

Evaluation of Projections of Populations for the Aboriginal Identity Groups in Canada, 1996-2001

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Abstract

The population projections for the Aboriginal identity groups (North American Indians, Métis and Inuit) by age and sex from 1996 to 2001 were developed at the Canada level, using the cohort-component method. The purpose of this paper is to compare and analyze the error of closure between the projected 2001 and adjusted 2001 population counts due to net census undercounts. It is observed that the error of closure for the 2001 projected Aboriginal population based on the 1996 adjusted census population seems to be lower by 7% over the 2001 Census adjusted Aboriginal population. In contrast, the projected populations for North American Indians and Inuit are lower by -0.20% and -2.73%. However, for the Métis the error of closure is extremely high, at -24.84%. Reasons for the higher error of closure for the Métis such as the effects of intra-generational ethnic mobility will be discussed in the paper.

Key Words: Population projections, aboriginal population, fertility, mortality, ethnic mobility

Résumé

Les projections de la population furent développées au niveau du Canada selon la méthode des composantes des cohortes pour les groupes d'identité autochtone (Indiens de l'Amérique du Nord, Métis, Inuit) selon l'âge et le sexe de 1996 à 2001. L'objet de cet article est de comparer et d'analyser l'erreur en fin de période dû au sous-dénombrement net du recensement entre les chiffres projetés de la population de 2001 et les chiffres rajustés de 2001. L'erreur en fin de période de la population autochtone projetée de 2001 d'après la population du Recensement de 1996 semble être moindre de 7% que la population autochtone rajustée du Recensement de 2001. En revanche, les populations projetées des Indiens de l'Amérique du Nord et des Inuits sont moindres de -0,20% et de -2,73%. Par contre, l'erreur en fin de période est extrêmement élevée pour les Métis à -24,84%. Les raisons de cette erreur en fin de période plus élevée chez les Métis telles que les effets de la mobilité ethnique intragénérationnelle seront discuter dans cette article.

Mots clés: Projections de la population, population autochtone, fécondité, mortalité, mobilité ethnique

Introduction

The population projections for the three Aboriginal identity groups (North American Indians, Métis and Inuit) were developed at the Canada level, using the cohort-component method. The projections were produced by age and sex annually from 1996 to 2001. The purpose of these projections was to compare the error of closure between the projected 2001 and adjusted 2001 population counts at the Canada level. The error of closure would provide an expected level of the difference between the observed and the projected population for the fifth year. Before presenting the results of the comparison between the projected and observed 2001 population, the details of the base population, and components of population change involved in developing these projections are presented below.

Base Population

The base population is the 1996 census counts, adjusted due to net census undercounts and multiple responses for the Aboriginal identity groups by single year of age (0, 1, 2... 85+) and sex. At the Canada level, the adjusted 1996 census counts for the total and three Aboriginal identity groups were: 904,252 for the total, 647,993 for the North American Indians, 214,207 for the Métis and 42,051 for the Inuit.

Components of Population Change

Population projections were developed using the fertility, mortality and ethnic mobility assumptions.

Fertility Projection Method

A parametric model, namely, the Pearson Type I curve was applied to project the total number of births for the component approach. In this model, the projected age-specific fertility rates are derived from three parameters, the total fertility rate, the mean age of fertility, and the modal age of fertility. The total number of births is obtained by multiplying the model-based age-specific fertility rates with the mid-year projected number of female population aged 15-49 for the years t and $t+1$. The distribution of births by sex is calculated according to an assumed sex ratio at birth of 105 males per 100 females.

Total fertility rate: Total fertility rates (TFRs) for each of the three identity groups for the year 1996 were taken from the work done by Ram (2003). He computed the TFRs for the total Aboriginal group and three Aboriginal identity groups using the Own-Children procedure and the 1996 census data on the number of children in the age group 0-4 and the female population by the five year age groups 15-49. For the year 2001, the total fertility rates were also developed using the Own-Children procedure and the 2001 census data on the number of children in the age group 0-4 and the female population by the five year age groups 15-49. For the individual years between 1996 and 2001, the TFRs shown in Table 1 for the total and each of the Aboriginal identity groups were linearly interpolated to decline at the 2001 levels of TFRs. For example, the total fertility rate for the total Aboriginal group declined from 2.7 children in 1996 to 2.5 children per woman in 2001. For the North American Indians and Métis groups, the levels of the decline in the TFRs were lower than that for the Inuit group. For the latter group, the TFR declined considerably from 3.5 children in 1996 to 2.9 children per woman in 2001.

Table 1
Linear Estimation of TFR per Annum
for Aboriginal Groups, 1996-2001

Year	Total Aboriginal Groups	NAI	Métis	Inuit
1996-1997	2.70	2.88	2.28	3.52
1997-1998	2.65	2.84	2.22	3.37
1998-1999	2.60	2.81	2.15	3.21
1999-2000	2.55	2.78	2.08	3.05
2000-2001	2.50	2.74	2.02	2.90

Mean and Modal Ages

Mean and modal ages of fertility were computed from the age-specific fertility rates based on the Own-Children procedure derived from the 1996 and 2001 Censuses. These mean and modal ages were interpolated for the intermediate years, 1996 to 2001. Table 2 shows the mean and modal ages of fertility for the total Aboriginal group and the three identity groups. It is observed that for the Inuit group, both mean and modal ages of fertility are considerably higher than those for the North American Indians and Métis groups.

For the Inuit group, it is seen that as compared to other Aboriginal groups, both TFRs and mean ages of fertility are high. One could think that the Inuit should have lower mean ages, as their fertility rate is higher over other identity groups. In order to clarify this, we have examined the historical relationship between the TFRs and Mean ages of fertility for the total Canadian population from 1921 to 2000. In Appendix Table 1 it can be seen that mean age was high at the early years when TFR was high. It started to decline in the last two decades when TFR starts to decline to low level. The mean age of fertility for the Inuit is higher than the other Aboriginal groups may be due to their persistent high TFR, while the TFRs of other Aboriginal groups have started to decline.

Table 2
Mean and Modal Ages of Fertility for Aboriginal Identity
Groups, Canada, 1996 to 2001

Year	Total Aboriginal Groups	NAI	Métis	Inuit
Mean Ages				
1996	25.6	25.6	25.3	28.0
1997	25.6	25.6	25.5	27.8
1998	25.7	25.6	25.6	27.6
1999	25.7	25.6	25.7	27.4
2000	25.7	25.6	25.7	27.4
2001	25.7	25.6	25.7	27.4
Modal Ages				
1996	21.3	21.3	21.7	23.2
1997	21.3	21.2	21.8	23.0
1998	21.3	21.1	21.9	22.9
1999	21.4	21.1	22.1	22.7
2000	21.4	21.1	22.1	22.7
2001	21.4	21.1	22.1	22.7

Mortality Projection Method

Projecting the Aboriginal population by identity groups requires the estimation of life expectancy at birth and life tables to provide survival ratios by sex and single year of age from birth onward. First, the life expectancy at birth was estimated for each Aboriginal identity group for the two years, 1996 and 2001. The life expectancy at birth for the Registered Indians was computed based on the adjusted number of deaths and population due to their late and never reporting in the Indian Registry Data file. For the non-status Indians and Métis groups, life expectancy at birth was based on the average of life expectancy at birth for the Registered Indians and the life expectancy at birth for the 5th quintile of the general population. The life expectancy at birth for the fifth quintiles (Q5) based on the vital statistics and Census data were developed by Finès (2004) for the year, 1996. For the Inuit group, the life expectancy at birth was based on the average of the life expectancy at birth derived from the vital statistics and population estimates for Nunavut territory and the life expectancy

at birth cited in the Quebec study by Létourneau, E. (1994), Projections de la population des Inuit du Québec, 1991-2016 in Statistiques sociodémographiques, Bureau de la statistique du Québec. Table 3 presents the estimated life expectancy at birth by the Aboriginal identity groups at the Canada level for the two years 1996 and 2001.

Based on the values of the life expectancy at birth by the Aboriginal identity groups, the life tables were selected from the Canadian historical life tables. Then, the Lx columns were used to compute the survival ratios by age and sex for both years, 1996 and 2001. For the intermediate years, 1997, 1998...2000, the survival ratios were linearly interpolated.

Table 3
Estimated Life Expectancy at Birth by Sex, Status Indian, Non-Status Indian, Métis and Inuit, Canada, 1996 and 2001

Aboriginal Identity Groups	Methods	1996		2001	
		Male	Female	Male	Female
Total Aboriginal	A	67.3	74.4	69.1	75.6
North American Indians	B	69.3	75.7	71.4	76.8
Status Indian	C	68.1	74.3	70.4	75.4
Non-status Indian	D	70.5	77.0	72.4	78.2
Métis	E	70.5	77.0	72.4	78.2
Inuit	F	62.1	70.6	63.5	71.7
Fifth Quintile (Q5)	G	72.95	79.82	74.50	80.98
Total Canadians	H	75.4	81.0	77.0	82.2

Note on methods:	A	Average of expectation of life for status, Non-Status, Métis and Inuit
	B	Average of Expectance of life for Status and Non-status Indians
	C	Second update of population projections for Regd Indians, 2002
		2001: Based on Life Table for 2000 prepared by survival ratio
	D	Average of expectation of life at birth for Regd Indians and Fifth Quintile
	E	Average of expectation of life at birth for Regd Indians and Fifth Quintile
	F	For Canada, an average of East & West was used. 1996 Inuit Female was derived by using the average of the Quebec data dans Nunavut data. The Nunavut data comes from: Statistics Canada and CIHI, Health Indicators, June 2001, Catalogue no. 82-221-XIE
	G	Life Expectancy at birth by Finés (2004) for the fifth Qintiles (Q5)
	H	Official Life Tables and Report on the Demographic Situation in Canada, 2002

Ethnic Mobility

Intergenerational ethnic mobility refers to the ethnic identity of a child different from that of his /her parents. In the projections, this mobility in ethnic identity is assumed to happen at birth, thus the assumption on ethnic mobility has a direct impact on births. So, the intergenerational ethnic mobility, measured by the continuity index based on children aged 0-4 by Aboriginal groups from the 1996 and 2001 censuses, was incorporated by inflating the number of births to include those births that have a different ethnic identification from their mothers. The continuity index is defined as the total number of children with a given identity divided by the total number of children born to mothers with the same identity. Table 4 shows the continuity indices by Aboriginal identity groups for the Canada level from the 1996 and 2001 censuses. Between 1996 and 2001, there are some differences in the continuity indices for the North American Indians and Métis groups. However, in the projections the level of continuity index based on the 1996 census for each Aboriginal identity group was kept constant for the projection years, 1996 to 2001.

Table 4
Continuity Index based on Children aged 0-4, by Aboriginal Groups
for Canada, 1996 and 2001 Censuses

Aboriginal Identity groups	1996	2001
North American Indians	105.9	109.2
Métis	116.5	114.5
Inuit	103.6	103.1

Two sets of population projections were developed. The first set of the population projections by Aboriginal identity groups was based on fertility and mortality assumptions. The second set of the population projections was based on fertility, mortality and ethnic mobility. In both sets of projections, the international migration among the Aboriginal Identity groups was assumed to be zero.

Analysis of Results

In this section, the differences between the projected 2001 population and the adjusted 2001 population counts due to the net census undercounts and multiple responses are analyzed by Aboriginal identity group controlling for sex at the Canada level.

Table 5 shows the error of closure between the projected 2001 Aboriginal population by identity groups without ethnicity and the 2001 adjusted census counts. Table 6 shows the effect of ethnicity on the error of closure between them.

In Table 5, the comparison of the projected population in 2001-based on the 1996-based Aboriginal population with the adjusted 2001 census counts shows the following major findings:

- As compared to the 2001 census adjusted Aboriginal population, the error of closure for the 2001 projected Aboriginal pop based on the 1996 adjusted census population seems to be lower by 7.4 %.
- The errors of closure for the North American Indians and Inuit are relatively much lower, -0.20% and -2.73%. However, for the Métis group the error of closure is extremely high, at -24.84%.
- The reasons for the higher error of closure for the Métis could be due to ethnic mobility and also, due to weakness with the methodology for estimating expectation of life at birth.

In Table 6, the 2001 projected population including the intergenerational ethnic mobility based on the 1996-based continuity index was evaluated with the adjusted 2001 census counts. It is seen that with ethnicity there has been a slight reduction in the error of closure for the Métis population, -23.77 % and -24.84%. For the Inuit, the error of closure has also been reduced, -2.34 % and -2.73%. However for the North American Indians the error of closure has increased positively, 0.43% and -0.20 %.

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Table 5
Evaluation of 1996 based Projections of Aboriginal Population
(without Ethnic Mobility Assumption)
with the 2001 Adjusted Census Counts, Canada

	1996 Adj. Census Population Counts (A)	Projected 2001 Population (B)	2001 Adj. Census Population Counts (C)	Difference D=B-C (D)	Error of closure % (E)
Males					
Total	447,412	488,827	527,260	-38,433	-7.29
NAI	319,067	350,771	348,615	2,156	0.62
Métis	107,138	114,830	154,559	-39,729	-25.70
Inuit	21,207	23,226	24,086	-860	-3.57
<i>Total without Métis</i>	<i>340,273</i>	<i>373,997</i>	<i>372,701</i>	<i>1,296</i>	<i>0.35</i>
Females					
Total	456,840	498,968	539,245	-40,277	-7.47
NAI	328,927	360,865	364,459	-3,594	-0.99
Métis	107,069	115,037	151,282	-36,245	-23.96
Inuit	20,845	23,066	23,504	-438	-1.86
<i>Total without Métis</i>	<i>349,771</i>	<i>383,931</i>	<i>387,963</i>	<i>-4,032</i>	<i>-1.04</i>
Both Sexes					
Total	904,252	987,795	1,066,505	-78,710	-7.38
NAI	647,993	711,636	713,074	-1,438	-0.20
Métis	214,207	229,867	305,841	-75,974	-24.84
Inuit	42,051	46,292	47,590	-1,298	-2.73
<i>Total without Métis</i>	<i>690,045</i>	<i>757,928</i>	<i>760,664</i>	<i>-2,736</i>	<i>-0.36</i>

Since the error of closure for the Métis population is still extremely high, the simulations with changing levels of expectation of life at birth would show more positive results/successes.

Under the current methodology, we are substituting the life expectancy of Non-Status Indians for the Métis. We could improve this method by taking the average of life expectancy of Non-Status Indians and the Canadian total population. This would give us a higher life expectancy for the Métis and the error of closure would be reduced.

Table 6
Evaluation of 1996 based Projections of Aboriginal Population (with Ethnic Mobility Assumption) with the 2001 Adjusted Census Counts, Canada

	1996 Adj. Census Population Counts (A)	Projected 2001 Population (B)	2001 Adj. Census Population Counts (C)	Difference D=B-C (D)	Error of closure % (E)
Males					
Total	447,412	492,938	527,260	-34,322	-6.51
NAI	319,067	353,101	348,615	4,486	1.29
Métis	107,138	116,519	154,559	-38,040	-24.61
Inuit	21,207	23,318	24,086	-768	-3.19
<i>Total without Métis</i>	<i>340,273</i>	<i>376,419</i>	<i>372,701</i>	<i>3,718</i>	<i>1.00</i>
Females					
Total	456,840	502,861	539,245	-36,384	-6.75
NAI	328,927	363,067	364,459	-1,392	-0.38
Métis	107,069	116,635	151,282	-34,647	-22.90
Inuit	20,845	23,159	23,504	-345	-1.47
<i>Total without Métis</i>	<i>349,771</i>	<i>386,226</i>	<i>387,963</i>	<i>-1,737</i>	<i>-0.45</i>
Both Sexes					
Total	904,252	995,799	1,066,505	-70,706	-6.63
NAI	647,993	716,168	713,074	3,094	0.43
Métis	214,207	233,154	305,841	-72,687	-23.77
Inuit	42,051	46,477	47,590	-1,113	-2.34
<i>Total without Métis</i>	<i>690,045</i>	<i>762,645</i>	<i>760,664</i>	<i>1,981</i>	<i>0.26</i>

We have estimated two alternative sets of the life expectancy at birth for Métis for the years 1996 and 2001. The first alternative estimate of life expectancy by sex is based on the average of the life expectancy at birth for the non-status Indians and the Canadian population. The second set of them is based on the average of the life expectancy at birth for the Registered Indians and the Canadian population. These life expectancies at birth are given below.

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Table 7
Alternate methods to estimate E0 for Métis, 1996 and 2001

Aboriginal Identity groups	1996		2001	
	Male	Female	Male	Female
Total Aboriginal	67.7	74.6	69.5	75.8
North American Indians	69.3	75.7	71.4	76.8
Registered Indians	68.1	74.3	70.4	75.4
Non-Status	70.5	77.0	72.4	78.2
Métis (a)	71.7	77.6	73.7	78.8
Métis (b)	73.0	79.0	74.7	80.2
Inuit	62.1	70.6	63.5	71.7
Total Canada	75.4	81.0	77.0	82.2

Note: (a) Métis = Average of E0 for Registered Indians and Canadian Population
(b) Métis = Average of E0 for Non-Status Indians and Canadian Population
For other Aboriginal groups methods, see Table 3.

In Tables 8 to 11 we have compared the error of closures between the 2001 projected population and the 2001 adjusted census counts for the three Aboriginal groups using the alternative estimates of life expectancy at birth for Métis. In general, there has been a slight reduction in the error of closure for Métis group due to the improvement in the life expectancy at birth. The results of the error of closure for Métis population are summarized below:

	E0= N.S.	E0 = Average of Non-Status Indians and Canadian Population	E0 = Average of Registered Indians and Canadian Population
2001 Métis pop without ethnicity	-24.84	-24.60	-24.71
2001 Métis pop with ethnicity	-23.77	-23.52	-23.63

Table 8
Evaluation of 1996 based Projections of Aboriginal Population
(without ethnicity)
with the 2001 Adjusted Census Counts, Canada

Métis = Average E0 at birth for Non-Status Indians and Canadian Population, scenario rv96n

	1996 Adj. Census Population Counts (A)	Projected 2001 Population (B)	2001 Adj. Census Population Counts (C)	Difference D=B-C (D)	Error of closure % (E)
Males					
Total	447,412	489,258	527,260	-38,002	-7.21
NAI	319,067	350,771	348,615	2,156	0.62
Métis	107,138	115,261	154,559	-39,298	-25.43
Inuit	21,207	23,226	24,086	-860	-3.57
<i>Total without Métis</i>	<i>340,273</i>	<i>373,997</i>	<i>372,701</i>	<i>1,296</i>	<i>0.35</i>
Females					
Total	456,840	499,263	539,245	-39,982	-7.41
NAI	328,927	360,865	364,459	-3,594	-0.99
Métis	107,069	115,332	151,282	-35,950	-23.76
Inuit	20,845	23,066	23,504	-438	-1.86
<i>Total without Métis</i>	<i>349,771</i>	<i>383,931</i>	<i>387,963</i>	<i>-4,032</i>	<i>-1.04</i>
Both Sexes					
Total	904,252	988,521	1,066,505	-77,984	-7.31
NAI	647,993	711,636	713,074	-1,438	-0.20
Métis	214,207	230,593	305,841	-75,248	-24.60
Inuit	42,051	46,292	47,590	-1,298	-2.73
<i>Total without Métis</i>	<i>690,045</i>	<i>757,928</i>	<i>760,664</i>	<i>-2,736</i>	<i>-0.36</i>

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Table 9
Evaluation of 1996 based Projections of Aboriginal Population
(without ethnicity)
with the 2001 Adjusted Census Counts, Canada

*Métis = Average E0 at birth for Registered Indians and Canadian Population,
scenario rv96r*

	1996 Adj. Census Population Counts (A)	Projected 2001 Population (B)	2001 Adj. Census Population Counts (C)	Difference D=B-C (D)	Error of closure % (E)
Males					
Total	447,412	489,165	527,260	-38,095	-7.23
NAI	319,067	350,771	348,615	2,156	0.62
Métis	107,138	115,168	154,559	-39,391	-25.49
Inuit	21,207	23,226	24,086	-860	-3.57
<i>Total without Métis</i>	<i>340,273</i>	<i>373,997</i>	<i>372,701</i>	<i>1,296</i>	<i>0.35</i>
Females					
Total	456,840	499,044	539,245	-40,201	-7.46
NAI	328,927	360,865	364,459	-3,594	-0.99
Métis	107,069	115,113	151,282	-36,169	-23.91
Inuit	20,845	23,066	23,504	-438	-1.86
<i>Total without Métis</i>	<i>349,771</i>	<i>383,931</i>	<i>387,963</i>	<i>-4,032</i>	<i>-1.04</i>
Both Sexes					
Total	904,252	988,209	1,066,505	-78,296	-7.34
NAI	647,993	711,636	713,074	-1,438	-0.20
Métis	214,207	230,281	305,841	-75,560	-24.71
Inuit	42,051	46,292	47,590	-1,298	-2.73
<i>Total without Métis</i>	<i>690,045</i>	<i>757,928</i>	<i>760,664</i>	<i>-2,736</i>	<i>-0.36</i>

Table 10
Evaluation of 1996-based Projections of Aboriginal Population
(with Ethnic Mobility Assumption)
with the 2001 Adjusted Census Counts, Canada

Métis = Average E0 at birth for Registered Indians and Canadian Population, scenario rv96re

	1996 Adj. Census Population Counts (A)	Projected 2001 Population (B)	2001 Adj. Census Population Counts (C)	Difference D=B-C (D)	Error of closure % (E)
Males					
Total	447,412	493,282	527,260	-33,978	-6.44
NAI	319,067	353,101	348,615	4,486	1.29
Métis	107,138	116,863	154,559	-37,696	-24.39
Inuit	21,207	23,318	24,086	-768	-3.19
<i>Total without Métis</i>	<i>340,273</i>	<i>376,419</i>	<i>372,701</i>	<i>3,718</i>	<i>1.00</i>
Females					
Total	456,840	502,937	539,245	-36,308	-6.73
NAI	328,927	363,067	364,459	-1,392	-0.38
Métis	107,069	116,711	151,282	-34,571	-22.85
Inuit	20,845	23,159	23,504	-345	-1.47
<i>Total without Métis</i>	<i>349,771</i>	<i>386,226</i>	<i>387,963</i>	<i>-1,737</i>	<i>-0.45</i>
Both Sexes					
Total	904,252	996,219	1,066,505	-70,286	-6.59
NAI	647,993	716,168	713,074	3,094	0.43
Métis	214,207	233,574	305,841	-72,267	-23.63
Inuit	42,051	46,477	47,590	-1,113	-2.34
<i>Total without Métis</i>	<i>690,045</i>	<i>762,645</i>	<i>760,664</i>	<i>1,981</i>	<i>0.26</i>

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Table 11
Evaluation of 1996-based Projections of Aboriginal Population
(with Ethnic Mobility Assumption)
with the 2001 Adjusted Census Counts, Canada

*Métis = Average E0 at birth for Non-Status Indians and Canadian
Population, scenario rv96ne*

	1996 Adj. Census Population Counts (A)	Projected 2001 Population (B)	2001 Adj. Census Population Counts (C)	Difference D=B-C (D)	Error of closure % (E)
Males					
Total	447,412	493,380	527,260	-33,880	-6.43
NAI	319,067	353,101	348,615	4,486	1.29
Métis	107,138	116,961	154,559	-37,598	-24.33
Inuit	21,207	23,318	24,086	-768	-3.19
<i>Total without Métis</i>	<i>340,273</i>	<i>376,419</i>	<i>372,701</i>	<i>3,718</i>	<i>1.00</i>
Females					
Total	456,840	503,168	539,245	-36,077	-6.69
NAI	328,927	363,067	364,459	-1,392	-0.38
Métis	107,069	116,942	151,282	-34,340	-22.70
Inuit	20,845	23,159	23,504	-345	-1.47
<i>Total without Métis</i>	<i>349,771</i>	<i>386,226</i>	<i>387,963</i>	<i>-1,737</i>	<i>-0.45</i>
Both Sexes					
Total	904,252	996,548	1,066,505	-69,957	-6.56
NAI	647,993	716,168	713,074	3,094	0.43
Métis	214,207	233,903	305,841	-71,938	-23.52
Inuit	42,051	46,477	47,590	-1,113	-2.34
<i>Total without Métis</i>	<i>690,045</i>	<i>762,645</i>	<i>760,664</i>	<i>1,981</i>	<i>0.26</i>

The error of closure between the 2001 projected population with ethnicity and the adjusted census counts for the Métis group was the lowest (-23.54 %) when we estimated their life expectancy at birth based on the average life expectancy at birth for the non-status Indians and the Canadian population. However, taking the average of the mortality status of the non-status Indians and the Canadian population contradicts the historical definition of Métis. They are currently defined as: “Métis means a person who self-identifies as Métis, is of an historic Métis nation ancestry, is distinct from other Aboriginal peoples and is accepted by the Métis nation. “Historic Métis nation” means the Aboriginal

people then known as Métis or half –breeds who resided in an historic Métis nation homeland which is the area of land in west central North America used and occupied as the traditional territory of the Métis or half-breeds as they were then known; Métis nation means the Aboriginal people descended from the historic Métis nation, which is now comprised of all Métis nation citizens and is one of the “Aboriginal peoples” within S.35 of the Constitution Act of 1982. “Distinct from other Aboriginal peoples” means distinct for cultural and nationhood purposes. (2002, Métis National Council, www.metisnation.ca). Half-breed refers to an offspring of mixed Indian and white origin. So, it would be more consistent with the historical concept of the Métis people to estimate their life expectancy at birth as the average of the life expectancy at birth of the Registered Indians and the Canadian population. In this case, the error of closure between the 2001 projected population with ethnicity and the modified level of mortality and the adjusted census counts was calculated to be slightly higher at -23.63%.

Now, let us examine the error of closure between the projected population and the adjusted census counts by age groups and sex for Canada. Tables 12.0 to 12.3 show the evaluation of 1996- based projections of the Aboriginal population (with ethnic mobility assumption) by age groups and sex, with the 2001 adjusted census counts, Canada. In Table 12.0 it is seen that the projected 2001 population for the total Aboriginal group in all age groups except the last age group, 85 and over is lower than the 2001 adjusted census population. These large differences between the projected and adjusted census counts for the total Aboriginal population in all age groups except the last age group could be largely due to not incorporating the assumption of the number of intra-generational mobility in the projection model. In particular, the effect of the intra-generational mobility was seen for the projection of the Métis population. In the last age group, 85 and over, the 2001 projected Aboriginal female population was considerably higher than the adjusted 2001 Census counts for females. *This could be due to over-estimating the survival ratio for the female population in the last age group, 85 and over.*

The errors of closure between the projected population and the adjusted census counts for the total Aboriginal group are lower than -12 percent in all age groups under 84 years of age. This pattern is true for the total male and female Aboriginal population. As we have considered the assumption of intergenerational ethnic mobility in the projection model, it can be seen that the error of closure is very small (under 3 per cent) in the age group 0-4. It is surprising to note that the error of closure between the projected population and the adjusted 2001 census counts for the female Aboriginal population aged 85 and over is extremely higher over the male Aboriginal population aged 85 and over. *This also suggests that we should check the survival ratio for the last age group for the female population, particularly for the North American Indians.*

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Now, let us consider the errors of closure by age groups for each Aboriginal identity group. In Tables 12.1 to 12.3 the errors of closure between the projected population and the adjusted 2001 census counts are shown. The errors of closure by age groups for the North American Indians and Inuit are considerably lower than those for the Métis population. The pattern of the projected population being lower than the adjusted census counts in all age groups except the last age group 85 and over holds true for the Métis group only. For the two other identity groups, North American and Inuit, the differences between the projected population and the adjusted 2001 census counts are positive in some age groups, and negative in some age groups. The problem of over-estimating the survival ratio for the female population in the last age group 85 and over seems to be evident for the North American Indian female population, as the error of closure is very high in the last age group. For the Inuit, the errors of closures in the last two age groups, 80-84 and 85 + are very high. These differences could be due to small numbers. However, it appears that we have underestimated the TFR for the Inuit group, as the projected population in the age group 0-4 for them is considerably lower by 11% over the adjusted census counts. One could also assume that the 2001 census counts for the children in the age group 0-4 for the Inuit group are over adjusted due to the net census undercounts.

Conclusions

Based on the above analyses of comparison of the projected population by the Aboriginal identity groups with the adjusted 2001 Census counts for them, it appears that the issue regarding the higher error of closure between the 2001 projected population and the 2001 adjusted census counts for the Métis group still remains and the issue is complex and important for further research. It shows that the inclusion of the demographic components and intergenerational ethnic mobility in the projection model did not explain the total population change over the period 1996-2001. In particular, the Métis population was grossly under-projected as compared to their adjusted counts in the 2001 Census of Canada. This difference could be due to the fact that the projection model did not incorporate the assumption of intra-generational ethnic mobility. This type of ethnic mobility may result from a change in an individuals' ethnic affiliation between two points in time (Guimond, 1999, p. 195). Such changes over time in individual ethnic affiliation are difficult to predict, and if at all, perhaps such phenomena lend themselves more to short term "what if" scenarios (Norris, Clatworthy and Guimond, 2001, p. 5). How to estimate the number for inter-generational mobility for a short-term is also complex? In Table 13 it is seen that over the period 1996-2001, the growth of the Métis population was

Table 12
Evaluation of 1996-based Projections of Aboriginal Population
(with Ethnic Mobility Assumption)
by Age and Sex, with the 2001 Adjusted Census Counts, Canada

	1996 Adj. Census Population Counts (A)	Projected 2001 Population (B)	2001 Adj. Census Population Counts (C)	Difference D=B-C (D)	Error of closure % (E)
Male					
Total	447,412	493,282	527,254	-33,972	-6.44
0-4	57,872	56,474	57,663	-1,189	-2.06
5-9	54,706	57,631	62,846	-5,215	-8.30
10-14	48,710	54,563	59,068	-4,505	-7.63
15-19	43,570	48,394	51,419	-3,025	-5.88
20-24	39,343	43,116	42,181	935	2.22
25-29	38,522	38,981	41,341	-2,360	-5.71
30-34	36,992	38,205	40,730	-2,525	-6.20
35-39	32,249	36,638	41,196	-4,558	-11.06
40-44	24,997	31,813	35,315	-3,502	-9.92
45-49	20,425	24,474	27,336	-2,862	-10.47
50-54	14,721	19,756	21,665	-1,909	-8.81
55-59	11,516	14,005	15,854	-1,849	-11.66
60-64	8,866	10,645	11,088	-443	-3.99
65-69	6,035	7,826	8,468	-642	-7.59
70-74	4,216	5,022	5,297	-275	-5.20
75-79	2,478	3,188	3,222	-34	-1.05
80-84	1,326	1,591	1,623	-32	-1.97
85+	869	960	941	19	2.00
Female					
Total	456,840	502,937	539,249	-36,312	-6.73
0-4	54,772	53,449	55,092	-1,643	-2.98
5-9	52,079	54,572	59,548	-4,976	-8.36
10-14	46,724	51,978	56,796	-4,818	-8.48
15-19	41,508	46,629	49,716	-3,087	-6.21
20-24	40,807	41,398	43,736	-2,338	-5.35
25-29	40,604	40,705	43,029	-2,324	-5.40
30-34	40,756	40,469	43,227	-2,758	-6.38
35-39	35,549	40,546	43,953	-3,407	-7.75
40-44	27,364	35,245	38,583	-3,338	-8.65
45-49	21,948	27,004	30,149	-3,145	-10.43
50-54	15,425	21,547	23,255	-1,708	-7.34
55-59	12,399	15,024	16,598	-1,574	-9.48
60-64	9,440	11,898	12,673	-775	-6.11
65-69	6,700	8,821	9,023	-202	-2.24
70-74	4,794	5,999	6,198	-199	-3.21
75-79	2,981	3,966	3,991	-25	-0.62
80-84	1,780	2,167	2,345	-178	-7.59
85+	1,211	1,520	1,339	181	13.51
Both Sexes					
Total	904,252	996,219	1,066,503	-70,284	-6.59
0-4	112,644	109,923	112,754	-2,831	-2.51
5-9	106,785	112,203	122,394	-10,191	-8.33
10-14	95,435	106,541	115,864	-9,323	-8.05
15-19	85,078	95,023	101,135	-6,112	-6.04
20-24	80,150	84,514	85,917	-1,403	-1.63
25-29	79,126	79,686	84,370	-4,684	-5.55
30-34	77,748	78,674	83,957	-5,283	-6.29
35-39	67,798	77,184	85,149	-7,965	-9.35
40-44	52,361	67,058	73,898	-6,840	-9.26
45-49	42,373	51,478	57,486	-6,008	-10.45
50-54	30,145	41,303	44,920	-3,617	-8.05
55-59	23,915	29,029	32,451	-3,422	-10.55
60-64	18,306	22,543	23,761	-1,218	-5.12
65-69	12,735	16,647	17,492	-845	-4.83
70-74	9,010	11,021	11,495	-474	-4.13
75-79	5,459	7,154	7,212	-58	-0.81
80-84	3,105	3,758	3,968	-210	-5.29
85+	2,080	2,480	2,280	200	8.76

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Table 12.1
Evaluation of 1996-based Projections of North American Indian Population
(with Ethnic Mobility Assumption)
by Age and Sex, with the 2001 Adjusted Census Counts, Canada

	1996 Adj. Census Population Counts (A)	Projected 2001 Population (B)	2001 Adj. Census Population Counts (C)	Difference D=B-C (D)	Error of closure % (E)
Male					
Total	319,067	353,101	348,616	4,485	1.29
0-4	42,816	41,813	40,879	934	2.28
5-9	40,584	42,663	44,256	-1,593	-3.60
10-14	35,189	40,485	39,928	557	1.39
15-19	30,788	34,930	33,908	1,022	3.02
20-24	27,939	30,422	27,218	3,204	11.77
25-29	27,493	27,654	27,271	383	1.40
30-34	26,151	27,254	27,068	186	0.69
35-39	22,672	25,882	26,522	-640	-2.41
40-44	16,987	22,342	22,237	105	0.47
45-49	13,656	16,604	16,965	-361	-2.13
50-54	10,187	13,167	13,086	81	0.62
55-59	7,761	9,657	9,840	-183	-1.86
60-64	6,095	7,147	6,787	360	5.30
65-69	4,241	5,370	5,179	191	3.70
70-74	3,047	3,533	3,533	0	0.01
75-79	1,797	2,314	2,175	139	6.40
80-84	953	1,154	1,094	60	5.45
85+	711	710	671	39	5.79
Female					
Total	328,927	363,067	364,474	-1,407	-0.39
0-4	40,194	39,505	39,334	171	0.44
5-9	38,094	40,049	41,958	-1,909	-4.55
10-14	34,406	38,020	38,974	-954	-2.45
15-19	29,603	34,335	32,888	1,447	4.40
20-24	29,007	29,517	28,781	736	2.56
25-29	29,057	28,925	28,696	229	0.80
30-34	29,283	28,958	29,195	-237	-0.81
35-39	25,286	29,137	29,390	-253	-0.86
40-44	19,241	25,079	25,147	-68	-0.27
45-49	15,400	19,009	19,760	-751	-3.80
50-54	10,892	15,136	15,145	-9	-0.06
55-59	9,031	10,617	10,997	-380	-3.46
60-64	6,815	8,667	8,672	-5	-0.06
65-69	4,789	6,355	6,033	322	5.34
70-74	3,469	4,263	4,214	49	1.16
75-79	2,148	2,845	2,768	77	2.78
80-84	1,334	1,542	1,613	-71	-4.40
85+	879	1,108	909	199	21.88
Both Sexes					
Total	647,993	716,168	713,091	3,077	0.43
0-4	83,010	81,318	80,213	1,105	1.38
5-9	78,678	82,712	86,214	-3,502	-4.06
10-14	69,595	78,505	78,902	-397	-0.50
15-19	60,391	69,265	66,796	2,469	3.70
20-24	56,946	59,939	55,999	3,940	7.04
25-29	56,550	56,579	55,967	612	1.09
30-34	55,434	56,212	56,263	-51	-0.09
35-39	47,958	55,019	55,912	-893	-1.60
40-44	36,228	47,421	47,384	37	0.08
45-49	29,055	35,613	36,725	-1,112	-3.03
50-54	21,079	28,303	28,231	72	0.26
55-59	16,792	20,274	20,838	-564	-2.71
60-64	12,910	15,814	15,459	355	2.29
65-69	9,030	11,725	11,212	513	4.58
70-74	6,516	7,796	7,747	49	0.63
75-79	3,945	5,159	4,943	216	4.37
80-84	2,287	2,696	2,707	-11	-0.42
85+	1,590	1,818	1,580	238	15.05

Table 12.2
Evaluation of 1996-based Projections of Métis Population
(with Ethnic Mobility Assumption)
by Age and Sex, with the 2001 Adjusted Census Counts, Canada

Métis = Average E0 at birth for Registered Indians and Canadian Population, scenario rv96re

	1996 Adj. Census Population Counts (A)	Projected 2001 Population (B)	2001 Adj. Census Population Counts (C)	Difference D=B-C (D)	Error of closure % (E)
Male					
Total	107,138	116,863	154,557	-37,694	-24.39
0-4	11,911	11,967	13,662	-1,695	-12.41
5-9	11,146	11,888	15,470	-3,582	-23.15
10-14	11,057	11,136	16,063	-4,927	-30.67
15-19	10,563	11,025	14,976	-3,951	-26.38
20-24	9,475	10,502	12,919	-2,417	-18.71
25-29	9,069	9,424	12,221	-2,797	-22.89
30-34	9,189	9,016	11,728	-2,712	-23.13
35-39	8,332	9,129	12,993	-3,864	-29.74
40-44	7,068	8,251	11,817	-3,566	-30.18
45-49	5,954	6,954	9,466	-2,512	-26.54
50-54	4,046	5,809	7,749	-1,940	-25.03
55-59	3,312	3,887	5,482	-1,595	-29.09
60-64	2,367	3,089	3,914	-825	-21.07
65-69	1,550	2,102	2,917	-815	-27.95
70-74	1,031	1,293	1,567	-274	-17.46
75-79	586	776	962	-186	-19.33
80-84	353	382	421	-39	-9.19
85+	131	233	230	3	1.30
Female					
Total	107,069	116,711	151,273	-34,562	-22.85
0-4	11,492	11,285	12,896	-1,611	-12.49
5-9	10,981	11,458	14,479	-3,021	-20.86
10-14	9,999	10,958	14,837	-3,879	-26.14
15-19	9,932	9,975	14,551	-4,576	-31.45
20-24	9,848	9,907	13,056	-3,149	-24.12
25-29	9,600	9,827	12,294	-2,467	-20.07
30-34	9,720	9,576	12,089	-2,513	-20.79
35-39	9,009	9,680	12,754	-3,074	-24.11
40-44	7,287	8,936	12,127	-3,191	-26.32
45-49	5,754	7,183	9,508	-2,325	-24.45
50-54	3,990	5,641	7,292	-1,651	-22.64
55-59	2,878	3,889	5,133	-1,244	-24.24
60-64	2,236	2,770	3,580	-810	-22.63
65-69	1,687	2,112	2,705	-593	-21.93
70-74	1,192	1,539	1,803	-264	-14.64
75-79	761	1,020	1,122	-102	-9.11
80-84	401	578	662	-84	-12.69
85+	302	377	385	-8	-2.08
Both Sexes					
Total	214,207	233,574	305,830	-72,256	-23.63
0-4	23,403	23,252	26,558	-3,306	-12.45
5-9	22,127	23,346	29,948	-6,602	-22.05
10-14	21,056	22,094	30,900	-8,806	-28.50
15-19	20,494	21,000	29,527	-8,527	-28.88
20-24	19,323	20,409	25,975	-5,566	-21.43
25-29	18,669	19,251	24,515	-5,264	-21.47
30-34	18,909	18,592	23,818	-5,226	-21.94
35-39	17,341	18,809	25,748	-6,939	-26.95
40-44	14,355	17,187	23,944	-6,757	-28.22
45-49	11,709	14,137	18,974	-4,837	-25.49
50-54	8,036	11,450	15,040	-3,590	-23.87
55-59	6,190	7,776	10,615	-2,839	-26.75
60-64	4,603	5,859	7,494	-1,635	-21.82
65-69	3,237	4,214	5,623	-1,409	-25.05
70-74	2,223	2,832	3,370	-538	-15.95
75-79	1,347	1,796	2,084	-288	-13.83
80-84	754	960	1,083	-123	-11.33
85+	433	610	615	-5	-0.81

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Table 12.3
Evaluation of 1996-based Projections of Inuit Population
(with Ethnic Mobility Assumption)
by Age and Sex, with the 2001 Adjusted Census Counts, Canada

	1996 Adj. Census Population Counts (A)	Projected 2001 Population (B)	2001 Adj. Census Population Counts (C)	Difference D=B-C (D)	Error of closure % (E)
Male					
Total	21,207	23,318	24,081	-763	-3.17
0-4	3,145	2,694	3,122	-428	-13.70
5-9	2,976	3,080	3,121	-41	-1.31
10-14	2,465	2,942	3,077	-135	-4.39
15-19	2,219	2,439	2,535	-96	-3.80
20-24	1,929	2,192	2,043	149	7.28
25-29	1,960	1,903	1,849	54	2.92
30-34	1,652	1,935	1,934	1	0.06
35-39	1,245	1,627	1,681	-54	-3.18
40-44	943	1,220	1,262	-42	-3.30
45-49	815	916	906	10	1.12
50-54	488	780	831	-51	-6.10
55-59	443	461	532	-71	-13.27
60-64	404	409	387	22	5.71
65-69	244	354	372	-18	-4.94
70-74	138	196	198	-2	-1.01
75-79	95	98	85	13	15.29
80-84	20	55	108	-53	-49.07
85+	27	17	40	-23	-57.50
Female					
Total	20,845	23,159	23,501	-342	-1.46
0-4	3,086	2,659	2,862	-203	-7.10
5-9	3,004	3,065	3,111	-46	-1.47
10-14	2,319	3,000	2,985	15	0.49
15-19	1,974	2,319	2,277	42	1.86
20-24	1,953	1,974	1,899	75	3.94
25-29	1,947	1,953	2,039	-86	-4.21
30-34	1,753	1,935	1,943	-8	-0.41
35-39	1,254	1,729	1,809	-80	-4.42
40-44	835	1,230	1,308	-78	-5.97
45-49	794	812	882	-70	-7.89
50-54	543	770	818	-48	-5.89
55-59	489	518	467	51	10.92
60-64	390	461	420	41	9.66
65-69	224	354	285	69	24.21
70-74	132	197	181	16	8.90
75-79	72	101	100	1	0.73
80-84	45	47	70	-23	-32.86
85+	31	35	45	-10	-22.22
Both Sexes					
Total	42,051	46,477	47,583	-1,106	-2.32
0-4	6,231	5,353	5,984	-631	-10.54
5-9	5,980	6,145	6,232	-87	-1.39
10-14	4,784	5,942	6,063	-121	-1.99
15-19	4,193	4,758	4,812	-54	-1.12
20-24	3,881	4,166	3,942	224	5.67
25-29	3,907	3,856	3,888	-32	-0.82
30-34	3,405	3,870	3,877	-7	-0.17
35-39	2,499	3,356	3,489	-133	-3.82
40-44	1,778	2,450	2,570	-120	-4.66
45-49	1,609	1,728	1,787	-59	-3.32
50-54	1,030	1,550	1,649	-99	-5.99
55-59	933	979	999	-20	-1.96
60-64	793	870	807	63	7.76
65-69	467	708	657	51	7.70
70-74	270	393	379	14	3.72
75-79	167	199	185	14	7.41
80-84	65	102	178	-76	-42.70
85+	58	52	85	-33	-38.82

considerably high, increasing from 214,000 to 306,000. About 92,000 Métis were added over the five years. The growth of the Métis population was also noticed in all age groups except three older cohorts, 70-74, 75-79 and 80+. At the Canada level, the assumption of internal migration was zero, and the assumption of the international migration was assumed to be negligible for the growth of Aboriginal identity groups, hence they cannot be accountable for the growth of the Métis population. The role of increasing life expectancy at birth for explaining the growth of the Métis population over the period 1996-2001 was also found to be insignificant. So, such high growth of the Métis population over the period 1996-2001 could be due to a non-demographic factor, intra-generational ethnic mobility. Before suggesting some thoughts for considering a number for intra-generational mobility, it is worth reviewing some situational and administrative changes which have happened in Canada which might have had some influences on the non-Aboriginal people as well as the Aboriginal identity groups for changing their identities as Métis.

There are numerous factors/events which may raise an individual's consciousness of his/her heritage. Some of these factors are listed below:

- the way in which the question about identity is asked by the Census, as well as through shifts in the individual's attachment to or affiliation with a group;
- 1982-2005 Constitutional changes and crises.

Based on the review of legislative changes related to the Aboriginal people, and increasing awareness among them for their rights, program and services, it appears that the ethnic intra-generational mobility, particularly for Métis, will continue to rise or same in Canada. However, it is difficult to measure precisely for the estimation /projection of Métis population.

Thoughts for the Indirect Estimation of the Intra-generational Ethnic Mobility

For estimation purposes, should we take the number of the error of closure between the 2001 projected population and the adjusted census counts as the crude number of inter-generational mobility? In considering this approach, however, we could assign a minimum level of the error of closure for the Métis population. In order to estimate the minimum level of the error of closure for the Métis, I propose to take the minimum value of the error of closure for the Métis by computing the average of the error of closure between the 2001 projected

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Table 13

**Changes in the Métis Adjusted Census Population by Cohort
of Age Group and Sex between 1996 and 2001, Canada**

	1996 Adj. Census Population Counts	2001 Adj. Census Population Counts	Difference by cohort (D=C-B) (2001 vs 1996 Census)
	(B)	(C)	(D)
Male			
Total	107,138	154,557	47,418
0-4	11,911	13,662	13,662
5-9	11,146	15,470	3,559
10-14	11,057	16,063	4,917
15-19	10,563	14,976	3,920
20-24	9,475	12,919	2,357
25-29	9,069	12,221	2,745
30-34	9,189	11,728	2,660
35-39	8,332	12,993	3,805
40-44	7,068	11,817	3,485
45-49	5,954	9,466	2,398
50-54	4,046	7,749	1,794
55-59	3,312	5,482	1,436
60-64	2,367	3,914	602
65-69	1,550	2,917	551
70-74	1,031	1,567	17
75-79	586	962	-69
80-84	353	421	-165
85+	131	230	-254
Female			
Total	107,069	151,273	44,205
0-4	11,492	12,896	12,896
5-9	10,981	14,479	2,986
10-14	9,999	14,837	3,856
15-19	9,932	14,551	4,552
20-24	9,848	13,056	3,124
25-29	9,600	12,294	2,447
30-34	9,720	12,089	2,489
35-39	9,009	12,754	3,034
40-44	7,287	12,127	3,118
45-49	5,754	9,508	2,220
50-54	3,990	7,292	1,538
55-59	2,878	5,133	1,143
60-64	2,236	3,580	702
65-69	1,687	2,705	469
70-74	1,192	1,803	116
75-79	761	1,122	-70
80-84	401	662	-99
85+	302	385	-317
Both Sexes			
Total	214,207	305,830	91,623
0-4	23,403	26,558	26,558
5-9	22,127	29,948	6,545
10-14	21,056	30,900	8,773
15-19	20,494	29,527	8,472
20-24	19,323	25,975	5,481
25-29	18,669	24,515	5,192
30-34	18,909	23,818	5,149
35-39	17,341	25,748	6,839
40-44	14,355	23,944	6,603
45-49	11,709	18,974	4,619
50-54	8,036	15,040	3,332
55-59	6,190	10,615	2,579
60-64	4,603	7,494	1,304
65-69	3,237	5,623	1,020
70-74	2,223	3,370	132
75-79	1,347	2,084	-139
80-84	754	1,083	-264
85+	433	615	-571

Note: Difference of 85+ equals to population 85+ in 2001 minus population 80 and over in 1996

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population and the adjusted census counts for the North American Indians and Inuit, since they constitute 75% of the total Aboriginal population in Canada. Then, let us deduct the minimum level of the error of closure from the original error of closure for the Métis, and the residual error of closure could be the assumed level of intra-general ethnic mobility for Métis population over the five year period, 1996-2001. This approach could be argued in light of the stability of the phenomenon.

Acknowledgements:

The author appreciates the feedback received from Margaret Michalowski and other team members such as Marie-France Germain and Shirley Loh, Development and Demographic Methods Section, Demography Division, Statistics Canada in developing these projections. I also thank Julie Dussault for providing technical assistance and Ian Kisbee for editorial assistance.

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Appendix Table 1
Total Fertility Rate and Mean Age of Fertility,
Canada, 1921-2000

Year	TFR	Mean Age	Year	TFR	Mean Age	Year	TFR	Mean Age
1921	3.47	29.50	1948	3.43	28.67	1975	1.83	26.71
1922	3.40	29.62	1949	3.44	28.61	1976	1.78	26.74
1923	3.25	29.77	1950	3.44	28.56	1977	1.75	26.77
1924	3.25	29.81	1951	3.49	28.46	1978	1.70	26.83
1925	3.14	29.70	1952	3.61	28.35	1979	1.70	26.93
1926	3.36	30.13	1953	3.69	28.30	1980	1.68	26.96
1927	3.32	30.11	1954	3.81	28.26	1981	1.65	27.07
1928	3.29	30.05	1955	3.81	28.22	1982	1.63	27.11
1929	3.22	29.90	1956	3.84	28.11	1983	1.62	27.22
1930	3.28	29.88	1957	3.91	28.01	1984	1.62	27.35
1931	3.20	29.86	1958	3.87	27.94	1985	1.61	27.45
1932	3.09	29.96	1959	3.93	27.87	1986	1.59	27.54
1933	2.86	29.99	1960	3.91	27.81	1987	1.57	27.64
1934	2.80	30.09	1961	3.86	27.78	1988	1.60	27.71
1935	2.75	30.00	1962	3.78	27.75	1989	1.65	27.73
1936	2.69	29.96	1963	3.69	27.75	1990	1.71	27.79
1937	2.64	29.84	1964	3.52	27.80	1991	1.71	27.81
1938	2.70	29.68	1965	3.16	27.76	1992	1.71	27.92
1939	2.65	29.61	1966	2.82	27.62	1993	1.68	28.01
1940	2.76	29.36	1967	2.60	27.43	1994	1.68	28.08
1941	2.83	29.16	1968	2.46	27.30	1995	1.67	28.17
1942	2.96	29.13	1969	2.41	27.26	1996	1.62	28.35
1943	3.08	29.17	1970	2.34	27.15	1997	1.56	28.50
1944	3.00	29.31	1971	2.13	27.07	1998	1.54	28.55
1945	3.01	29.33	1972	1.96	26.96	1999	1.53	28.69
1946	3.36	29.02	1973	1.88	26.82	2000	1.49	28.83
1947	3.58	28.72	1974	1.83	26.79			

Appendix Graph 1
Total Fertility Rate and Mean Age of Fertility,
Canada, 1921-2000

