

**The Community Well-Being (CWB) Index:
Well-Being in First Nations Communities,
1981-2001 and into the Future**

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Table of Contents

	Page
Table of Contents	i
List of Tables	iii
List of Figures	iv
1. Introduction	1
2. The Community Well-Being (CWB) Index	3
3. The Data	4
4. Conceptualizing the CWB Results	8
5. Results: Community Well-Being in the Past, 1981-2001	9
5.1 The CWB Index, Canada, 1981-2001	9
5.2 Components of the CWB, Canada, 1981-2001	16
5.3 The CWB Index, Regional, 1981-2001	18
6. The Importance of “Initial Scores”	22
6.1 What Do These Patterns Say About CWB Trends in the Past?	23
6.2 What Do These Patterns Say About CWB Trends in the Future?	26
7. Projecting Community Well-Being into the Future: 2001-2041	26
7.1 Projection Methodology	26
7.2 A Word of Caution	29
7.3 Projection Results, 2001- 2041	30
7.3.1 The CWB Index, Canada, 2001- 2041	30
7.3.2 Components of the CWB, Canada, 2001 - 2041	34

7.3.2.1	Income	35
7.3.2.2	Education	35
7.3.2.3	Housing	36
7.3.2.4	Labour Force Activity	37
8.	Summary of Results	38
9.	Conclusion	40
	References	41
Appendix	Data Tables Related to Selected Figures	42

List of Tables

		Page
Table 1	Census Database Details 1981-2001	7
Table 2	Descriptive Statistics of the CWB Index Across Time for All Canadian Communities	8
Table 3	Average CWB Scores for First Nations and Other Canadian Communities in Canada, 1981-2001	10
Table 4	CWB Change Matrices for First Nations and Other Canadian Communities, 1981-2001	15
Table 5	Regression Analysis: Examining Determinants of Change in CWB Scores Between 1981 and 2001	24
Table 6	Summary of Regression Equations Used to Generate Projections	29

List of Figures

	Page
Figure 1 CWB Score Distribution for All Canadian Communities, 2001 (N=3,489)	9
Figure 2 Average CWB Scores for First Nations and Other Canadian Communities, 1981-2001	10
Figure 3 First Nations' CWB Distributions 1981-2001	11
Figure 4 Other Canadian Communities' CWB Distributions 1981-2001	12
Figure 5 Changes in CWB Scores for First Nations and Other Canadian Communities, 1981-2001	13
Figure 6 First Nations' Gains and Gap Reduction in the Components of the CWB, 1981-2001	17
Figure 7 CWB Component "Gaps" Across Time	18
Figure 8 First Nations' CWB Scores by Region, 1981-2001	19
Figure 9 Other Canadian Communities' CWB Scores by Region, 1981-2001	19
Figure 10 CWB Gaps by Region, 1981-2001	21
Figure 11 CWB Score Change 1981-2001 by 1981 CWB Score Strata	23
Figure 12 Comparing Actual Changes In First Nations Well-Being Between 1981 and 2001 with those that "Would Have Occurred" had First Nations Progress Within 1981 CWB Levels Been Equal to That of Other Canadian Communities	26
Figure 13 2001-2041 CWB Projections Based on Trends Observed in the 1981-2001 Intercensal Period	31
Figure 14 2001-2041 CWB Projections Based on Trends Observed in the 1991-2001 Intercensal Period	32

Figure 15	2001-2041 CWB Projections Based on Trends Observed in the 1996-2001 Intercensal Period	33
Figure 16	Projecting Well-Being in First Nations and Other Canadian Communities: A Summary	34
Figure 17	Income Projections for First Nations and Other Canadian Communities, 2001-2041: A Summary	35
Figure 18	Education Projections for First Nations and Other Canadian Communities, 2001-2041: A Summary	36
Figure 19	Housing Projections for First Nations and Other Canadian Communities, 2001-2041: A Summary	37
Figure 20	Labour Force Activity Projections for First Nations and Other Canadian Communities, 2001-2041: A Summary	38

1. Introduction¹

The Community Well-Being (CWB) Index is a means of examining the relative well-being of communities in Canada. It combines indicators of **educational** attainment, **income**, **housing** conditions, and **labour force activity** from the Census of Canada to produce well-being “scores” for individual Canadian communities. The CWB was developed in response to the growing concern over the substandard socio-economic conditions that are perceived to exist among Canada’s First Nations. It was realized that the first step in improving the conditions of First Nations,, was the inauguration of a system whereby the well-being of First Nations could be measured systematically and quantitatively, compared to well-being in other Canadian communities, and tracked across time.

In the fall of 2004, the Strategic Research and Analysis Directorate (SRAD) of Indian and Northern Affairs Canada (INAC) released two reports on the CWB. The first examined 2001 CWB scores (McHardy and O’Sullivan, 2004). It confirmed that, in 2001, socio-economic conditions were poorer in First Nations than in other Canadian communities. That report also revealed, however, that both types of communities spanned a broad range of the well-being continuum, and that the disparity between First Nations and other communities varied from region to region. The second report (O’Sullivan and McHardy, 2004) examined how well-being changed in First Nations and other Canadian communities between 1991 and 2001. That report revealed that CWB scores generally improved, and that the improvement was greater for First Nations communities. Notably, however, First Nations achieved the bulk of their relative gains between 1991 and 1996. Between 1996 and 2001, the “well-being gap” between First Nations and other Canadian communities remained fairly static.

The current report builds upon these previous analyses in two ways. First, it extends the CWB time series to include scores from 1981. Second, patterns of CWB progress between 1981 and 2001, 1991 and 2001, and 1996 and 2001 are used to project how well-being in First Nations and other Canadian communities may evolve in the future.

These analyses show that both First Nations and other Canadian communities improved steadily between 1981 and 1991, just as they did in the 1991-96 and 1996-2001 periods. The absolute and relative increase in First Nations CWB scores between 1981 and 1991, however, were more comparable to the lesser increases of the 1996-2001 period than to the greater gains of the 1991-1996 period.

In examining how improvement was distributed across communities, we discovered two interesting patterns. First, the lower a community’s CWB score at the outset of a given intercensal period, the more it tended to improve by the end of the period. Second, when

¹ This report is the third installment in a series of reports related to the CWB project. For the sake of consistency and clarity, some of the text in this paper replicates that seen in the previous two CWB reports: McHardy and O’Sullivan (2004) and O’Sullivan and McHardy (2004).

we “controlled” for the influence of communities’ initial CWB scores on how much those scores improved, we found that First Nations improved less. For example, First Nations with lower 1981 CWB scores improved less, on average, between 1981 and 2001 than did other communities with lower 1981 CWB scores. Likewise, First Nations with higher scores in 1981 improved less than other communities with higher scores.

These patterns indicate that the well-being gap between First Nations and other communities narrowed between 1981 and 2001 because First Nations’ lower CWB scores predisposed them to improve more. In other words, it was not the case, that First Nations were developing at a “faster rate” than other Canadian communities. In fact, they were developing more slowly. This is not to suggest that the narrowing of the gap between First Nations and other communities between 1981 and 2001 was “false” or some sort of statistical artifact. Rather, the patterns mean that, had First Nations been developing at a rate comparable to that of other Canadian communities, the gap would have narrowed more. The patterns also suggest that improvement in well-being in both types of communities will begin to level off, and that First Nations will plateau at a lower level of well-being than other Canadian communities.

Importantly, while these patterns were evident to greater and lesser degrees across regions, they were not evident in all components of the CWB index. In the case of education, while improvement decreased as initial scores increased, First Nations and other communities with similar initial scores generally improved at a similar rate. Consequently, while both First Nations’ and other communities’ education scores would be expected to plateau, First Nations would be expected to “catch up” to other communities first.

Using our knowledge of the effects of initial scores on how much those scores are likely to change, we produced estimates of how well-being in First Nations and other Canadian communities might evolve in the future. Analyses of the CWB index indicated that the well-being gap between First Nations and other communities may narrow further between 2001 and 2041. By 2041, however, a significant gap is projected to remain. As CWB improvement for both First Nations and other communities is projected to level off by 2041, moreover, the well-being gap seems poised to remain indefinitely. Regional-level projections suggest that regional disparities in First Nations well-being will more or less persist.

First Nations scores, both absolute and relative to other communities, are also projected to improve across components of the CWB. Still, our projections suggest that, by 2041, disparities between First Nations and other communities may remain evident in all components of the CWB except for education.

2. The Community Well-Being (CWB) Index

The CWB index combines several indicators of socio-economic well-being into a single number, or 'CWB score'. A score is generated for each community in Canada², allowing an 'at-a-glance' look at the relative well-being of those communities. CWB scores may fall anywhere between zero and one (with one being the highest). Though CWB scores may be reported to an infinite number of decimal places, they are generally discussed in terms of a 100-point scale. For example, a CWB score that increased from 0.75 to 0.76 would be said to have increased by one "CWB point."

The CWB index consists of four equally weighted components:^{3,4}

1) Education

This component is comprised of two indicators: functional literacy and "high school plus". The former is afforded a weight of 2/3 of the education component, and is operationalized as the proportion of a community's population, 15 years and over, that has completed at least a grade 9 education. The latter is defined as the proportion of the population, 20 years and over, that has obtained at least a secondary school education.

2) Labour Force

This component is also comprised of two indicators: labour force participation, and employment rate. The former is operationalized as the proportion of the population, 20 years and over, that is involved in the labour force. Employment rate refers to the employed labour force expressed as a percentage of the total labour force, aged 15 and over.

3) Income

This component is defined as "income per capita", a community's total income divided by its total population. To make them amenable to inclusion in the CWB index, community income averages had to be converted into income scores running from zero to one. The following formula was used to this end:

² Excluding communities that did not participate in the census, had data quality issues, or had populations of less than 65.

³ Unless otherwise noted, the indicators comprising each component of the CWB are equally weighted.

⁴ The components are our constructions, and not to be interpreted as the "only" way in which income, educational attainment, housing conditions, and labour force activity might be operationalized.

$$\frac{\text{Log (income per capita)} - \text{Log (2,000)}}{\text{Log (40,000)} - \text{Log(2,000)}}$$

The theoretical minimum and maximum (\$2,000 and \$40,000, respectively), were derived from the actual range of income per capita across Canadian communities. The log function was incorporated into the income component to account for the “diminishing marginal utility of income”. According to this principle, those who occupy lower income strata will benefit more from additional income than those at higher income levels.

4) Housing

This component is comprised of indicators of both housing quantity and quality. The former is operationalized as the proportion of the population living in dwellings that contain no more than one person per room. The latter is defined as the proportion of the population living in dwellings that are not in need of major repairs.

Additional information pertaining to the methodology of the CWB index is available in McHardy and O’Sullivan (2004). While that report also provides a lengthy discussion of the limitations of the CWB model, the main issues should be highlighted here. First, the CWB focuses primarily on the socio-economic aspects of well-being. Limitations of the Canadian census prevented the incorporation into the model of equally important aspects of well-being such as physical, psychological and cultural health. It is also important to note that the socio-economic indicators of which the index is comprised may not capture fully the reality of the economic situation in First Nations communities. Many Aboriginal people are still involved in traditional economic pursuits, which, although contributing to their material well-being, are not manifested as monetary income or paid employment.

3. The Data

The CWB indices were constructed using data drawn from the 1981, 1991, 1996, and 2001 Censuses of Population.^{5,6,7} Owing to differences in the ways key variables were measured in the 1986 census, and to the large number of First Nations communities that did not participate in that census, data from 1986 were not included in these analyses.

⁵ In 1991, 1996 and 2001, census data on Indian reserves and in remote areas were collected from 100% of households. In other areas, data collected from a random 20% sample of households were weighted to make them representative of the total population in those areas (Statistics Canada, 2002:279; Statistics Canada, 1999:356; Statistics Canada, 1992:32). In 1981, while data were generally collected from 100% of households in remote areas, reserves were not singled out for 100% sampling (Statistics Canada, 1984:18).

⁶ Missing information on individual records was imputed during processing of the census data. Each missing value was replaced by the corresponding entry for a “similar” record.

⁷ The original data source for the CWB was a limited selection of un-rounded, unsuppressed individual-level data which was accessed through a memorandum of understanding between INAC and Statistics Canada.

As indicated above, the CWB is calculated at the community level. Communities are defined in this study in terms of census subdivisions (CSDs). CSD is the term applied to municipalities (as determined by provincial legislation) or their equivalent (i.e. Indian reserves, Indian settlements and unorganized territories) (Statistics Canada, 2002: 224).

This study categorizes CSDs into First Nations and other Canadian communities. The distinction is based on the geography hierarchy defined by Indian and Northern Affairs Canada (INAC, 2002) for 2001. The INAC listing of communities includes the legal list of Indian reserves and Indian settlements as well as a selection of other CSD types in Saskatchewan, the Yukon, and the Northwest Territories and is the same as the listing used by the department to report on reserve population counts from the Census.

INAC's complete list of First Nations communities includes:

- Land reserved under the Indian Act;
- Land set aside for the use and benefit of Indian people;
- Areas where activities on the land are paid or administered by INAC or;
- Areas listed in the Indian Lands Registry System held by Lands and Trust Services at INAC.

INAC's legal list of First Nations communities includes the following CSD types: Indian Government Districts (IGD), Reserves (R), Indian Settlements (S-E), Terre Reservées (TR), Nisga'a Lands (NL), Nisga'a Villages (NVL) and Teslin Lands (TL). A selection of the following CSD types are also regarded as First Nations: Chartered Community (CC), Hamlet (HAM), Northern Hamlet (NH), Northern Village (NV), Settlement (SET), Town (T), and Village (VL).

As this study involves the evaluation of communities across time, steps had to be taken to ensure the comparability of those communities. Most obviously, inflation affects the comparability of income values. Accordingly, the income portions of the CWB indices were adjusted using the Consumer Price Index (CPI) (Statistics Canada, 2004). These adjustments, which are described in detail below, permit the comparison of income values from the 1981, 1991, 1996 and 2001 censuses.

Where 1992 = 100, the CPI value for 1980 is 52.4, for 1990 is 93.3 and for 2000 is 113.5.⁸ These values were transformed to make 1995 = 100, establishing the 1996 income values as the "baseline." To render them comparable to this baseline, 1981, 1991 and 2001 income data were multiplied by 1.989, 1.117 and 0.918, respectively.

⁸ As income represents one's total income in the full year prior to the census year, income values are adjusted using inflation rates from the years preceding any given census year.

Another factor which affects the comparability of CSDs over time relates to changes to the CSDs themselves that may occur between censuses. For example, a CSD may gain a large portion of land and its associated population. In other cases, a block of population previously considered to belong to one CSD may be reassigned to another. In order to legitimately compare a community across time, one must be sure that one is assessing the same entity. To illustrate, consider the result if a very wealthy community was absorbed by a less affluent one between census years: the overall well-being of the latter will appear to have improved even though the population of which it was originally comprised may not have improved at all - it may have even declined.

As such, the current CWB analyses are based upon only those 318 First Nations and 3,171 other Canadian communities deemed as “consistent entities” from 1981 through 2001.⁹ The criteria we used to designate a CSD as consistent are as follows:¹⁰

- 1) The CSD existed in each census year.¹¹
- 2) The CSD did not gain or lose more than 5% of its population.
- 3) The CSD had a CWB score in each census year.
- 4) The CSD had a population of at least 65 in each census year.

Summaries of each of the data sets and comparability analyses are provided in Table 1.

⁹ Note, however, that CWB scores for non-comparable CSDs have still been calculated, and may be useful for specific types of time series analyses.

¹⁰ An additional criterion was used to select CSDs for inclusion in the 1991-2001 time series analyses (see O’Sullivan and McHardy, 2004): a CSD was excluded if it gained between 2% and 5% of its population from a community with a CWB score which differed from its own by more than 0.1. We opted not to include this criterion in the current analysis for the following reasons: very few communities were excluded from the 1991-2001 analysis based on this criterion, electronic records of CSD boundary changes were not available for the 1981-1991 period, and the other selection criteria are sufficiently exclusive.

¹¹ Typically, a CSD was identified across time by its CSD code. In a small number of cases, a CSD code changed without affecting the population associated with that name and number. In these cases, the “old” and “new” CSDs are regarded as a single entity.

Table 1
Census Database Details 1981-2001

Census Year	CSDs for which CWB Score was Calculated ¹	Incompletely Enumerated Reserves	CSDs Excluded Owing to Data Quality	CSDs with Population 65 and Over		CSDs included in 1981-2001 Time Series Analyses	
				First Nations ²	Other Canadian Communities	First Nations	Other Canadian Communities
1981	5,509	8 ³	0	458	4,731		
1991	5,693	78	51	485	4,697	318	3,171
1996	5,585	77	49	541	4,579		
2001	5,188	30	98	541	4,144		

Notes: 1. Includes all CSDs present on the 2B micro-databases.

2. As indicated above, for the purposes of the time series analyses, CSDs were divided into First Nations and other Canadian communities based on INAC's 2001 geography hierarchy. For the purposes of this table, however, the 1996 INAC hierarchy was used to identify the number of First Nations in 1996. As the 1996 INAC hierarchy is the earliest one that exists, it was also used to identify the number of First Nations in 1991. Six CSDs in the 1991 database, which did not exist in 1996 but which were INAC legal reserve CSD 'types' (five 'R' and one 'S-E') have also been counted as First Nations for the purposes of this table.

3. Counts are available for these CSDs (which include Kahnawake 14, Webequie, Wunnumin 2, Kingfisher 1, Peigan 147, Cowichan 1, Theik 2 and Cowichan 9), but the numbers were actually imputed. Since the "donor cases" were chosen from outside the reserves in question, data for these CSDs do not reflect their conditions accurately. Beginning in 1986, missing data were replaced by values from donor cases within the same reserve, improving the veracity of on-reserve data.

It is important to recognize that, as our analyses are based on a subset of CSDs, one must not assume that our results are representative of all First Nations and other Canadian communities.

4. Conceptualizing the CWB Results

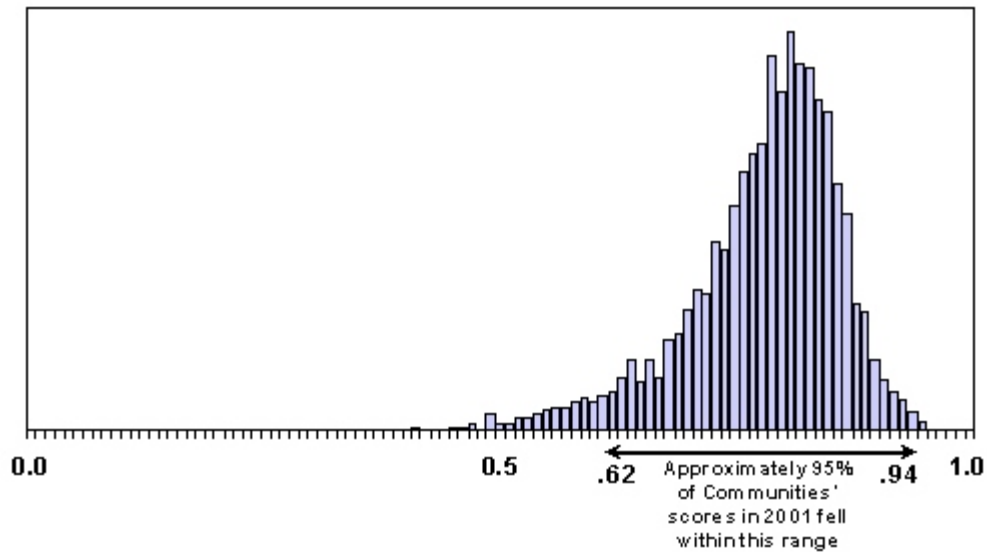
The precise number of CWB points that represent a practically significant increase or decrease in quality of life is an empirical question that will require further analysis. The descriptive statistics in Table 2, however, provide some context for the subsequent comparisons of CWB results for First Nations and other Canadian communities.

Table 2
Descriptive Statistics of the CWB Index Across Time for All Canadian Communities (N = 3,489)

Census Year	Minimum CWB Score	Maximum CWB Score	Average CWB Score	Standard Deviation
1981	0.13	0.94	0.71	0.10500
1991	0.24	0.95	0.75	0.09409
1996	0.28	0.96	0.76	0.08510
2001	0.35	0.95	0.78	0.08205

In all four census years, the CWB index had a negatively skewed, normal distribution. As such, using the means and standard deviations from each year, we can estimate that approximately 95% of communities had scores between 0.50 and 0.92 in 1981, 0.56 and 0.94 in 1991, 0.60 and 0.93 in 1996, and 0.62 and 0.95 in 2001. Simply, excluding the more extreme cases, higher and lower scoring Canadian communities had scores within a range of about 40 points on the 100 point scale between 0 and 1. The relatively small range between communities on the lower and higher ends of the well-being spectrum suggests that smaller CWB increments may reflect significant “real” differences in quality of life. Figure 1, which shows the distribution of CWB scores for 2001, is illustrative.

Figure 1
CWB Score Distribution for All Canadian Communities, 2001 (N=3,489)



5. Results: Community Well-Being in the Past, 1981-2001

5.1 The CWB Index, Canada, 1981-2001

As demonstrated in Table 3 and Figure 2, the average CWB score for both First Nations and other Canadian communities increased between each census and the well-being “gap” between the two community types decreased. Notably, most of the absolute and relative gains experienced by First Nations appear to have occurred between 1991 and 1996. The gap decreased by less than a point between each of the 1996-2001, 1981-1986 and 1986-1991 intercensal periods (as we do not have CWB scores for 1986, we must assume that the gap decreased equally in each of the two latter periods).

Table 3
Average CWB Scores for First Nations and Other Canadian Communities in Canada, 1981-2001

Census Year	Average CWB Score		Difference
	First Nations (N=318)	Other Canadian Communities (N=3,171)	
1981	0.5155	0.7265	0.2109
1986	NO DATA		
1991	0.5736	0.7657	0.1921
1996	0.6191	0.7743	0.1552
2001	0.6411	0.7952	0.1541

Figure 2
Average CWB Scores for First Nations and Other Canadian Communities, 1981-2001

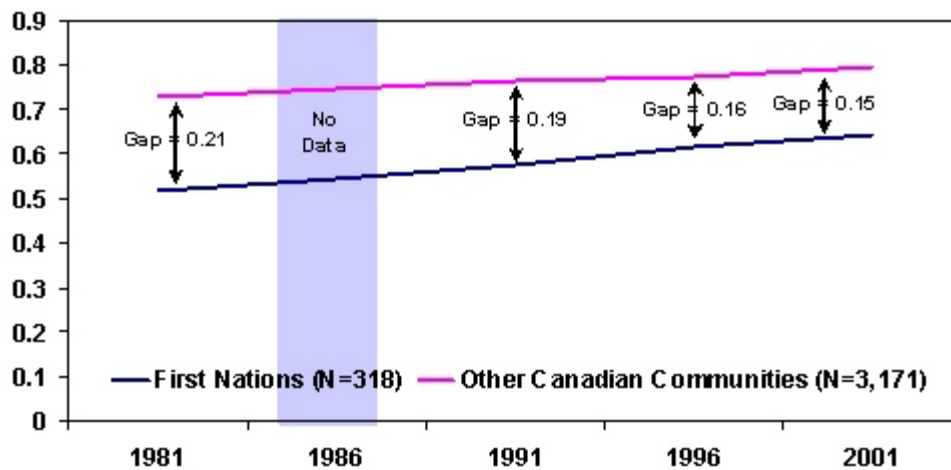
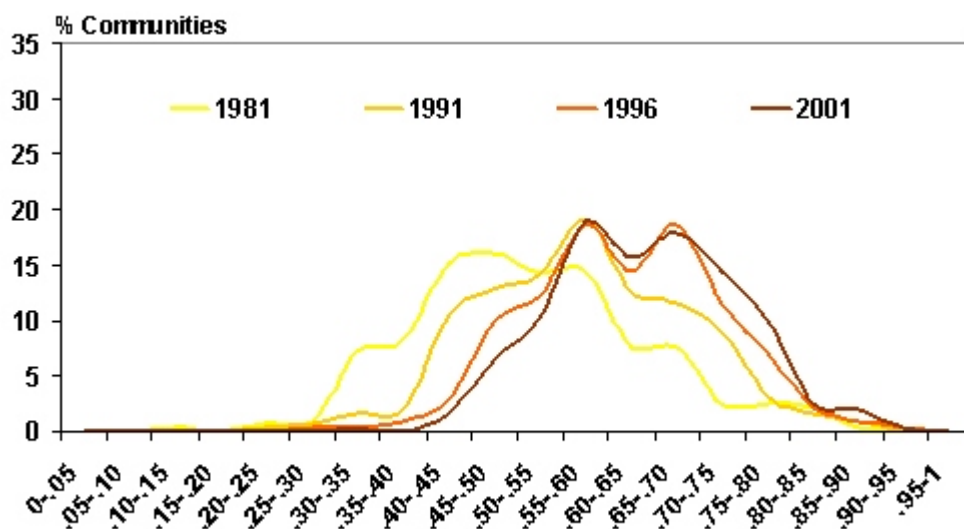


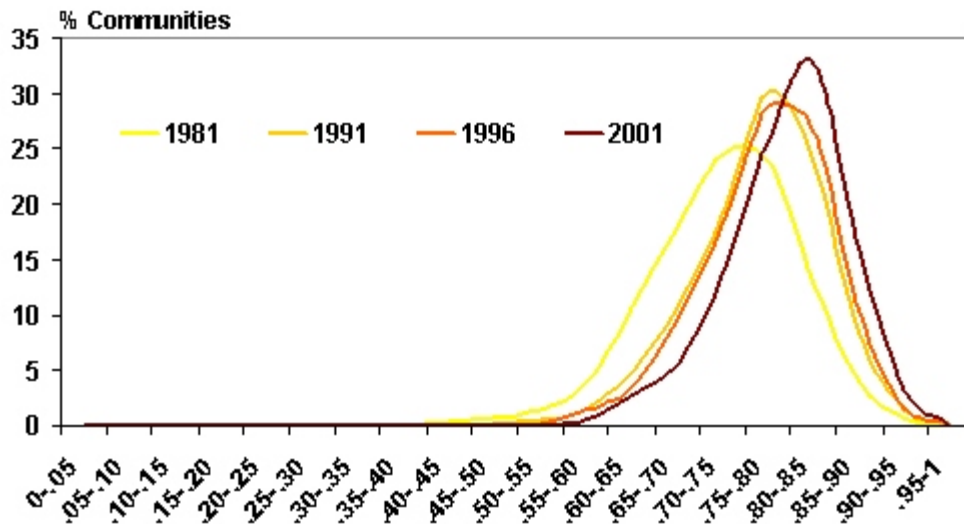
Figure 3 shows the distributions of CWB scores for First Nations for 1981, 1991, 1996 and 2001. Figure 4 shows the distributions for other Canadian communities. The graphs demonstrate several things. First, CWB scores in both First Nations and other Canadian communities increased steadily over time. Second, the relatively consistent shapes¹² of the distributions and their wholesale shifts to the right of the graph suggests that scores have increased “across the board” for both community types. It was not the case, for example, that the mean CWB of First Nations was drawn upwards by the removal of a few communities to the extreme high end of the CWB continuum. Third, CWB scores were consistently lower for First Nations communities. Finally, scores for both types of communities spanned a wide range of the CWB continuum in each census year, with a greater amount of variation being found in First Nations communities.

Figure 3
First Nations' CWB Distributions 1981-2001



¹² The distributions for First Nations are considerably less “smooth” than those for other Canadian communities. This is attributable to the much smaller number of First Nations being analysed. No clear evidence of a bimodal distribution, for example, was found.

Figure 4
Other Canadian Communities' CWB Distributions 1981-2001

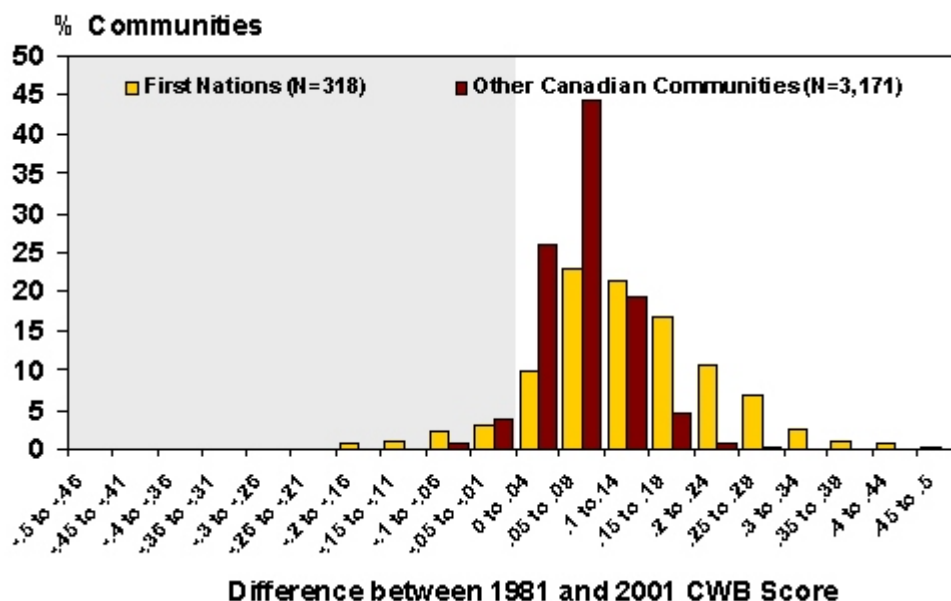


In addition to changes in the averages and distributions of the CWB, it is important to examine the changes in individual communities' scores across time. This permits us to distinguish between a scenario wherein all communities experience a "slow but steady" increase in well-being over time and a scenario wherein communities experience erratic periods of "boom and bust".¹³

Figure 5 demonstrates changes in CWB scores for individual communities between 1981 and 2001. The X-axis represents the change in a community's CWB score between the two census years (literally, its CWB score for 2001 minus its CWB score for 1981). Where the number is positive, the community's CWB score has increased. Where the number is negative, the community's score has decreased. For ease of interpretation, the area of the graph containing negative numbers has been shaded.

¹³ For example, imagine we are measuring well-being in only two communities: Community A and Community B. In 1981, Community A had a score of 0 and Community B had a score of 1. The average score for these two communities in 1981 was, therefore, 0.5. In 2001, the average score for these 2 communities was still 0.5, suggesting that well-being remained stable for these communities between 1981 and 2001. When we look at the individual communities' scores, however, we see that, in 2001, Community A had a score of 1 while Community B's score had dropped to zero. The extreme "boom and bust" pattern of these communities was masked by the consistency of their average score across time.

Figure 5
Changes in CWB Scores for First Nations and Other Canadian Communities, 1981-2001



This graph demonstrates that most Canadian communities, both First Nations and otherwise, improved between 1981 and 2001. Only 22 (7%).¹⁴ First Nations and 141 (4%) other Canadian communities had a lower CWB score in 2001 than in 1981.

¹⁴ Notably, however, a few First Nations seem to have declined substantially. It is possible that these declines are illusory. The method of imputing missing data in 1981 did not require that missing data for reserve residents be replaced by the values from a "donor case" in the same reserve. Consequently, missing data in reserves may have been replaced with data from residents of non-reserve communities. Given the lower well-being among First Nations, it is possible that this sort of imputation inflated the 1981 scores of some First Nations communities. If so, when more accurate scores were computed in later census years, these communities will have appeared to have declined. There is, unfortunately, no documentation available that can either confirm or deny this speculation. We do, however, wish to acknowledge the possibility and to suggest that readers consider the steeply declining First Nations with caution.

Figure 5 also reveals that the pattern of change for First Nations differed from that of other Canadian communities. The peak of the curve for First Nations is slightly farther to the right than that for other Canadian communities, suggesting that First Nations communities, on the whole, improved more. Congruously, the mean change for First Nations was 0.12 but only 0.07 for other Canadian communities. As importantly, however, the First Nations curve is much "flatter"¹⁵, indicating that the amount of change varied more across First Nations than across other Canadian communities.

Another means of analysing changes in individual communities is illustrated in Table 4. The table contains one "change matrix" for First Nations and another for other Canadian communities. CWB scores in both 1981 and 2001 are collapsed into 5 levels: 0 - 0.2, 0.2 - 0.4, 0.4 - 0.6, 0.6 - 0.8 and 0.8 - 1. The CWB 1981 levels lie on the vertical axes, while the 2001 levels lie on the horizontal axes. Each cell represents the proportion of communities which moved from its corresponding CWB stratum in 1981 to its corresponding stratum in 2001. To illustrate, the cell in table four that is located at the point where "0.2 - 0.4" on the vertical axis (in the First Nations segment of the table) and "0.4 - 0.6" on the horizontal axis interact represents the percentage (11%) of First Nations whose CWB score moved from between 0.2 and 0.4 in 1981 to between 0.4 and 0.6 in 2001.

One benefit of this type of analysis is that it provides a good "at a glance" representation of how well-being in First Nations and other Canadian communities has changed over time. The diagonal lines of shaded cells include those CSDs which occupied the same CWB stratum in both census years. The cells above the diagonals include CSDs whose CWB scores have moved to a higher stratum between the census years in question. The cells below the diagonals include CSDs whose CWB scores have moved to a lower stratum.

¹⁵ The standard deviation of the change in CWB scores between 1981 and 2001 was 0.10293 for First Nations and 0.04826 for other Canadian communities.

Table 4
CWB Change Matrices for First Nations and Other Canadian Communities, 1981-2001

			CWB 2001				
			0-0.2	0.2-0.4	0.4-0.6	0.6-0.8	0.8-1
First Nations (N=318)	CWB 1981	0-0.2			1 (0.3%)		
		0.2-0.4		1 (0.3%)	35 (11%)	18 (5.7%)	
		0.4-0.6			77 (24.2%)	112 (35.2%)	1 (0.3%)
		0.6-0.8			5 (1.6%)	52 (16.4%)	7 (2.2%)
		0.8-1				2 (0.6%)	7 (2.2%)
Other Canadian Communities (N=3,171)	CWB 1981	0-0.2			1 (0.0%)		
		0.2-0.4				3 (0.1%)	
		0.4-0.6			12 (0.4%)	167 (5.3%)	5 (0.2%)
		0.6-0.8			3 (0.1%)	1,313 (41.4%)	1,113 (35.1%)
		0.8-1				27 (0.9%)	527 (16.6%)

Like Figure 2, this table indicate that decline in well-being, both in First Nations and other Canadian communities, was the exception rather than the rule, and that improvement between 1981 and 2001 was more common among First Nations communities. of First Nations (55%) occupied a higher CWB stratum in 2001 than in 1981, compared to 41% of other Canadian communities. On the other hand, 43% of First Nations and 58% of other Canadian communities occupied the same CWB stratum in both census years. A slightly larger percentage of First Nations declined (2% vs. 1% of other Canadian communities), but the difference is negligible. Overall, these numbers indicate that well-being improved gradually in Canadian communities between 1981 and 2001, and at a faster rate among First Nations.

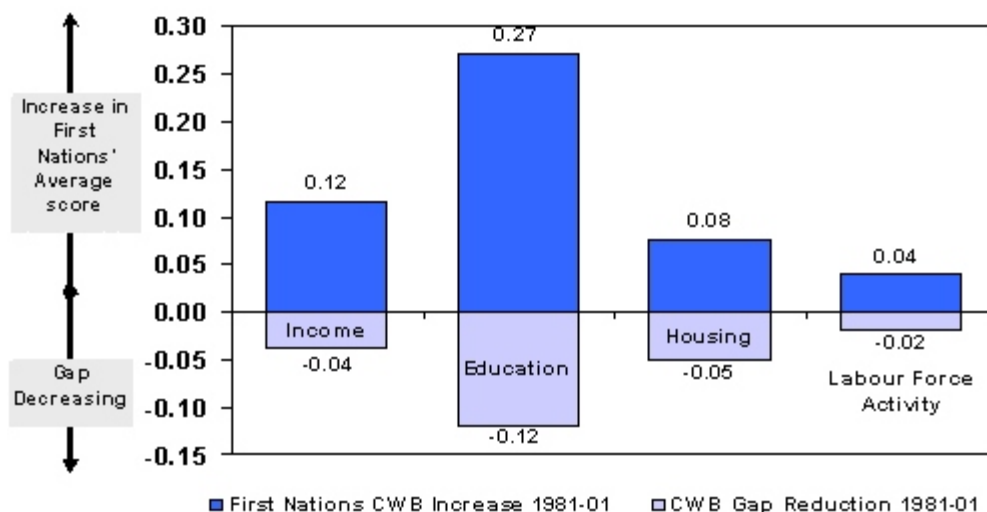
5.2 Components of the CWB, Canada, 1981-2001

Between 1981 and 2001, First Nations scores increased across all components of the CWB index, both in absolute terms and relative to other Canadian communities. The greatest gains were seen in the education component. The education score for First Nations increased by 0.27, or 27 points on the 100-point CWB scale. This gain is more than that seen in the other three CWB components combined. The gap between the education score for First Nations and that calculated for other communities decreased by 12 points between 1981 and 2001. This reduction is greater than that seen in the other three CWB components combined.¹⁶

As is illustrated in Figure 6, the second largest absolute gains were seen in income (11.6 points), followed by housing (7.6 points) and labour force activity (4 points). The second largest gap reduction occurred in housing (5.1 points) followed by income (3.8 points) and labour force activity (1.4 points).

¹⁶ When considering the improvements in First Nations education, it is important to keep in mind how education is defined in the context of this study. Specifically, the education indicator emphasizes achievement at the lower end of the education continuum (literacy and high school "plus"). Differences in educational attainment between First Nations and other Canadian communities in the higher echelons of education are not captured.

Figure 6
First Nations' Gains and Gap Reduction in the Components of the CWB, 1981-2001

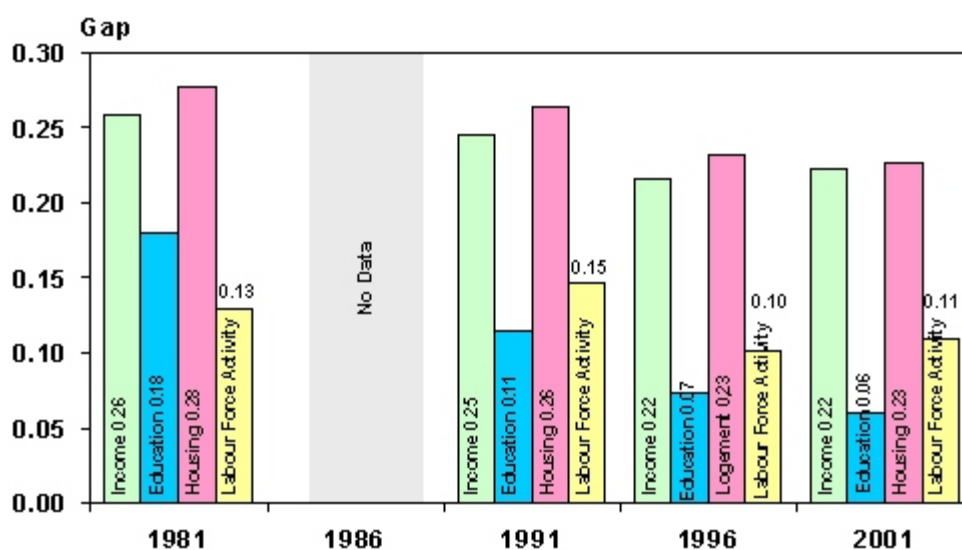


The predominance of education was observable between individual census years as well (1981-91, 1991-96 and 1996-2001).¹⁷

The large gains in education are evident in Figure 7, which shows the gaps between First Nations and other Canadian communities in the CWB components for 1981, 1991, 1996, and 2001. In each census year, the largest gaps existed in the housing component, closely followed by the income component. The gap in the labour force activity component of the CWB was consistently about half as large. The education gap, however, which was about two-thirds the size of the housing and income gaps in 1981, had shrunk to less than one third their size by 2001.

¹⁷ A single exception occurred between 1991 and 1996, when a greater gap reduction was seen in labour force activity.

Figure 7
CWB Component “Gaps” Across Time



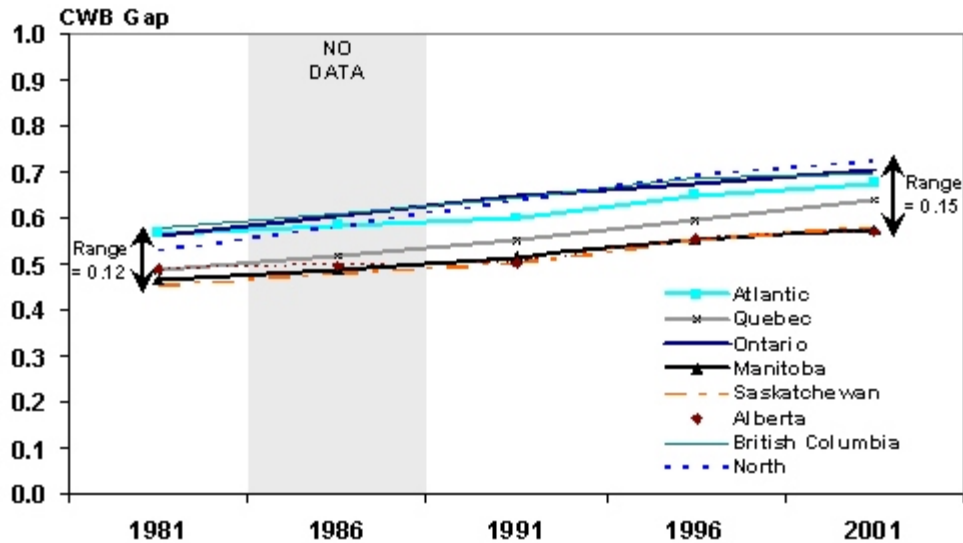
5.3 The CWB Index, Regional, 1981-2001¹⁸

Readers should interpret regional CWB statistics with caution. As we discussed in an earlier section of this report, our analyses are based on the subset of communities that existed in a relatively consistent manner between 1981 and 2001. Excluding communities which did not meet this criterion may have introduced bias. Given the smaller number of communities in each region, such bias may be exacerbated at the regional level. Moreover, regional boundaries are somewhat arbitrary. Previous analyses of the CWB indicated that First Nations’ well-being followed certain geographic patterns, but these patterns did not conform closely to regional borders (see McHardy and O’Sullivan, 2004). Essentially, while regional analyses provide a good general indication of the dispersion of well-being across the country, data limitations must be remembered and regional differences should not be overemphasized.

Figure 8 and 9 plot changes in regional CWB averages for First Nations and other Canadian communities, respectively. These graphs demonstrate that the average CWB scores for both types of communities increased across regions each census year.

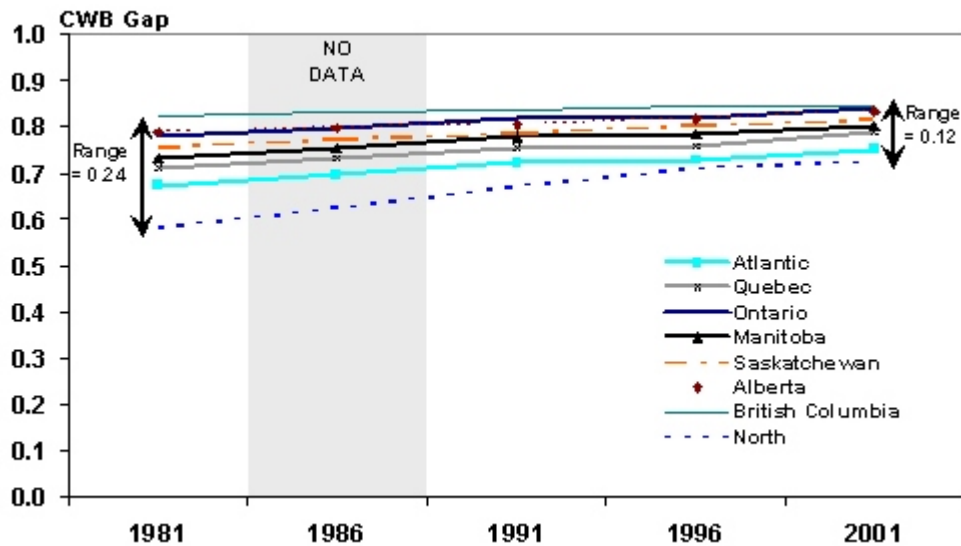
¹⁸ Data tables related to this section are provided in the Appendix.

Figure 8
First Nations' CWB Scores by Region, 1981-2001



Source: Derived from Appendix Table 1.

Figure 9
Other Canadian Communities' CWB Scores by Region, 1981-2001



Source: Derived from Appendix Table 2.

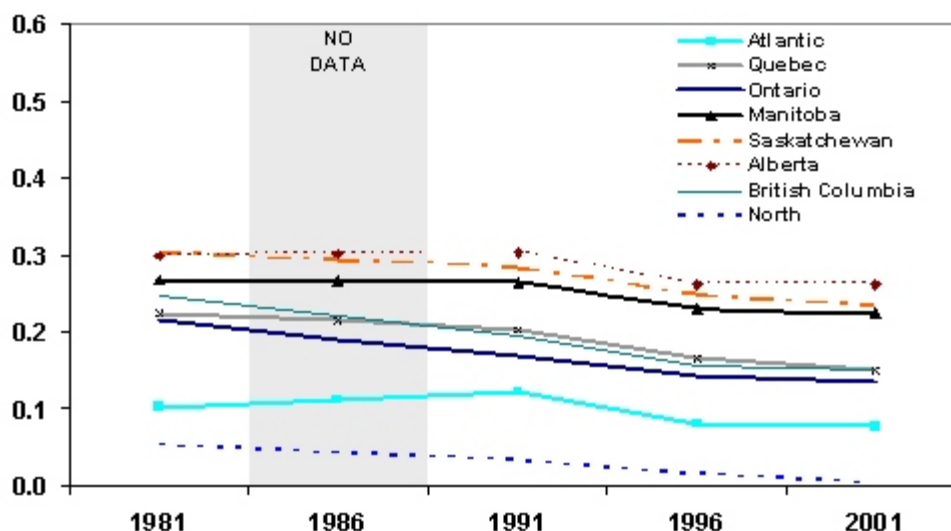
These figures also demonstrate that, while regional scores for other communities converged between 1981 and 2001, regional scores for First Nations diverged slightly. In other words, the disparity in well-being between First Nations across regions of Canada increased between 1981 and 2001.

Figure 8 also demonstrates that the well-being of First Nations varied from region to region in a fairly consistent manner between 1981 and 2001. Consistently, average CWB scores were highest in British Columbia, Ontario and the Atlantic region and lowest in the Prairies. First Nations in the North, whose score was middling in 1981, rose to be the highest in 2001. Quebec First Nations, whose score was comparable to those of the Prairies in 1981, had become more middling by 2001.

The largest increase in First Nations' CWB score occurred in the North (0.19 or about 19 points), while the smallest occurred in Alberta (almost 8 points). Increases in First Nations' CWB scores in the other regions were as follows: Quebec (0.15), Ontario (0.14), Saskatchewan (0.13), British Columbia (0.12), Manitoba (0.11), the Atlantic (0.11).

Figure 10 illustrates changes in the gaps between First Nations and other communities, by region, between 1981 and 2001. This graph demonstrates that, with the exception of Alberta and the Atlantic region, the regional gaps between First Nations and other communities decreased with each census year (the gap increased very slightly in Alberta and somewhat more in the Atlantic region between 1981 and 1991, though gaps in both regions decreased in the overall 1981-2001 period).

Figure 10
CWB Gaps by Region, 1981-2001



Source: Derived from Appendix Table 3.

Regional differences in the disparity between First Nations and other Communities were also quite consistent across time. The smallest gaps were found in the North and the Atlantic region, to a certain extent owing to the lower CWB scores of non-First Nations communities in those regions. Middling gaps were found in Ontario, British Columbia, and Quebec. The largest disparities between First Nations and other communities were found in the Prairie provinces.

As mentioned above, the disparities between First Nations and other communities decreased in all regions between 1981 and 2001. The largest reduction occurred in the British Columbia (almost 10 points), while the smallest occurred in the Atlantic region (about 3 points). Gap reductions in the other regions were as follows: Ontario (0.08), Quebec (0.08), Saskatchewan (0.07), the North (0.05), Manitoba (0.04), Alberta (0.04).

Overall, it may be said that, while there were clear regional patterns in First Nations' CWB scores and gaps between 1981 and 2001, regional patterns in *changes* in scores and gaps were less pronounced.¹⁹

¹⁹ The fact that Manitoba and Alberta seem to have been doubly disadvantaged by lower CWB scores and less improvement is worthy of consideration, however.

6. The Importance of “Initial Scores”

Through the course of our research on the CWB, we discovered two interesting patterns. These patterns provide insight into past CWB trends and impacted our method of projecting well-being into the future. Consequently, we decided to highlight the patterns in this separate section.

The patterns, in brief, are as follows:

- a) As communities CWB scores at the outset of an intercensal period (i.e. their “initial scores”) increased, the amount of improvement they experienced during the intercensal period decreased.
- b) Within categories of “initial scores” First Nations improved less than other Canadian communities.

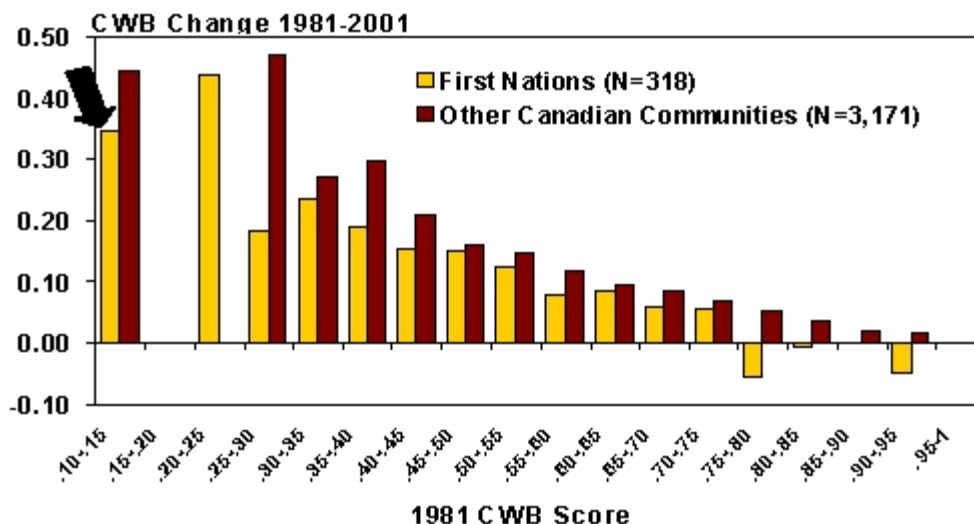
These patterns were evident in the CWB index almost uniformly across intercensal periods.²⁰ The patterns were also evident across all components of the CWB index²¹ except for education. While improvement in education decreased as initial education scores increased, First Nations and other communities with similar initial scores generally improved at a similar rate.

Using the 1981-2001 intercensal period as an example, Figure 11 illustrates these patterns in the CWB scores of First Nations and other Canadian communities. The 1981 CWB scores, divided into twenty equidistant groups, fall on the X-axis. On the Y-axis is the average change in CWB score that communities within each 1981 CWB stratum experienced between 1981 and 2001. For example (as indicated by the arrow), the average amount of change experienced by First Nations whose 1981 CWB fell between 0.10 and 0.15 was about 0.35, or 35 points on the 100-point CWB scale.

²⁰ As will be detailed later, we examined the 1981-2001, 1991-2001 and 1996-2001 periods.

²¹ The strength of the relationships varied.

Figure 11
CWB Score Change 1981-2001 by 1981 CWB Score Strata



The decline in bar heights from left to right demonstrates that improvement between 1981 and 2001 decreased as 1981 scores increased: communities with lower scores in 1981 improved more between 1981 and 2001 than did communities with higher scores in 1981. Each 1981 CWB score stratum contains a pair of bars. In each stratum, the yellow bar representing the average change between 1981 and 2001 for First Nations is shorter than the brown bar which represents the average change between 1981 and 2001 for other Canadian communities. This indicates that, within categories of “initial scores,” First Nations improved less than other Canadian communities.

6.1 What Do These Patterns Say About CWB Trends in the Past?

Almost uniformly, our analyses of the CWB index indicated that First Nations well-being increased between 1981 and 2001 and that the gap between First Nations and other communities narrowed. What those analyses did not determine, however, was *why* First Nations improved more than other communities.

An attractive explanation is that something was “going on” in First Nations communities that allowed them to progress faster than other communities. That is, we could assume that the correlation between First Nationhood and CWB improvement (i.e. First Nations improved more) was actually a causal link (i.e. First Nations improved more *because* they were First Nations).

The patterns revealed in Figure 11, however, negate this supposition. First, the graph demonstrated that, in both First Nations and other communities, improvement in well-being scores decreased as initial scores increased. Since CWB scores were generally lower among First Nations communities, their average score would necessarily have increased more than that of other Canadian communities. In other words, the relationship between First Nationhood and improvement in well-being was largely spurious.

The relationship was not entirely spurious, however; but what impact First Nationhood had on improvement in well-being was not favourable. Within strata of 1981 CWB scores, First Nations improved less than other communities, indicating that First Nationhood had a negative impact on CWB improvement.

The regression analyses presented in Table 5 will perhaps clarify these claims.

As indicated by the R Square values of the three different “models,” 1981 CWB score alone accounted for about 40% of the variation in CWB change between 1981 and 2001. Alone, First Nations status accounted for only about 8%. Adding the latter to the first model improved its ability to account for variation in 1981-2001 CWB change only minutely. These results suggest that little of the difference between communities’ 1981 and 2001 CWB scores was related to whether or not they were First Nations.

Table 5
Regression Analysis: Examining Determinants of Change in CWB Scores
Between 1981 and 2001

Predictors of CWB Score Change 1981-2001	R	R Square		B (slope)
1981 CWB Score only (Model 1)	0.630	0.397		-0.342
First Nations status only (Model 2)	0.287	0.082		0.057
1981 CWB Score with First Nations status added (Model 3)	0.637	0.406	1981 CWB score	-0.379
			First Nations status	-0.023

The B values, or “slopes” demonstrates what influence First Nationhood had on CWB improvement between 1981 and 2001 was negative. When examined in isolation (Model 2), First Nationhood appears to have a weak but positive relationship with the amount of improvement communities experienced between 1981 and 2001. When one “controls” for communities’ initial scores by introducing 1981 CWB scores into the model (Model 3), however, that relationship is reversed: First Nations improved slightly *less* than other Canadian communities.

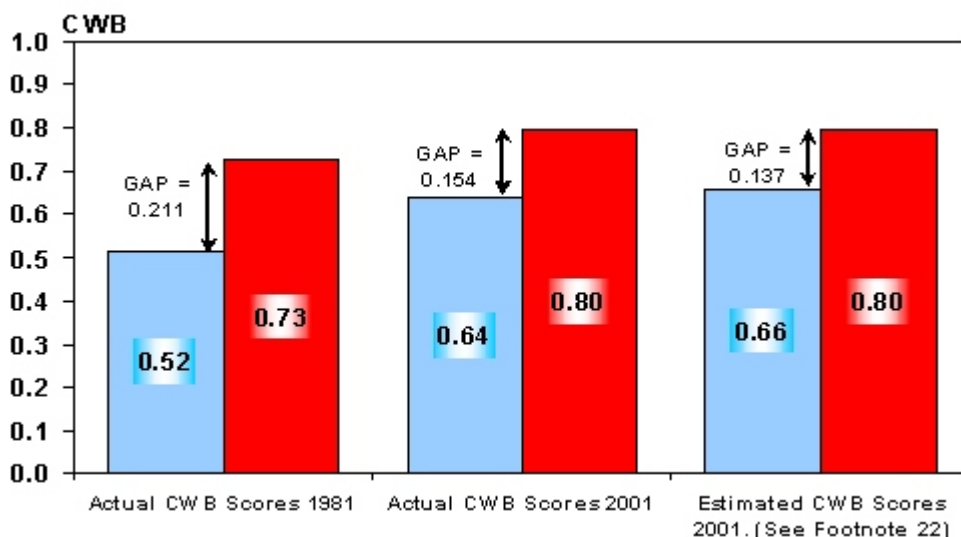
Essentially, despite the increase in First Nations well-being between 1981 and 2001 and

the fact that the disparity between First Nations and other Canadian communities decreased, we cannot claim that First Nations progressed faster, or even as fast, as other communities. Put another way, had First Nations progress really been equal to that of other communities, their average score would have increased more, and the gap would have narrowed more appreciably.

Figure 12 is illustrative. The first two sets of bars represent the actual average CWB scores for First Nations and other communities in 1981 and 2001, respectively. In the final set of bars, the First Nations score for 2001 has been adjusted to represent what the First Nations score “would have been” had First Nations progressed at the same rate as other communities within their respective 1981 CWB score strata²². Had that been the case, the CWB gap would have decreased by about 7.4 points on the 100-point CWB scale, slightly more than the actual decrease of about 5.7 points.

²² To produce this estimate, we recalculated the average 2001 CWB score for First Nations using the regression equation that defines the relationship between 1981 CWB score and change in CWB score between 1981 and 2001 for other Canadian communities. The complete adjustment equation is as follows: First Nations CWB 2001 = First Nations CWB 1981 + (0.323 + (-0.35 * First Nations CWB 1981)).

Figure 12
Comparing Actual Changes In First Nations Well-Being Between 1981 and 2001 with those that “Would Have Occurred” had First Nations Progress Within 1981 CWB Levels Been Equal to That of Other Canadian Communities



6.2 What Do These Patterns Say About CWB Trends in the Future?

As the implications of the patterns we have described are borne out in our projections, little needs to be said about them here. In brief, the fact that improvement declines as initial scores increase suggests that well-being will eventually “plateau.” The fact that, within strata of initial scores, First Nations improved less than other communities suggests that First Nations will plateau at a lower level of well-being than other Canadian communities.

7. Projecting Community Well-Being into the Future: 2001-2041

7.1 Projection Methodology

We cannot know for certain how well-being among First Nations will develop. Innumerable unexpected factors may emerge to alter the course of First Nations history. We can, however, ascertain what implications previous CWB patterns have for the future progress of First Nations well-being. In simple terms, what is the future of First Nations well-being, if things continue on their present course?

Without any clear indication of which intercensal period best represents how First Nations will fare in the future²³, it is prudent to produce several projections based on different intercensal periods. We used the 1981-2001 period, the 1991-2001 period, and the 1996-2001 periods^{24,25} to produce projections for the CWB and its components through 2041. Producing multiple projections also allows us to minimize the impact of any random variation that may appear in any individual intercensal period.

In the previous section, we discussed the impact of communities' initial scores on how much their scores are likely to change. To account for this impact in our projections, we employed regression equations. These equations summarize the relationship between communities' scores at the beginning of a period and how much they changed by the end of the period. They allowed us to estimate how much communities' scores would be expected to increase in the future, given their scores in 2001.

Our methodology is described in detail below, using projections of the CWB index based on the 1981-2001 period as an example.

The following regression equation describes the relationship between First Nations communities' 1981 CWB scores and the amount of change those communities incurred between 1981 and 2001.

$$\text{Change 1981 to 2001} = 0.380 + (-0.494 * 1981 \text{ CWB Score})^{26}$$

The corresponding regression equation for other communities is:

$$\text{Change 1981 to 2001} = 0.323 + (-0.350 * 1981 \text{ CWB Score})$$

²³ For example, if the evolution of well-being follows a long-term trajectory, patterns of change since 1981 may be the most appropriate bases for our well-being projections. Alternately, the deceleration of First Nations progress following 1996 may have marked the beginning of a new trend in First Nations development.

²⁴ Projections based on 1981 to 2001 CWB changes are based on 318 First Nations and 3,171 other communities that were deemed comparable between 1981 and 2001. Projections based on 1991 to 2001 CWB changes are based on 399 First Nations and 3,454 other communities that were deemed comparable between 1991 and 2001. Projections based on 1996 to 2001 CWB changes are based on 470 First Nations and 3,643 other communities that were deemed comparable between 1996 and 2001.

²⁵ Projections based on these time periods assume that well-being progresses in 20, 10, and 5-year cycles, respectively.

²⁶ In simple terms, this equation means that each community had a base increase of 0.380 between 1981 and 2001. 0.494 multiplied by the community's 1981 CWB score is the amount that is subtracted from the base amount of 0.380. We can see that, the higher a First Nations' CWB score was in 1981, the less it would have improved by 2001.

To calculate 2021²⁷ CWB scores for First Nations, we added to their 2001 CWB scores 0.380 minus 0.494 multiplied by their 2001 CWB scores. To calculate First Nations 2041 CWB scores, we repeated the process, this time multiplying the 0.494 by communities' 2021 CWB scores.

To calculate 2021 CWB scores for other Canadian communities, we added to their 2001 CWB scores 0.323 minus 0.350 multiplied by their 2001 CWB scores. To calculate other communities' 2041 CWB scores, we repeated the process, this time multiplying the .350 by communities' 2021 CWB scores.

In all, we completed 15 projections. They are detailed in the following below.

²⁷ Since this projection is based on the 20-year period between 1981 and 2001, CWB scores are projected in 20-year intervals. Correspondingly, for projections based on the 1991-2001 and 1996-2001 periods, CWB scores were projected in 10 and 5-year intervals, respectively.

Table 6
Summary of Regression Equations Used to Generate Projections

Period	Indicator	Regression Equation <i>where x = change between year A and year B y = score year A</i>	
		First Nations (N = 318)	Other Canadian Communities (N = 3,171)
1981-2001			
	CWB	$x = 0.380 + -0.494(y)$	$x = 0.323 + -0.350(y)$
	Income	$x = 0.304 + -0.529(y)$	$x = 0.365 + -0.466(y)$
	Education	$x = 0.472 + -0.479(y)$	$x = 0.384 + -0.388(y)$
	Housing	$x = 0.519 + -0.706(y)$	$x = 0.663 + -0.705(y)$
	Labour Force Activity	$x = 0.587 + -0.832(y)$	$x = 0.152 + -0.167(y)$
1991-2001			
	CWB	$x = 0.209 + -0.247(y)$	$x = 0.204 + -0.228(y)$
	Income	$x = 0.140 + -0.187(y)$	$x = 0.226 + -0.288(y)$
	Education	$x = 0.278 + -0.280(y)$	$x = 0.273 + -0.299(y)$
	Housing	$x = 0.309 + -0.397(y)$	$x = 0.484 + -0.519(y)$
	Labour Force Activity	$x = 0.339 + -0.455(y)$	$x = 0.180 + -0.217(y)$
1996-2001			
	CWB	$x = 0.121 + -0.160(y)$	$x = 0.156 + -0.174(y)$
	Income	$x = 0.093 + -0.139(y)$	$x = 0.198 + -0.248(y)$
	Education	$x = 0.145 + -0.157(y)$	$x = 0.206 + -0.241(y)$
	Housing	$x = 0.228 + -0.315(y)$	$x = 0.422 + -0.455(y)$
	Labour Force Activity	$x = 0.280 + -0.395(y)$	$x = 0.191 + -0.221(y)$

7.2 A Word of Caution

A simple and popular method of projecting trends into the future is to extrapolate changes in group averages. That is, since First Nations' average CWB score increased by 0.13 between 1981 and 2001, we could assume that it would increase by the same 0.13 between 2001 and 2021 and in every subsequent 20-year period.

In the case of the CWB, this method would implicitly assume that some inherent quality in First Nations allowed them to improve at a faster rate than other communities. Such an assumption is unwarranted, however, given the relationship we uncovered between initial scores, changes in scores and First Nations community status (detailed in Section 6). Consequently, we utilized a more complex projection method which accounted for that relationship.

This more complex projection method, however, contains its own assumptions. Specifically, our method assumes that the aforementioned negative relationship between initial scores and improvement and between First Nationhood and improvement are “real” and not by-products of factors unknown.

For example, as the positive one was revealed to be, the negative relationship we discovered between First Nationhood and well-being improvement may be spurious. Perhaps communities within strata of initial scores tended to improve more if they were closer to highways. First Nations might appear to improve less simply because they tended to be located farther from highways, even though First Nations near highways improved just as much as other Canadian communities near highways and other Canadian communities removed from highways improved just as little as their First Nations neighbours.

The possibility of such an effect might prompt readers to wonder why we didn’t investigate the matter, and, if such an effect existed, account for it in our projection model. The answer is simple: research is an iterative, cumulative, long-term process. The factors that one might examine for influence on the trajectory of First Nations well-being are innumerable, and investigation is bounded only by researchers’ imaginations (and, of course, data availability!).

No matter what method was used, we could not claim to have the definitive “answer” to what affects First Nations well-being, or how it will progress in the future. Our projection method accounts for the patterns we have discovered in the CWB data thus far. As additional patterns are discovered, better modes of projection may be developed. At this point in time, however, we may state confidently that our method of projecting well-being into the future reflects our current level of understanding of how First Nations well-being evolved in the past.

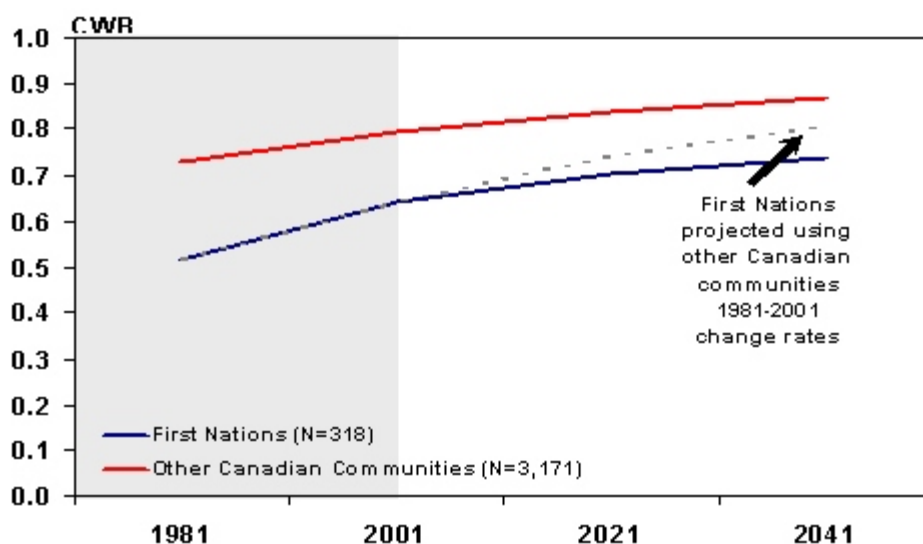
7.3 Projection Results, 2001- 2041

The results of our projection models are reported in absolute terms. That is, we often refer to what *will* happen. This mode of expression was chosen for its clarity and brevity. Our projections are merely “educated guesses,” however, and should not be interpreted as concrete claims.

7.3.1 The CWB Index, Canada, 2001- 2041

Figure 13 illustrates our projection of the CWB index based on the 1981-2001 intercensal period. Past CWB scores have been shaded in grey to distinguish them from projected scores.

Figure 13
2001-2041 CWB Projections Based on Trends Observed in the 1981-2001 Intercensal Period



Source: Derived from Appendix Table 4.

The graph indicates that, by 2041, the average CWB score for First Nations communities will fall about six points below the level seen in other communities in 2001. Moreover, the amount of improvement in the First Nations average decreases steadily between 2001 and 2041, implying that improvement will “level off” when First Nations have achieved only a moderate level of well-being.

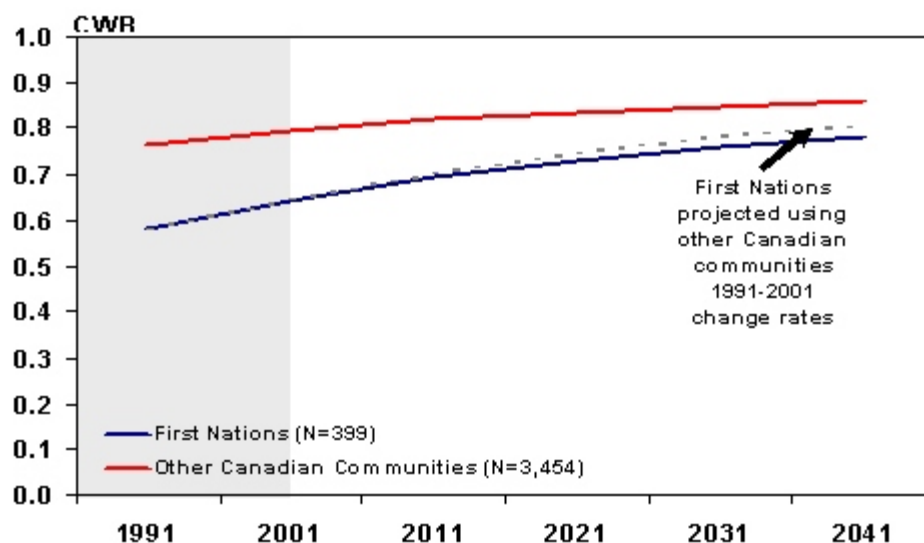
In addition, the gap between First Nations and other Canadian communities, while slightly narrower in 2041 than in 2001, is still very much in evidence. The CWB gap narrows by only 2 points over the 40-year projected period and remains 13 points wide in 2041.

As indicated earlier, within categories of initial conditions, First Nations improved less, on average, than other Canadian communities. The effect of this disparity is demonstrated in Figure 13's dashed grey line. The line represents what the projection for First Nations *would have looked like* had First Nations changed at the same rate as other communities within initial conditions strata between 1981 and 2001.²⁸ Had this been the case, First Nations would have achieved a substantially higher level of well-being by 2041.

²⁸ Literally, we replaced the regression equation that described the relationship between First Nations 1981 CWB scores and changes in those scores with the equation that describes the relationship between other Canadian communities' 1981 CWB, and changes in those scores.

As also noted earlier, we simply *don't know* which of the intercensal periods best represents what we will see in the future. Figures 14 and 15 are based on the rates of change observed between 1991 and 2001, and 1996 and 2001, respectively.

Figure 14
2001-2041 CWB Projections Based on Trends Observed in the 1991-2001 Intercensal Period

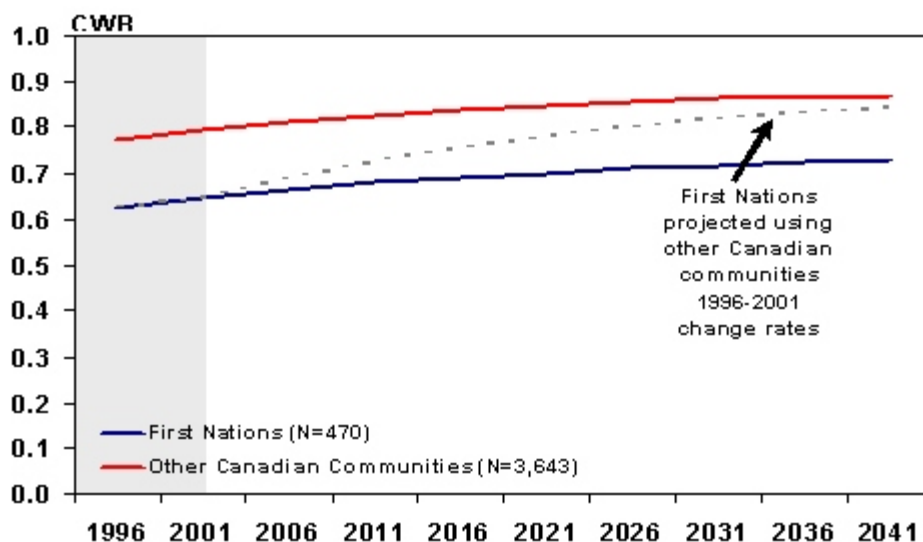


Source: Derived from Appendix Table 5.

Projections of the CWB index based on the 1991-2001 period yield the largest absolute and relative increases for First Nations. While the well-being gap is expected to remain about eight points wide in 2041, this projected gap is approximately half the size of the one that existed in 2001. Moreover, the projected 2041 CWB score for First Nations is only slightly lower than that observed in other Canadian communities in 2001.

Figure 14 also demonstrates the similarity between the actual First Nations projection and the hypothetical projection based on the regression line for other Canadian communities. This similarity demonstrates that, within strata of 1991 scores, First Nations improved only slightly less than other communities between 1991 and 2001.

Figure 15
2001-2041 CWB Projections Based on Trends Observed in the 1996-2001 Intercensal Period

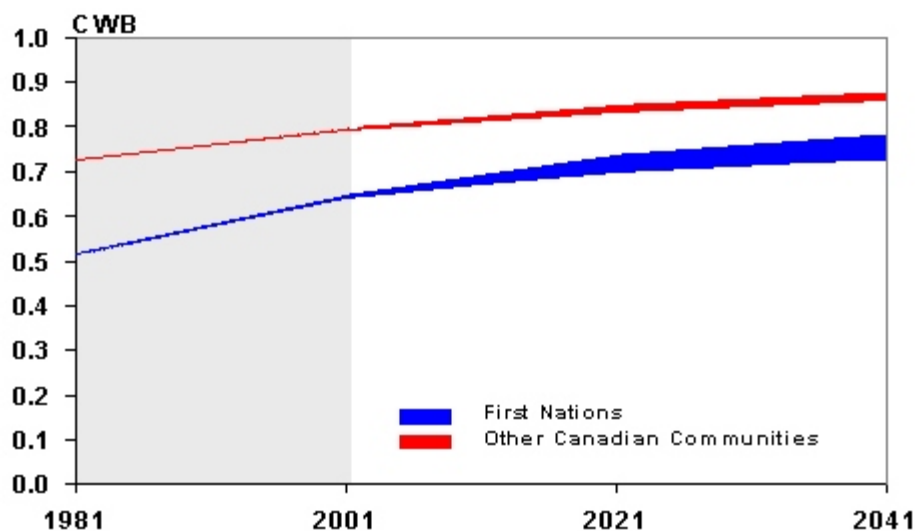


Source: Derived from Appendix Table 6.

The projection based on the 1996-2001 period is very similar to the one based on the 1981-2001 period. Progress in First Nations' well-being quickly plateaus and the CWB gap remains virtually unchanged by 2041. Again, the dashed grey line represents a hypothetical projection of First Nations well-being. The line depicts how we would have projected First Nations well-being had their 1996-2001 rate of change been identical to that of other communities. Had this been the case, the well-being gap projected for 2041 would have been about 80% smaller.

The following graph is a summary of the previous three projections. We have included it for a very important reason: it highlights the variability in those projections. We cannot foresee the future of First Nations well-being. We can only extrapolate previous data trends, and can only guess at which trends best approximate what we will see in the future.

Figure 16
Projecting Well-Being in First Nations and Other Canadian Communities:
A Summary



Source: Derived from Appendix Table 7.

As Figure 16 demonstrates, there is a gap of about 5 points (on the 100-point CWB scale) between our highest and lowest estimates of First Nations 2041 CWB score. The gap between our highest and lowest estimates for other Canadian communities is only about 1.5 points wide. Uniformly, however, our projections indicate that progress in First Nations will begin to level off, and that a gap between the average CWB score for First Nations and that of other Canadian communities will remain in 2041.

7.3.2 Components of the CWB, Canada, 2001 - 2041²⁹

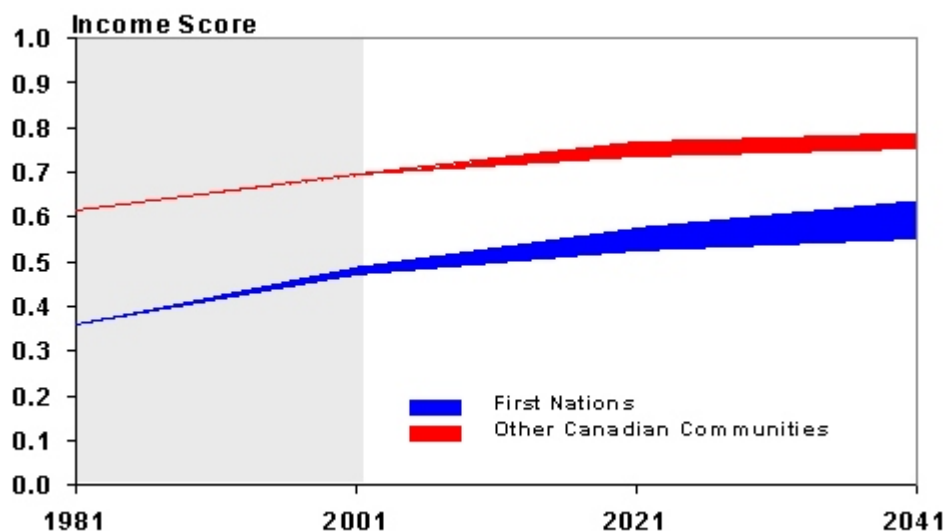
In the interest of brevity, we have summarized our projections of the CWB components. As in Figure 16 above, the projections based on the 1981-2001, the 1991-2001, and the 1996-2001 periods have been combined to form ranges of possible futures for First Nations and other Canadian communities.

²⁹ Data tables related to this section are provided in the Appendix.

7.3.2.1 Income

The projections for the income component of the CWB index are illustrated in Figure 17.

Figure 17
Income Projections for First Nations and Other Canadian Communities, 2001-2041: A Summary



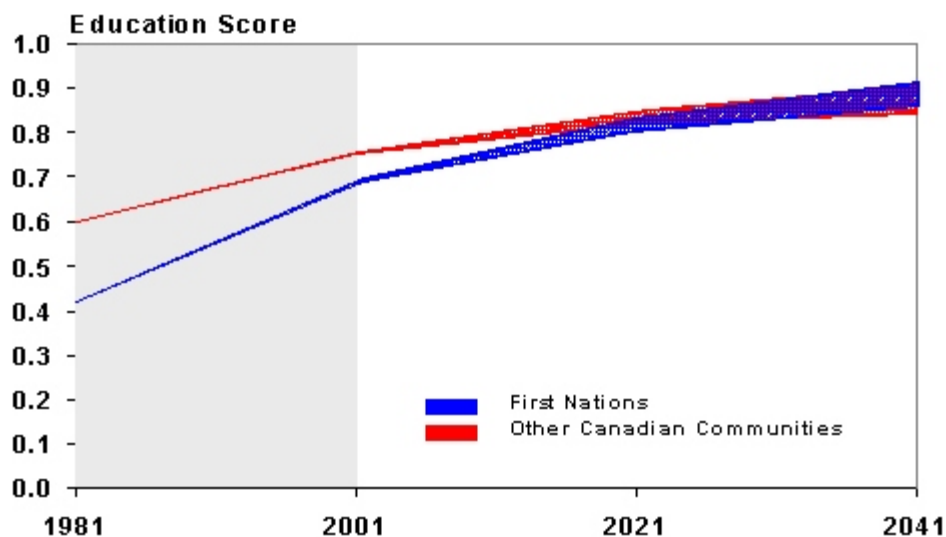
Source: Derived from Appendix Table 8.

Our projections indicated that First Nations' income score will increase between 8 and 15 points between 2001 and 2041. The income gap in 2041 is expected to be anywhere from 13 to 24 points wide. This range is not directly comparable to the 1981 income gap of 0.26, given that some of the communities used to produce our projections from the 1991-2001 and 1996-2001 time periods were not included in our 1981-2001 analyses. Still, we can claim in general terms that the income gap may be reduced by as much as 50% or almost not at all by 2041. Whatever the case, our projections indicate that the income disparity between First Nations and other communities will persist through 2041. The fact that First Nations' income improvement has begun to plateau by that time suggests that the gap will persist for some time after.

7.3.2.2 Education

The projections for the education component of the CWB index are illustrated in Figure 18.

Figure 18
Education Projections for First Nations and Other Canadian Communities, 2001-2041: A Summary



Source: Derived from Appendix Table 9.

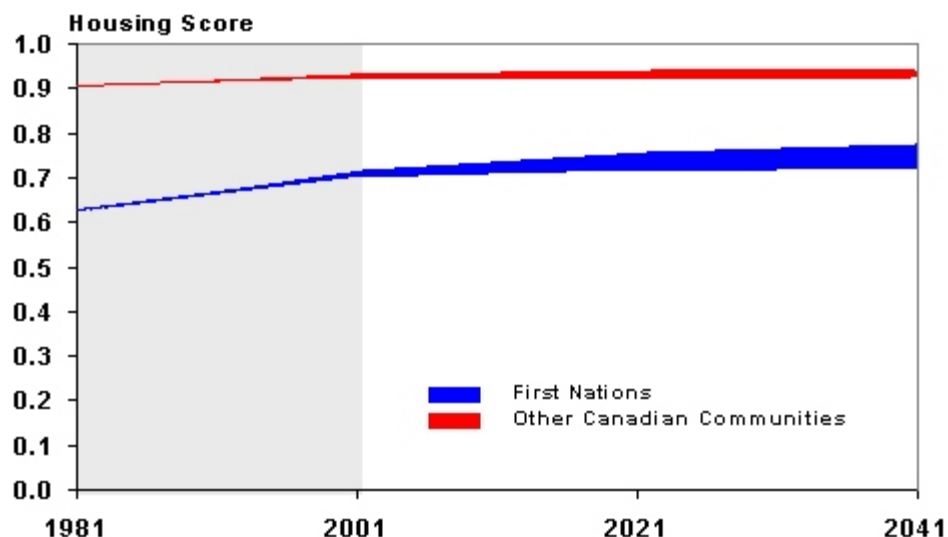
Between 2001 and 2041, First Nations' average education score is expected to increase between 17 and 22 points.

All of our projections indicate that, by 2041, the education gap between First Nations and other Communities will effectively be closed. Some of our estimates actually predict that First Nations' education score will surpass that of other Canadian communities. Again, it important to remember that the education indicator emphasizes achievement at the lower end of the education continuum. Differences in educational attainment between First Nations and other Canadian communities in the higher echelons of education are not captured.

7.3.2.3 Housing

The projections for the housing component of the CWB index are illustrated in Figure 19.

Figure 19
Housing Projections for First Nations and Other Canadian Communities, 2001-2041: A Summary



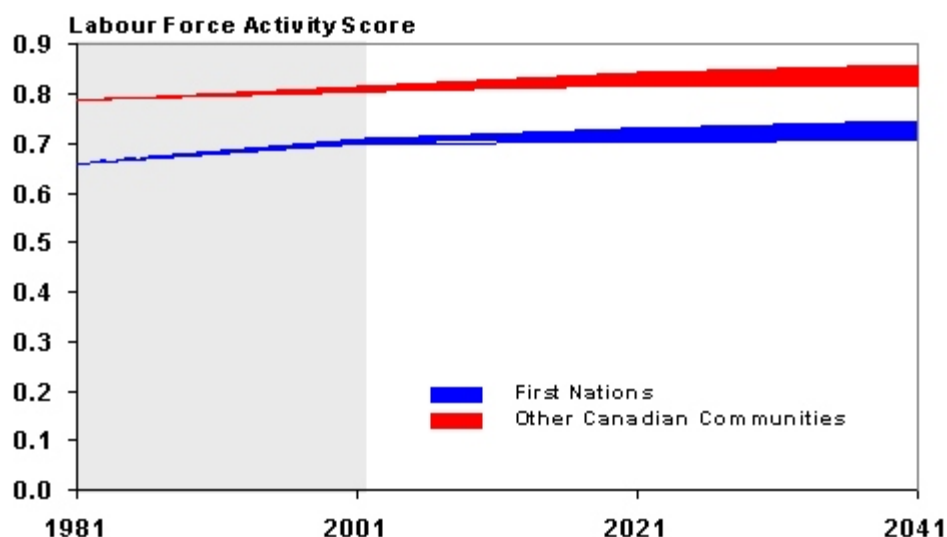
Source: Derived from Appendix Table 10.

First Nations' average housing score is expected to increase between 1 and 6 points by 2041. The gap between First Nations and other communities is expected to remain between 16 and 22 points wide. The plateau of First Nations progress is very evident in the housing component. All of our projections indicated that little improvement will occur between 2021 and 2041 (never much more than a single point). This suggests that the 2041 housing gap, even the smallest one predicted by our projections, will not reduce much further in the years beyond 2041.

7.3.2.4 Labour Force Activity

The projections for the labour force activity component of the CWB index are illustrated in Figure 20.

Figure 20
Labour Force Activity Projections for First Nations and Other Canadian Communities, 2001-2041: A Summary



Source: Derived from Appendix Table 11.

The labour force activity gap in 2041 is expected to be between 8 and 15 points wide. The “plateau effect” for First Nations was evident in all our projections of labour force activity. This suggests that the labour force activity gap, whatever it may be in 2041, will reduce little in the years that follow.

It should be noted that projections using the 1991-2001 intercensal period yielded higher estimates for First Nations well-being, both in terms of the CWB and its components, than projections based on the 1981-2001 and 1996-2001 periods. Labour force activity was an exception. The largest absolute increase in First Nations labour force activity score was generated by the projections based on the 1991-2001 period, but the projections based on the 1996-2001 period indicated a greater gap reduction between First Nations and other communities.

8. Summary of Results

Our analyses of the 1981-2001 CWB time series reveal that, in each census year, well-being in First Nations was lower than that found in other Canadian communities. Variation in well-being between First Nations, however, was extremely wide, and several of them ranked among the country’s most prosperous communities.

Overall, well-being in First Nations increased between 1981 and 2001 and the gap between First Nations and other Canadian communities narrowed during that time. The bulk of First Nations gains' occurred between 1991 and 1996.

The largest disparities between First Nations and other Canadian communities were found consistently in the housing and income components of the CWB. First Nations scores, both absolutely and relative to those of other communities, increased in all 4 components of the CWB index between 1981 and 2001. First Nations experienced their greatest gains, by far, in education.

Regional disparities in First Nations' CWB scores were fairly consistent between 1981 and 2001. Scores in the Ontario, British Columbia, the North, and the Atlantic region were fairly similar, while scores in the Prairies were noticeable lower. Gaps between First Nations and other Canadian communities were smallest in the North and the Atlantic region, mid-range in Quebec, Ontario and British Columbia, and largest in the Prairies. First Nations well-being improved across regions between 1981 and 2001. Degree of improvement varied across regions, but not in a markedly systematic way.

The higher a community's 1981 CWB score, the less that score increased (on average) between 1981 and 2001. Moreover, when we controlled for 1981 CWB scores, First Nations scores improved less than other Canadian communities' scores. These patterns indicate that the reduction in the CWB gap between First Nations and other Canadian communities between 1981 and 2001 was driven by the large proportion of First Nations whose very low CWB scores predisposed them to a large amount of improvement. The patterns also suggest that improvement in First Nations well-being will slow down in the future and that First Nations' average CWB score will plateau at a level below that of other Canadian communities.

These patterns were consistent across intercensal periods, almost uniformly across regions, and were evident in all components of the CWB except for education.

Overall, our projections of the CWB predicted that increases in First Nations' average CWB score will slow down and that a significant gap will remain between First Nations and other communities in 2041. Significant gaps are also predicted to remain in all components of the CWB except for education.

Projections of the CWB varied with the intercensal period upon which they were based. Generally, projections using the 1991-2001 intercensal period yielded higher estimates for First Nations well-being, both in terms of the CWB and its components, than projections based on the 1981-2001 and 1996-2001 periods.

9. Conclusion

Well-being in First Nations communities improved between 1981 and 2001 and First Nations achievements, particularly in the area of education, should not be downplayed. Despite these successes, however, First Nations continued progress cannot be taken for granted. According to the evidence in hand, maintenance of the *status quo* in First Nations communities means that, to at least some extent, the well-being gap is here to stay.

That being said, the evidence in hand is, as always, contestable. The CWB is an important first step in understanding the disparity in well-being between First Nations and other communities, but it does not represent “the final word” on First Nations community well-being. Future research into the determinants of First Nations well-being is necessary. Such research will not only provide insight into the factors that impact well-being, but will demonstrate what factors might be included in a more comprehensive model of First Nations well-being.³⁰ Additional research will also allow us to predict the future trajectory of First Nations well-being with greater accuracy. Incorporating the effects of “initial scores” into our projection model likely produced more accurate predictions than a simplistic extrapolation of mean changes would have. Still, much more must be learned about the dynamics of First Nations well-being before definitive forecasts of future trends will be possible.

³⁰ Fortunately, the CWB index is itself a powerful research tool that can be used to this end. It may be employed as a dependent and even an independent variable in a myriad of research projects, providing an efficient means of identifying determinants of well-being.

References

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Appendix
Data Tables Related to Selected Figures

Table 1
First Nations' CWB Scores by Region, 1981-2001

	1981	1986	1991	1996	2001
Atlantic (N=15)	0.57	0.58	0.60	0.65	0.68
Quebec (N=21)	0.49	0.52	0.55	0.59	0.64
Ontario (N=23)	0.56	0.60	0.65	0.67	0.70
Manitoba (N=40)	0.46	0.49	0.51	0.55	0.58
Saskatchewan (N=73)	0.45	0.48	0.50	0.55	0.58
Alberta (N=27)	0.49	0.49	0.50	0.55	0.57
British Columbia (N=97)	0.58	0.61	0.64	0.69	0.70
North (N=22)	0.53	0.58	0.64	0.69	0.72

Table 2
Other Canadian Communities' CWB Scores by Region, 1981-2001

	1981	1986	1991	1996	2001
Atlantic (N=654)	0.67	0.70	0.72	0.73	0.75
Quebec (N=1,030)	0.71	0.73	0.75	0.76	0.79
Ontario (N=220)	0.78	0.80	0.82	0.82	0.84
Manitoba (N=194)	0.73	0.75	0.78	0.78	0.80
Saskatchewan (N=744)	0.76	0.77	0.78	0.80	0.81
Alberta (N=272)	0.79	0.80	0.80	0.82	0.83
British Columbia (N=122)	0.82	0.83	0.84	0.84	0.85
North (N=35)	0.58	0.62	0.67	0.71	0.73

Table 3
CWB Gaps by Region: 1981-2001

	1981	1986	1991	1996	2001
Atlantic	0.10	0.11	0.12	0.08	0.08
Quebec	0.22	0.21	0.20	0.16	0.15
Ontario	0.21	0.19	0.17	0.14	0.14
Manitoba	0.27	0.27	0.26	0.23	0.22
Saskatchewan	0.30	0.29	0.28	0.25	0.23
Alberta	0.30	0.30	0.30	0.26	0.26
British Columbia	0.25	0.22	0.19	0.16	0.15
North	0.05	0.04	0.03	0.02	0.00

Table 4
2001-2041 CWB Projections Based on Trends Observed in the 1981-2001 Intercensal Period

	1981	2001	2021	2041
First Nations (N=318)	0.52	0.64	0.70	0.74
Other Canadian Communities (N=3,171)	0.73	0.80	0.84	0.87
First Nations projected using other communities' 1981-2001 rate of change	0.52	0.64	0.74	0.80

Table 5
2001-2041 CWB Projections Based on Trends Observed in the 1991-2001 Intercensal Period

	1991	2001	2011	2021	2031	2041
First Nations (N=399)	0.58	0.64	0.69	0.73	0.76	0.78
Other Canadian Communities (N=3,454)	0.77	0.79	0.82	0.84	0.85	0.86
First Nations projected using other communities' 1991-2001 rate of change	0.58	0.64	0.70	0.75	0.78	0.81

Table 6
2001-2041 CWB Projections Based on Trends Observed in the 1996-2001 Intercensal Period

	1996	2001	2006	2011	2016	2021	2026	2031	2036	2041
First Nations (N=470)	0.63	0.65	0.66	0.68	0.69	0.70	0.71	0.72	0.72	0.73
Other Canadian Communities (N=3,643)	0.77	0.80	0.81	0.83	0.84	0.85	0.85	0.86	0.87	0.87
First Nations projected using other communities' 1996-2001 rate of change	0.63	0.65	0.69	0.73	0.76	0.78	0.80	0.82	0.83	0.84

Table 7
Projecting Well-Being in First Nations and Other Communities: A Summary

	1981	1991	1996	2001	2006	2011	2016	2021	2026	2031	2036	2041
First Nations 1981-2001 (N=318)	0.52			0.64				0.70				0.74
First Nations 1991-2001 (N=399)		0.58		0.64		0.69		0.73		0.76		0.78
First Nations 1996-2001 (N=470)			0.63	0.65	0.66	0.68	0.69	0.70	0.71	0.72	0.72	0.73
Other Canadian Communities 1981-2001 (N=3,171)	0.73			0.80				0.84				0.87
Other Canadian Communities 1991-2001 (N=3,454)		0.77		0.79		0.82		0.84		0.85		0.86
Other Canadian Communities 1996-2001 (N=3,643)			0.77	0.80	0.81	0.83	0.84	0.85	0.86	0.86	0.87	0.87

Table 8
Income Projections for First Nations and Other Canadian Communities, 2001-2041:
A Summary

	1981	1991	1996	2001	2006	2011	2016	2021	2026	2031	2036	2041
First Nations 1981-2001 (N=318)	0.36			0.47				0.53				0.55
First Nations 1991-2001 (N=399)		0.42		0.48		0.53		0.57		0.60		0.63
First Nations 1996-2001 (N=470)			0.45	0.48	0.51	0.53	0.55	0.57	0.58	0.59	0.60	0.61
Other Canadian Communities 1981-2001 (N=3,171)	0.61			0.69				0.74				0.76
Other Canadian Communities 1991-2001 (N=3,454)		0.66		0.69		0.72		0.74		0.75		0.76
Other Canadian Communities 1996-2001 (N=3,643)			0.66	0.69	0.72	0.74	0.75	0.77	0.77	0.78	0.78	0.79

Table 9
Education Projections for First Nations and Other Canadian Communities, 2001-2041: A Summary

	1981	1991	1996	2001	2006	2011	2016	2021	2026	2031	2036	2041
First Nations 1981-2001 (N=318)	0.42			0.69				0.83				0.91
First Nations 1991-2001 (N=399)		0.57		0.69		0.77		0.83		0.88		0.91
First Nations 1996-2001 (N=470)			0.65	0.69	0.73	0.76	0.78	0.81	0.82	0.84	0.85	0.86
Other Canadian Communities 1981-2001 (N=3,171)	0.60			0.75				0.84				0.90
Other Canadian Communities 1991-2001 (N=3,454)		0.68		0.75		0.80		0.83		0.86		0.87
Other Canadian Communities 1996-2001 (N=3,643)			0.72	0.75	0.78	0.80	0.81	0.82	0.83	0.84	0.84	0.84

Table 11
Labour Force Activity Projections for First Nations and Other Canadian Communities, 2001-2041: A Summary

	1981	1991	1996	2001	2006	2011	2016	2021	2026	2031	2036	2041
First Nations 1981-2001 (N=318)	0.66			0.70				0.70				0.71
First Nations 1991-2001 (N=399)		0.66		0.70		0.72		0.73		0.74		0.74
First Nations 1996-2001 (N=470)			0.70	0.70	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Other Canadian Communities 1981-2001 (N=3,171)	0.79			0.81				0.82				0.84
Other Canadian Communities 1991-2001 (N=3,454)		0.80		0.81		0.81		0.82		0.82		0.82
Other Canadian Communities 1996-2001 (N=3,643)			0.79	0.81	0.82	0.83	0.84	0.84	0.85	0.85	0.85	0.86