PROJECTION OF SCHOOL-AGE
POPULATION FOR ARCTIC AND MACKENZIE
DISTRICTS OF NORTHERN CANADA

BY

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PREFACE

I am grateful to Mr. B. Thorsteinsson, Mr. R. A. Bishop and Mr. W. H. Van Sickle of the Education Division, for having utilized my services to study the population of the North and its trends, and to project the number of school-age children that would be available for schooling by 1970.

I am thankful to other officers and staff of the Education Division for their assistance and co-operation in completing this project. I am also thankful to Mr. D. L. Ralston, Chief, Population Division of the Dominion Bureau of Statistics, Mr. Page, Chief, Vital Statistics Section of the Dominion Bureau of Statistics and Mr. C. I. Fairholm of the Indian Affairs Branch, Department of Citizenship and Immigration, for having supplied me the information that is available with them.

The study has been divided into six sections. The first section will deal with the purpose and scope. The second section will deal with basic data, while the third will explain the methodology. The fourth section will explain the assumptions and the fifth will deal with the projections of population and also the number of school-age children that would be available by 1970. The study will be summarized and conclusions drawn in the last section.

P. S. K. Murty, Ph.D.

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PROJECTION OF SCHOOL-AGE POPULATION FOR ARCTIC AND MACKENZIE DISTRICTS OF NORTHERN CANADA

I. Purpose and Scope

There is little need to emphasize the importance of
future school-age population estimates, particularly in view
of our long-term plan to provide basic elementary education for
all children in Northern Canada. The requirements for construction
of new schools and hostels cannot be gauged rationally, nor can
the facilities for adequate enforcement of the compulsory
education clause of school ordinance be appraised satisfactorily
without considering the possible future availability of eligible
children for schooling.[1]

Estimates of the expected total school-age children
depend primarily on the general population size and structure,
and also a systematic analysis of population trends. Generally,
population trends depend upon three basic factors, namely,
fertility, mortality and migration. Projections of population
and those of school-age children in particular, have practical
utility for planners of education in measuring the magnitude of
needs and resources in relation to goals and policies.

The present study has been designed,

(1) to find out the existing size, structure,
and composition of population in the North
in order to provide a basis for future
projections, and,

(2) to project the general population, and also
the number of school-age children up to 1970.

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[1] Clause 103 (1) of School Ordinance of Northwest Territories
made it obligatory on the part of every parent, guardian or
other person having charge of any child to send such child
to school "from the commencement of the academic year, if he
attains the age of six years on or before the 31st day of
December in that academic year, until the end of that academic
year in which he attains the age of fifteen years, if he
attains such age after the 31st day of December in that academic
year".

For the purpose of this study, children aged 6
to 16 are considered as school-age group. "Northern Canada"
or the "North" means the two administrative districts,
namely, Arctic and Mackenzie Districts.

The population in Northern Canada is composed of
people relating to different racial origins, namely, Indians,
Eskimos and "others" who either belong to European and Asiatic
origins, or half-breed. People other than Indians and Eskimos
have "white" status for the purpose of governmental administration,
and hence they are classified as "others" in this study.

As regards education for children in the North, the
Territorial Government of the Northwest Territories has
responsibility of educating "others", while the Federal
Government has similar responsibility of educating Indians and
Eskimos. However, the Federal Government, through the Department
of Northern Affairs and National Resources, operates schools
in the North, except Public and Separate schools, for all racial
groups, and recovers proportionate costs from the Territorial
Government for educating the children of "others". Therefore,
the size, structure and trend of population of the three main
groups, namely, Indians, Eskimos and "others", have to be studied
with a view to determining the population for a base period by
racial groups, and also to project the total school-age children
up to 1970.

II. Basic Data

The basic data for this study are the population
statistics by age, sex, race and locality (if possible) for
a base period of a more recent date in order to minimize, as
far as possible, the degree of error in the future projections.
The starting date for the projection of this study is taken
as December 31st, 1960.

The 1951 Census of Canada provided, among other things, information on the population of the Northwest Territories by racial origin, while the 1956 Census lacks similar particulars. However, in the 1951 Census it was only the total population for the whole of the N.W.T. that was classified into racial and age groups, but a similar break-down by locality is not available for district or region or area. Owing to the absence of required population statistics in the preceding two censuses, it has become necessary to collect the data from other, but reliable sources.

Available information on the size and structure of Indian population up to the end of 1960, has been collected from the Indian Affairs Branch of the Department of Citizenship and Immigration, while similar information relating to Eskimos has been obtained from a recent study made by the writer for our Welfare Division. The 1959 Census of Indian population, coupled with the subsequent natural increase, and the Eskimo Index of the Welfare Division, provided the necessary authentic and basic statistics for Indians and Eskimos respectively; but, in the case of "others", no such data are available to ascertain the size and structure by age and sex groups, either for the Northwest Territories as a whole, or for each of the administrative districts. In the circumstances, the only other alternative to obtain the required demographic data of "others" is to depend on a realistic estimate.

The Dominion Bureau of Statistics, the Indian and Northern Health Services (Dr. Willis) and the Northern Administration Branch have different population estimates for the N.W.T. While the Dominion Bureau of Statistics estimated the total population of the N.W.T. for 1960 as 22,000,[2] the Indian

[2] Please see Catalogue No. 91-202 (for September 1960) prepared in the Social Analysis Section, Census Division of the Dominion Bureau of Statistics.

and Northern Health Services estimated it as 22,918, and the
Northern Administration Branch estimated a total population
of 23,140 based on reports of the RCMP. It is rather difficult
at this stage to assess the accuracy of these figures. However,
it is evident that DBS, Indian and Northern Health Services,
and the Northern Administration Branch had different bases and
methods in arriving at their estimates, which, for our purpose,
have to be utilized to find out a reasonably reliable figure
of "others" by age groups.

The said estimate of DBS relates to the total population
of all racial groups in the N.W.T. It contains a break-down by
the usual five-year age groups, which is important for this study.
The total population of Indians (4,744) and Eskimos (8,017)
worked out from the data available in Indian Affairs Branch and
Welfare Division has been subtracted from the estimated total
population of all races (22,085). The balance arrived at by
this method, which is 9,324, relates to the population of "others",
as shown below.

Population for N.W.T., 1960

Total population of all races, as

estimated by DBS   22,085

(In some age groups persons numbering
less than 50 were omitted in the
estimate of DBS. Therefore, it seems
appropriate to raise the estimate
from 22,000 to 22,085.)

Total Indian population   4,744

Total Eskimo population   8,017

Total Indian and Eskimo population   12,761

Balance - Total of "others"   9,324

The Indian and Northern Health Services estimated the population of "others" as 9,825, while the Northern Administration Branch estimated it as 9,950 (43% of 23,140). The 1960 population estimate of DBS for N.W.T. is the lowest of all, and if we were to adopt it as the basis for future projections, we might end up with an unrealistic projected population. This phenomenon is evidenced in the total school-age children worked out for 1960. The age structure derived for "others" is shown in Table XXVI and the total school-age population for this racial group in 1960 would have been 1,570 (Table XXV), whereas 1,798 children were actually enrolled in the northern schools during that year.

The estimates of Indian and Northern Health Services and the Northern Administration Branch contain break-down by centre, but not by age groups. The figure of the Northern Administration Branch is higher than that of Indian and Northern Health Services by 125. It has been mentioned in the worksheet of the Northern Administration Branch that since the figures have been estimated in larger centres, they are probably higher than the actual numbers. If the base figure is higher than the actual one, it would also result in unrealistic projections. Therefore, the estimate of the Northern Administration Branch has not been adopted as the basis for future projections.

The figure of Indian and Northern Health Services is the only estimate which, perhaps, is neither too low nor high, and there is no valid ground at this stage to disprove the same. A more realistic figure can be obtained only when the results of the 1961 Census are published, and until then it seems appropriate to adopt this estimate as the basis for projecting future population of "others".

There is yet another problem in determining the
base population of others. It is related to the distribution
by age groups. As already mentioned, if the population of
"others" was 9,324 for 1960, we would have 1,570 school-age
children as against 1,798 actually enrolled in the northern
schools. If the population is taken as 9,825 (as estimated by
the Indian and Northern Health Services) the number of school-
age children for 1960 would have been 1,656, which is still
lower than the actual number enrolled. This unrealistic
situation is mainly attributable to a possible defect in the
distribution of population by age, which means the age-structure
based on the DBS estimate (Table XXVI) needs further examination.
The distribution of Indian and Eskimo population by age shown
in Table XXIV has been arrived at on the basis of authentic
information relating to years of birth, and there is no valid
reason to disturb the same. Therefore, it is possible that the
age distribution of "others", particularly in the school-age
groups, is defective.

It is observed that the number of persons relating
to "others" in the age group 10-14 is only 463 (Table XXVI),
as against 1,084 in the preceding age group 5-9, and 602 in
the succeeding age group 15-19. Of all the age groups up to
age 49, 10-14 has the smallest number and the percentage of
infants and children under 15 is only 31.9% of the population.
This phenomenon is rather questionable under the forty per cent
rule of Dr. W. F. Wertheim.[3] According to this rule, a
population with high fertility and fairly high mortality,
contains a proportion of infants and children under 15 that
represents 40% of that population. In the case of Indians
and Eskimos, the proportion of infants and children under age

[3] W. F. Wertheim, 'The forty per cent test: a useful demographic
technique', Proceedings of the World Population Conference,
Rome 1954, vol. VI, p. 215.

15, represented 42.7% and 46.3% respectively, while Canada
as a whole has a proportion of 33.5% for 1960.[4]

Tables XXVII, XXVIII and XXIX show the relative
births and deaths of Indians, Eskimos and "others" for the
Northwest Territories from 1950 to 1959. During this period,
Eskimos had an average of 344 live births per year, as against
263 for "others" and 154 for Indians. The average number of
deaths per year was 189 for Eskimos, 60 for Indians and 55 for
"others". The average net natural increase representing births
over deaths per year was 208 for "others", 155 for Eskimos and
94 for Indians. The birth rates and mortality rates for the
above period could not be worked out due to lack of information
relating to total population for each year by racial origin.
Nevertheless, it is evident from these particulars that "others"
also have high fertility and fairly high mortality. The vital
statistics published by the Dominion Bureau of Statistics from
1956 to 1958 show that the Northwest Territories as a whole
have the highest age specific fertility rates and mortality
rates.[5] In view of the high fertility and fairly high mortality
which has been prevailing in the Northwest Territories, it is
logical to expect a proportion of infants and children under
age 15 representing 40% of the population, but the population
of "others" seems to have contained a proportion (31.9%) which
is far less than the national average (33.5%). In fact, owing
to the relatively high fertility and mortality rates obtained
in the N.W.T., the proportion of those under 15 to the total
population for each of the racial groups ought to be higher
than the national average. Eskimos and Indians have a

[4]Catalogue No. 91-202 annual (September 1960) issued by the
Social Analysis Section, Census Division of the Dominion
Bureau of Statistics.

[5]Vital Statistics Section, Health and Welfare Division, Dominion
Bureau of Statistics, Vital Statistics, 1956, Pages 93 and 108-09;
1957, Pages 95 and 110-11; 1958, Pages 99 and 116-17.

proportion which is more than the 40% laid down under
Dr. Wertheim's rule, evidently because of their high fertility
and mortality, relative to the rest of Canada.

The possible defect in the age distribution would
have crept into the age group 10-14, because it constitutes
only 5% of the population, as against 11.8% for Indians and 13.5%
for Eskimos. In view of this, it seems appropriate to raise the
proportion of population in the age group 10-14 from 5% to 8.1%,
thus increasing the proportion of persons under 15 from 31.9%
to 35%, as shown below:

Table A

Population of Others, 1960
(by percentages of total)

		Percentage of Total Population		
(1)	(2)	(3)	(4)	(5)
	Based on DBS Estimate %			
Age Group	of the Total Population	Males	Females	Total
0-4	15.3	8.4	6.9	15.3
5-9	11.6	6.1	5.5	11.6
10-14	5.0	4.2	3.9	8.1
15-19	6.5	3.2	3.3	6.5
20-24	7.1	4.8	2.3	7.1
25-29	11.3	6.7	3.6	10.3
30-34	10.1	6.6	2.5	9.1
35-39	8.8	5.8	2.0	7.8
40-44	6.8	3.9	2.9	6.8
45-49	6.0	3.8	2.1	5.9
50-54	4.7	3.2	1.5	4.7
55-59	3.4	2.7	0.7	3.4
60-64	.9	0.6	0.3	0.9
65-69	1.5	1.2	0.3	1.5
70+	1.0	0.6	0.4	1.0
	100	61.8	38.2	100

According to the revised structure shown in
column 5 of the above table, the school-age children of
"others" for 1960 works out to 1,964, as against 1,971 children
enrolled, some of whom would have been over school-age. Since
the number arrived at in the above process, namely 1,964,
relates only to the school-age children, the modified distri-
bution by age indicates a better picture than what was before.

Therefore, the population of "others" for 1960 has been
taken as 9,825 (Table XXXII) with the age and sex distribution
based on the percentages shown in columns 3-5 of Table A. The
population for Indians and Eskimos for 1960 is shown in
Table XXIV, while the break-down for different areas and
regions is shown in Tables I to XXIII.

III. Method of Projection

The method used in this study is the "component"
Projection method, which is most suitable to project the school-
age children in any given population. Separate analysis of the
changes affecting each "cohort"[6] of the population is possible
under this method.

Age-specific fertility rates for all women aged 15
to 49, and mortality rates by age and sex groups, have been
used for the application of this method to calculate the future
survivors at the end of each year.

The average fertility rates, Table XXX, and mortality
rates by sex and age, Table XXXI, for the Northwest Territories
have been calculated from the data published by the Vital Statistics
Section, Health and Welfare Division of DBS.[7] December 31st, 1960,

[6]The term "cohort" is used in a technical sense to denote a group
of persons born during the same period (in this study five-year
period) and who belong to the same age group at any given time.
Please see population studies No. 25 Methods for Population
Projections by Sex and Age, published by the United Nations,
Department of Economics and Social Affairs, New York, 1956, Page 7.

[7]Vital Statistics, 1956,57,58.

has been chosen as the base period and the total population
as of this date has been calculated by age and sex groups -
shown in Table XXXII.[8]

The expected number of child births has been calculated
by multiplying the number of women in the age groups from 15-49
with the age-specific fertility rates. The existing sex ratio, which is
1,000 females for 1,133 males, has been applied to arrive at
an approximate number of male and female children out of the expected
number of births. The expected number of infant deaths have been
deducted from the births, and the number of survivors have been
derived.

The expected number of deaths in each cohort has been
calculated by applying the age-specific death rates. The net
population at the end of each year has been arrived at by
transferring one-fifth of each cohort to the next cohort, and by
adding the survivors of future births to cohort 0-4. Thus,
the population of all races has been projected until 1970.
Based on the projected population, the number of children aged
6-16 has been calculated by the method of pro-rating the
population in the age groups 5-9 and 15-19.

Apart from the fertility and mortality rates mentioned
above, migration is another factor to be considered for projecting
the future population. The following press clipping of the
Ottawa Citizen of March 30th, 1961, relating to immigration into
Canada indicates that there would be a decline in immigration
for the next decade:

[8] Table XXXII shows the total Indian and Eskimo population for
Arctic and Mackenzie Districts, while that of "others" shows for
N.W.T. only. Due to lack of information, the population of
"others" living in Arctic Quebec by age and sex groups for 1960
could not be determined. Hence, in the case of others population
projection has been limited to N.W.T. only. However, since this
study is concerned to project the school-age population, a
suitable estimated number of children relating to "others"
(age 6 to 16) for Arctic Quebec has been added to the projections
for N.W.T.

"Canada's immigration, already waning, is being
set back by distorted accounts in the European
press of the country's economic difficulties, says
Dr. George Davidson, federal deputy minister of
citizenship and immigration. These reports will
probably cause the immigration flow into the
country in the next decade to fall below the level
of the last 10 years, he told the immigration
conference of the social planning council of
Metropolitan Toronto Saturday."

In view of the position explained by the Federal Deputy Minister
of Citizenship and Immigration, it is likely that in the decade
from 1961-70, the number of immigrants into Canada, including
N.W.T. and Yukon, might fall below the level of the last 10
years.

The following table shows the number of children
under 18 years of age who immigrated into the N.W.T. and Yukon
during 1950-59:

Table B

Number of Children under 18 Years of Age
Who Immigrated Into N.W.T. and Yukon, 1950-59

Year	No. of children under 18 years of age	Number of school-age children (6-16 years)
1950	7	4
1951	3	0
1952	14	9
1953	14	9
1954	24	16
1955	15	9
1956	34	20
1957	55	34
1958	23	15
1959	32	17

(Source: Statistics Section, Department of Citizenship &
Immigration)

It is seen from the above table that from 1957 to
1959, there was a sharp decline of 50% in the immigration of
school-age children into N.W.T. and Yukon from other countries.
Of the total immigrants to N.W.T. and Yukon during the last 10
years, the average number of school-age children was 13 per
year. It is not known how many of the 13 children settled down
in N.W.T., but it may be estimated that about 10 children might
have remained in N.W.T.

Besides the above position concerning immigration
into Canada, migration of people from other provinces to the
North has to be considered. The movement of people from south
to the North of Canada depends mainly on the future economic
opportunities arising from mining operations and industrial
development activities. At the present stage, no indicators
are available to estimate the magnitude of mining or industrial
development activities. Even if mining and other operations
are undertaken before 1970, we might expect movement of a large
number of men (without their families) in the initial stages.
Movement of families with school-age children might follow in
the subsequent stages when suitable housing and other facilities
are available. Considering the past experience relating to
children transferred on account of migration from provinces, it
appears only seven children were gained by N.W.T. and Yukon from
1958 to 1960.[9]

As for the Arctic Quebec, no data are available on
the migration either from other countries or other provinces in

[9]The Elementary and Secondary Education Section, Education
Division of DBS prepared a table showing the net number of
children who were transferred in and out of provinces during
1948-60. This table was based on the monthly reports on
family allowance statistics, Treasury Office, Department of
National Health and Welfare. Separate figures for N.W.T. and
Yukon are not available in this table.

Canada. Since this study covers Arctic and Mackenzie Districts, it may perhaps be estimated that owing to the possible general decline in the future immigration, about 10 school-age children per year might migrate into the North. As the number is negligible, migration seems to have very little impact on the projections of future school-age children. Hence, the factor of migration has been left aside in this study and fertility and mortality alone have been taken into consideration.

IV. Assumptions

The basic assumptions of this study are as follows:

1. That mortality and fertility would remain at the level of average for a three-year period, namely, 1956, 1957 and 1958.

2. That the existing sex ratio of 1,000 females for every 1,133 males would continue to exist for the period of projection.

3. That infant mortality rates would have a slight reduction due to the general improved conditions particularly those of medical and housing facilities.

4. That mining and industrial development activities would not necessitate large scale movement of families with school-age children.

5. That migration of school-age children from other countries and provinces of Canada into Arctic and Mackenzie Districts would be negligible and would not exceed ten children per year.

6. That there would be no large scale movement of Indians or Eskimos or others from Northern Canada to southern Canada.

7. That there will be no war or catastrophy and
   that peaceful conditions would prevail over
   the period of projections.

The population projections of this study are based
on the above assumptions.

V. Projection of Population

As already mentioned, the base population as of
December 31st, 1960, represents the total of Indians and
Eskimos for Arctic and Mackenzie Districts, and also the total
of "others" for the Northwest Territories only. This base
population has been projected until 1970 (December 31st) by
the component projection method explained already. Tables
XXXIII and XXXIV show the projected total population for each
cohort for 1961-65, and 1966-70, respectively. The projected
school-age population is shown in Tables XXXXI and XXXXII.
The annual average net increase in the population of all
races over the projected period is 2.25%. On the average,
the school-age children would constitute 25.6% of the projected
population of all races, as shown below.

Table C

Projected Population of All Races and School-Age Children
1961-70

Year	Total Population	Net Increase In Growth Of Population (Base Period)	Percentage Of Increase	School-Age Children	Percentage Of Total Population
1960	25,700			6,341	24.7
1961	26,251	551	2.14	6,669	25.4
1962	26,816	565	2.15	6,887	25.6
1963	27,412	596	2.22	7,085	25.8
1964	28,024	612	2.23	7,247	25.8
1965	28,664	640	2.28	7,441	25.9

Year	Total Population	Net Increase In Growth Of Population (Base Period)	Percentage Of Increase	School-Age Children	Percentage Of Total Population
1966	29,331	667	2.33	7,603	25.9
1967	30,005	674	2.30	7,759	25.8
1968	30,690	685	2.28	7,919	25.8
1969	31,394	704	2.30	8,059	25.6
1970	32,125	731	2.32	8,216	25.5

ANNUAL AVERAGE 2.25   ANNUAL AVERAGE 25.6

Besides the above over-all projection, an attempt has also been made to provide a break-down for the three main racial groups, Indians Eskimos and "others".

(1) Indians

The base population has been projected separately in Tables XXXV and XXXVI for 1961-65 and 1966-70, respectively. The projection of school-age children for these periods is shown in Tables XXXXIII and XXXXIV. On average, the net natural increase of Indian population over the projected period is 2.51%, and the school-age population would constitute 26.5% of the total projected population, as shown in Table D.

Table D

Projected Indian Population and School-Age Children, 1961-70

Year	Total Population	Net Increase In Growth Of Population	Percentage Of Increase	School-Age Children	Percentage Of Total Population
1960	5,124			1,315	25.7
1961	5,238	114	2.22	1,375	26.2
1962	5,359	121	2.31	1,422	26.5
1963	5,486	127	2.36	1,463	26.6
1964	5,618	132	2.40	1,504	26.7
1965	5,761	143	2.54	1,541	26.7

Year	Total Population	Net Increase In Growth Of Population	Percentage Of Increase	School-Age Children	Percentage Of Total Population
1966	5,911	150	2.60	1,581	26.7
1967	6,065	154	2.60	1,618	26.6
1968	6,227	162	2.67	1,658	26.6
1969	6,396	169	2.71	1,700	26.6
1970	6,570	174	2.72	1,739	26.4

ANNUAL AVERAGE 2.51   ANNUAL AVERAGE 26.5

(ii) Eskimos

The projected Eskimo population from 1961-65 and 1966-70 for each year is shown in Tables XXXVII and XXXVIII respectively. The school-age population is shown in Tables XXXV and XXXVI. The average net natural increase of the Eskimo population over the projected period is 2.42%. The school-age children would constitute 27.8% of the total projected population of each year, as shown in Table E.

Table E

Projected Eskimo Population and School-Age Children, 1961-70

Year	Total Population	Net Increase In Growth Of Population	Percentage Of Increase	School-Age Children	Percentage Of Total Population
1960	10,751			3,062	28.5
1961	10,987	236	2.19	3,171	28.8
1962	11,243	256	2.33	3,237	28.8
1963	11,517	274	2.43	3,292	28.6
1964	11,799	282	2.44	3,341	28.3
1965	12,090	291	2.46	3,381	27.9
1966	12,380	290	2.40	3,434	27.7
1967	12,682	302	2.43	3,477	27.4
1968	13,002	320	2.52	3,523	27.1
1969	13,331	329	2.53	3,574	26.8

Year	Total Population	Net Increase In Growth Of Population	Percentage Of Increase	School-Age Children	Percentage Of Total Population
1970	13,671	340	2.55	3,626	26.5

ANNUAL AVERAGE 2.42   ANNUAL AVERAGE 27.8

(iii) "Others"

Tables XXXIX and XXXX show the projected population for 1961-65 and 1966-70, respectively. The school-age population for this period is shown in Tables XXXXVII and XXXXVIII. On average, the net natural increase of "others" over the projected period works out to 1.91% (Table F). The total school-age children would constitute, on average, 22.7% of the total projected population. The natural growth for "others" is the lowest of all racial groups in the North. This is mainly attributable to the large number of males without their families that constitute the population of "others". This phenomenon dwarfed the percentage of natural increase to a little less than 2%. The percentage of school-age children of "others" in relation to the total population is also the lowest (22.7%) for the same reason.

Table F

Projected Population of "Others" and School-Age Children, 1961-70

Year	Total Population	Net Increase In Growth Of Population	Percentage Of Increase	School-Age Children	Percentage Of Total Population
1960	9,825			1,964	19.9
1961	10,026	201	2.04	2,123	21.1
1962	10,214	188	1.87	2,228	22.2
1963	10,409	195	1.90	2,330	22.4
1964	10,607	198	1.90	2,402	22.6
1965	10,813	206	1.94	2,519	23.3
1966	11,040	227	2.09	2,588	23.4
1967	11,258	218	1.97	2,664	23.6

Year	Total Population	Net Increase In Growth Of Population	Percentage Of Increase	School-Age Children	Percentage Of Total Population
1968	11,461	203	1.80	2,738	23.8
1969	11,667	206	1.80	2,785	23.8
1970	11,884	217	1.86	2,851	23.9

ANNUAL AVERAGE 1.91   ANNUAL AVERAGE 22.7

VI. Summary and Conclusions

The main purpose of this study is to find out the
existing size, structure and composition of the total population
in the North, with a view to projecting the future general
population and the expected number of school children that would
be available for schooling from 1961-70. For this study, as in
all educational programs of the North, people have been classi-
fied into three main racial groups, namely, Indians, Eskimos
and all "others".[10] The base population, up to the end of
1960, has been determined for these three main racial groups.

Although data on the population of Indians and
Eskimos is available regarding the size, structure and composition,
no such data are available for "others". The only course open
to determine the base population of "others" is to depend upon
a reasonable recent estimate. The Dominion Bureau of Statistics,
Indian and Northern Health Services, and the Northern Administra-
tion Branch, have different estimates. Of these three estimates,
the estimate of the Indian and Northern Health Services has been
adopted, as it is found reasonable. The age-sex structure
obtained from the DBS estimate has been modified suitably to
conform to demographic standards, and the distribution for the

[10]Although all "others" are composed of European and Asiatic
origins, besides those of half-breed, they all possess "white"
status for governmental administration, and hence, they are
treated as one racial group for our study.

Indian and Northern Health Services estimate has been worked out by age and sex groups. Thus, the base population of "others" for 1960 (December 31st) has been calculated.

After determining the base population of Indians, Eskimos and "others" for 1960 (December 31st) the component projection method has been applied, making use of the available fertility rates and the age-specific death rates, leaving aside the factor of migration for the following reasons.

Generally speaking, the factor of migration has very little effect on the expected future school-age children of the North, in view of the prevailing tendency of migration of more men than of families with children of school-age group. However, exceptions for this tendency do exist. Past experience for the last ten years (1950-59) revealed that on the average, not more than 13 children of school age migrated into the N.W.T. and Yukon every year. Since 1957, the number of immigrant school-age children into the N.W.T. and Yukon declined by 50%. There are also possibilities for a fall in immigration into Canada from other countries during the next decade. In view of the aforesaid, it can be estimated that about 10 children might migrate every year to the Arctic and Mackenzie Districts in the next decade, either from other countries or provinces of Canada. This is only an estimate based on past experience and the present declining trend of immigration into Canada. Therefore, it appears that the net effect of migration on the future school-age population would be negligible. Hence, the factor of migration has been left aside in the process of estimating the future school-age children.

The projections revealed that on the average, the over-all net increase in the population of all races is 2.25% per year (Tables XXXIII and XXXIV) and each year's expected

school-age children would constitute 25.6% of the projected population (Tables XXXXI and XXXXII).

The average annual net increase in population is 2.5% for Indians (Tables XXXV and XXXVI), 2.42% for Eskimos (Tables XXXVII and XXXVIII) and a little less than 2% for "others" (Tables XXXIX and XXXX). Due to the large number of single males, or married males without families, that constitute the population of "others", the percentage of net natural growth has been dwarfed to a great extent, although the actual natural increase (births over deaths) is not the lowest of all races. The future school-age children in relation to the projected total population of each racial group over the projected period (1961-70), is shown below.

Table G

Average Percentage of School-Age Children to the Total Population

Racial Group	Projected Percentage of Each Racial Group
Indians	26.5% (Tables XXXXIII and XXXXIV)
Eskimos	27.8% (Tables XXXXV and XXXXVI)
Others	22.7% (Tables XXXXVII and XXXXVIII)
All racial groups	25.6%

It may be mentioned in this connection that projections are only guides to action, and they contain an element of uncertainty which cannot be overcome, no matter how abundant the statistical material might be. It is true that better statistics would undoubtedly make better estimates possible, but it is only to be expected that actual future population trends would differ, at least to a minor degree, from those estimated in a projection.

The difficulty in obtaining a reliable base population for "others" has been overcome by adopting an estimate. Therefore,

it has to be remembered that the base population of "others"
is itself an estimate, and there was no other option except to
adopt this procedure. Limitations for this study exist on
account of the nonavailability of the required data relating
to base population.

As limitations inherent in even the best possible
projection can largely be overcome by a constant review of the
projections, these projections have to be reviewed whenever
new information is received on the size of the population by
racial origin, composition by sex and age, or the rates of
mortality, fertility and migration. Therefore, a follow-up
program for this study, as in the case of any similar study,
is necessary. In the present case, the 1961 Census and its
analysis might make some additional information available, and
projections in this study have to be reviewed in the light of
new information that might have an impact on the data utilized
in this study.

In spite of the limitations of this study, it is
hoped that an attempt has been made to provide a careful
appraisal of the available statistics, even though they are
fragmentary, in order to arrive at future estimates that will
have practical utility for planners. Thus, a foundation has
been laid for future research in regard to educational programs
of the North.

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