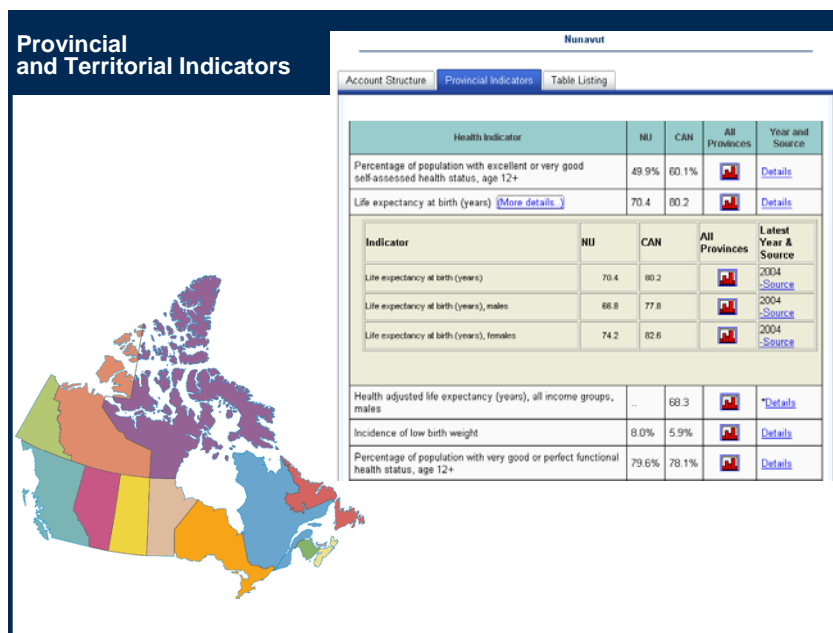
findings: while life expectancy at birth is lower in Newfoundland and Labrador than the Canadian average, HALE (the health adjusted life expectancy), that is the length of life one can expect to live in full health, is about the same for males and slightly lower for women. However, these gender differences and interprovincial differences are smaller than the within province differences when one compares HALE for those in the top income decile with those in the bottom decile.

The actual data we have are provided in tables such as is shown in **Figure 13**. The actual data come from a variety of sources. The data shown in this table are from the Canadian Community Health Survey (CCHS) run by Statistics Canada. In order to have access to better

Figure 13
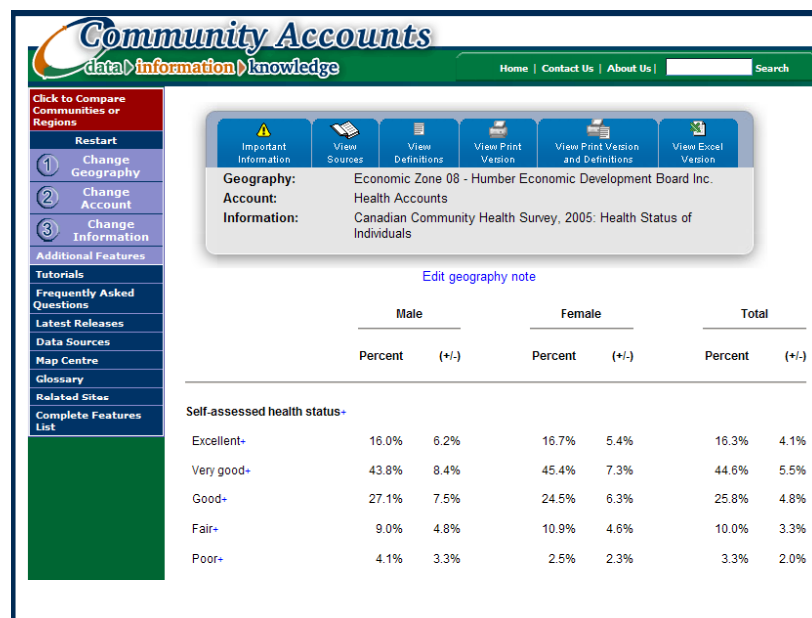
local data, Dr. Jorge Segovia of Memorial University ran his own telephone survey on health states and health behaviours in 1995 using a sample for just Newfoundland of 12,000 individuals. These data were then linked to administrative hospital utilization data and physician utilization data on an individual basis for the period from 1994 to 1997 providing partial panel data. The NLSA repeated the survey for 2001 using a sample of 8,000. It was hoped the marry this survey with the 2001 CCHS survey of approximately 4,000 individuals to provide a larger sample and thereby be able to provide population estimates on a community basis which the CCHS cannot do except for the larger communities in spite of what the survey name implies.   Obtaining community and neighbourhood level health data remains a real challenge for us when using survey data.   It is the intention to continue to explore the use of Small Area Estimation (SAE) techniques.

Many of the data in the Community Accounts are not collected from Statistics Canada. For example, hospital morbidity and separation data come from the Province's administrative health records. We have also noted that we have used survey data collected by Memorial University and the NLSA has also run its own survey. Our approach at the present time is to attempt to merge administrative records with one another or Census files and then attach smaller surveys in an attempt to provide data for small areas.
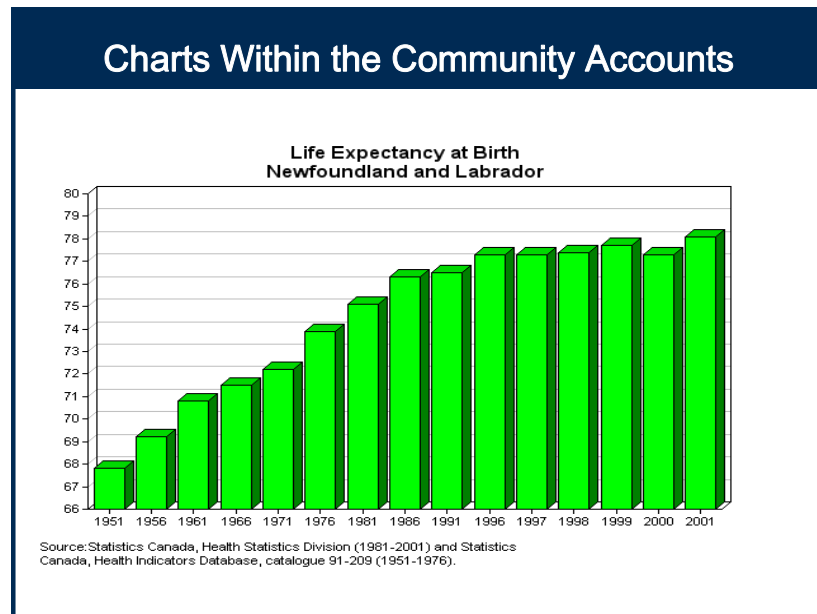
The account tables for the domains should reflect the accounting analytical structure with the first table being a summary table. When accessing the Community Accounts users will note that data are in fact arranged by data source and not by the structure. The result is that data from one source many contain data for more than one domain. We recognize the problem and are slowing correcting it as time and resources permit.

Again if we lived in an ideal world we would permit user defined tables to be available in the Community Accounts as is permitted when you use Nesstar's Data Development and Dessimination software tool and as is found in the very detailed source of labour market information, www.LMIworks.nl.ca , produced by the Province's Department of Human Resources, Labour and Employment. Still there is a lot that one can do when accessing the tables. Data can be printed or retrieved in an Excel format. Important notes about the data can be accessed and definitions of terms used in the table are readily available. Moreover, some interesting "table options" exist: one can view the data in percentages, or rates per 1,000 population or as ratios to the provincial averages. Much more detailed categories of the data are also as a table option. For example, in the summary table on hospital separations, diseases of the digestive system can be broken down into diseases of intestine and peritoneum, diseases of gallbladder, diseases of esophagus, stomach and duodenum and ulcers. We stress that privacy is maintained at national Statistics Canada standards and therefore data are not available when that privacy is thought to be potentially compromised.

We realized that while economists love data tables and series, a major rationale for the Community Accounts was to engage and empower ordinary citizens. In order to move towards this objective we make extensive use of charts. **Figure 14** below shows a chart related to life expectancy for the Province. The data date almost to the time of Confederation with Canada in 1949. And while life expectancy in this Province is still below the Canadian average the gap has narrowed over the years as incomes, the health care system and education levels have improved relatively.

Over time we have seen more dynamic and engaging charts such as Google's Motion Charts based on Hans Rosling's Gapminder software. We wonder if these programs while providing insights to analysts are too sophisticated for most of the general public. What is probably needed is some voice description to accompany the graphics in a language of the user's choice. The forthcoming generations of communications software should make this possible.

Figure 14

Charts Within the Community Accounts

Life Expectancy at Birth
Newfoundland and Labrador

Source:Statistics Canada, Health Statistics Division (1981-2001) and Statistics
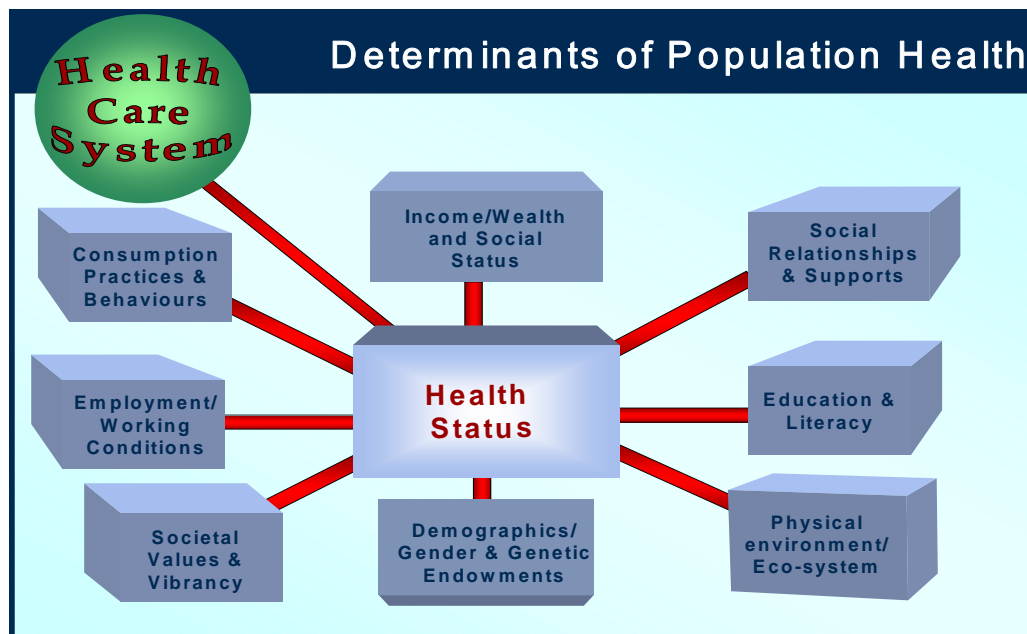Canada, Health Indicators Database, catalogue 91-209 (1951-1976).

A primary feature of the Community Accounts is to provide data at the local level. By
doing so we encourage comparisons between communities or administrative regions.
The "Map Centre" of the Community Accounts permits one to observe health data and its
determinants at a sub-provincial level. **Figure 15** below shows the obesity rates (BMI 30
or Greater) for adult women by economic zone.   As one can observe for many of the
smaller population zones data are not available.

Figure 15

2005 Obesity Rates (BMI 30 or Greater)
Adults 18 and Over by Economic Zone - Females
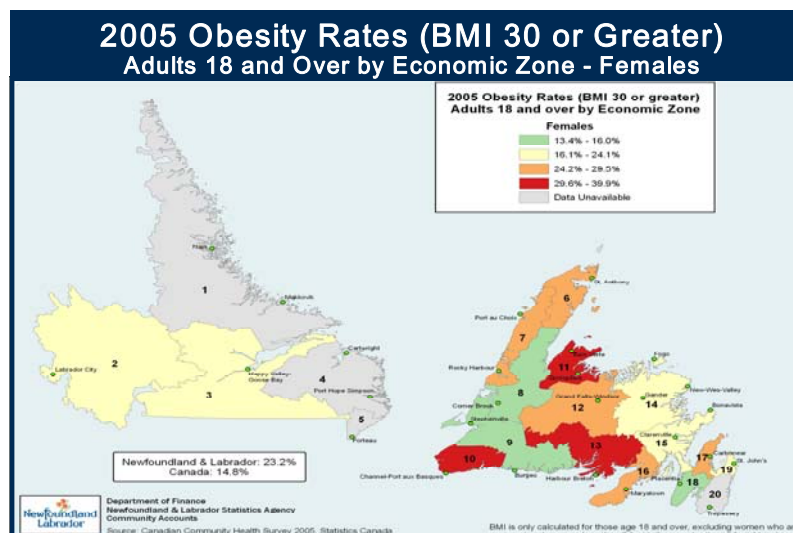
In the Community Accounts we remind readers that much of the framework is designed to accommodate the Strategic Social Plan and its call for a Social Audit that was to demonstrate in terms of social interventions what was working, why was it working and for whom. As part of evidence-based policy development and the desire to measure social progress, it was felt that it was necessary to have "determinant" models such as a population health model shown roughly in **Figure 16** below.

Figure 16

Determinants of Population Health

Health Care System — Consumption Practices & Behaviours — Income/Wealth and Social Status — Social Relationships & Supports — Employment/Working Conditions — Health Status — Education & Literacy — Societal Values & Vibrancy — Demographics/Gender & Genetic Endowments — Physical environment/Eco-system

While there has been a great deal of discussion of the population health model, there are far fewer statistical estimates of such models[27] although Canada has been a recent[28] leader in this area. Our own efforts are rather modest but significant. Dr. Lynn Gambin estimated a multinomial logistic model for a required MA Essay, entitled *The Determinants of Health: Existing Theory and Application of Theory to Data from Newfoundland.* Her efforts were based on the works of Evans (2002) and the seminal work of Townsend and Davidson (1982). Using data from the NLSA's Adult Health Survey Gambin used Self-assessed health status as the dependent variable and the usual independent variables including income and education as well as marital status. Two of the most important explanatory variables included financial security and stress. Her work represents a need to collect good data in order to carry out valuable research using cross sectional and panel data. Access to such data will encourage researchers to suggest new

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[27] In Canada Statistics Canada's micro-simulation population health model (POHEM) is a very useful contribution in this area.

[28] The Working Group on Inequalities in Health carried Earlier seminal effort

variables and attempt new techniques such as hierarchial linear and non-linear models that may illustrate the importance of living in particular communities and provinces.

6. Recent Efforts: Measuring Poverty[29]

In the latter part of the 1990's our data development began with the Income Accounts using taxfiler data. Part of the reason for this was our belief that local economic development should increase employment levels and incomes. Administrative taxfiler data could provide data down to the postal code level and therefore be aggregated up to the community level.

It was a natural development that our attention should turn to income inequality and poverty and to the work of Dale Jorgenson and Dan Slesnick[30] in the 1980's and the work of Slesnick[31] in the 1990's. These efforts tied in with Jorgenson's general equilibrium view of economies in which the ultimate objective was well-being. Of particular interest was Slesnick's attempt at measuring poverty from the consumption rather than an income approach. Our own work in this area began in the early part of this decade and progressed slowly. It picked up impetus as a result of the Provincial Government's anti-poverty strategy.

We decided to make our measurement methodology[32] follow that of the Market Basket Measure (MBM)[33], which was developed by Statistics Canada for Human Resources and Development Canada (HRDC). This measure was designed to be sensitive to differences in living and household costs across Canada. In the same way our methodology is sensitive to differences in living costs across the Province. Along the north coast of Labrador food has to be flown in during the winter making it much more expensive or people have to fly out in order to access some types of health acre services. In other parts of the province people would have to drive long distances. In the more rural areas a large number of families would own their own homes without having a mortgage on it.

The NLSA[34] in collaboration with the Small Area and Administrative Division of Statistics Canada had the Division create the equivalent incomes for families and then compare these to our MBM thresholds. The results are illustrated in **Figure 17** below that provides a map of the incidence of low income (poverty) using the NLMBM measure

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[29] We recognize the conflicting concepts on poverty and acknowledge that Statistics Canada only publishes low income measures.

[30] See for example Jorgen and Slesnick (1989)

[31] See Slesnick (2000) for a summary of this effort.

[32] See Giles and May (2006)

[33] See Michaud, S., C. Cotton, and K. Bishop (2004). "Exploration of Methodological Issues in The Development of The Market Basket Measure of Low Income for Human Resources Development Canada." Income Statistics Division, Statistics Canada, Cat. No. 75F0002MIE.

[34] Dr. Cory Giles of the NLSA is responsible for this initiative and is responsible for creating the figures used in this Section of the paper.

for all of the communities in the Province. It also shows which of the areas are considered to be remote. There are marked differences amongst the communities even amongst those which are in those are which have low accessibility. As one might imagine even though in the St. John's metropolitan area the incidence of low income is not the highest this is where most of the low income families live.

It was not enough to just measure the incidence of low income we also wanted to know the depth of poverty and so we employed the Foster, Greer, Thorbecke Index[35]. An interesting feature of this index is that it allows us to measure the depth and severity of poverty using alternative values for α and by increasing the value to 2 for example to give a greater weight to those equivalent families further from the low income threshold. **Figures 18a** and **18b** compare the incidence (α=0) and the depth when (α=3) for the St. John's neighbourhoods. Interestingly those neighbourhoods with the highest incidence are not those that seem to have a greater severity of poverty.

Figure 17
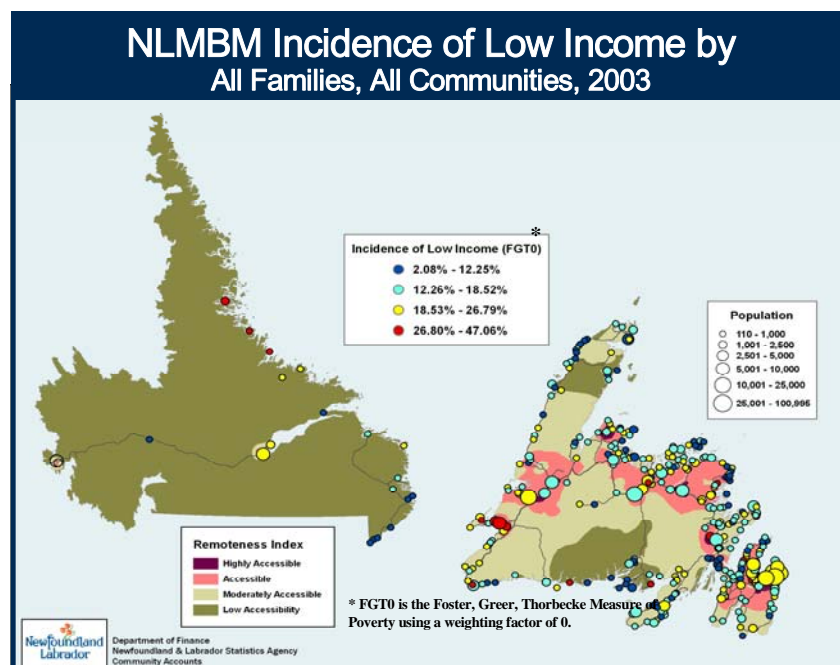
We are also interested in the degree of inequality and so Gini coefficients are available and we will produce estimates of the ratio of the top decile to the bottom decile for after-tax equivalent family income and for before tax employment income. At the time this paper is being delivered, Statistics Canada is estimating the incidence and depth of low

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[35] See Foster, Greer, Thorbecke (1984).

incomes and the income inequalities using the 2006 taxfiler data, which are the most recent data available.

Other issues that need to be addressed are dealing with self-employment income since this may be negative for some individuals. The result is that we will obtain overestimates of the incidence and depth of poverty. We are using taxfiler data but the taxable income for taxfiling purposes is an underestimate of family income for families receiving income support since many individuals do not report social assistance income because there is a zero marginal tax rate on this income. Even more complex are the various transfers-in-kind that various departments provide from housing subsidies in terms of rent and mortgage assistance, drug and medical assistance as well as transportation allowances. These programs must be taken into consideration in terms of measuring the effectiveness of government programs designed to deal with the poverty issue.

Figures 18a and 18b
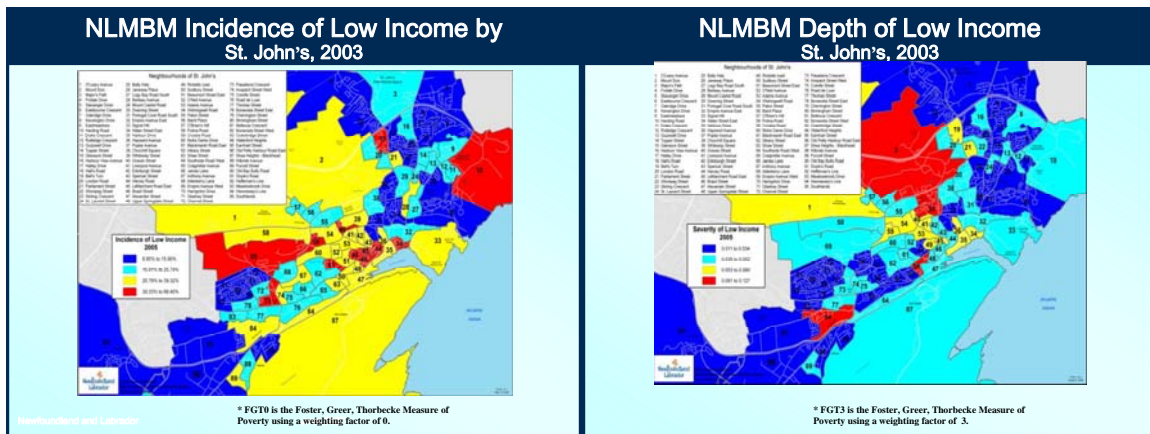
It was a coalition of anti-poverty groups in the St. John's capital area that asked if we could provide data on a neighbourhood basis. Since most of the data that would be needed were income tax related or administrative data associated with income support programs the NLSA divided the city into neighbourhoods. As a rule of thumb the size of the neighbourhood was about 1000 people in order to maintain privacy. The neighbourhood boundaries were then "adjusted" to correspond to what members of the organizations knew residents believed their neighbourhoods to be. Some municipalities have adopted the NLSA neighbourhood boundaries.

Figure 19 illustrates the type of information we were able to provide the anti-poverty coalition. The figure shows the incidence of income support assistance. Along with other administrative data one can begin to gain a fair understanding concerning the extent and nature of poverty/low income amongst individuals. Not surprisingly the incidence is higher in single parent household in which the head has lower levels of formal education.

Simulation models then help us calculate the impact of alternative tax/transfer programs on various groups.

Figure 19
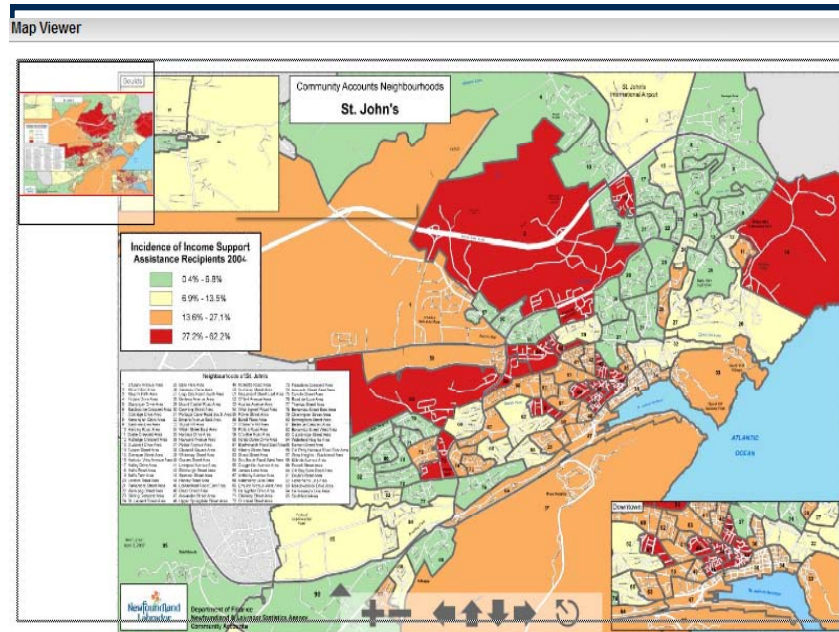
7. Users: Reaching Out

Implicit in the creation of the Community Accounts was the belief that sub-provincial and community information would be needed to evaluate the impact of local economic development projects. The Strategic Social Plan explicitly maintained that certain social and economic issues were best dealt with by co-operation of those at the community and regional level. In response to local requests we have taken data down to the neighbourhood level. We have also listened to the epidemiologists and front line service providers that there are marked differences between communities and neighbourhoods and that those areas that exhibit difficulties in one domain that determine well-being will exhibit problems in other domains as well. At the same time users have reminded us that the Community Accounts are not about "deficit" accounting, that is just identifying those areas which are experiencing social and economic problems. The Accounts also let us determine successful neighbourhoods and communities and in doing so learn about best practices. A recent research effort demonstrated the linkages between community well-being, social capital and economic development. Like many phenomenon once the

linkages are uncovered they make sense but before investigation they do not appear to be obvious.

As part of the process of Community Account development we have formed "Advisory Committees" for specific domains. These committees have been comprised of representatives from federal and provincial government departments as well as from boards and non-government organizations. Also included are researchers from the university community. A good example of such a committee is one formed around Community Safety and Crime. Members of the Committee were able to bring their expertise to the table in terms of understanding data that would be needed for a "determinants" approach but they were also to bring administrated data to the Accounts. Administrative data which may have remained buried within the organization or received isolated attention could now be shown as part of the overall community mosaic and therefore viewed in a much more wholistic perspective. Moreover, the very act of meeting allowed individuals to come together more informally to share knowledge and experiences.

Similar observations could be made about the SSP Regional Councils, which brought together individuals from across the domains. The Community Accounts allowed discussion to proceed from the "facts" rather than just anecdotal information although such anecdotes would help to guide the requests for data. As one chair expressed it, the Accounts "Helped us to know ourselves". At the neighbourhood and community level we have been very careful to encourage "local" users to tell their own stories from the data. Yes, there are neighbourhood and community profiles[36] but the interpretation and explanation of what is observed are left to local residents, service providers and officials thereby generating insights and greater engagement.

There has been concern expressed to us that negative information about a community or neighbourhood might generate resentment. The implication is that perhaps too detailed information should be suppressed in the sense of not being made available to the general public. To our knowledge these predictions have never materialized. In a somewhat similar vein, there has been concerns expressed that confidentiality could be an issue in the smaller communities or the neighbourhoods. The standards that we have used for the publication of data are those used by our national statistics agency Statistics Canada.

Researchers have used the base Adult Health Survey data. Access to this data set are covered by an agreement between Memorial University and the NLSA and the protocol used maintains privacy. The University's Human Investigation Committee oversees use of the data in the project. Researchers within the NLSA are covered under the Province's own Statistics Act which is very close to the national one.

Community Accounts data are being used by students and teachers at the University and of particular interest is the use of these data in the Faculty of Medicine for the training of doctors. Because there is a great deal of health data, we have discovered[37] that analysts

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[36] Generated by computer programs.
[37] Through informal discussions at conferences.

and providers working in the regions also use them extensively.   There are difficulties in tracking usage since the Community Accounts are in many ways a public good. We are able to monitor the number of hits particular domains get but we do not know if these are different individuals.

In order to encourage and facilitate usage the NLSA conducts Workshops. Approximately three thousand people have attended these sessions.   In addition, the NLSA contracted Memorial University to build flash tutorials and these have proven very popular on the site. The NLSA is also partnering with the Newfoundland and Labrador Public Libraries within the Province to train librarians in 95 libraries throughout Newfoundland and Labrador who will be able to support usage of the Community Accounts in urban and remote areas. And while much has been done there is the belief that most of the general public and those in our school system are not aware of the Community Accounts. Our conclusion is that we must try to use different media and techniques to try to communicate what information exists in our Community Accounts.

8. Summary

The Community Accounts were motivated by the need to track the economic and social impacts of local community development initiatives. Its architecture was help guided by the specific vision, values and goals of Newfoundland and Labrador's Strategic Social Plan as well as that Plan's call for a "social audit".   Ten years of great progress has been made in what we believe has become the most comprehensive set of meta-data at the community/neighbourhood level for a state or province in existence.   All this has been done with very limited full-time core resources (4 people).

Still, the journey to achieving our own vision of what should be done is about 20 percent completed. The following tasks need to be carried out:
- Headline indicators need to be developed and measured for all of the domains.
- The Production Accounts must be fully integrated into the Community Accounts.
- Much more production data must be made available for the various geographies and integrated with the input data.   This could be most easily demonstrated when production occurs under the jurisdiction of the provincial government.
- The Community Safety and Crime Satellite Account must be integrated with the Community Vitality Domain.
- The History Account constructed using individual census records[38] for the period from 1911 until 1945 should be integrated into the Demographic Domain.

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[38] Unlike other provinces and territories of Canada individual census records for this period are public under the Terms of Union of Newfoundland with Canada in 1949.

- An integrated accounting structure needs to be developed based on national accounting structures combined with applied welfare economics and psychometrics.
- Data gaps at the local level must be identified. For example, we need much more information on nutrition and health behaviours. We are about to run our own survey on community linkages, which will link residency with the consumption of goods and services and the workplace. We need to know much more about business production at the local level.
- A great deal of survey data and administrative data exist that have not been incorporated into the accounts. For example, we have extensive in and out-migrant survey data.
- When census or administrative data are not available at the local level then small area estimation techniques must be employed to estimate the local population parameters.
- New communications strategies must be employed to reach out to those in the K-12 system and to the general public.
- Researchers having access to cross-sectional and panel data need to begin to work on the determinant models.
- We are working and collaborating with a variety of partners including the governments of Nova Scotia, Prince Edward Island and Nunavut as well as the First Nations Statistical Institute, the Canadian Index of Well-Being, Community Indicators Victoria (Australia) and the OECD but more co-ordination is needed.

In our opinion the Community Accounts should not be thought of simply as data on a collection of indicators arranged into domains ultimately associated with well-being. Such a mindset overlooks the importance of causal relationships and inter-relationships. The general equilibrium framework of economics forces us to consider interactions and to think holistically. Our consideration of an accounting system, such as in financial accounting, again forces us to consider linkages and relationships.

We recognize that our focus on well-being must take us well outside the realm of economic well-being. This focus takes us ultimately to the parts of our lives and society that we value the most and to consider how our interventions ultimately affect the quality of our lives. And while the Community Accounts empower, inform and educate people at the local level perhaps its real value is that in being a catalyst for this process. Hopefully the information from the Community Accounts will also encourage individuals, families and groups at the local level to take action for their own well-being and the collective good.

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