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***SOCIO-ECONOMIC INDICATORS  
IN INDIAN RESERVES AND  
COMPARABLE COMMUNITIES,  
1971-1991***

1997

Canada

Socio-Economic Indicators in  
Indian Reserves and Comparable Communities  
1971-1991

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## EXECUTIVE SUMMARY

In determining the effectiveness of program delivery on reserve, policy makers must often rely on social and economic indicators, comparing the on reserve population to that of Canada as a whole. This comparison is thought not to be completely justified as the geographical location and community size of reserves is very different from the rest of Canada. A large proportion of Indian reserves are considered rural or remote, as such it can be expected that these reserves experience unique social and economic characteristics which differ greatly from Canada as a whole.

This report is the result of a study which adjusts for the effects of geographical location and community size by comparing reserves to other Canadian communities which exist in a similar spatial milieu. The methodology used in this study has, in some instances, explained a proportion of the observed gap between socio-economic indicators found on reserve and those for the total Canadian population. However, this study does not confirm the universal assertion that marked differences found between the reserve population and the Canadian population as a whole can be attributed to community size and remoteness of location.

The analysis covers five key areas of interest: housing, education, labour force, income and general demographics. Geographic location and community size were instrumental in explaining some of the difference found in education levels on reserve compared to those of the total Canadian population. For example, nearly 69% of the total difference in the proportion of on reserve residents having some university education and all other Canadians can be accounted for by community size and remoteness of location. Similarly, 38% of the difference between the on reserve and other Canadian population, having a highest level of schooling of less than grade 9 is explained using this methodology. Of the total gap in the proportion of on reserve residents reporting non-university education as compared to the proportion of all Canadians reporting this level of education, 64% may be explained by size and location. However, none of the gap between Indian reserves and Canada as a whole is explained by this methodology when the variable *No Schooling or Kindergarten Only* is considered.

Salient findings contained in this report include:

- Community size and location were found to explain 23% of the difference between male labour force participation rates and 38% of the difference between female participation rates experienced on reserve compared to Canada as whole.
- Of the total difference in average individual total income experienced on reserve and by Canada as a whole, nearly 42% is explained by community size and remoteness of location. Community size and location also explained 42% of the difference between



those reserve residents reporting wages as a major source of income and those living in Canada as a whole.

- Notably, the methodology is found to be wanting with respect to attributing the incidence of overcrowding to geography and community size. These and other observations (unemployment rate, self-employment activity) do suggest the need for more research and better understanding of the dynamics of social and economic behaviour on reserve as compared to the rest of Canada.

The results of this study have direct implications for policy-making and programming. Based on empirical evidence, it is clear that the location and size of a community must be considered for comparisons to reserve populations to be meaningful.

## INTRODUCTION

Statistics on the socio-economic situation of Registered Indians living on reserve have historically been compared to the situation of Canadian residents as a whole. Such comparisons, detailing significant gaps between Registered Indians on reserve and the average Canadian, are criticized for being inappropriate since a large percentage of reserves are located in rural or remote areas. This report is built on a unique methodology which presents a comparative analysis of socio-economic indicators between populations on reserve and comparable communities. The study was originally undertaken by the Evaluation Directorate of the Department of Indian Affairs and Northern Development (DIAND) and covered the following four census years: 1971, 1976, 1981, and 1986. This edition of the community comparison project was updated by the Information Quality and Research Directorate, DIAND, and utilizes Statistics Canada custom data products for five census years: 1971, 1976, 1981, 1986, and 1991.

The goal of this study is to permit meaningful comparisons of Registered Indians living on reserve to the Canadian population. Communities deemed comparable to Indian reserves are similar in terms of community size and geographic location. In addition, comparable communities are legally structured entities (ie: municipalities, towns, villages). As such, comparison of data for the population residing on reserve to these comparable communities controls for the effects of community size and location. This approach also explains a substantial proportion of observed variations between communities for various socio-economic measures.

This study continues to yield information for policy-making and programming purposes by isolating a key determinant of the differences in socio-economic conditions between reserve populations and Canada as a whole.



## METHODOLOGY

The methodology for this project is designed to allow socio-economic comparisons to be made between people living on reserve with people living in comparable communities. A detailed description of this methodology is provided in Annex 1 of this report. The methodology was developed in two phases. In Phase I, a methodology was developed for selecting comparable communities<sup>1</sup>. Comparable communities were to be selected if they were located in the same geographical areas (ie: census division - CD) as the reserves, their population size was within the range of population sizes of Indian reserves within the CD and if they were an organized entity (e.g. municipality, village, etc.).

Phase II of the study consisted of the selection process itself whereby Indian reserves participating in the census were systematically matched with comparable communities. This was accomplished through the development of an algorithm to introduce gradual relaxations of both geographic and population criteria until one or more comparable communities were found. The results of this application, including a detailed listing of community selections, are published in a companion document to this study<sup>2</sup>.

Prior to selecting comparable communities, statistical descriptions of Indian reserves were produced to guide the search. All Indian reserves were aggregated by Census Division and province to determine the mean and standard deviation of Indian reserve populations within each of these two geographic units. Six population ranges were developed which allow searches within a selection area to be gradually expanded until one or more comparable communities were found.

Searches for comparable communities proceeded step-by-step through 6 population criteria until at least one comparable community was found for the Indian reserve(s). If the search was unable to identify comparably sized communities within the initial selection area, the next largest selection area was used. The geography relaxation proceeded step-by-step through 3 criteria until at least one comparable community was found for the Indian reserve(s).

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<sup>1</sup> D.J. Caron, Methodologies for Community Comparisons, Evaluation Directorate, Indian and Northern Affairs Canada, June, 1988.

<sup>2</sup> D.J. Caron and T. Bradscome, Methodology and Results of Selecting Non-Indian Communities for the Community Comparison Project, Evaluation Directorate, Indian and Northern Affairs Canada, February, 1990.



**FINDINGS**

## HOUSING PROFILE

### Highlights:

- On average, there are more individuals per household on reserve than there are in comparable communities and in Canada as a whole. Controlling for geographical location and population is unable to account for this difference.
- The percentage of one census family households is higher in comparable communities (99.4%) than it is on reserve (95.1%) and in Canada as a whole (98.5%). The percentage of two census family households is higher on reserve than it is for comparable communities or Canada as a whole.

### Average Number of Persons per Household

The average number of persons per household falls consistently between 1971 and 1991 for each of the three populations studied. Community size and location was unable to account for the gap between the average number of persons per household found on reserve and in Canada as a whole.

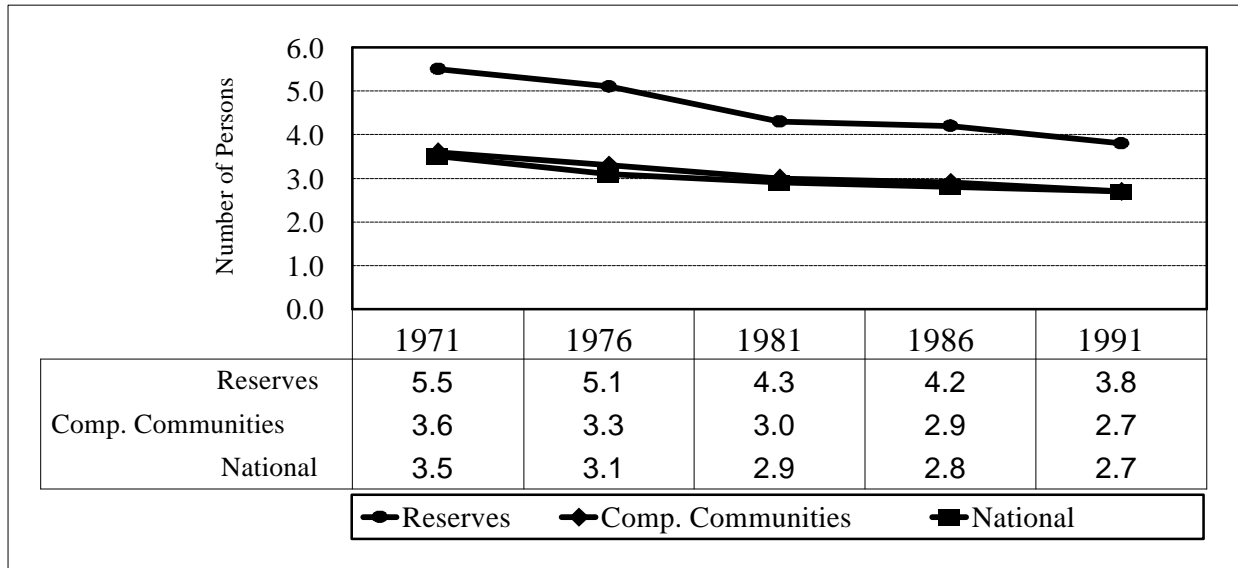
Figure 1 presents the average number of persons per household between 1971-1991. As this figure shows, the average number of individuals per household on reserve was the highest of the various populations studied.

In 1991, the average number of persons per household on reserve was 3.8. This was higher than the average number of persons per household in comparable communities and in Canada as a whole, both of which reported an average of 2.7 persons.

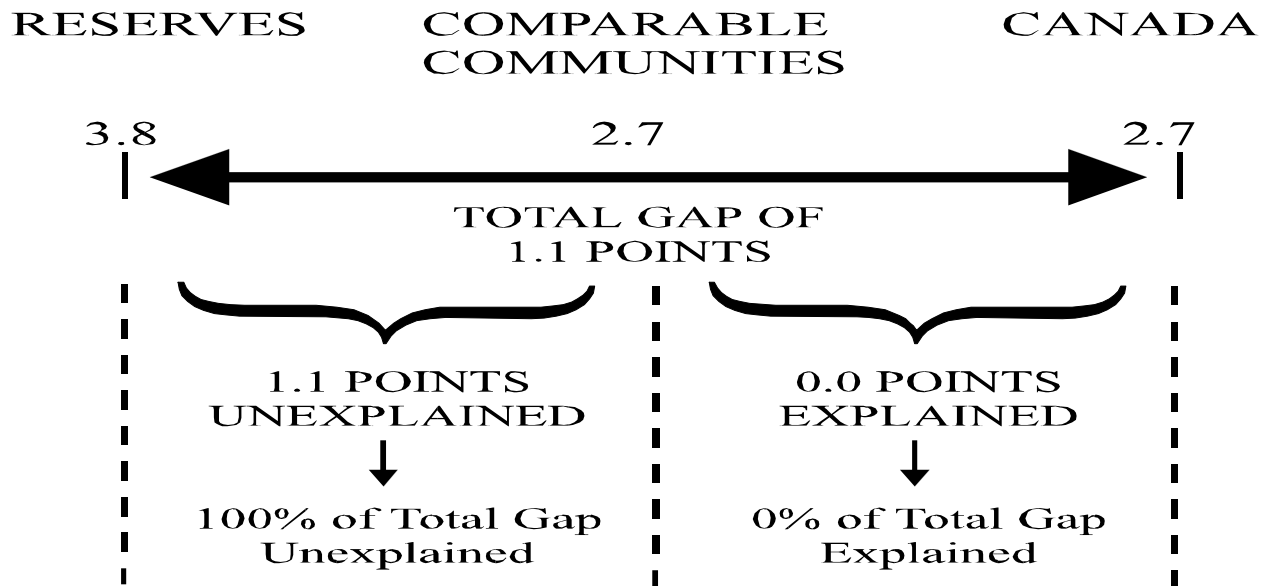
The average number of persons per household decreased over the 20 year period among all three populations. This decline on reserve has been greater than the decline experienced by both the national and comparable community populations. Between 1971 and 1991, the on reserve population experienced a decline in the average number of persons per household of 1.7 persons.

The average number of persons per household in comparable communities and in Canada as a whole were both 2.7 persons in 1991 (Figure 2). Geographical location and population size could not account for any of the difference between the on reserve average and the national average.

**Figure 1 - Average Number of Persons per Household, 1971-1991.**



**Figure 2**





### **Census Families Per Household**

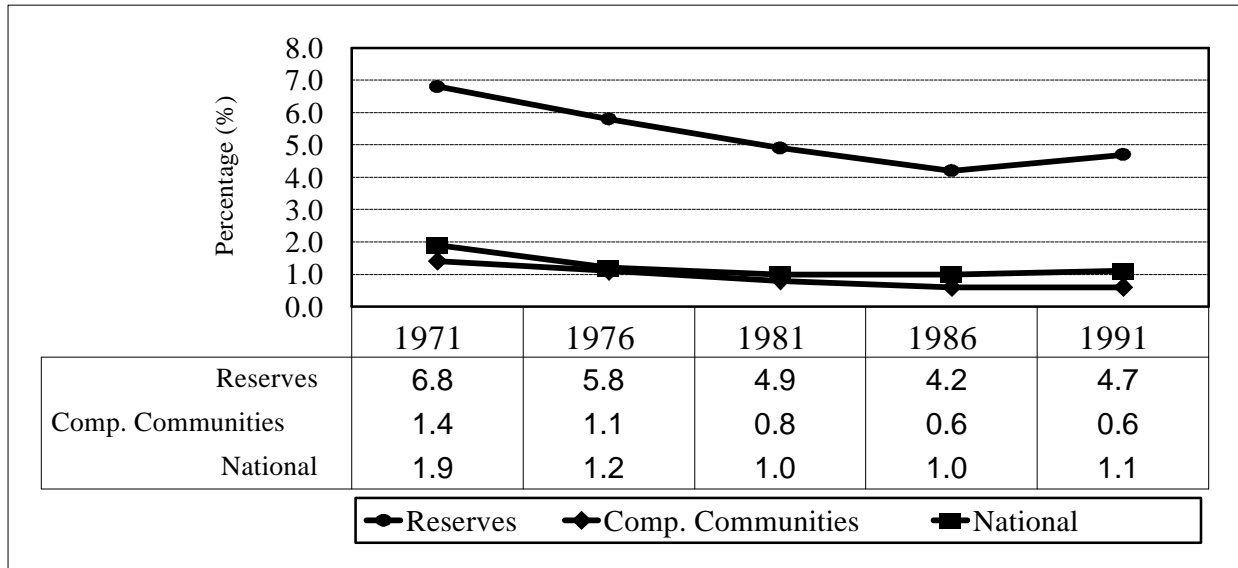
In 1991, 95.1% of reserve households contained one census family compared to 99.4% of comparable community households and 98.5% of all Canadian households. The percentage of households which contained two census families was considerably higher on reserve than it was for the comparable community and national populations.

Figure 3 shows that although the percentage of households containing two census families was small in 1991, it was considerably higher on reserve than for the other populations. In 1991, 4.7% of households on reserve contained two census families compared to 0.6% of comparable community households and 1.1% of all Canadian households.

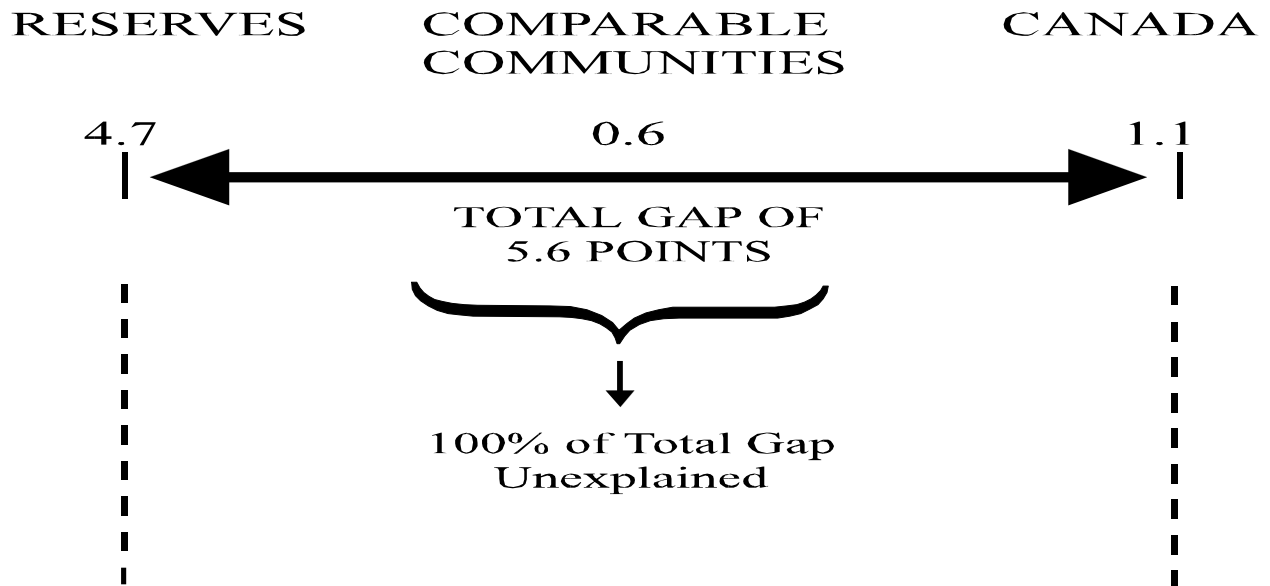
Given that in 1991, the percentage of households in comparable communities having two census families was smaller than the percentage of national households having two census families, the gap between the on reserve rate and the national rate could not be explained by geographic location or community size (Figure 4).

Although the percentage of households having two census families had fallen consistently between 1971 and 1986, in 1991 both the on reserve population and the national population experienced slight increases.

**Figure 3 - Percentage of Two Family Households in Canada, 1971-1991.**



**Figure 4**



## EDUCATION PROFILE

### Highlights:

- Overall, education levels on reserve increased. This was also true for the comparable communities population and the national population as a whole.
- In most cases, community size and location accounted for a significant portion of the differences in education levels obtained on reserve and in Canada as a whole.

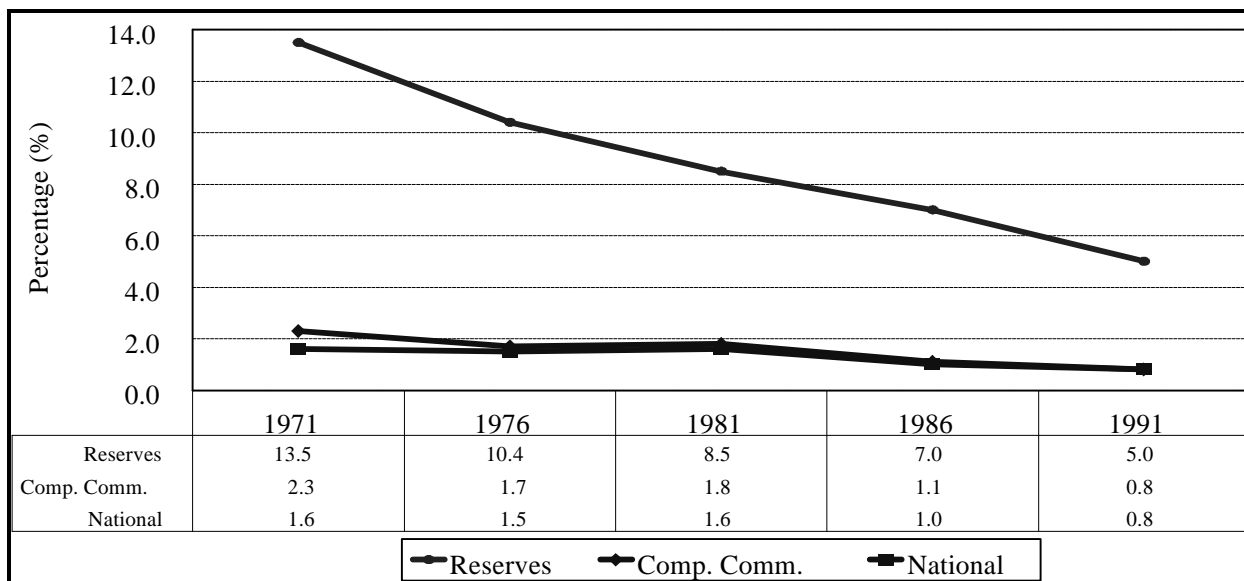
### No-Schooling or Kindergarten Only

Community size and location were unable to account for the gap between the percentage of individuals living on reserve with no schooling or kindergarten only and the percentage of individuals in Canada as a whole who reported this level of education.

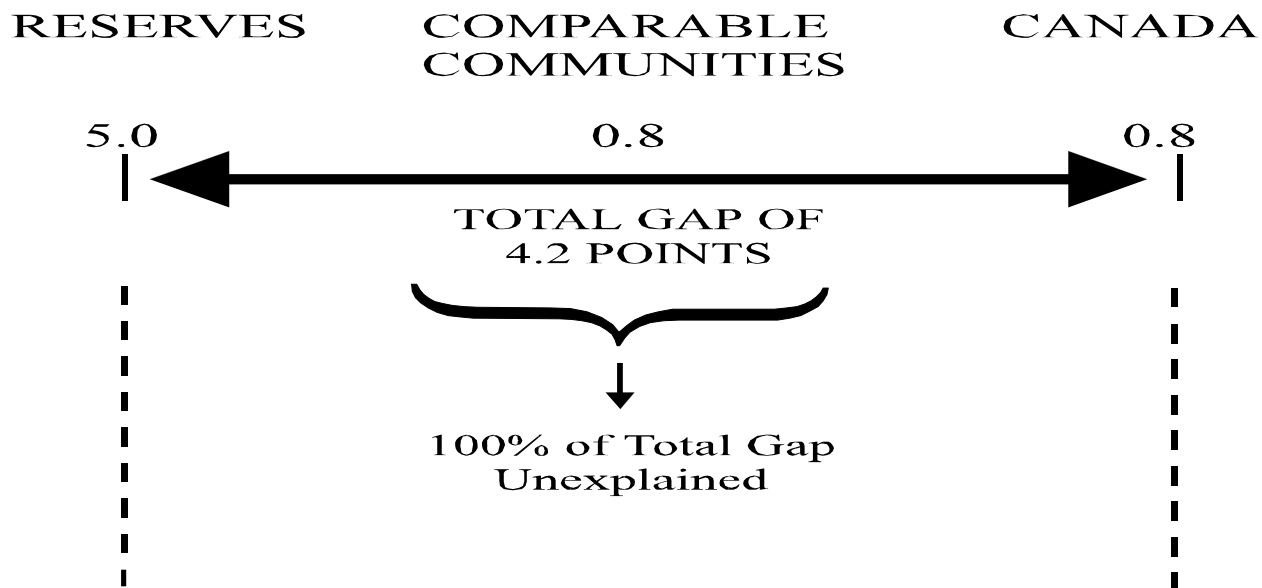
Figure 3A presents the percentage of each population, aged 15 or over, who reported having no schooling or kindergarten only from 1971-1991. The on reserve population reported the largest percentage of individuals having no schooling or kindergarten only (5.0%). Comparable communities and Canada as a whole both reported that 0.8% of their populations had no schooling or kindergarten only.

With respect to the No Schooling or Kindergarten Only variable the on reserve population experienced the greatest decline in reported rates, with a decrease of two full percentage points between 1986 and 1991. In addition, the on reserve population has also experienced the greatest decline since 1971. In 1971 the percentage of the on reserve population having no schooling or kindergarten only was 13.5%. This figure fell to 5.0% in 1991, a significant improvement. In 1971, the percentage of all Canadians having this level of schooling was twice that of the 1991 figure (1.6% vs. 0.8%).

**Figure 5-** Population 15 Years of Age and Over with No Schooling or Kindergarten Only, 1971-1991



**Figure 6**



### **Less than Grade 9 Education**

In 1991, community size and location accounted for 38.3% of the difference between the percentage of the population with less than a grade 9 education on reserve and in Canada as a whole.

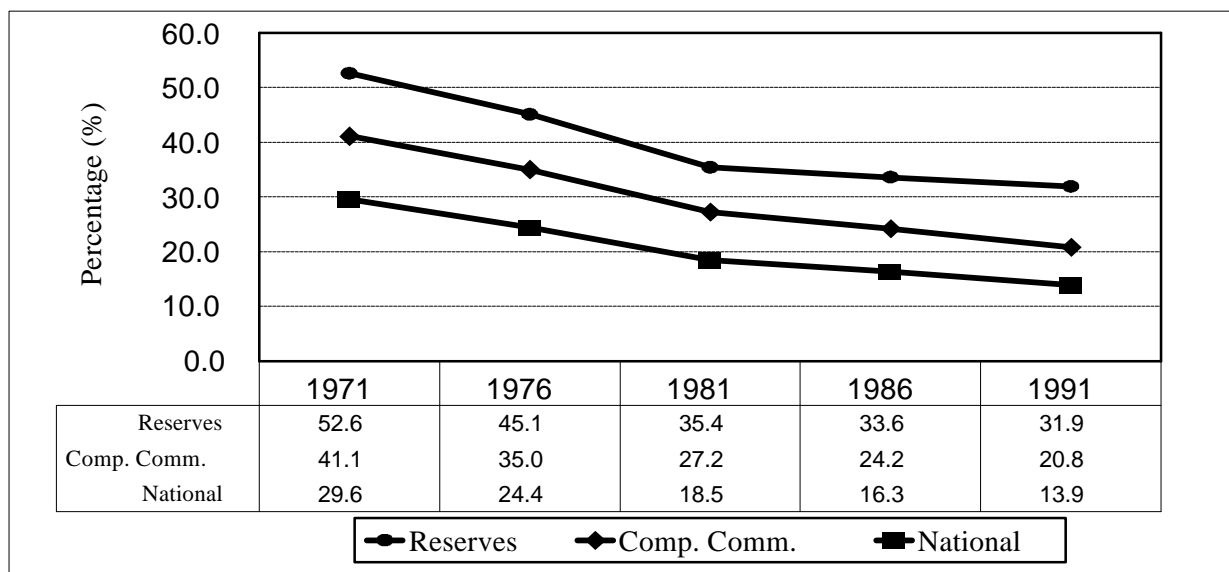
As Figure 7 reveals, the proportion of individuals with less than a grade 9 education fell consistently from 1971. This decline has been experienced by all three populations studied.

In 1991, 31.9% of the on reserve population, aged 15 or more, reported a highest level of schooling which was less than grade 9. The percentage of the comparable communities population which reported this level of education was 20.8% compared to 13.9% of the total Canadian population aged 15 plus.

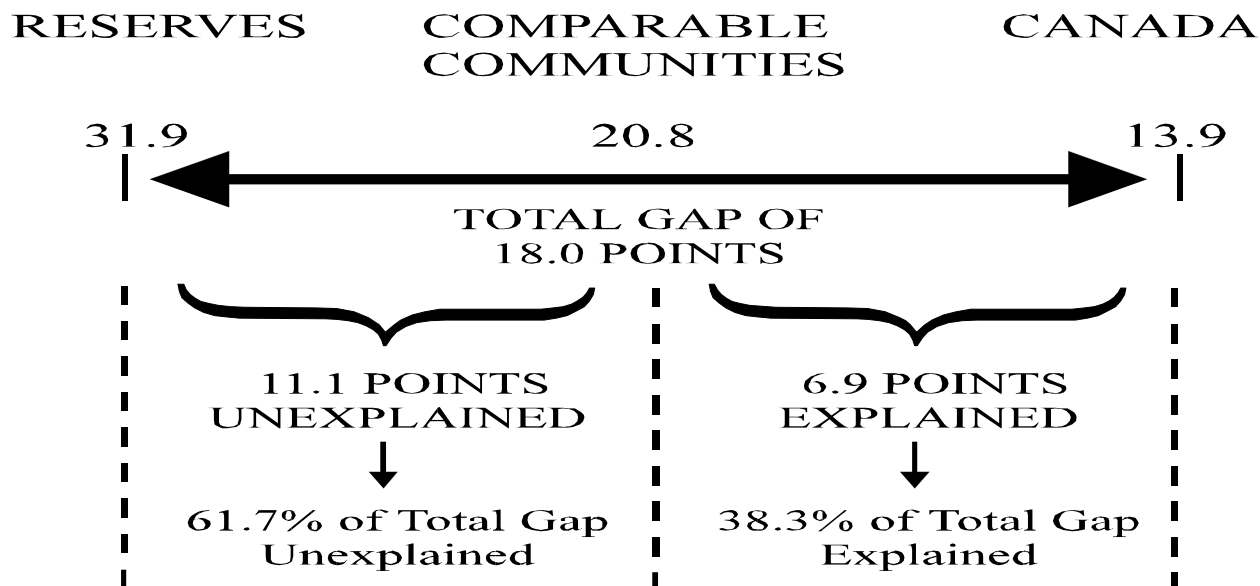
Figure 8 shows that in 1991, the difference between the percentage of the on reserve population having a highest level of schooling of less than grade 9 and the national population having this level of schooling totalled 18.0 percentage points. Of this total gap, 38.3% (or 6.9 percentage points) was explained by community size and location. The remaining 61.7% (or 11.1 percentage points) was not explained by geographical location or population size.

The on reserve population experienced the steepest decrease in the proportion of its population having a highest level of schooling being less than grade 9 over the past five Census years. In 1971, 52.6% of the on reserve population reported less than a grade 9 education compared to 31.9% of the on reserve population in 1991. The comparable communities population also experienced this same degree of improvement in education levels between 1971 and 1991. Finally, the national population experienced improvement in education levels between 1971 and 1991 which were slightly less than those experienced by the other two populations studied.

**Figure 7 - Population 15 Years of Age and Over with Less Than Grade 9 Education, 1971-1991.**



**Figure 8**



### **Grades 9 to 13 Education**

In 1991, as in 1986, the proportion of persons on reserve, aged 15 years and over, who reported a highest level of schooling between grades 9 and 13 was virtually identical to the level reported by the Canadian population as a whole (38.5% and 39.0% respectively). The percentage of the population aged 15 or more living in comparable communities who reported this level of education in 1991 was 43.6%, higher than the other populations studied.

In 1991, the percentage of reserve residents 15 years of age and over with education between grades 9 and 13 was lower than it was for either of the comparison groups (reserves: 24.9%; comparable communities: 37.7%; Canada: 41.5%). By 1986, all populations were within five percentage points of each other. In 1991 there were no significant changes over 1986 figures regarding the percentage of the various populations having a highest level of schooling of grades 9 to 13.

### **University Education**

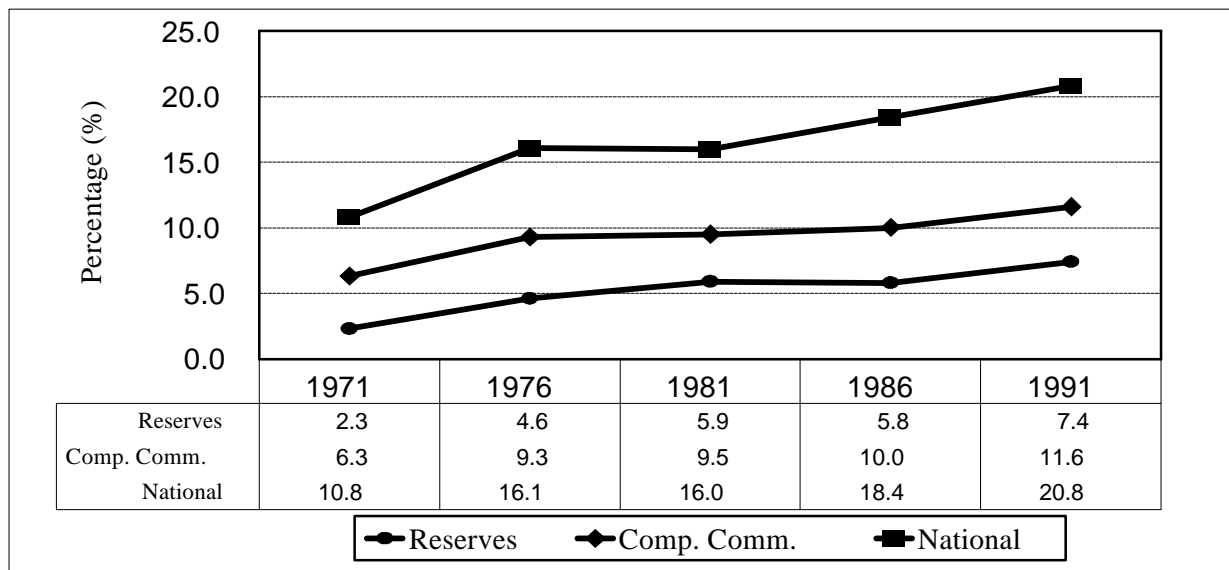
In 1991, geographical location and community size explained 68.7% of the difference between on reserve and national levels of those persons with a university education.

Figure 9 presents the percentage of each population with some university education. In 1991, 7.4% of the on reserve population reported having a highest level of education being at least some university education. Nearly 12% of the comparable communities population reported this level of education compared to 20.8% of the national population.

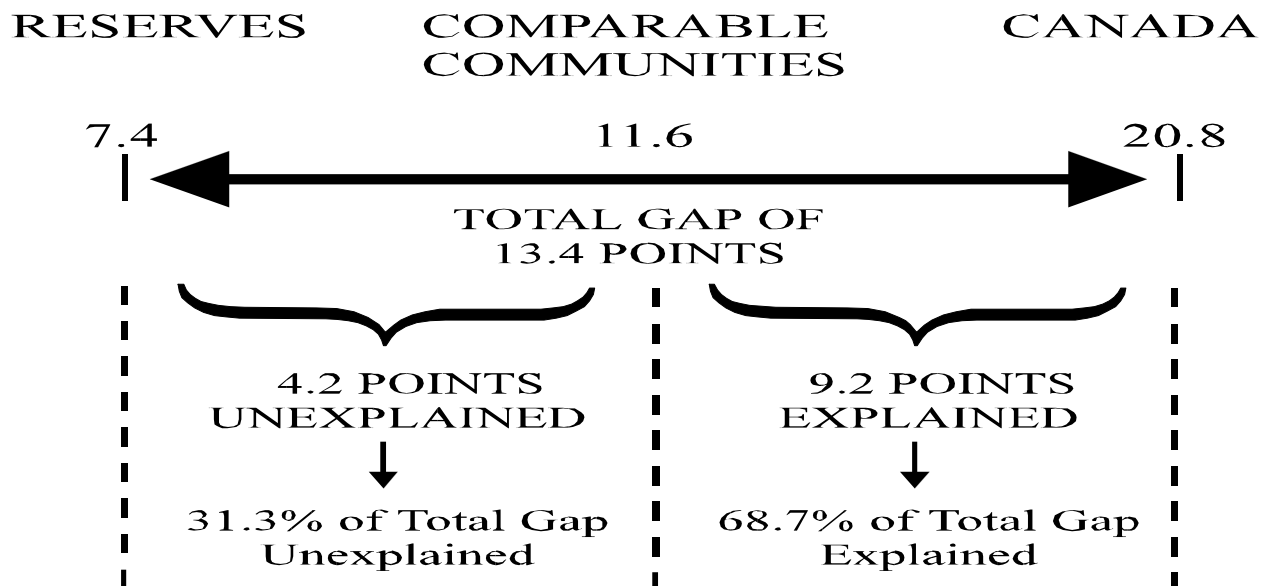
Figure 10 shows the difference in the proportion of on reserve residents having some university education and those in Canada as a whole having this level of education. The total difference between these two groups was 13.4 percentage points. Of this difference, 9.2 percentage points (or 68.7% of the total difference) was explained by geographical location and population size. The remaining 4.2 percentage points was unexplained.

Between 1971 and 1991, the percentage of the population with some university education increased significantly for each of the populations studied. The on reserve population experienced the greatest increase with 2.3% of the on reserve population reporting having some university education in 1971 compared to 7.4% of its population having this level of education in 1991.

**Figure 9 - Population 15 Years of Age and Over with University Education, 1971-1991.**



**Figure 10**





### **Non-University Education**

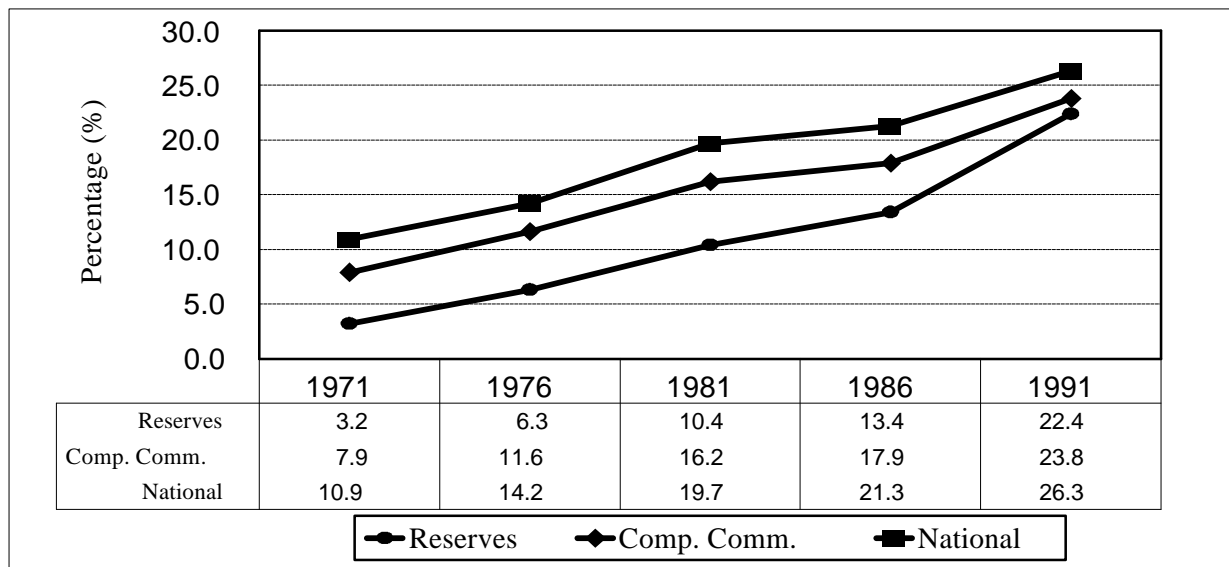
The proportion of the population having non-university education has increased significantly for each of the populations studied since 1971.

Figure 11 presents the percentage of each population, aged 15 or more, who reported having non-university education as their highest level of schooling between 1971 and 1991. On reserve, 22.4% of the total population aged 15 or more reported a highest level of schooling at the non-university level. A slightly higher percentage of the comparable communities population reported this level of education at 23.8%. At the national level 26.3% reported non-university education as their highest level of schooling.

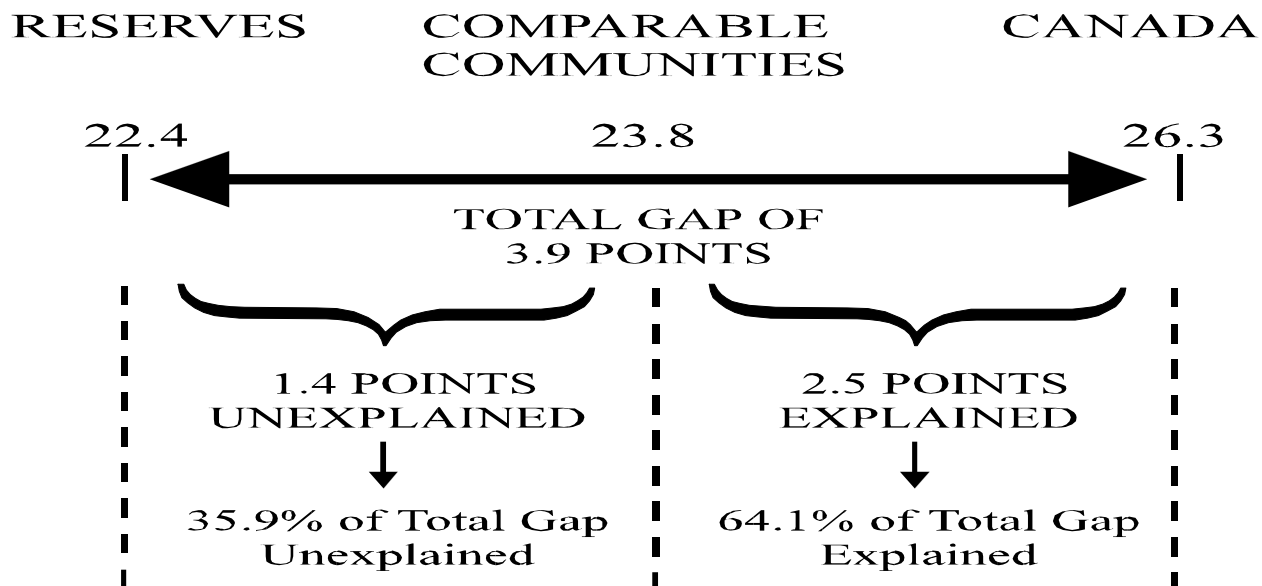
Figure 12 shows the total gap in the proportion of on reserve residents reporting non-university education as compared to the proportion of all Canadians reporting this level of education. The gap between these two groups totalled 3.9 percentage points, a relatively small difference. Of this gap, 64.1% (or 2.5 percentage points) was explained by community size and location while the remaining 1.4 percentage points was unexplained.

Between 1971 and 1991, the proportion of the comparable community and national populations which had non-university education nearly tripled. In 1991, the percentage of on reserve individuals who reported non-university education had increased to be 7 times 1971 figure.

**Figure 11 -** Population 15 Years of Age and Over with Other Non-University Education, 1971-1991.



**Figure 12**



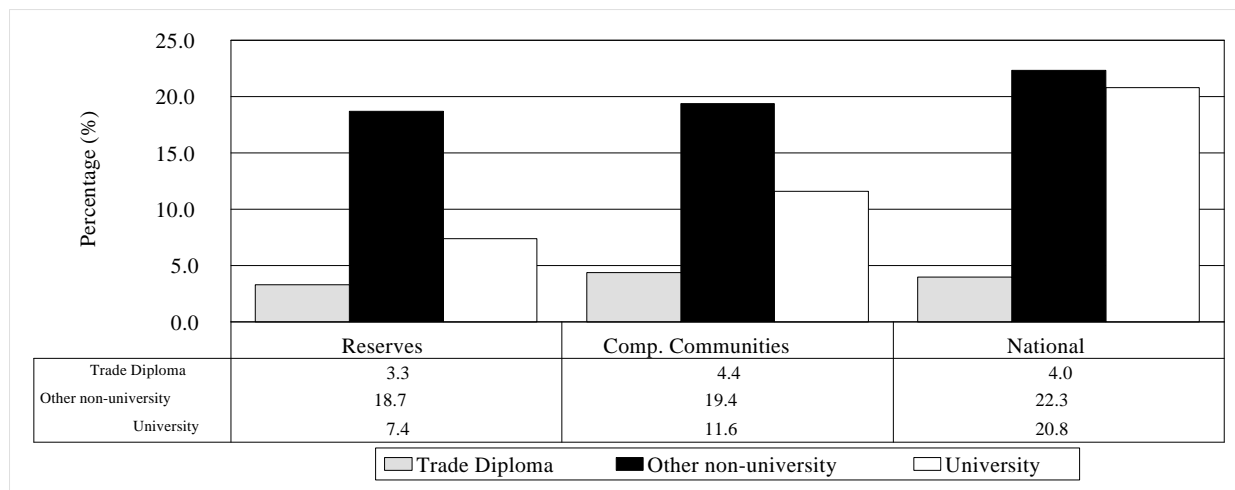
### **Composition of Post-Secondary Education**

In 1971, on reserve residents reported 3.5% of the total population to have obtained a trade diploma at the post-secondary level. In 1991, of those on reserve residents who had obtained some post-secondary education, the largest percentage reported having other non-university education.

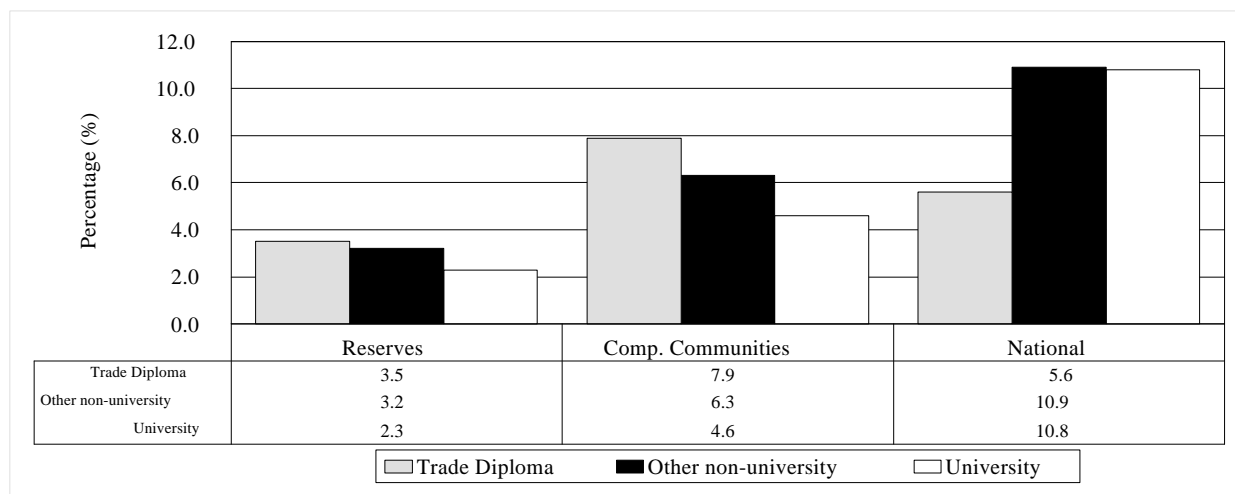
Figure 13 and 14 present the distribution of the population with some form of post-secondary education in 1971 and 1991 for each of the three populations studied. In 1971, of those individuals on reserve with a post-secondary level of education, trade certification formed the largest percentage at 3.5%, followed by 3.2% with some non-university and 2.3% with some university. During the same period, in comparable communities, 7.9% had non-university training followed by 6.3% with some university and 4.6% with a trades diploma. For Canada as a whole in 1971, there was an equal distribution of those with some non-university (10.9%) and those with some university (10.8%). Those with a trades diploma represented 5.6% of the total Canadian population.

In 1991, however, the distribution of education for those persons on reserve with some post-secondary education shifted to non-university training (18.7%), followed by some university (7.4%), while those with a trades diploma represented 3.3% of the on reserve population. In comparable communities in 1991, the emphasis of the population who had continued their education remained on other non-university education (19.4%) followed by 11.6% with some university and 4.4% with a trades diploma. For Canada as a whole, there was a shift from the even split between the university and non-university choices: 22.3% of all Canadians had some non-university, 20.8% had some university and 4.0% had a trades diploma.

**Figure 13 - Percentage of Population Having Education Beyond High School, 1991**



**Figure 14 - Percentage of Population Having Education Beyond High School, 1971**



## LABOUR FORCE PROFILE

### Highlights:

- Community size and location explained 23% of the difference between the male labour force participation rates experienced on reserve and those experienced by Canada as a whole.
- Nearly 38% of the difference in female participation rates between those women living on-reserve and those in Canada as a whole were explained by the size and location of the community in which they lived.

### Male Labour Force Participation

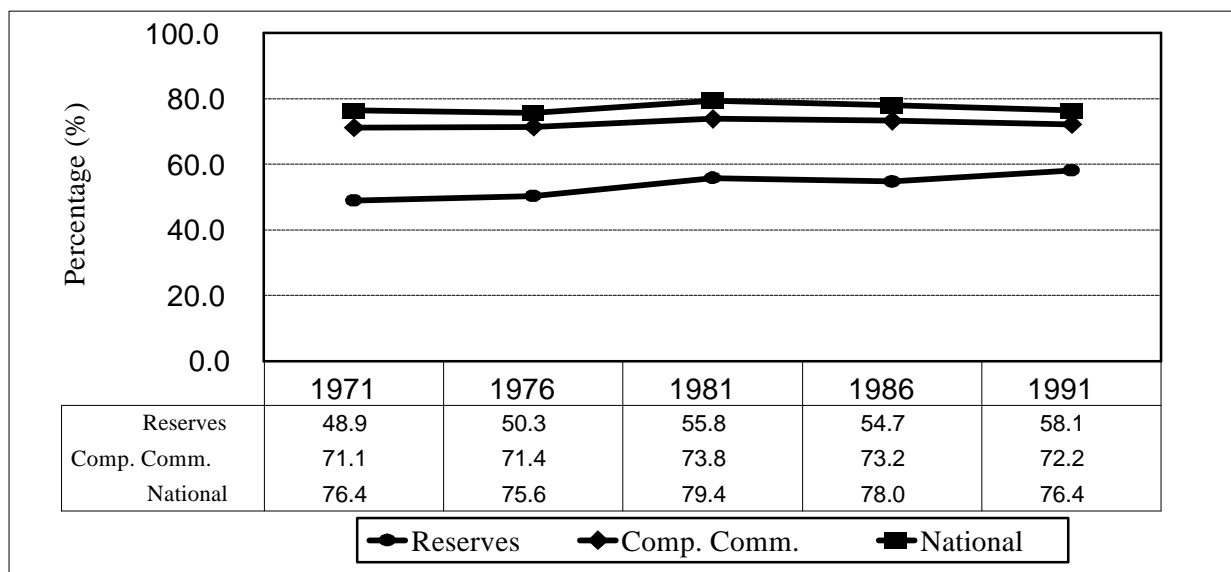
The *labour force participation rate* measures the number of people who are participating in the labour force (i.e. those who are employed or who are actively looking for work) as a percentage of the total population aged 15 or over. Community size and location explained 23% of the gap between the participation rate experienced by males living on reserve and those living in Canada as a whole

Figure 15 shows that the participation rate for males on reserve in 1991 (58.1%) was lower than the rates experienced by males in comparable communities or in Canada as a whole (72.2% and 76.4% respectively).

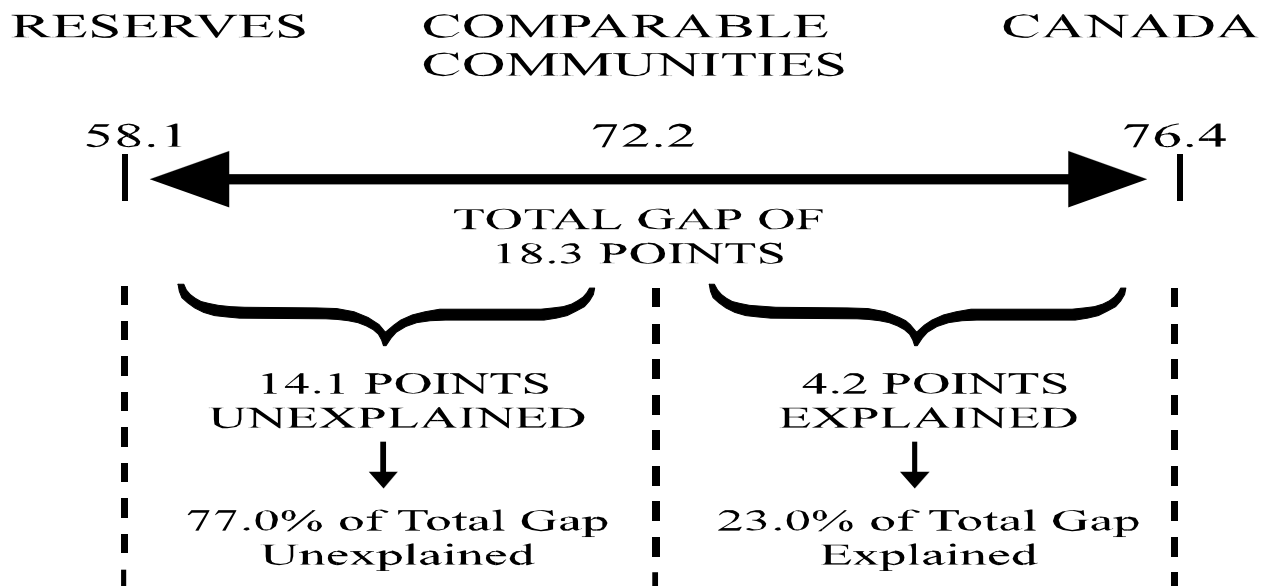
The participation rate for males on reserve has risen substantially since 1971 when it was 48.9%. Over the five Census years, the participation rate for on reserve males has risen a total of 9 percentage points. Over the same period, males living in comparable communities or in Canada have been stable. In fact, males living in comparable communities experienced only a 1 percentage point increase in participation rates since 1971 while the participation rate for males in Canada as a whole was the same in 1971 as it was in 1991 (76.4%).

Figure 16 displays the total gap in participation rates experienced by the three male populations. The total gap between participation rates of the male on reserve population and the male population of Canada as a whole was 18.3 percentage points in 1991. Of this, 4.2 percentage points (or 23% of the total gap) may be explained by community size and remoteness of location while 14.1 percentage points (77% of the total gap) remains unexplained.

**Figure 15 - Male Labour Force Participation Rates, 1971-1991.**



**Figure 16**



## Female Labour Force Participation

In 1991, community size and location explained 37.6% of the gap between the participation rate experienced by females living on reserve and those living in Canada as a whole.

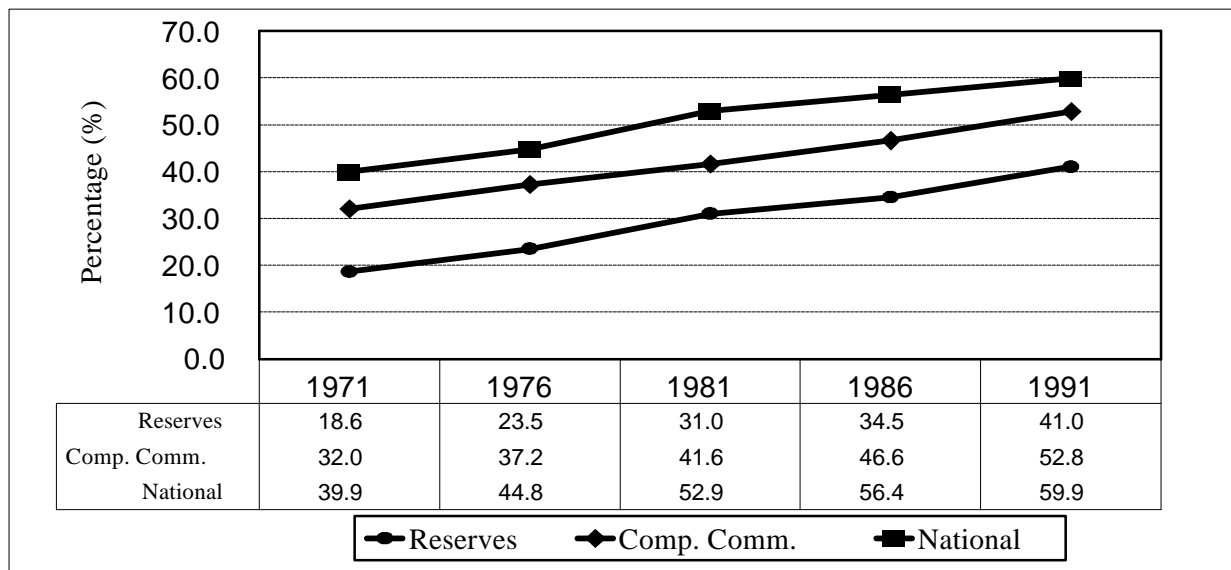
Figure 17 shows that the participation rate for females living on reserve (41.0%) was lower in 1991 than the participation rate experienced by females living in comparable communities (52.8%) or females living in Canada as a whole (59.9%).

Since 1971, participation rates for the female populations have risen substantially. In 1971, females living on reserve reported a participation rate of 18.6%. In 1991, this rate more than doubled to 41.0%, an increase of 22 percentage points in total. Females living in comparable communities and in Canada as a whole also experienced significant improvements in participation rates over 1971 with increases of approximately 20 percentage points enjoyed by both populations.

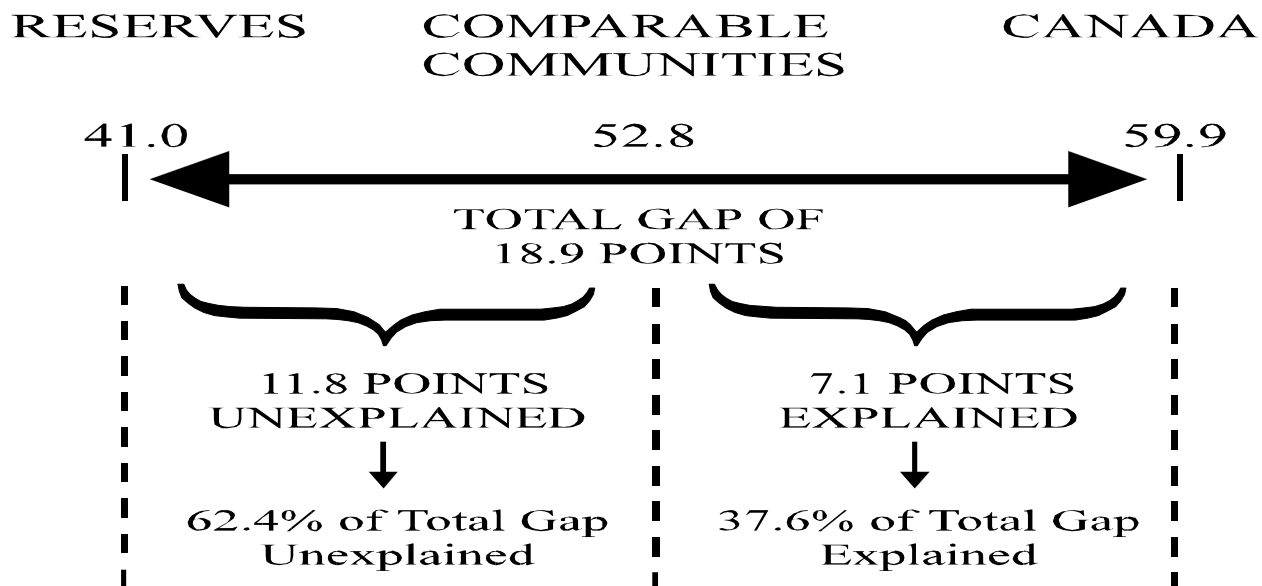
The female on reserve population and those females living in comparable communities experienced increases in 1991 participation rates of nearly 6.5 percentage points over 1986 rates. Conversely, females living in Canada as a whole experienced an increase in 1991 of 3.5 percentage points over 1986 figures.

Figure 18 reveals that in 1991, the total gap in participation rates experienced by the female on reserve population and the female population in Canada as a whole was 18.9 percentage points. Of this difference, 7.1 percentage points (or 37.6% of the total gap) may be explained by community size and location. The remaining 11.8 percentage points (or 62.4% of the total gap) remains unexplained in 1991.

**Figure 17** - Female Labour Force Participation Rates, 1971-1991.



**Figure 18**





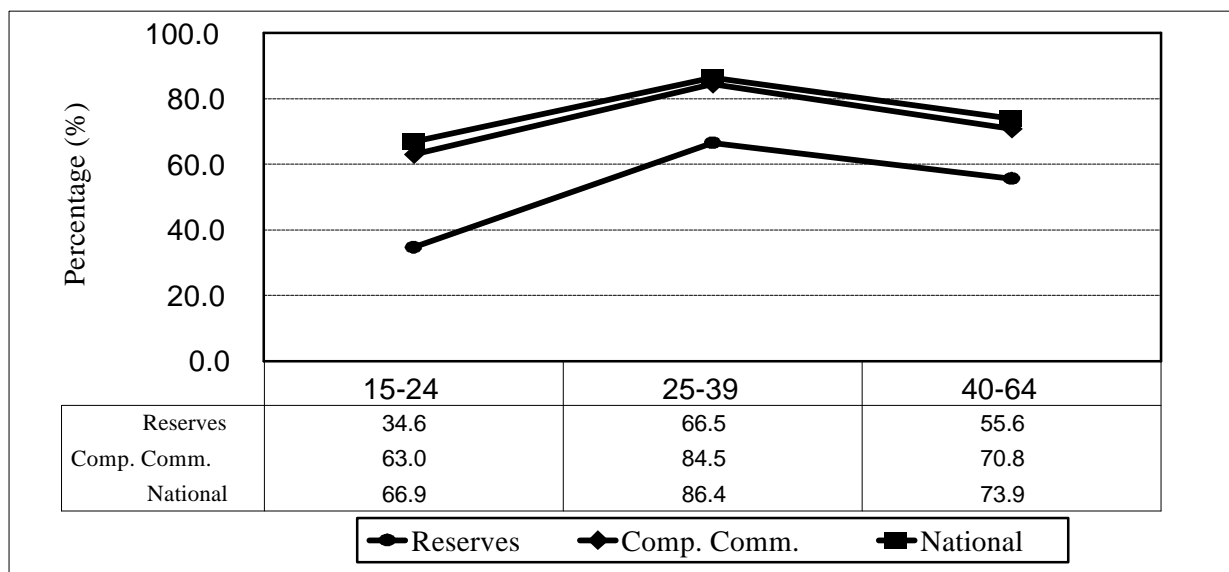
### **Labour Force Participation by Age**

In 1991, the largest differences in participation rates between the on reserve population and the national population occurred in the 15-24 age cohort. This difference totalled 32 percentage points. Nearly 12% of this difference (or 3.9 percentage points) was explained by community size and location while the remaining 88% (or 28.4 percentage points) remain unexplained.

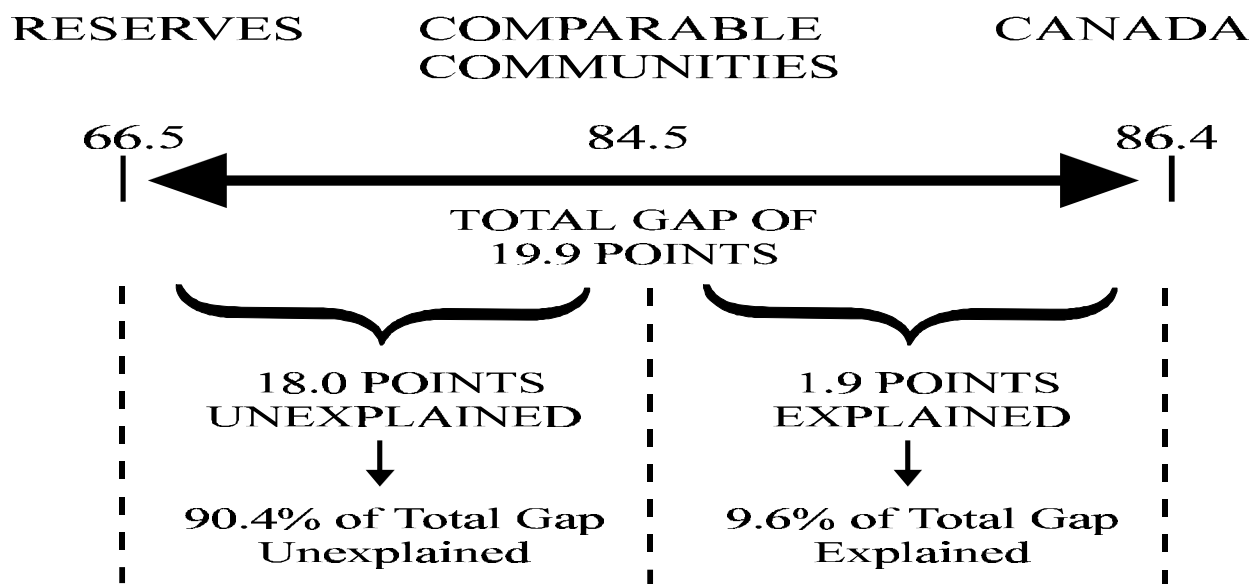
As Figure 19 shows, in the 25-39 age cohort, nearly 10% of the difference in participation rates for the on reserve population and those living in Canada as a whole could be attributed to community size and location.

The participation rate for those aged 40-64 and living on reserve in 1991 was 55.6%. This rate was 18.3 percentage points lower than the participation rate experienced by people living in Canada as a whole who were aged 40-64. Nearly 17% of this gap is accounted for by community size and location.

**Figure 19 - Labour Force Participation Rates by Age Group, 1971-1991.**



**Figure 20**



## Unemployment

In 1991, community size and location explained 1.2% of the gap between the unemployment rate experienced by those living on reserve and those living in Canada as a whole.

The *unemployment rate* measures the number of people who are unemployed as a percentage of the number of people in the labour force aged 15 or over. This indicator shows the percentage of people who wish to be employed but currently are not.

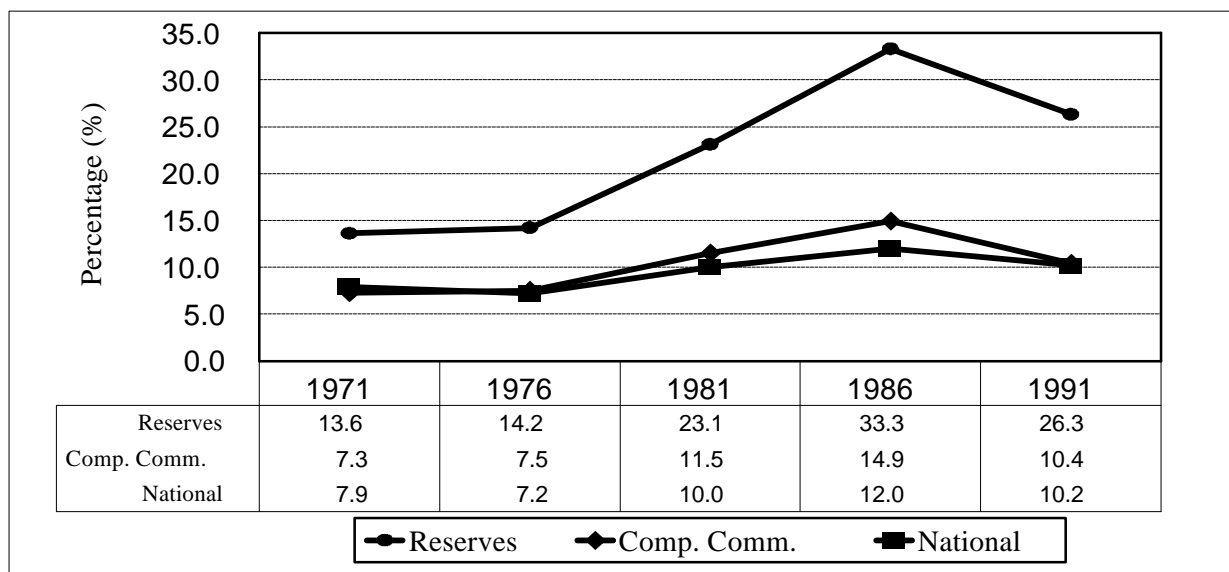
Figure 21 shows that the unemployment rate experienced by those living on reserve was 26.3% in 1991. This rate was considerably higher than those experienced by individuals living in comparable communities and those living in Canada as a whole (10.4% and 10.2% respectively).

Between the 1971 Census year and 1986, unemployment rates have risen steadily for the three populations studied. In 1986, unemployment on reserves was nearly 2.5 times the unemployment rate reported in 1971. In 1991, all three populations experienced a decrease in unemployment rates with the on reserve population reporting the largest decrease ( 7 percentage points). While the unemployment rate on reserve remains 2.5 times greater than the rate reported in comparable communities, the overall decrease in the rates themselves is encouraging.

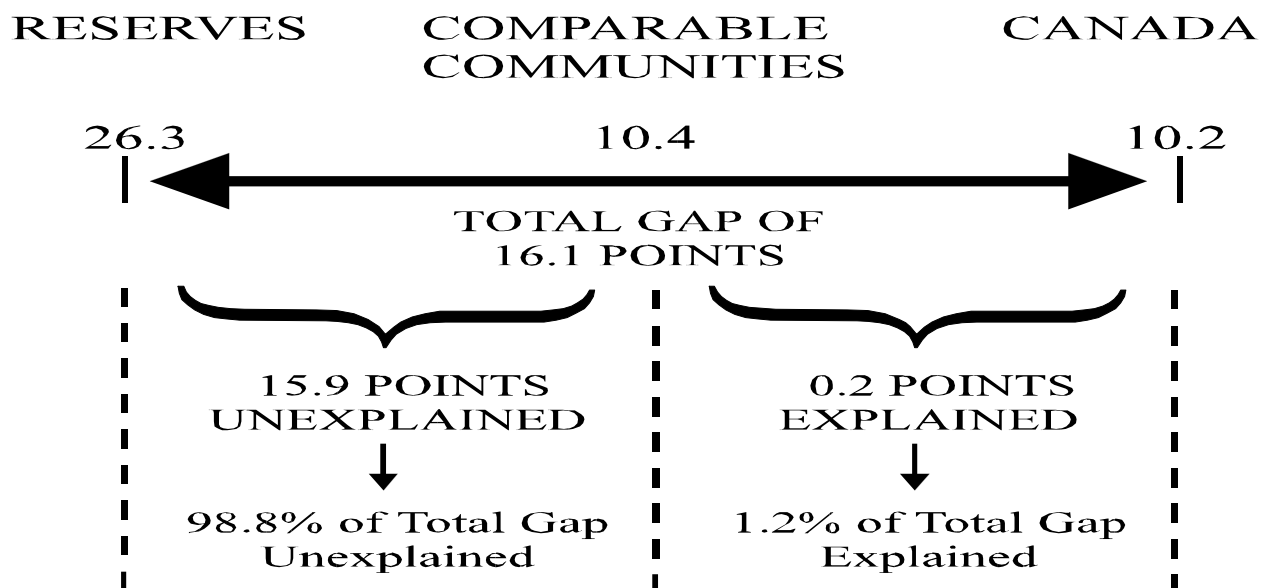
Figure 22 shows that the total gap in unemployment rates experienced on reserve and in Canada as a whole was 16.1 percentage points. Of this total gap, 0.2 percentage points (or 1.2% of the total gap) can be explained by community size and location while the remaining 15.9 percentage points (or 98.8% of the total gap) goes unexplained.

In 1986, 14% of the total gap in unemployment rates on reserve and in Canada as a whole was explained by community size and location. The total gap was 21 percentage points, 5 points larger than the gap reported for 1991.

**Figure 21 - Unemployment Rates, 1971-1991.**



**Figure 22**

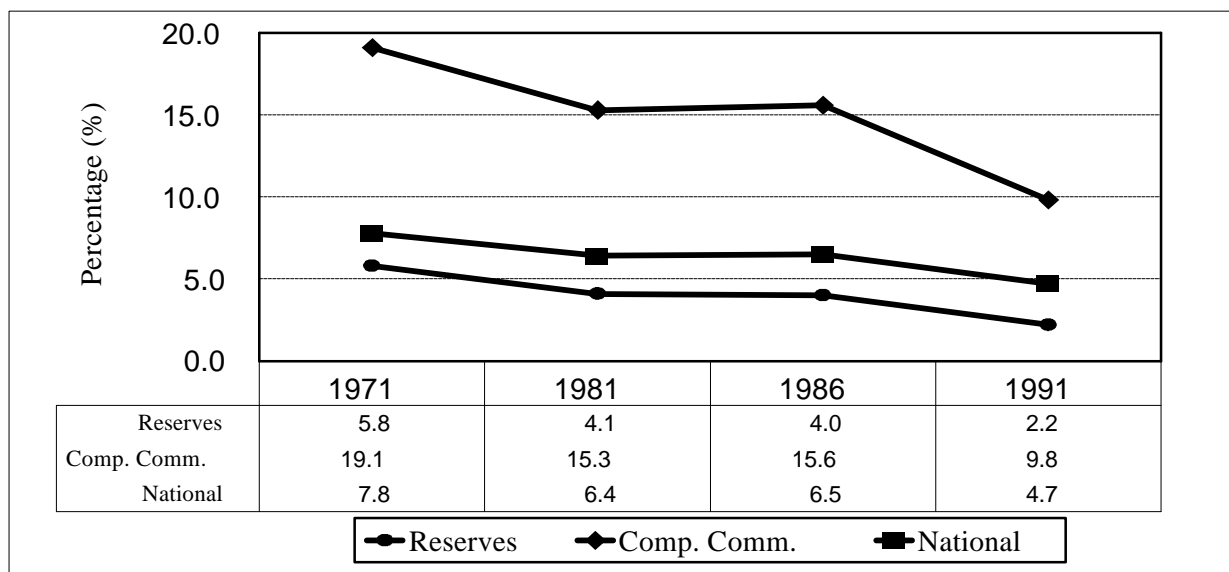


## **Self-Employment**

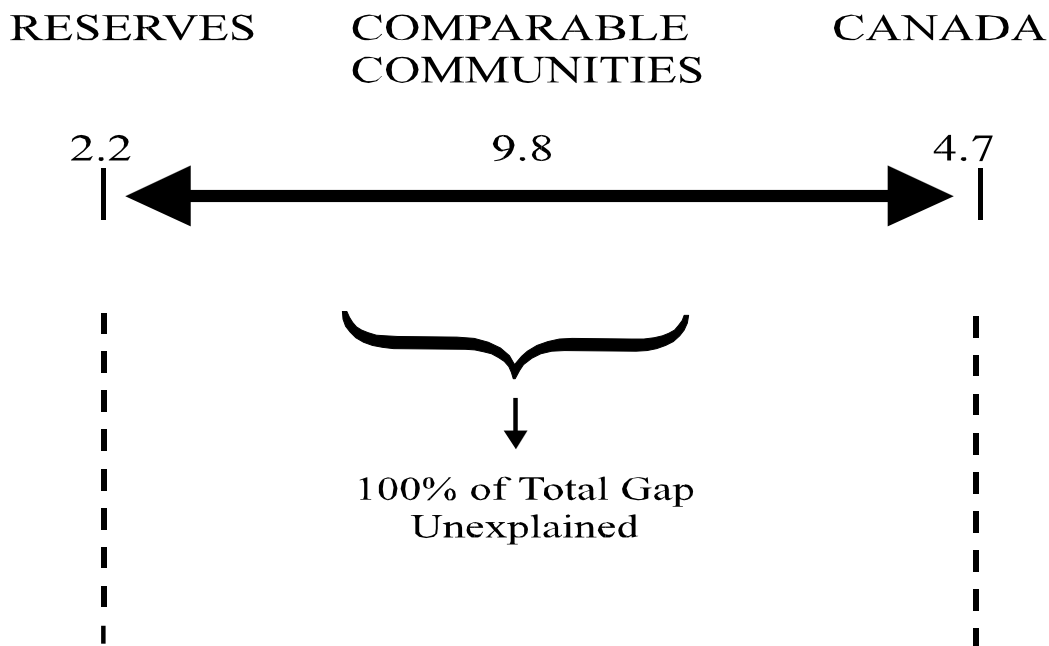
Individuals living in comparable communities are the most likely, of the three populations studied, to report being self-employed. The level of self-employment on reserves was substantially less in 1991 than the level found in comparable communities and slightly less the level found in Canada as a whole.

Figure 23 shows that the percentage of individuals living in comparable communities who reported self-employment was higher than the percentage of Canadians generally who reported this class of work. In 1991, 2.2% of individuals living on reserve reported being self-employed, compared to 9.8% of those living in comparable communities and 4.7% of those living in Canada as a whole.

**Figure 23 - Workforce Participation in Self-Employed Class, 1971-1991.**



**Figure 24**





## INCOME PROFILE

- Community size and location are important factors in the determination of income. In 1990, the average individual total income for the on reserve population was \$11,548 less than the average individual total income for Canadians. Of this difference, 41.7% may be explained by community size and location (see Figure 25).
- Of the difference between the average individual total income of men living on reserve and those living in Canada as a whole, 39.7% may be explained by community size and location. For the female population on reserve and those females living in Canada as a whole, 51.3% of the difference in average income is attributable to the size and location of the community (Figures 27 and 28).
- Individuals living on reserve display a different distribution of income from various sources than do those living in comparable communities or in Canada as a whole.
- Community size and location explained nearly 42% of the difference between those reserve residents reporting wages as a major source of income and those living in Canada as a whole.

The labour market participation levels of Registered Indians living on reserve and their income levels inevitably differ from similar data for other Canadians. There are various reasons cited for this:

- Some contend that, given that Registered Indians living on reserve are exempt from Canadian income tax they realize a proportionately greater disposable income than individuals living elsewhere in Canada receiving a similar income;
- Registered Indians living on reserve have both advantages and disadvantages regarding living costs relative to most other Canadians.

Advantages:                   subsidized housing; greater eligibility for government transfer payments; and for those pursuing traditional lifestyles (e.g. hunting, trapping, and fishing - assumes that the carrying capacity of the surrounding lands can sustain such activity) the potential exists for Registered Indians to incur lower expenditures for food.

Disadvantages:               on isolated reserves there are much higher costs for many commodities than elsewhere in Canada; lack of employment



opportunities in rural reserve communities; relocation may be perceived as less viable and desirable by many on reserve residents than it would be by other Canadians.

### **Individual Income**

The location and size of a community has a significant effect on the level of income earned from various sources. The variable used in determining income is actually 'individual total income', i.e. income from wages and salaries, self-employment, family allowances, government transfer payments, unemployment insurance, etc. It refers to the total money income received from all sources during the calendar year 1990 by persons 15 years of age and over.

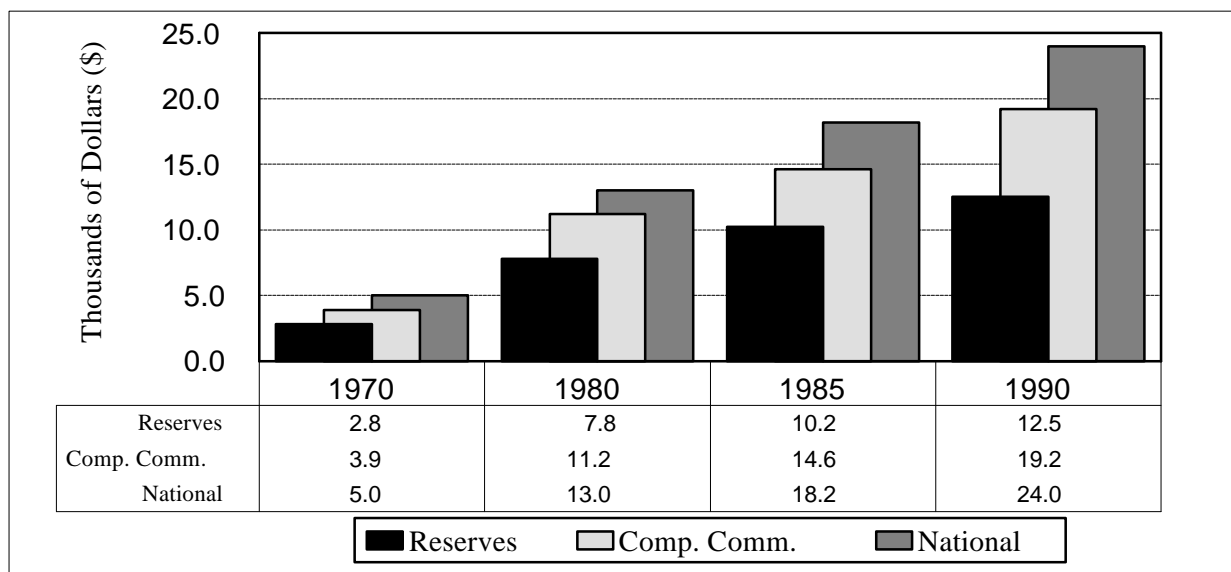
Figure 25 shows the average individual total income from all sources for people 15 years of age and older in 1970, 1980, 1985 and 1990. The average individual income for residents living on reserve in comparison to other Canadians has remained relatively stable between 1970 and 1985. During this time, on reserve residents reported an average income which was approximately 70% of that earned by residents of comparable communities and 56% of the national average income. In 1990, these figures fell slightly with on reserve residents reporting an average individual income which totalled 65% of the income earned by a comparable community resident and 52% of the national average income.

In 1991, on reserve residents reported an average total income of \$12,453, compared to comparable community residents with an average total income of \$19,190 and those living in Canada as a whole who reported an income of \$24,001 on average.

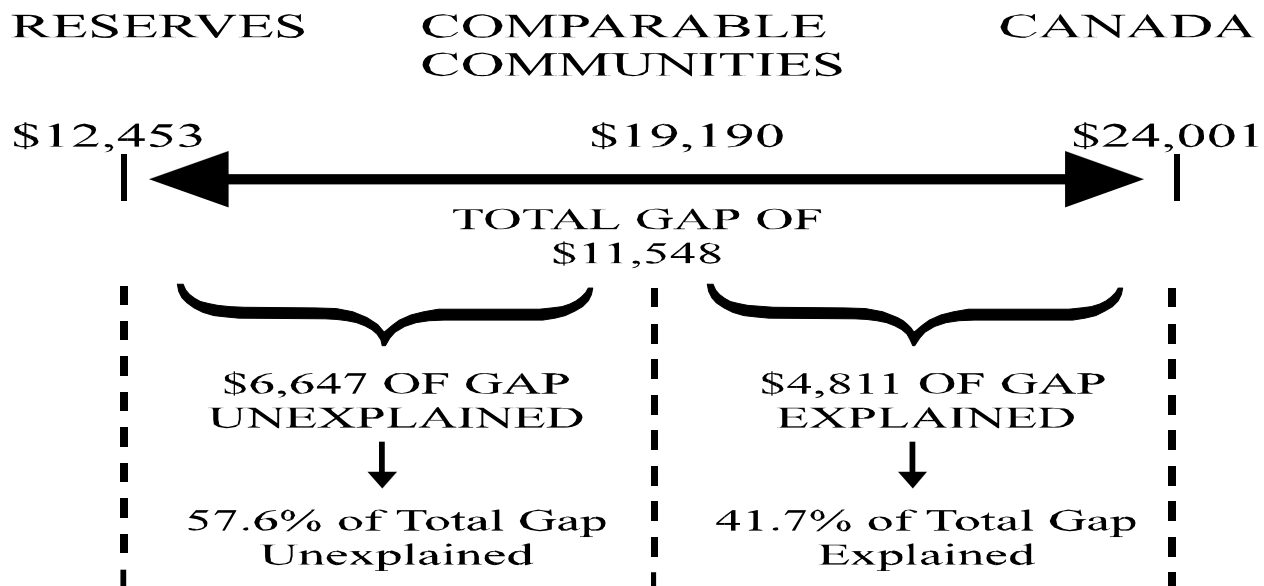
Figure 26 displays the total gap in individual income between on reserve residents and those living in Canada as a whole. The total gap in average income was \$11,548. Of this difference, \$4,811 (or 41.7% of the total gap) may be explained by community size and location. The remaining \$6,647 (or 57.6% of the total gap) remains unexplained.

In 1986, a slightly higher percentage of the total gap in average individual incomes between on reserve residents and those living in all of Canada could be explained by community size and location (45% of the total gap explained).

**Figure 25 - Average Individual Total Income, 1970-1990.**



**Figure 26**



### Average Income by Gender

The variable used to determine average income by gender is once again the average individual total income. This variable takes into account all monetary sources of income for the year preceding the Census for the population aged 15 or over.

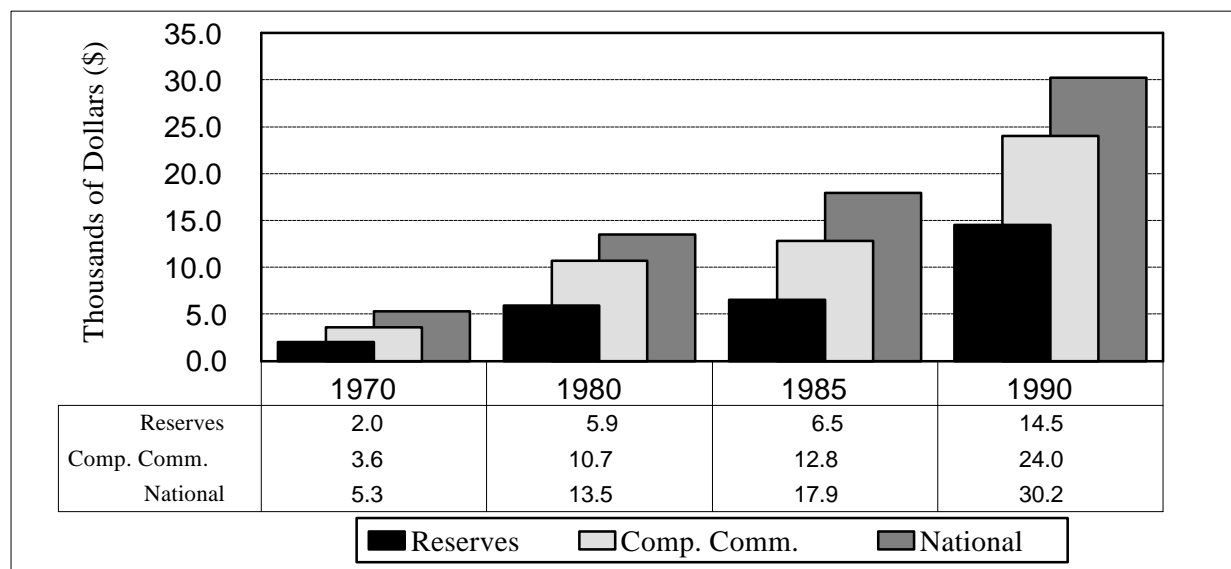
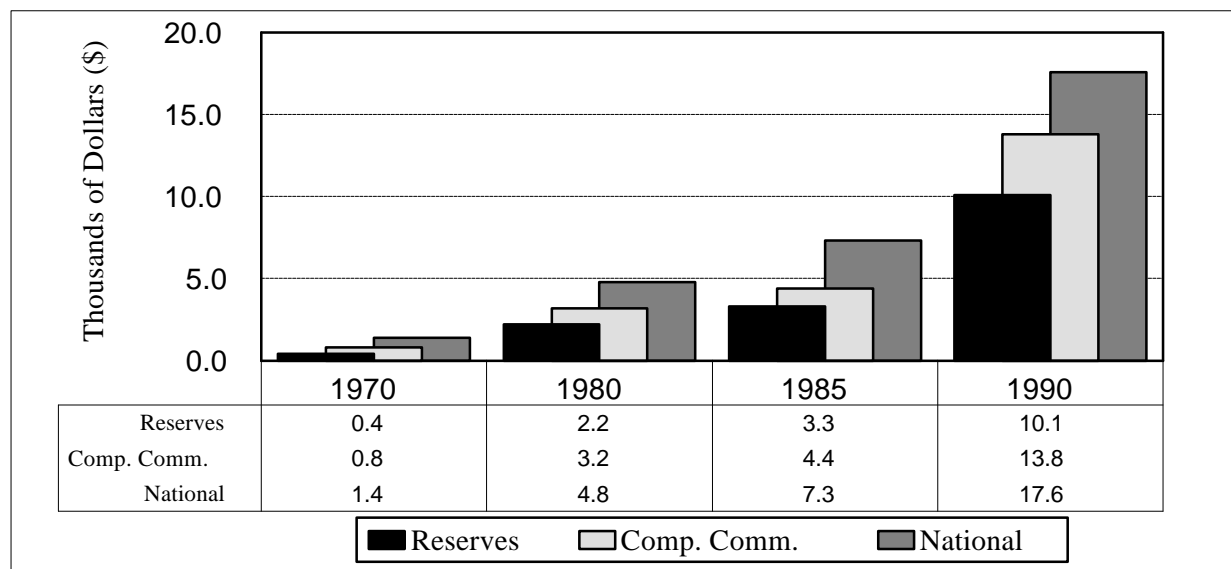
Figure 27 shows the average income for men from 1970 to 1990. Over this time, the dollar figures have risen substantially and in 1990 the average individual income for men living on reserve and in comparable communities is approximately 6.8 times the figure reported in 1970. At the national level, the average male income also increased over this time and currently stands at 5.8 times the level reported in 1970.

In 1990, males living on reserve reported an average individual total income of \$14,518 while those living in comparable communities reported \$23,978 and those living in Canada as a whole reported \$30,205. Community size and location explains 39.7% of the difference in average individual incomes reported by males living on reserve and those living in Canada as a whole. The remaining 60.3% is attributable to other causes.

Average income levels for women living on reserve indicate larger gains than those of men in terms of the average income levels in comparable communities and Canada as a whole (Figure 28).

In 1990, women living on reserve reported an average individual income of \$10,121. Women living in comparable communities reported slightly higher levels of income, \$13,756, while those women living in Canada as a whole reported an average income of \$17,577. Of the total difference in income levels reported by female on reserve residents and those living in Canada nationally, 48.7% can be explained by community size and location. The remaining 51.3% is unexplained.

In 1970, the average income for women on reserve was 50% of that for comparable communities and 29% of the average Canadian level. In 1990, the average income for women on reserve was 73% of that for comparable communities and 57% of the level experienced by the average Canadian female.

**Figure 27 - Average Individual Total Income for Males, 1970-1990.****Figure 28 - Average Individual Total Income for Females, 1970-1990.**

## Major Source of Income

This variable refers to that component of income which constitutes the largest proportion of an income recipient's total income. Each recipient of income reports one source of income as being their major source, i.e. that from which they receive the most monetary value.

The four major sources of income are: wages, government transfers, self-employment, and other sources. These sources of income are presented in Figures 29 to 32 for each of the three populations studied.

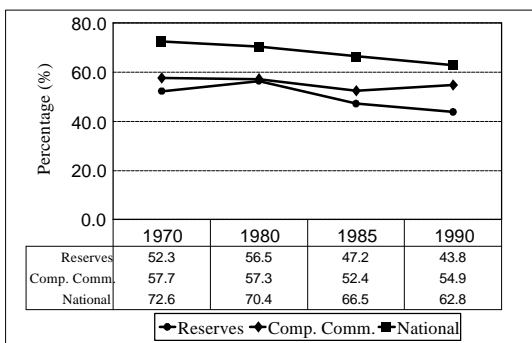
Figure 29 shows that 43.8% of the on reserve population reported wages as a major source of income. This contrasts with a 54.9% rate for the population of comparable communities reporting wages as a major source of income and 62.8% of Canada as a whole. The total gap between residents on reserve reporting wages as a major source of income and those in Canada as a whole with this source is 19.0 percentage points. Of this difference, 7.9 percentage points (or 41.6% of the total gap) may be explained by community size and location. The remaining 58.4% is unexplained.

Figure 30 reveals that while 23.9% of Canadians nationally reported government transfer payments as a major source of income, 26.5% of those in comparable communities also reported transfer payments as a major source. The proportion of the on reserve population who reported this major source of income was considerably higher at 42.7%. This is due to the benefits which Registered Indians on reserve receive from the federal government based on their legal rights and entitlements. The gap for the on reserve population which reported government transfer payments as a major source of income and the national population, totalled 18.8 percentage points, 13.8% of which is explainable by community size and location.

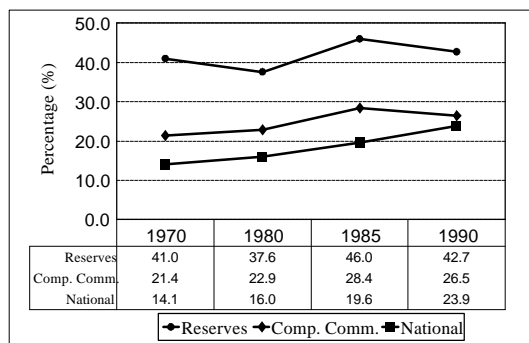
As was established in the previous chapter, the comparable communities population reported a larger percentage being self-employed than did the on reserve and national populations. The major source of income also reflected this fact with 8.7% of the comparable communities population reporting self-employment as a major source of income (Figure 31). On reserve, 1.5% of the total population reported a major source of income as self-employment compared to 2.7% of the total Canadian population.

The on reserve population reported the highest percentage of individuals having 'other sources' as a major source of income (Figure 32). Other sources of income may include retirement pensions, superannuation and annuities, income from roomers and boarders, alimony, severance pay, etc. The percentage of the comparable communities population who reported 'other sources' as a major source of income was less than the on reserve population at 9.0%. Of the national population, 10.6% reported 'other sources' as a major source of income.

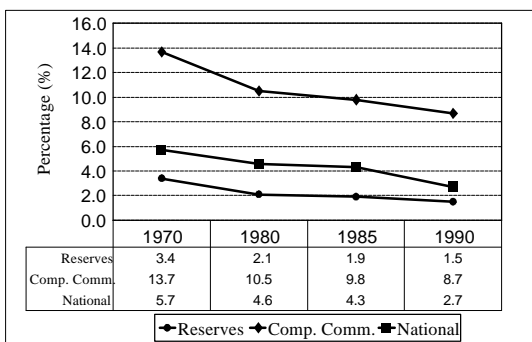
**Figure 29 - Wages as a Major Source of Income, 1970-1990.**



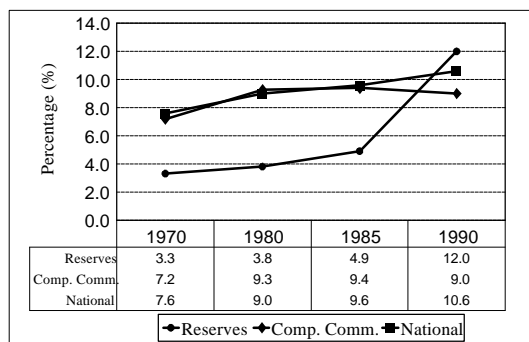
**Figure 30 - Government Transfer Payments as Major Source of Income, 1970-1990.**



**Figure 31 - Self-Employment as Major Source of Income, 1970-1990.**



**Figure 32 - Other Sources as Major Source of Income, 1970-1990.**



## DEMOGRAPHIC PROFILE

### Highlights:

- When you compare the proportion of the comparable communities population and the National population by age and sex, similar distributions are found. The profile of the reserve population, however, is unique in its characteristics.
- The reserve population tends to have a more youthful age distribution than does either the comparable community or national populations.
- Size and location do not appear to explain the differences between the demographic profile on reserve and that found in comparable communities and Canada as a whole.

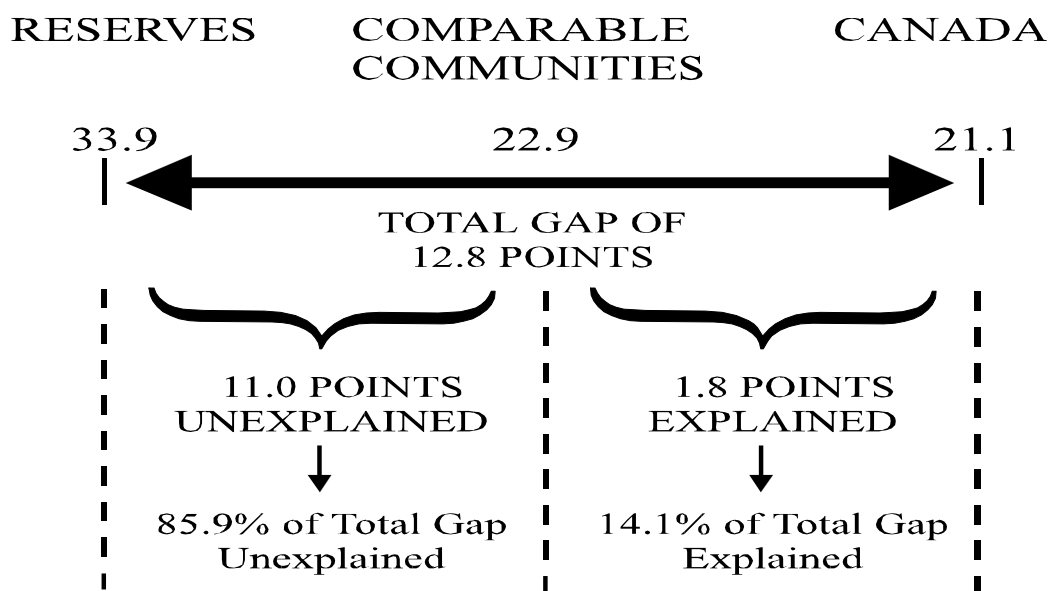
### Age Distribution

Despite some basic similarities in aging trends from 1971 to 1991, the on reserve population continues to experience a very youthful age distribution coupled with a smaller aging population.

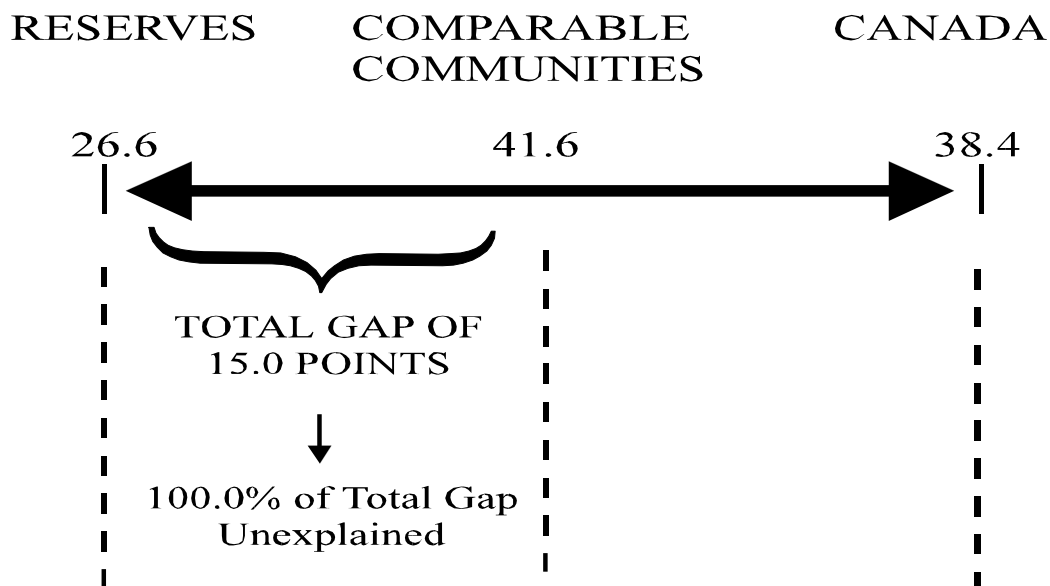
As Figure 33 demonstrates, 21.1% of the national population was aged 0-14 in 1991, compared to 22.9% of those living in comparable communities and 33.9% of those living on reserve. Of this difference between the national figures and those found on reserve, 14% can be explained by community size and remoteness of location. The additional 86% remains unexplained.

The percent of the comparable communities population which reported being 40 years old or more in 1991 surpassed the figures reported either on reserve or in Canada as a whole. Figure 5B shows that while 41.6% of the comparable communities population was 40 years old or more in 1991, 26.6% of the on reserve population and 38.4% of the Canadian population fell into this age cohort. In this case, all the gap remains unexplained with the comparable communities surpassing the other two populations.

**Figure 33** - Percentage of Population in Age Cohort 0-14 Years, 1991.



**Figure 34** - Percentage of Population Over 40 Years of Age, 1991.





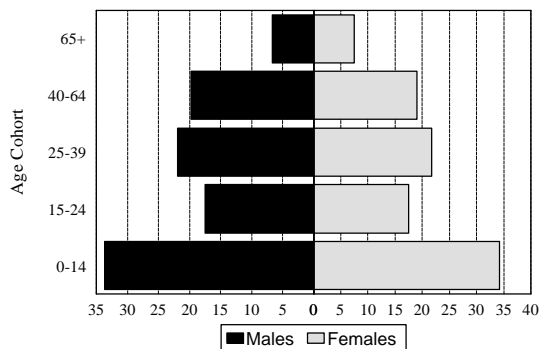
### **Age and Sex Population Distributions**

Figure 35 presents the distribution of the population by age group for reserve, comparable communities and Canada as a whole for 1991. As these figures reveal, the age profile of the comparable communities shows a strong resemblance to the age profile of Canada as a whole, while that of the reserve population is unique in its characteristics.

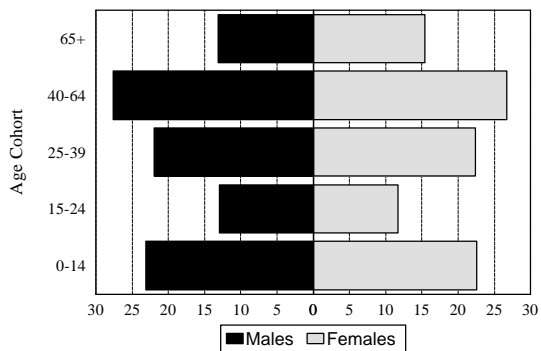
The distribution of males and females for each population is relatively equal. In all three populations studied, a higher proportion of females are reported in the 65+ age cohort, likely due to the higher life expectancy which females tend to experience. While the on reserve population reported a high proportion of its population as being aged 0-14, the proportion of on reserve residents aged 65+ is relatively low. In 1991, 7.1% of the total on reserve population was aged 65+, compared to 10.9% of the Canadian population and 14.3% of the comparable communities population.

The comparable communities and national populations also exhibited a large proportion of the total population in the 40-64 age cohort. Comparable communities reported 27.3% of the total population being aged 40-64 in 1991, compared to 27.5% of the Canadian population and 19.5% of the on reserve population. In 1991, the on reserve population, however, is characterised by a large distribution of persons aged 25-39 year olds (21.8%).

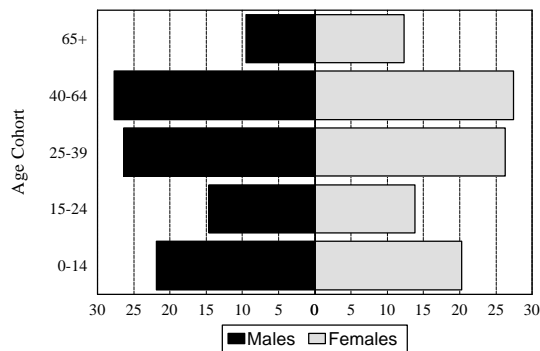
**Figure 35 - Proportion of Reserve Population by Age and Sex, 1991**



**Figure 36 - Proportion of Comparable Communities Population by Age and Sex, 1991.**



**Figure 37 - Proportion of Total Canadian Population by Age and Sex, 1991.**





## CONCLUSION

Significant differences in the socio-economic conditions found on reserve and in the Canadian population as a whole are evident. This study shows that some of these differences can be accounted for when controlling for community size and location. Although the department has no control over these external factors, they must be taken into consideration when making policy and programming decisions.

The basic premise of this method, that remoteness of location and size of community affect socio-economic variables, has been validated by comparing Indian communities with non-Indian communities within their Census Divisions and similar in size. The results of this study demonstrate that the methodology behind adjustments for community size and location can be of benefit to policy makers in assessing the effectiveness of various instruments in reaching certain policy goals.

These results create an opportunity for policy makers to assess whether the tools being used are appropriate to the targets being sought. Indeed, the fact that certain gaps persist even after correcting for the most obvious factors raises questions about how appropriate some of those policy targets might be. Using results such as those contained in this study, policy makers now have an opportunity to fine-tune their instruments and assess whether their targets are achievable.

The utility of this approach has been determined. In the future, refinements aimed at deducing the underlying structure of the difference between on reserve and off reserve populations would add more to our understanding of on reserve socio-economic conditions and provide further support to policy-making and program delivery for First Nations.



## **Appendix I**



## **METHODOLOGY**

The Community Comparison Project was designed to allow socio-economic comparisons to be made between people living on Indian reserves with people living in non-reserve communities. Statistics on Registered Indian socio-economic conditions are usually compared with national averages, yet a large proportion of Indian reserves are considered rural or remote<sup>3</sup>. As such it can be expected that these reserves experience unique social and economic characteristics which differ greatly from Canada as a whole. Differences observed in socio-economic conditions from these sets of data may be partially explained by this factor, that is, that opportunities vary between rural and urban areas. In phase one of this project a methodology was developed for selecting non-reserve communities that would be compared to reserve communities

Due to varying population differences a second phase was developed. In this phase the original methodology was adjusted to increase the likelihood that comparable communities would be found. This was accomplished through the development of an algorithm to apply gradual relaxations of both population and geographic criteria until one or more comparable communities were found.

### **Selection Criteria:**

Phase I entailed three basic criteria for which communities would be regarded as comparable:

- **Organizational Structure:** comparable communities must be defined by Statistics Canada as organized Census Subdivisions (eg. Village, town, hamlet, etc.).
- **Population size:** comparable communities must have a similar population size.
- **Geographic Area:** comparable communities were to be within the same Census Division (CD).

Phase II consisted of the selection process whereby Indian reserves participating in the census were systematically matched with non-reserve communities. This was accomplished through the development of an algorithm to introduce gradual relaxations of both geographic and population criteria until one or more non-reserve communities were comparable.

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<sup>3</sup>Rural refers to a zone in which a band is located between 50 km and 350 km from the nearest service centre with year-round road access. Remote refers to a zone in which a band is located over 350 km from the nearest service centre with year-round road access.



### Selection Algorithm:

Prior to selecting comparable communities, statistical descriptions of reserve and non-reserve communities must be produced. The product contains a listing of reserve and non-reserve communities aggregated by Census Division and Province. For each Census Division and Province, reserve community population means and standard deviations are calculated. Various combinations of the population and geographic parameters (mean, standard deviation, Census Division and Province) are then used for selecting comparable non-reserve communities.

A selection algorithm is constructed using gradual population and geographic search criteria. The population parameter consists of six allowable ranges; the geographic parameter consists of three selection areas. This algorithm allows searches within a selection area to be gradually expanded until one or more comparable communities can be determined by population (Table 1).

**Table 1: Allowable Population Ranges for Selection of Comparable Communities**

Original Methodology (OM):	Select all communities with <b>populations</b> within one standard deviation of the mean Indian reserve population in that Census Division.
First Modification (M1):	Select all communities with <b>populations</b> within two standard deviations of the mean Indian reserve population in that CD.
Second Modification (M2):	Select all communities with <b>populations</b> within the range of the mean Indian reserve population of the CD plus or minus the product of the coefficient of variation (the standard deviation divided by the mean) of reserves in that Province and the mean Indian reserve population in that CD.
Third Modification (M3):	Select all communities with <b>populations</b> within the range of the mean Indian reserve population plus or minus twice the product of the coefficient of reserves in that Province and the mean Indian reserve population in that CD.
Fourth Modification (M4):	Select all communities with <b>populations</b> within one standard deviation of the mean Indian reserve population in that Province.
Fifth Modification (M5):	Select all communities with <b>populations</b> within two standard deviations of the mean Indian reserve population in that Province.

Searches for comparable communities proceed in succession through the 6 population parameters until at least one non-reserve community is found for comparability within the first level of the geographic guidelines. If the search is unable to identify a comparable non-reserve community the population algorithm is then applied to the next level of the geographic parameters.

**Table 2: Geographic Selection Areas for Selection of Comparable Communities**

Same Census Division (OG)	Apply population algorithm within the <b>same census division</b> until a comparable community is determined.
Adjacent Census Division (G1)	Apply population algorithm to <b>adjacent census divisions</b> within the same province until a comparable community is determined
Same Province (G2)	Apply population algorithm to all census divisions within the <b>province</b> until a comparable community is determined

With the Population and Geographic algorithms there are 18 sequential selection factors. The following schematic layout shows the selection process utilised in identifying comparable communities.

**Table 3: Selection Schema**

OM/CD	M1/CD	M2/CD	M3/CD	M4/CD	M5/CD
OM/Adjacent CD	M1/Adjacent CD	M2/Adjacent CD	M3/Adjacent CD	M4/Adjacent CD	M5/Adjacent CD
OM/Province	M1/Province	M2/Province	M3/Province	M4/Province	M5//Province

This selection methodology was applied to the census data of 1971, 1976, 1981, 1986 and 1991. In the 1971 Census, reserves were aggregated to the CD level. No census population data was available for individual reserves, therefore, DIAND population data was applied. After substituting DIAND population data for any missing census data, the population algorithm is then applied.

### Methodological Considerations

The main limitation of this study is related to the 1986 Census. Due to incomplete band participation 136 Indian reserves, representing an estimated 45,000 persons, did not participate. It is important to recognize that these reserves are, in many cases, in close spatial arrangement to the Canadian economy as a whole. Therefore, the impact of their exclusion from the 1986 Census is known to result in an incomplete view of living conditions on reserve.



## **Appendix II**

## Summary of Selection Results

The selection methodology was applied to the census data of 1971, 1976, 1981, 1986 and 1991 from nine provinces. Newfoundland and the two territories were excluded from this project. In 1991 Statistics Canada listed 290 Census Divisions, sixteen of which occur in Newfoundland and the two territories. The number of Census Divisions containing Indian reserve were distributed evenly over the five census years, changing only marginally from census to census as Table 4 demonstrates. The small differences between the first three censuses are attributable primarily to changes in Statistics Canada boundary definitions (only 6 Indian reserves did not participate in the 1981 Census). Differences between 1986 and earlier censuses are due to the non-participation in 1986 of some 136 Indian reserves, representing about 45,000 people.

**Table 4: Number of Census Divisions containing Indian reserves**

Census Year	Census Divisions
1971	129
1976	133
1981	136
1986	131
1991	133

The results in Table 5 show that comparable communities were selected primarily from the same Census Division as those containing Indian reserves. In 1991, there were 133 Census Divisions which contained at least one Indian reserve that participated in the Census. Approximately 77% of CD's containing Indian reserves contained the communities to which Indian reserves can be compared.

**Table 5: Proportionate use of selection area.**

Selection Area	1971	1976	1981	1986	1991	Average
(1)Same Census Division	76	71	77	82	80	77
(2)Adjacent Census Division	19	22	21	18	19	20
(3)Entire Province	5	7	2	0	1	3
Total	100	100	100	100	100	100

In 1991, Statistics Canada listed 6,006 Census Subdivisions. Of this amount 964 are distinctly categorized as some type of Indian census subdivision<sup>4</sup>. It should be noted that the number of Indian reserves recorded do not necessarily match the figures provided by Statistics Canada references because some Indian reserves listed in these references are uninhabited. Not all Indian census subdivisions had been enumerated in the 1991 Census and not all of those that participated were included in the report. Approximately 77% of the Indian census subdivisions were used in this report, because a majority of the Census Divisions which contain Indian reserves may contain only a minority of selected communities from each selection area. Over the five census years approximately 90% of all selected comparable communities were located in the same Census Division as the Indian reserves.

**Table 6: Proportions of comparable communities by selection area.**

Selection Area	1971	1976	1981	1986	1991
Same Census Division	733	657	742	727	634
	94%	83%	90%	93%	82%
Adjacent Census Division	35	100	69	55	60
	4%	13%	8%	7%	8%
Entire Province	12	38	14	0	82
	2%	4%	2%	0%	10%
Total	780	795	825	782	776
	100%	100%	100%	100%	100%

The results indicate that over the five census years about 45% of all selected communities had populations within the range defined by the Original Methodology(OM). Furthermore, close to 87% of the communities selected from the five censuses had populations within the range defined by the Second Modification(M1). Table 7 shows the numbers of comparable communities selected from within each of the population ranges in each census year.

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<sup>4</sup>Indian census subdivision types: Indian Government District, Indian Reserve, Indian Settlement, Terres réservées, Village cri, and Village naskapi.

**Table 7: Proportionate selection of comparable communities by selection criteria.**

Selection Criteria	1971	1976	1981	1986	1991
OM	346	391	395	330	303
	44%	49%	48%	42%	39%
M1	19	17	11	24	21
	2%	2%	1%	3%	3%
M2	280	312	305	322	374
	36%	39%	37%	41%	48%
M3	10	23	40	15	21
	1%	3%	5%	2%	3%
M4	117	35	55	70	36
	15%	4%	7%	9%	4%
M5	8	17	19	21	21
	1%	2%	2%	3%	3%
Total	780	795	825	782	776
	100%	100%	100%	100%	100%

Under combined geographic and population criteria the majority of selected communities were found to be basically comparable to the corresponding Indian reserves. Almost 78% of the selected communities were located in the same CD and had populations within the Second Modification (see Table 8).

**Table 8: Distribution of selected communities by selection criteria and area.**

	OM	M1	M2	M3	M4	M5	Total
Same Census Division	1614	67	1397	79	269	67	3493
Adjacent Census Division	136	25	76	26	37	19	319
Entire Province	15	0	120	4	7	0	146
Total	1765	92	1593	109	313	86	3958

To this point the distribution of selected communities and CD's containing Indian reserves have been considered. It remains to account for the distribution of Indian reserves per se within those CD's and their relationship to the selected communities. Most participating Indian reserves will, as Table 9 shows, be compared with selected communities which are located in the same CD although a significant number will have to be compared with communities in adjacent CD's.

**Table 9: Distribution of Indian reserves by selection area**

Selection Area	1971*	1976	1981	1986	1991
Same Census Division		383	524	540	581
Adjacent Census Division		266	155	130	149
Entire Province		27	20	0	4
Total		676	699	670	734

Combining the figures from Table 9 with those of Table 6 provides information on the average number of selected communities to be compared with the inhabited Indian reserve (see Table 10).

**Table 10: Average number of selected communities for each inhabited Indian reserve.**

	1971	1976	1981	1986	1991
Indian reserves	403	676	699	670	734
Selected	780	795	825	782	776
Ratio	1.94	1.18	1.18	1.17	1.06