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FOCUS ON CANADA

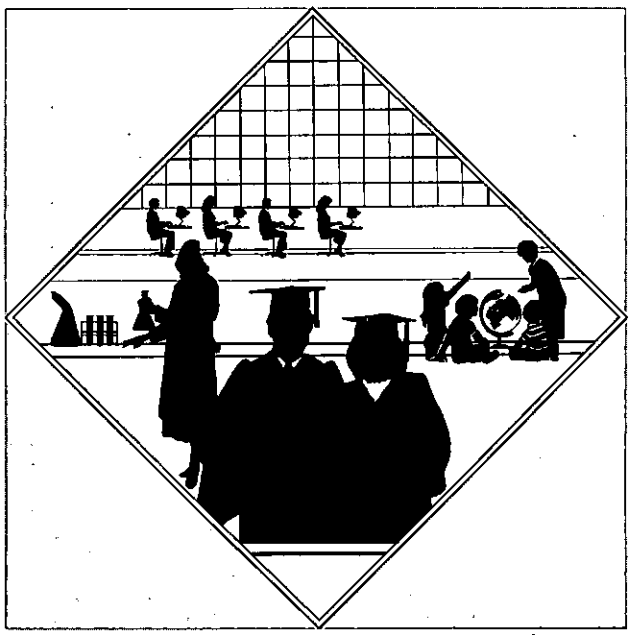
Catalogue 98-134

EDUCATIONAL ATTAINMENT OF CANADIANS

Canada

1986 Census of Canada

EDUCATIONAL ATTAINMENT OF CANADIANS



by G.A. Mori and B. Burke

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PREFACE

The 1986 Census of Canada provided, as did all the previous censuses, a rich source of information on individual, family and household characteristics of Canadians. The census data allow individual researchers as well as academic, business, cultural, social and governmental organizations to undertake in-depth enquiries and analyses on those social issues which interest and concern them.

This study is part of the 1986 Focus on Canada Series. The series is a modest effort by Statistics Canada to provide overviews of a wide variety of subjects on which the 1986 Census collected information. The studies have been written by experts, both inside and outside Statistics Canada, in non-technical language supported by simple tables and attractive charts. The topics include demographic characteristics (population, families, farmers, youth, seniors, the disabled), socio-cultural characteristics (ethnicity, language, education), and economic characteristics (women in the labour force, affordability of housing, occupational trends, employment income, family income).

The present study on "Educational Attainment of Canadians" was authored by G.A. Mori and B. Burke of the Housing, Family and Social Statistics Division in Statistics Canada.

I would like to express my appreciation to the authors, to the reviewers and to the staff of the Bureau involved in managing and producing this series.

We hope that the studies in the Focus on Canada Series will not only provide Canadians with very useful information on various facets of Canadian society, but will also be an inducement for them to undertake further research on the topics.

Ivan P. Fellegi
Chief Statistician of Canada

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HIGHLIGHTS

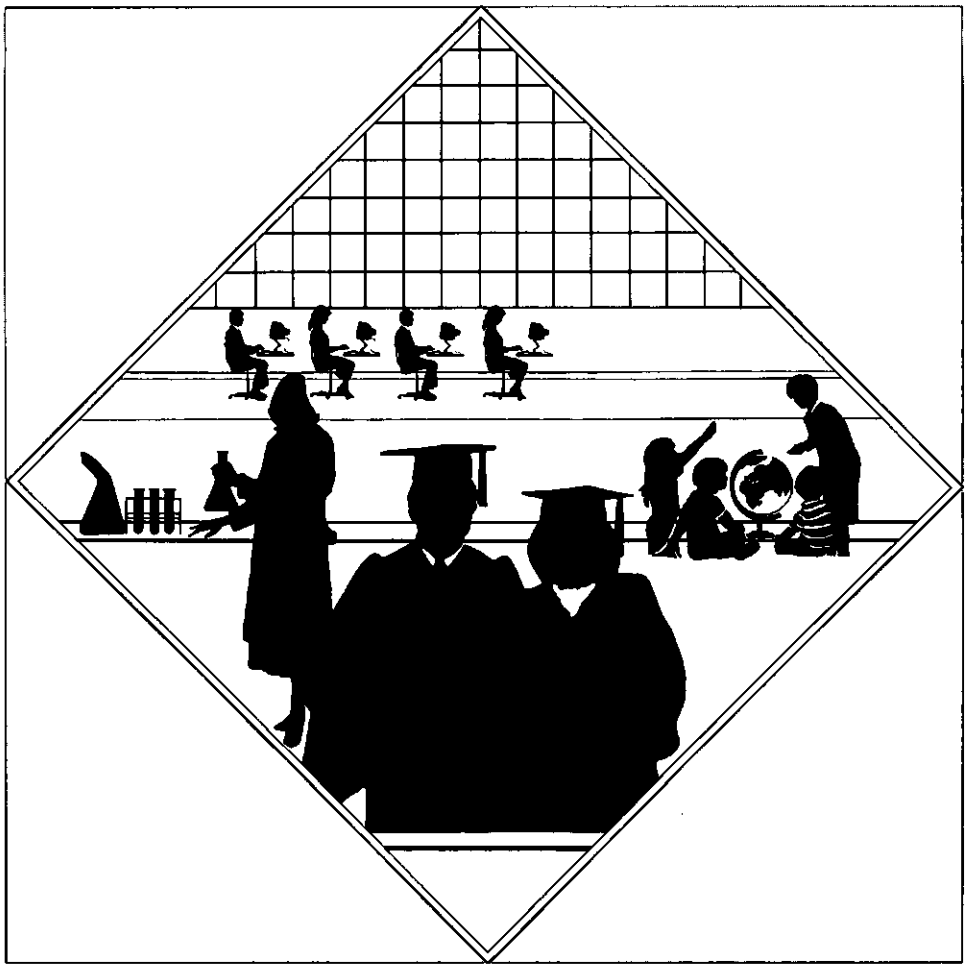
- 1986 Census data indicate that there were 1.9 million Canadians with a university degree, compared to 350,000 in 1961.
- The proportion of the population with less than Grade 9 schooling declined from 44% in 1961 to 18% in 1986.
- The typical Canadian had 12.2 median years of schooling, an increase of 1.6 years since 1971.
- Over five million Canadians in 1986 had participated in trades or college level training, and over four million possessed a trades or college certificate.
- Immigrants to Canada generally had higher levels of schooling than the Canadian-born population.
- The school age population is in a period of slow decline; at the same time the baby boom generation is now becoming middle-aged.
- Enrolment rates, between 1981 and 1986, however, are increasing for the postsecondary school age population.
- Fields of study of trades and college graduates that tended to be dominated by males were plumbing, air conditioning and refrigeration, and construction electrician.
- Fields of study of trades and college graduates that tended to be female dominated were legal secretary, medical secretary and general secretary.
- Fields of study of male trades and college graduates that exhibited positive economic performance were police, para-legal and correctional technology, and tool and die.
- Similarly, for female trades and college graduates, the top fields of study for positive economic performance were x-ray technology and air transportation.
- The top fields of study for male bachelor's degree graduates were chemical and biological engineering, rehabilitation medicine and geological engineering.
- The top fields of study for female bachelor's degree graduates were pharmacy and pharmaceutical sciences, applied mathematics and computer science, electrical/electronic engineering, mechanical engineering and mathematics.

INTRODUCTION

This 1986 Census study concentrates on the educational attainment levels of the Canadian population. In particular, it looks at how much education Canadians have currently attained and how these levels have changed over the past quarter of a century. The report then presents an overview of various facets of Canadian education, such as regional variations, selected educational indicators such as median years of schooling, high school certification rates and levels of schooling of the immigrant population. Census education information is used in a wide variety of settings. For example, local or municipal school boards use census data to plan for new schools or particular types of programs. Similarly, provincial and federal departments use the data to monitor new and on-going initiatives. The data are also being used more and more in applications such as marketing and opinion polling. In addition, the 1986 Census data allow for analyses of the importance and the demand for various fields of education in a changing technological world. One of the more practical applications of the 1986 Census education data is to provide high school students, as well as those currently enrolled in university, college and trade programs with new information on what kinds of fields of study were likely to have been good and not so good economic performers in Canada during 1985-1986. The report thus ends with a presentation of these new data on the major field of study or training of postsecondary graduates viewed in the light of economic indicators such as unemployment rates, labour force participation rates and average 1985 employment income.

1

CHANGES IN LEVELS OF EDUCATIONAL ATTAINMENT, 1961-1986



CHANGES IN LEVELS OF EDUCATIONAL ATTAINMENT, 1961-1986

The educational attainment levels of the Canadian population have reached historical heights, according to the 1986 Census of Canada. This is most evident in the increased number of persons with university degrees. In 1986 there were 1.9 million persons who had earned a university degree - this represented almost one in ten Canadians 15 years and over (see Chart 1). By contrast, in 1961, a quarter of a century earlier, there were only 350,000 persons with university degrees, representing just one in every 33 persons 15 years and over. Between 1961 and 1986, the population aged 15 and over in Canada grew by 63%; at the same time, the number of university graduates grew by 432% or nearly seven times the rate of population growth.

A second area where growth is evident is in other postsecondary institutions such as community colleges, CEGEPs in Quebec, and institutes of technology. Over 5 million Canadians had participated at this level of education in 1986, compared with approximately only one million in 1961. Again, the growth rate in this category was well above the increase in the overall population. The growth in the upper levels of the educational continuum was matched by clear-cut declines in the population at lower levels of education. In 1961, there were 5.3 million persons with less than Grade 9 education, representing 44% of the population aged 15 and over. By 1986, there were 3.5 million persons in this category and the proportion had shrunk to less than 18%. Another indication of the diminishing size of

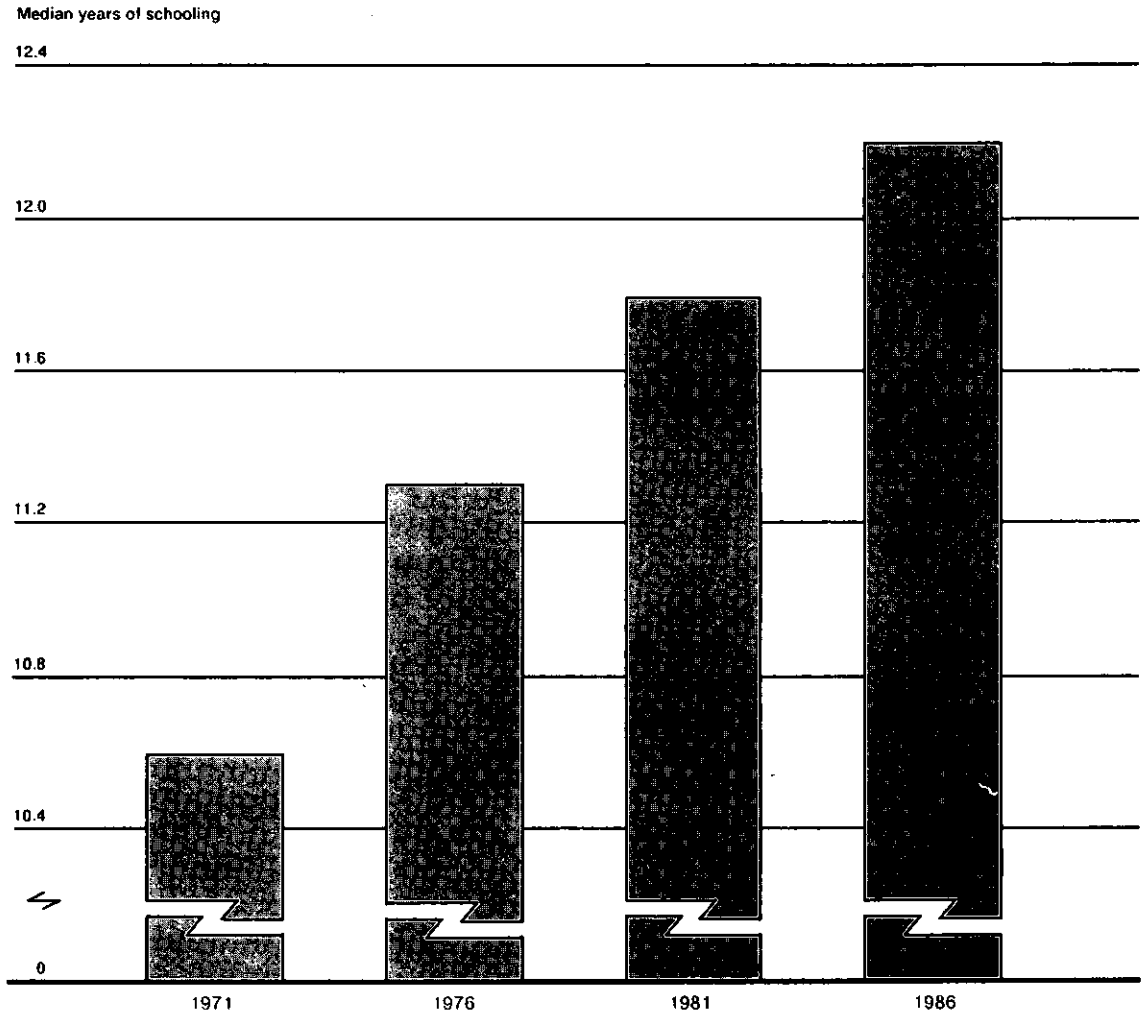
Chart 1. **Educational Attainment in Canada, 1961-1986**

Source:
1986 Census of Canada, Catalogue No. 93-110.

the relatively undereducated population is the proportion of these persons in younger age groups. For example, in the population aged 25-44 the proportion with less than Grade 9 schooling was 8%, and in the 20-24 age group, it was only 4%.

Another measure of the degree to which Canadians are attaining higher levels of education is median years of schooling, that is the point at which exactly one half of the population lies above and the other half below the median value. Seen in this light, the median years of schooling of the Canadian population increased by seven-tenths of a year over the five-year period between 1971 and 1976. From 1976 to 1981, it increased by five-tenths of a year, and between 1981 and 1986, the median years of schooling increased by four-tenths of a year. So, although Canadians now have more schooling than in years past, there are some indications that the pace of growth is slowing down somewhat.

Chart 2. **Median Years of Schooling, Canada, 1971-1986**



Source:
1986 Census of Canada, unpublished data.

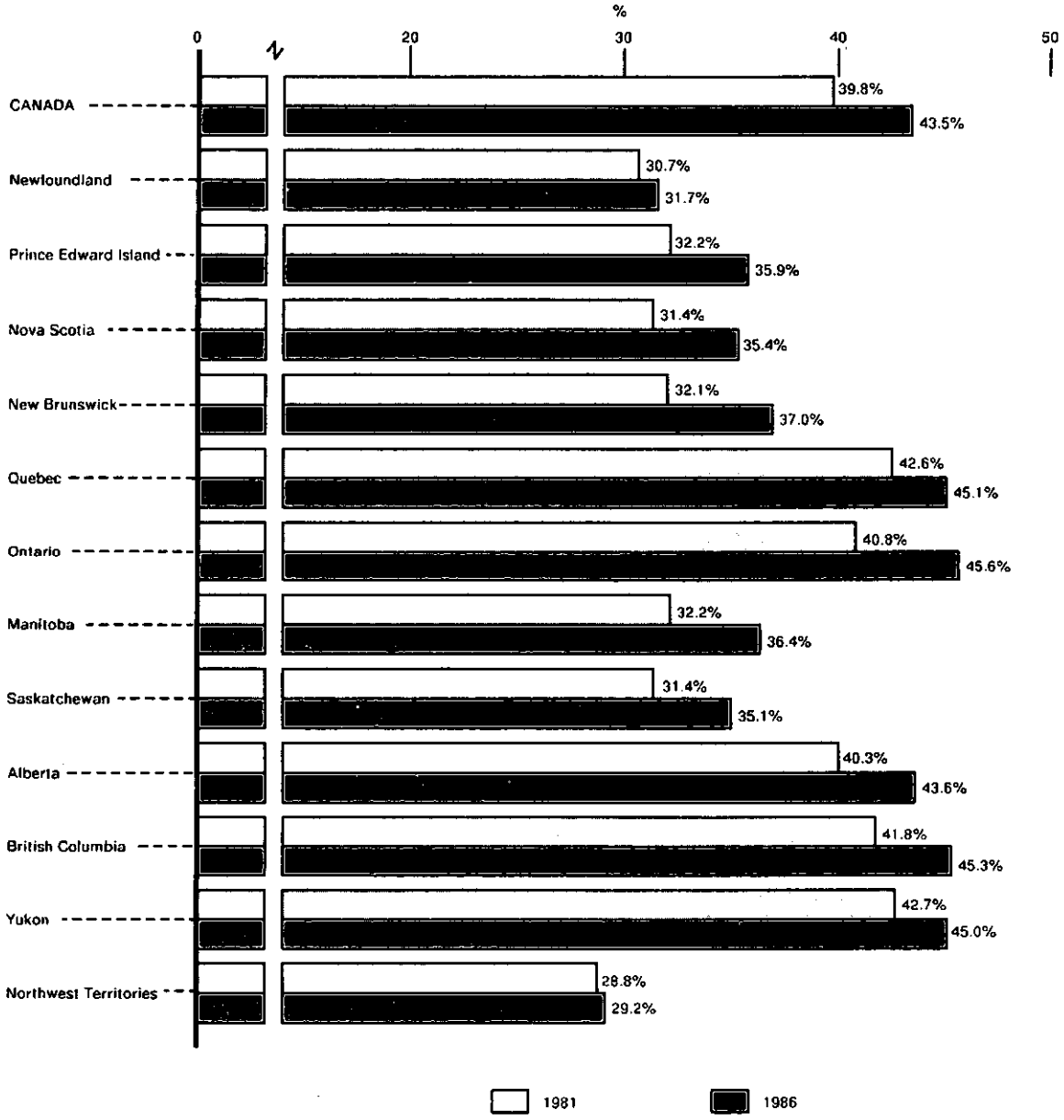
2

REGIONAL VARIATIONS IN SCHOOLING

This pattern of slowing growth in schooling levels is very noticeable when provincial and territorial schooling data are examined. For example, Alberta, British Columbia and the Yukon experienced a very marginal one-tenth of a median year of schooling increase between 1981-1986. These also happened to be the provinces and territories with the highest median years of schooling in Canada. But the two regions in Canada with the lowest median years of schooling - Newfoundland and the Northwest Territories - were among the regions with the largest increases over the entire 1971-1986 period. The Northwest Territories gained 1.8 years over that span, while Newfoundland gained by 1.5 years. The greatest gains, however, were experienced by the population of Quebec, which added 2.0 full years during that time span. The average gain for all of Canada was 1.6 years.

Another measure that shows how much educational attainment varies across Canada's regions is the proportion of high school graduates in the population. Chart 3 indicates these variations for 1981 and 1986. On the whole, almost 40% of Canada's adult population in 1981 and 43.5% in 1986 were secondary school graduates. In 1986, this figure varied from a low of 29.2% in the Northwest Territories to a high of 45.6% in Ontario. Also between 1981 and 1986, both the Northwest Territories and Newfoundland, the regions with the lowest percentage of secondary school graduates, exhibited the smallest percentage point increase in high school graduates between 1981 and 1986. Newfoundland increased by 1.0 percentage point between 1981 and 1986, and the Northwest Territories by only four-tenths of a percentage point. (These data appear to be at odds with results discussed earlier, but the two sets of schooling measures concentrate at different levels of education.) New Brunswick, at 4.9 had the largest percentage point increase in secondary school graduates of all of Canada's regions. Ontario was a close second with a 4.8 percentage point increase.

Chart 3. **Percentage of the Population 20 Years and Over With Secondary School Graduation Certificate, Canada, Provinces and Territories, 1981 and 1986**

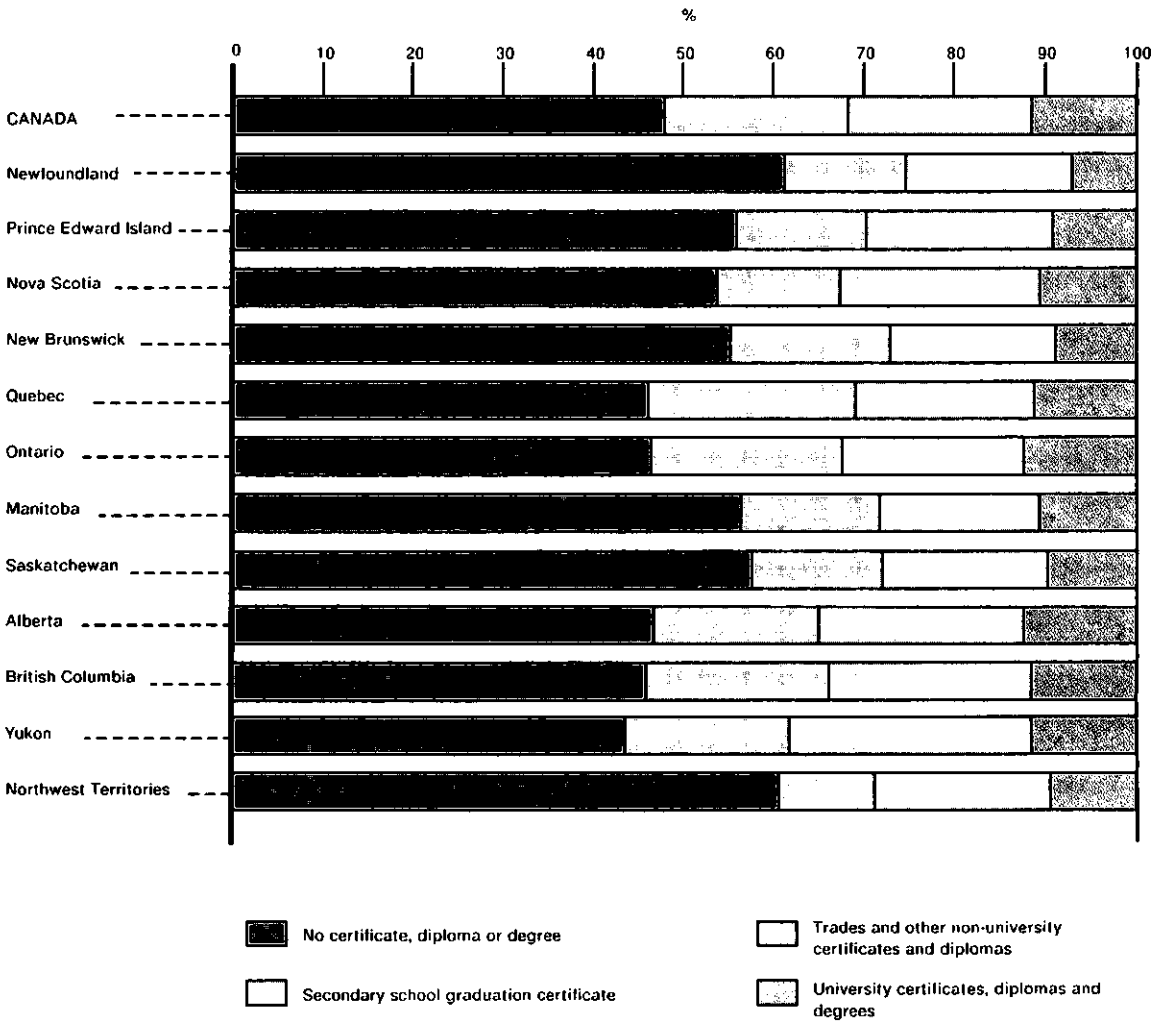


Source:
1981 and 1986 Censuses of Canada, unpublished data.

A more complete picture of regional variations in schooling can be seen in the distribution of educational qualifications of the population. Chart 4 gives an overview of the proportions of the provincial and territorial populations who have earned secondary graduation certificates, trades and other non-university certificates and university certificates and degrees. Probably the most significant piece of information here is that more than half (52%) of the Canadian population had at least one educational qualification. This varied from a low of 40% in Newfoundland and the Northwest Territories to highs of 53%-57% in the Yukon, British Columbia, Quebec, Ontario and Alberta. For Canada as a whole, almost one-third of the population (32%) have earned a postsecondary degree, certificate or diploma. Again, this varied from a low of 26% in Newfoundland to a high of 39% in the Yukon.

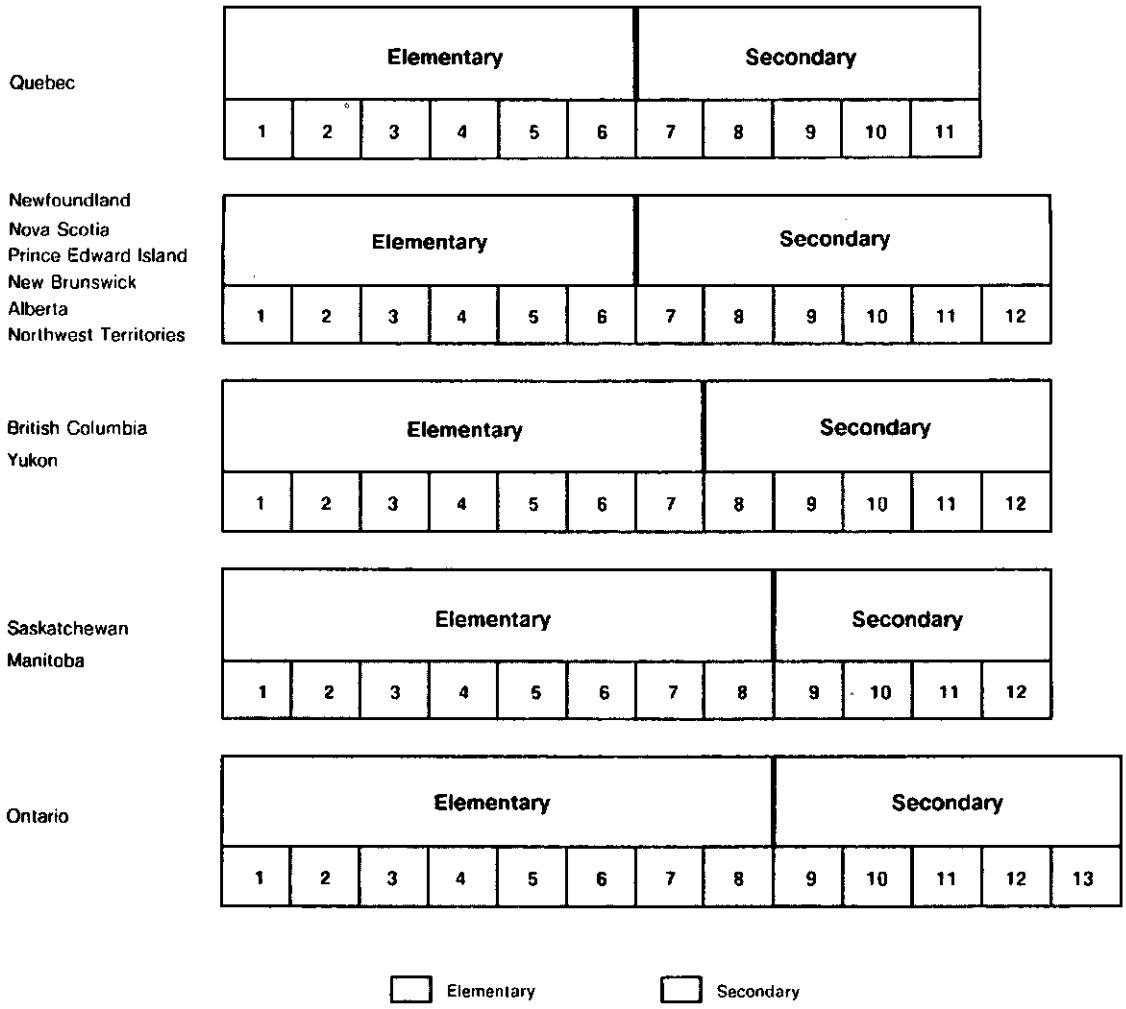
In assessing these provincial and territorial variations, it is important to bear in mind two significant factors. The first is that each province and territory of Canada essentially has its own educational system (as mandated under the Constitution Act of 1982). Canada, therefore, has ten provincial and two territorial educational systems. These differing systems and structures of education are summarized in Chart 5. This chart reflects the state of educational systems in Canada as of 1985-1986. Probably the most important consequence of these differing systems of education is the total number of years a student would normally require to graduate from secondary school. This varies from a minimum of 11 years in Quebec to a maximum of 13 years in Ontario (not counting kindergarten). In past years, Newfoundland's education system was based on an 11 year elementary-secondary maximum, while British Columbia's was based on 13 years. These variations in provincial education systems might therefore be related to the fact that Ontario's and British Columbia's levels of educational attainment are the highest in Canada, while that of Newfoundland's is the lowest. At the same time, Quebec's 11 year elementary-secondary structure does not appear to have affected the levels of its population with secondary school graduation.

Chart 4. **Population 15 Years and Over by Highest Degree, Certificate or Diploma Earned, Canada, Provinces and Territories, 1986**



Source:
1986 Census of Canada, Catalogue No. 93-110.

Chart 5. Levels Within Elementary-secondary Schools, Provinces and Territories, 1986



[1] In Quebec, the elementary level includes Grades 1 to 6 and the secondary level, Grades 7 to 11. It is possible to have a transitional year of study between the two for pupils who have completed Grade 6 but do not have the necessary preparation for the secondary level.
[2] There is a compulsory year before Grade 1 in Nova Scotia. It is classified as pre-elementary, though it is an integral part of the elementary system.

Source:
Education in Canada: A Statistical Review for 1985-1986, Statistics Canada, Catalogue No. 81-229.

The second important factor to consider in assessing regional educational variations is the respective age structure of the population, and specifically that portion of the population which most affects the region's educational stock - the population aged 15 to 24 years. It is within this age group that the vast majority of Canadians obtain their ultimate or highest educational qualification, with the exception of a small but growing number of adults 25 years and over, who either pursue post-graduate studies or who continue their studies after a lapse of several years through correspondence or night school courses and the like. Table 1 indicates the regional variations in the proportion of the 15-24-year age group as a percentage of the total population 15 years and over, for the last four censuses. There has clearly been a sharp fall-off between 1981 and 1986 in the proportion of the younger age group in all regions of the country. This is of course consistent with the overall "aging" trend in the Canadian population. This means that in 1986 there were significantly fewer persons available as potential students in the 15-24-year age group compared to previous years.

Table 1. **Population 15-24 Years as a Percentage of the Total Population 15 Years and Over, Canada, Provinces and Territories, 1971-1986**

	1971	1976	1981	1986
		%		
Canada	26.5	26.4	24.9	21.2
Newfoundland	31.9	31.2	28.7	26.2
Prince Edward Island	27.6	27.2	25.8	23.0
Nova Scotia	27.1	27.0	25.5	22.6
New Brunswick	29.3	28.7	26.4	22.9
Quebec	27.7	27.2	25.3	20.7
Ontario	25.3	25.3	23.9	21.0
Manitoba	26.0	25.9	24.4	21.6
Saskatchewan	25.6	26.8	25.5	22.2
Alberta	27.4	28.7	28.5	22.8
British Columbia	24.6	24.7	23.0	19.3
Yukon	27.5	29.5	26.9	22.3
Northwest Territories	32.1	33.1	32.7	29.9

Source:
1971, 1976, 1981 and 1986 Censuses of Canada.

3

AGE AND EDUCATIONAL ATTAINMENT OF IMMIGRANTS AND NON-IMMIGRANTS

This demographic picture can be viewed from a wider perspective if we look at the way in which the age structure of Canada's younger population (under age 25) has evolved over the past quarter of a century (see Chart 6). The total 0-24 year population in Canada reached a peak at or near 1971 and has been declining ever since. The 9.6 million persons in this age group in 1986 is some 200,000 persons fewer than in 1966. More significant than the actual total numbers is the mix of age groups within the total. For example, in 1961 the most predominant five-year age group in the 0-24 year population was the 0-4 age group, numbering 2.3 million and accounting for 26% of the 0-24 age group. The smallest group in 1961 was the 20-24-year olds numbering 1.2 million representing half of the proportion of the 0-4 year group. By 1981, the 20-24-year olds had more than doubled and were now the predominant group. Over the years, the number of persons in the 20-24 age group has largely determined the size of the postsecondary school population. Given these observed population trends, it is likely that the traditional postsecondary pool will become increasingly smaller in the 1990s. For example, by 1991, current projections show that the 20-24 age group will decline by about 300,000 persons; already the 15-19 age group had declined by almost 400,000 persons between 1981 and 1986. These population trends signify important changes, and their impacts are being felt at most levels of the educational systems.

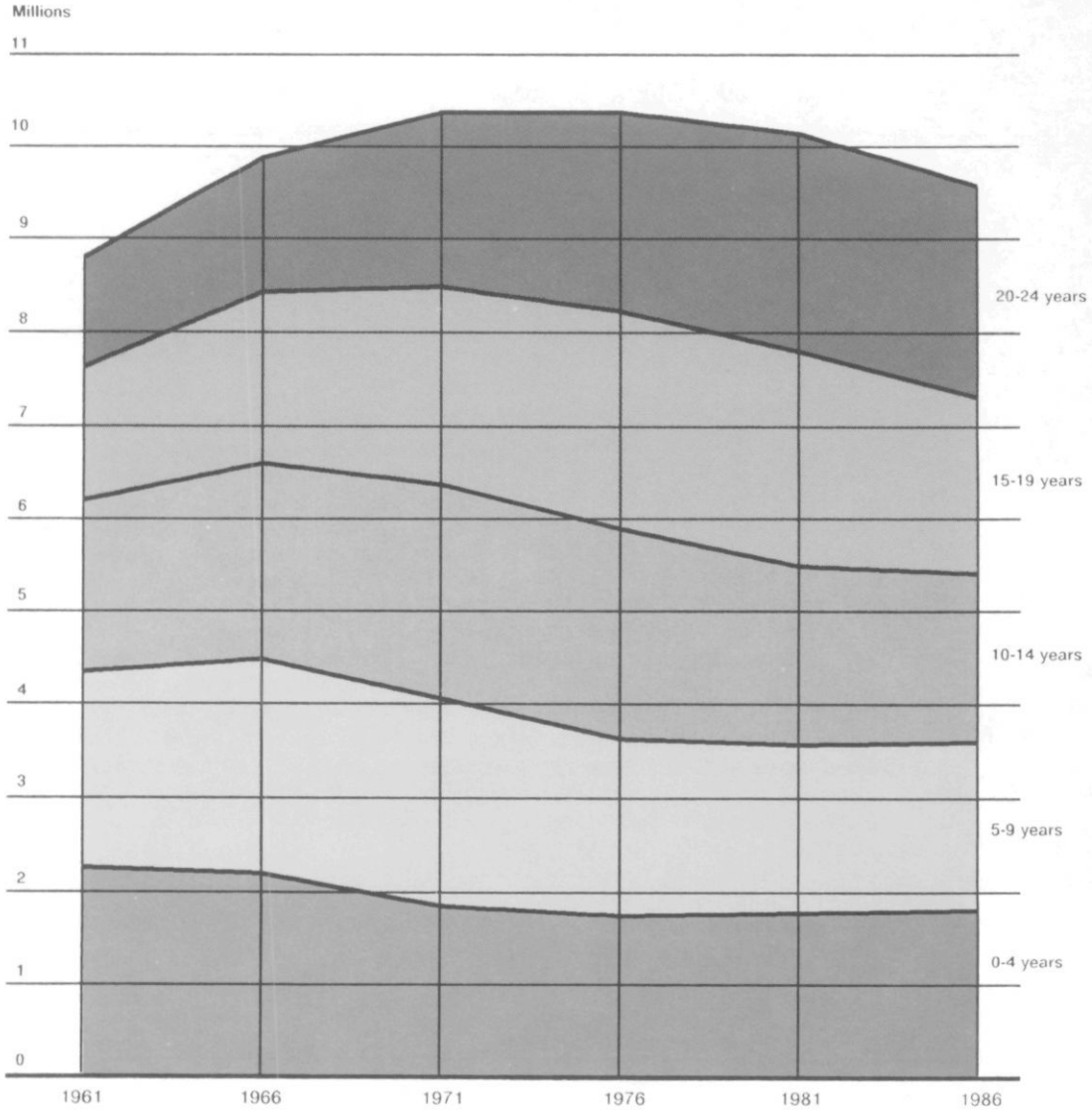
In addition to considering the age structure of Canada's population, it is interesting to compare the schooling levels of the Canadian-born population compared with the immigrant population. Summary data in Table 2 show that immigrants to Canada have either a higher or equivalent level of schooling than non-immigrants. Persons who immigrated to Canada at a very young age (i.e. 0-9 years) generally have higher median years of schooling than those who were slightly older at the time of immigration. Immigrants who were 15-19 years when they arrived in Canada had lower levels of schooling than those who were either five to ten years younger or older. Immigrants who arrived in Canada between the ages 25-34 and who were 30-39 years in 1986 had the highest levels of schooling of the total immigrant subgroup.

Table 2. **Non-immigrant and Immigrant Population 20 Years and Over by Sex, Showing Median Years of Schooling for Selected Age Groups, Canada, 1986**

Immigration status by sex		Median years of schooling by age groups: Total age 20 years and over	20-24 years	25-29 years	30-34 years	35-39 years	40 years and over
Non-immigrant population	T.	12.3	12.9	12.8	12.8	12.7	10.7
	M.	12.3	12.8	12.8	12.9	12.8	10.6
	F.	12.3	13.0	12.8	12.8	12.5	10.8
Immigrant population	T.	12.4	13.2	13.2	13.4	13.6	11.5
	M.	12.7	13.2	13.4	14.0	14.3	12.2
	F.	12.2	13.2	13.0	13.0	13.0	10.9

Source:
1986 Census of Canada, unpublished data.

Chart 6. **Age Distribution of the 0-24 Year Population, Canada, 1961-1986**



Source:
1961 to 1986 Censuses of Canada.

4

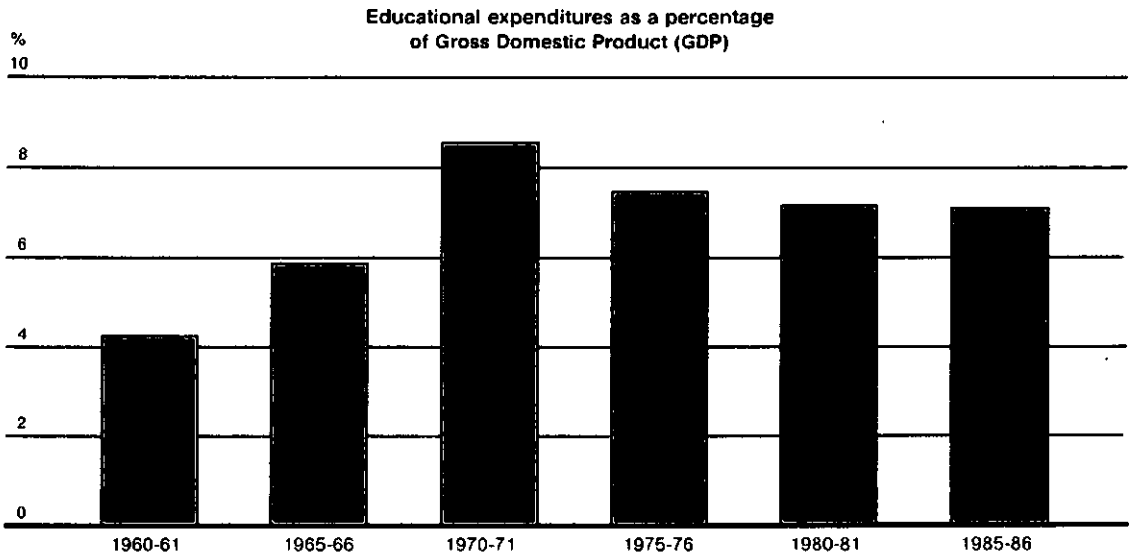
INCREASING POSTSECONDARY STUDENT POPULATION AND DECLINING EDUCATIONAL EXPENDITURE, 1961-1986

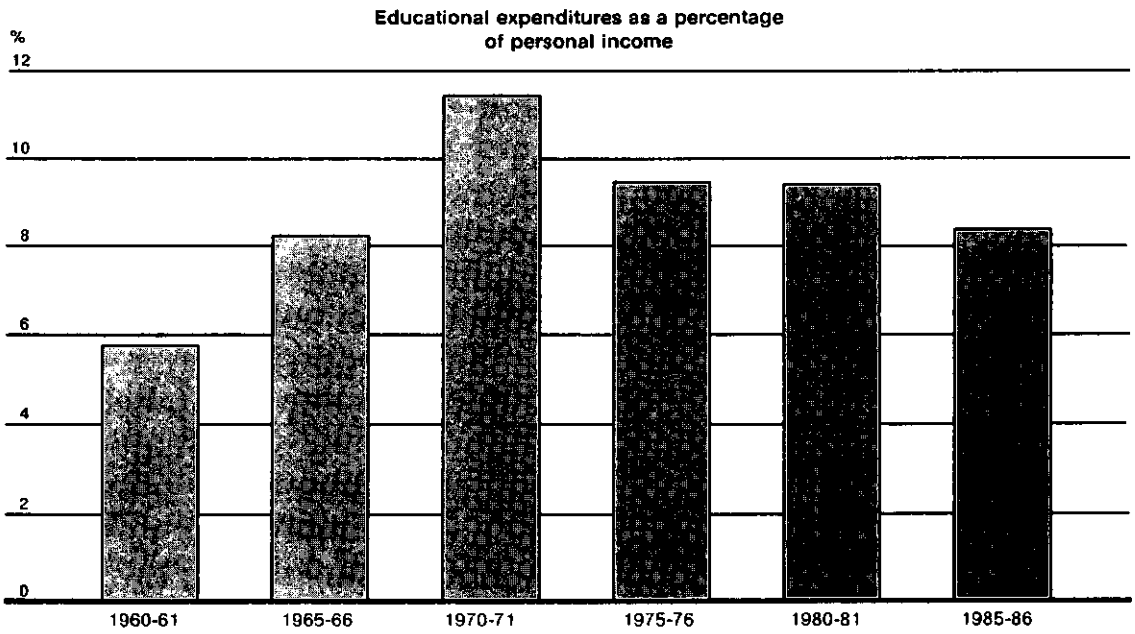
The postsecondary participation rate (total full-time postsecondary enrolment related to the 18-24 age group) has been increasing steadily since the 1960-61 academic year; at that time about one in ten persons in the postsecondary age group were attending school full time. In 1985-86, however, this had increased to one in four persons who were full-time students. The participation rate remained fairly stable between 1970-71 and 1980-81 at a time when the actual number of persons in the postsecondary school age population was increasing from 2.6 to 3.3 million persons. Between 1980-81 and 1985-86, however, the postsecondary population declined by 400,000 persons for the first time in over a quarter of a century. At the same time, the participation rate, which had remained relatively stable for a decade, suddenly increased by five percentage points. The net effect of this increasing participation rate is that it more than compensated for the declining number of potential students in the postsecondary population. For example, in 1980-81 there were approximately 640,000 persons (primarily 18-24 years old) attending postsecondary institutions full time. In the 1985-86 academic year, there were about 790,000 actual students even though there were fewer potential students in that age group. Another factor accounting for the increasing size of the postsecondary student population is the increasing number of adults over age 24 who are becoming more and more prevalent on college and university campuses.

During the same period, the growth in the number of full-time postsecondary school teachers also appeared to be levelling off. Between the 1965-66 and 1975-76 academic years, they increased by 295%, but between the 1975-76 and 1985-86 academic years, they increased by only 20%. This reflects the stabilization of the college systems which emerged during the late 1960s and early 1970s, which, in turn, were a partial response to the maturing of the post-Second World War Baby Boom Generation.

One of the main concomitants of these changes in postsecondary participation rates and numbers of postsecondary teachers can be seen in the financial aspects of education in Canada. Total educational expenditures in Canada in 1985-86 were 34 billion dollars, an increase of 50% over 1980-81 (not adjusted for inflation or increases in the Consumer Price Index which increased by 32% during that period). Despite this large increase in overall educational expenditures, the ratio of expenditures to other related economic indicators such as Gross Domestic Product (which represents the monetary value of all goods and services produced in the Canadian market economy), or personal income, indicate that the recent trend is toward declining educational expenditures (see Chart 7). Expenditures expressed as a percentage of Gross Domestic Product reached a peak of 8.6% at or around 1970-71 and have since declined to a low of 7.1% in 1985-86. Similarly, educational expenditures expressed as a percentage of personal income also reached a peak of 11.5% at or around 1970-71 and has since declined to a level of 8.4% in 1985-86.

Chart 7. **Selected Educational Expenditure Indicators for Census Academic Years, Canada, 1960-1985**





Source:
Education in Canada, Statistical Reviews for 1961, 1971, 1976, 1981 and 1986, Statistics Canada, Catalogue No. 81-229.

5

THE GREAT DIVIDING LINE: HIGH SCHOOL GRADUATION AND BEYOND

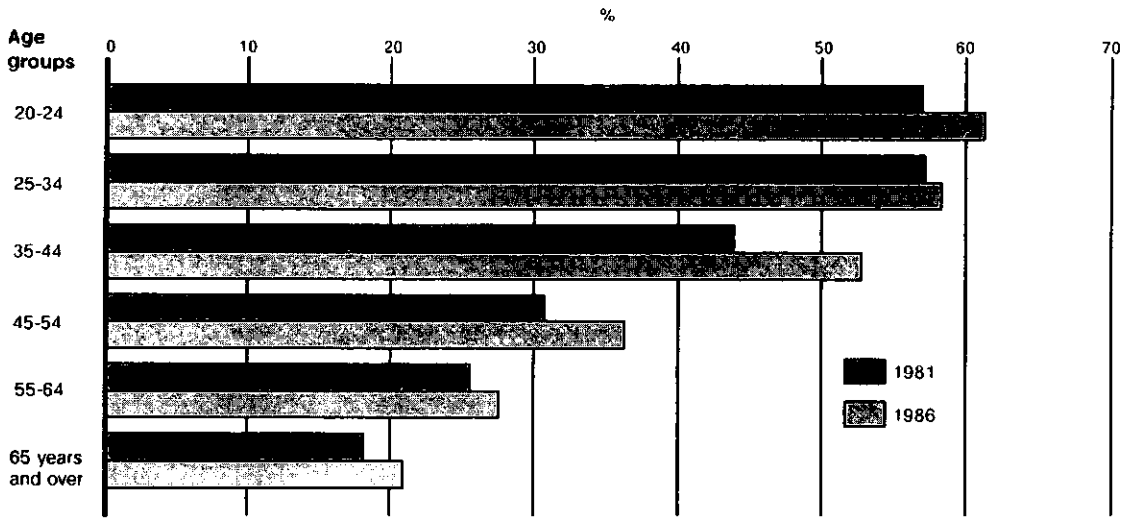
In many ways, high school graduation represents a significant landmark in educational achievement. It is the first formal educational credential that is conferred by educational institutions. It is also usually the first item that is mentioned on job applications and résumés. Furthermore, the secondary school graduation certificate is required for entry into university studies and the majority of college programs. It also signifies the transition from youth to adulthood. Secondary school graduation, epitomized in the final year exams, thus represents the culmination of most teenagers' high school experience.

The system of final exams in the last year of high school varies from province to province, and from time to time. Four out of Canada's ten provinces currently have a system of provincial examinations in academic subjects where the examination results count for one half of the student's final mark (British Columbia, Alberta, Quebec and Newfoundland). Saskatchewan and New Brunswick have a selective approach to final exams for their respective secondary populations. The remaining provinces (Manitoba, Ontario, Nova Scotia and Prince Edward Island) award school-leaving diplomas based on a number of criteria including performance on exams and tests, secondary school record, and teachers' assessments.

Less than half (45.2%) of the Canadian population 20 years and over were secondary school graduates in 1986 (Chart 8). This, however, varied substantially according to age group. Among Canadians 55 years and over, only one in five were secondary school graduates. About one in three persons 45-54 years had done so. In the 35-44 age group the ratio was one in two. In the younger age group (20-34 years) about three in five had earned a secondary school graduation certificate. Of those who had not graduated from high school, about one in five had attended postsecondary non-university institutions and trades schools.

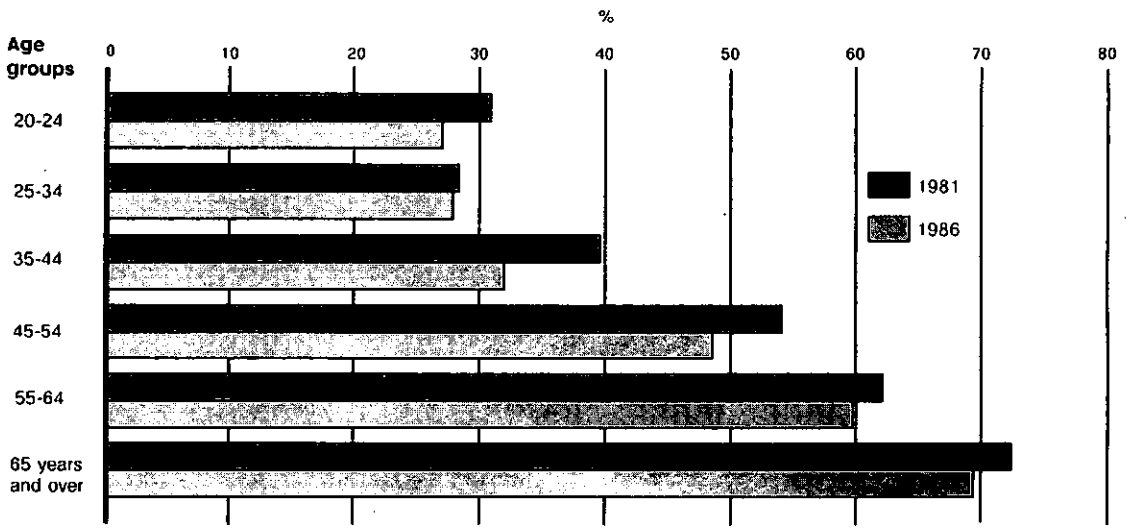
Persons who have not attained a secondary graduation certificate (or any further schooling) are often referred to as "high school drop-outs". The circumstances surrounding the drop-out phenomenon are varied and can be attributed to a number of factors. For example, for many Canadians in the older generation, economic and historical events such as two world wars and the economic depression of the 1930s must have strongly influenced their educational decisions. In addition, the fact that more Canadians lived in rural environments in past decades meant that such duties as farm work often prevailed over school work. As Chart 9 indicates, the high school drop-out rate for older Canadians far

Chart 8. **Percentage of Secondary School Graduates by Selected Age Groups, Canada, 1981 and 1986**



Source:
1986 Census of Canada, Catalogue No. 93-110; 1981 Census of Canada, unpublished data.

Chart 9. **Percentage of School Drop-outs by Selected Age Groups, Canada, 1981 and 1986**



Source:
1986 Census of Canada, Catalogue No. 93-110; 1981 Census of Canada, unpublished data.

exceeds that of younger generations. For example, in the population aged 65 and over, the rate is over 70%, while in the 20-35 age group, the rate is under 30%.

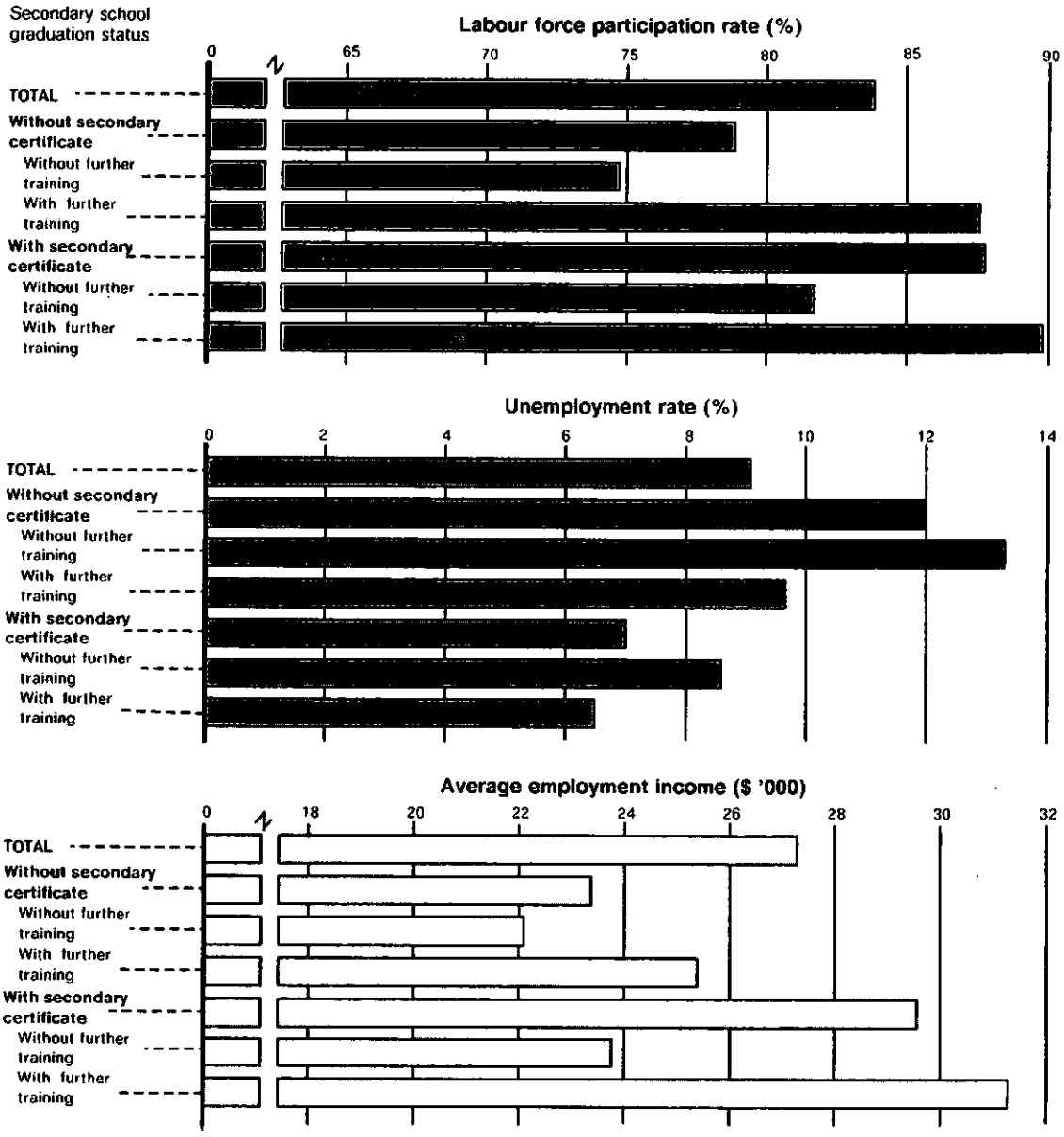
Of those Canadians who did graduate from high school, the majority have taken at least one course at the postsecondary level: in 1986 four out of ten secondary school graduates have completed university courses, three out of ten have completed college or trades courses and the remaining three out of ten secondary school graduates did not complete further postsecondary studies.

Possession of a secondary school graduation certificate is a key factor in how a person performs in the labour market and of how much employment income one earns. Persons in the 25-44 age group with a secondary school graduation certificate had a labour force participation rate[1] of 87.8% compared with 78.9% for those without a secondary certificate. Similarly, persons in the same age group with a secondary school graduation certificate had an unemployment rate[2] of 7.0% compared with 12.0% for those without a high school certificate. Finally, the average employment income (of persons with secondary graduation certificates who worked full year, full time) was $29,600 compared with $23,400 for those without a certificate. Chart 10 provides further statistical details for different categories of secondary school graduation with and without further schooling. The data clearly show that increasing levels of education beyond the secondary graduation certificate are directly related to favourable economic outcomes.

[1] The labour force participation rate is a measure of persons in the labour force that is the sum of persons (a) employed and (b) unemployed in the week prior to June 3, 1986 expressed as a percentage of the population 15 years and over.

[2] The unemployment rate measures the proportion of persons unemployed as a percentage of the labour force.

Chart 10. **Population 25-44 Years by Secondary School Graduation Status, Showing Selected Economic Indicators, Canada, 1986**



Source:
1986 Census of Canada, unpublished data.

6

POSTSECONDARY GRADUATES AND THEIR FIELDS OF STUDY

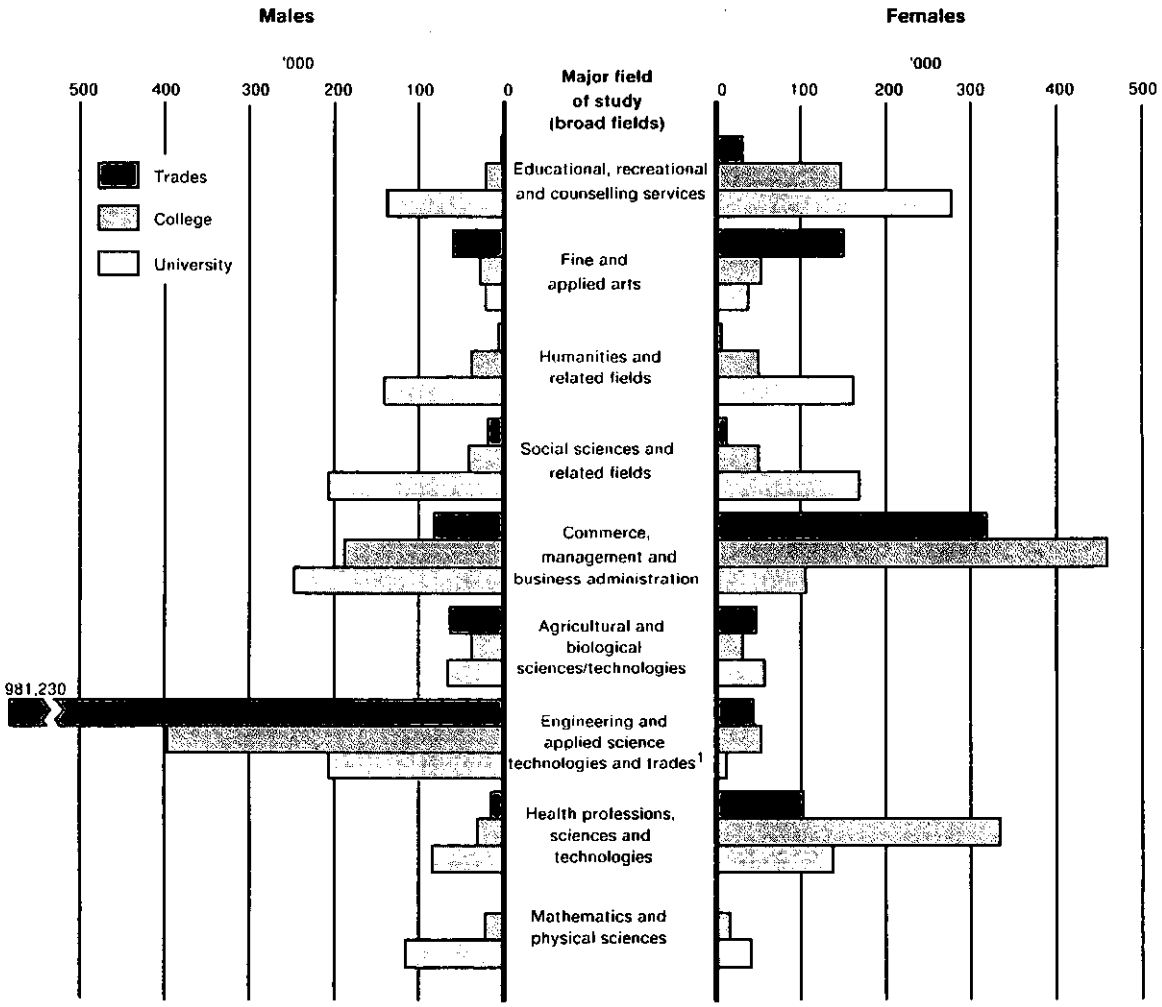
As indicated earlier, the majority of secondary school graduates pursue further studies at the postsecondary level. This level includes: universities (defined as degree-granting educational institutions); community colleges, CEGEPs in Quebec; institutes of technology and similar institutions that award certificates and diplomas primarily in technological, commercial, paraprofessional, paramedical and other health and social service fields. Finally, there is the trades level category which refers primarily to apprentices, journeymen and other trainees who have completed vocationally related programs in areas such as welding, plumbing and pipe trades, carpentry, hairdressing and beauty culture, automobile mechanics and building trades. The presence of apprentices and journeymen in Canada, which accounts for over two million graduates, is not as prominent now as in past years and growth in this area has slowed markedly since the 1970s.

The majority of persons who begin a postsecondary program by obtaining at least one course credit will eventually succeed in earning a degree, certificate or diploma. Approximately three out of four persons (73%) who initially completed either a course or a full year of college or trades studies eventually received a certificate or a diploma. Similarly, about four out of five (81%) persons who began a university program by completing at least one course were eventually awarded a university degree, certificate or diploma. These figures may appear to be high, given initially low retention and high drop-out rates, as high as 50%, in first year courses at the college and university levels. However, it appears most postsecondary students who gain at least one credit will eventually obtain a degree, certificate or diploma. So the key seems to be to get that first course credit on your transcript.

Most Canadians with a postsecondary degree, certificate or diploma have obtained them from a Canadian educational institution. Approximately seven out of every eight postsecondary degree, certificate or diploma holders graduated from a trades school, college or university in Canada. There is, however, a significant variation in Canadian or foreign origin of the graduate depending on their field of study. For example, in the *Mathematics and physical sciences* field almost one quarter of all graduates (24%) obtained their qualifications from an institution outside of Canada. Included in this figure are native-born Canadians who obtained their qualifications outside of Canada and returned to Canada, as well as immigrants who came to Canada with qualifications they earned in other countries. The *Engineering* field also displayed a large proportion of graduates with degrees from foreign countries (22%). On the whole, however, the majority of the nation's educational resources are of Canadian origin.

The distribution of postsecondary graduates across the three main levels or categories (trades school, college, university) is very even. There were approximately two million persons in each of these three levels in Canada in 1986. The distribution of fields of study within the three levels does, however, vary considerably (see Chart 11). Within the trades level category, over half of its graduates are concentrated in the *Engineering and applied science technologies and trades* broad field, followed by about one-quarter in the *Commerce, management and business administration* broad field. At the college level, a reverse pattern is evident, with the majority of its graduates concentrated in the *Commerce* broad field, followed in second place by graduates in the *Engineering technologies* broad field. Finally, at the university level, most of its graduates are in the *Educational, recreational and counselling services* broad field, followed closely by *Social science* graduates and those specializing in *Commerce, management and business administration.*

Chart 11. **Numerical Distribution of Postsecondary Graduates 15 Years and Over by Sex and Major Field of Study (Broad Fields) at the Trades, College and University Levels, Canada, 1986**



[1] Includes persons with *Engineering* degrees as well as those with *Engineering technologies and Trades* certificates or diplomas.

Source:
1986 Census of Canada, Catalogue No. 93-110.

Chart 11 also indicates that there are important and significant gender differences across the various major fields of study at the three levels of education. At the trades level, about four out of every five male graduates are in the *Engineering technologies and trades* fields, while only about one in every twenty or 6% of female trades graduates have concentrated in *Engineering* trades. For female trades and college graduates, the predominant specialty is *Commerce, management and business administration* (which includes the subfield of secretarial science which in turn accounts for over 500,000 trades and college graduates). *Commerce* is the most predominant field for male university graduates, whereas for female university graduates the *Educational, recreational and counselling services* field proved to be the most popular. Finally, in the *Health professions, sciences and technologies* field, females clearly showed a significantly higher representation than males in all three levels of educational qualifications.

7

A CLOSER LOOK AT DETAILED FIELDS OF STUDY

The broad categories of major fields of study depicted in Chart 11 can actually be analyzed at a finer level of detail; there are over 425 categories of "unit" fields of study classified on the census data base. In more practical terms, however, it is possible to analyze the census field of study data by looking at the most frequent categories of fields of study at each of the three levels of qualifications. One such classification is shown for trades and college level certificates or diplomas in Table 3, and another classification is given for university qualifications in Table 4. Each table presents approximately 30 to 40 of the most popular fields of study.

Fields of study at the trades and college levels generally overlap. Table 3, however, indicates how the distributions differ across these two levels. At the trades level more than one million persons have specialized in an *Engineering or applied science technology and trade.* The most popular of these engineering trades, representing 29% of the broad field, is the field of building technologies which includes welding, carpentry, construction electrician, plumbing and other building technologies (for example, masonry, heat and insulation, drywall, plastering and lathing). Next in line in the engineering trades are the mechanical engineering technologies (26%), led by automobile mechanics, followed by other specialties such as heavy and agricultural equipment mechanics and power or stationary engineering. The third most popular engineering trade is the industrial engineering technologies field (at 13%) which is led by machinist/machine shop, followed by sheet metal, tool and die, and air conditioning and refrigeration. Electronic and electrical technologies, which represented 12% of the engineering trades category, was the fourth most popular field.

Still within the trades level we find over 400,000 persons who concentrated in *Commerce, management and business administration*, with two-thirds specializing in secretarial science. Of the more than 200,000 persons in the broad *Fine and applied arts* category, two-thirds are persons who were trained in barbering, beauty culture and hairdressing. In the broad *Health professions, sciences and technologies* category, almost three-quarters are persons trained in nursing assistance.

At the college level, as previously indicated, there is a different mix of field specialties. The largest broad field - *Commerce, management and business administration* - accounted for almost one-third of all college graduates. Within this broad field, secretarial science graduates still predominated as they did at the trades level. In fact there is almost an equal number of secretarial science graduates at both the trades and college levels. At the college level, however, the *Commerce* field was also substantially represented by graduates in financial management as well as in business and commerce. In the *Engineering and applied science technologies and trades* broad field, at the college level, there were significantly fewer persons specializing in the building technologies fields. In contrast to the trades level, most of the engineering technologists tended to specialize in electronic and electrical technologies. In the *Health professions, sciences and technologies*, the third largest broad college field, 64% of the 370,000 persons in this category had specialized in nursing. In general, the distribution of fields of study at the college level tended to be spread out over a wider range of programs and occupational disciplines.

Table 3. **Selected Most Frequent Major Fields of Study for Trade and College Certificate Holders, Canada, 1986**

	Trade	College
TOTAL	**1,969,650**	**2,034,460**
Educational, recreational and counselling services	**39,025**	**170,900**
Fine and applied arts	**211,425**	**84,550**
Barbering, beauty culture and hairdressing	136,845	14,780
Commercial, graphic and creative arts	49,045	39,550
Fine arts, music and other performing arts	12,210	26,885
Humanities and related fields	**13,485**	**88,275**
Other humanities and related fields	11,270	45,575
Mass media studies	895	19,360
Religious studies	-	15,905
Social sciences and related fields	**31,630**	**95,620**
Social work and social services	28,550	55,165
Social sciences	3,085	40,450
Commerce, management and business administration	**401,800**	**651,125**
Secretarial science - General field	270,485	266,820
Financial management	18,180	149,725
Business and commerce	28,355	107,645
Marketing, merchandising, retailing and sales	31,880	46,395
Industrial management and administration	6,945	43,405
Institutional management and administration	9,480	14,430
Agriculture and biological sciences/technologies	**112,360**	**72,295**
Household science and related fields[1]	75,570	27,910
Agricultural technology and science	18,270	32,455
Other agricultural and biological sciences/technologies	18,525	11,935
Engineering and applied science technologies and trades	**1,027,435**	**454,445**
Mechanical engineering technologies	272,110	77,100
Building technologies	297,560	34,455
Electronic and electrical technologies	128,130	101,735
Industrial engineering technologies	131,750	27,445
General and civil engineering technologies	66,835	53,935
Data processing and computer science technologies	26,375	65,895
Transportation technologies	30,450	14,750
Primary industries/resource processing technologies	20,940	13,955
Architectural technology (and drafting)	4,465	14,470
Health professions, sciences and technologies	**122,475**	**368,865**
Nursing	-	236,410
Nursing assistance	90,545	43,420
Medical treatment technologies	19,385	30,430
Medical laboratory and diagnostic technology	575	25,210
Mathematics and physical sciences	**4,220**	**39,990**
Other	**5,795**	**8,395**

[1] Includes animal science technologies.

Source:
1986 Census of Canada, Catalogue No. 93-110.

The same can be said for the distribution of fields at the university level, where no one major or broad field predominates. As the data in Table 4 indicate, the two largest major fields at the bachelor degree level - *Social sciences and Education* - accounted for only 37% of all bachelor's degree specialties. This contrasts to 73% for the top two broad fields at the tradès level and 54% at the college level. In other words, fields of study at the university level are spread out over a wider range of disciplines. Table 4 summarizes fields of study at both the undergraduate (bachelor) level and the postgraduate level, which includes persons with master's and doctorate degrees. Data for the excluded university qualification categories - that is, university certificates below and above the bachelor level and medical degrees - are shown in Tables 5 and 6 respectively.

The distribution of specific fields of study at the university level reveals where university graduates have tended to concentrate. In the broad *Educational, recreational and counselling services* field, most graduates (63%) at the bachelor level were classified as education generalists. In the broad *Humanities* field, graduates in English language and literature predominated, followed closely by history graduates. In the *Social sciences*, psychology was by far the most popular choice of bachelor's degree graduates, followed by law graduates and, in turn, those who specialized in economics, sociology, political science, social work and geography. In the *Commerce, management and business administration* category, graduates of financial management (primarily accounting and auditing) were the most representative, followed closely by graduates in business and commerce. In the *Agricultural and biological sciences/ technologies* broad field, bachelor's degree graduates in biology and botany were the most prevalent. Bachelor's degree graduates in *Engineering* were most frequently represented by specialists in electrical/ electronic engineering, mechanical engineering and civil engineering. At the post-graduate level, civil engineering proved to be the most popular field of study among engineering graduates. Finally, in the *Mathematics and physical sciences* broad field, bachelor's degree graduates in mathematics were the most numerous, followed by specialists in applied mathematics and computer science, chemistry, geology and physics.

There were over 380,000 persons who had earned a university certificate below the bachelor level. Over half of this group had concentrated in two broad fields: 26% in *Commerce, management and business administration* and 25% in *Educational, recreational and counselling services.* About half as many persons had earned a university certificate above the bachelor level, and among these persons, over 30% were in education. Approximately 15%-16% were in each of the *Commerce, Social sciences and Humanities* broad fields. In the remaining postsecondary educational qualification category, medical degrees, the majority of graduates (52%) were classified in the medicine - general category. They were followed by dentistry at 17%, medicine - specialized at 13%, veterinary medicine or science at 7%, optometry at 3% and all remaining medical fields at 8%.

Table 4. **Selected Most Frequent Major Fields of Study for University Degree Graduates,[1] Canada, 1986**

	Bachelor's degree	Post-graduate degree[2]
Total	**1,254,250**	**360,290**
Educational, recreational and counselling services	**208,825**	**58,625**
Education - General	130,570	30,120
Secondary education	21,400	6,555
Physical education, health and recreation	29,295	3,440
Elementary - Primary education	13,770	1,020
Fine and applied arts	**37,775**	**7,975**
Music and other performing arts	14,980	4,775
Fine arts	16,955	2,660
Humanities and related fields	**185,890**	**62,855**
English language and literature	46,640	9,860
History	37,430	9,855
Religious studies	14,155	13,865
French language and literature	13,725	3,195
Mass media studies	13,705	1,635
Philosophy	7,690	5,015
Social sciences and related fields	**250,935**	**70,415**
Psychology	53,090	16,905
Law and jurisprudence	43,190	6,935
Economics	39,620	10,685
Sociology	33,100	6,215
Political science	22,965	5,705
Social work and social services	16,105	11,935
Geography	22,450	3,785
Commerce, management and business administration	**174,130**	**48,825**
Business and commerce	60,195	25,150
Financial management	66,885	8,750
Industrial management and administration	27,985	10,755
Marketing, merchandising, retailing and sales	12,020	2,265
Agricultural and biological sciences/technologies	**75,225**	**21,060**
Biology and botany	30,700	9,055
Agricultural science - General and other	17,345	3,760
Household science and related fields	17,295	1,435
Engineering and applied sciences	**144,430**	**36,215**
Electrical/electronic engineering	29,195	6,685
Civil engineering	26,815	7,210
Mechanical engineering	28,570	5,060
Chemical and biological engineering	12,450	3,630
Health professions, sciences and technologies	**70,165**	**19,400**
Nursing	36,245	2,580
Pharmacy and pharmaceutical sciences	15,475	1,075
Mathematics and physical sciences	**102,825**	**34,290**
Mathematics and related fields	25,335	6,570
Applied mathematics and computer science	21,460	4,360
Chemistry	16,700	8,330
Geology and related fields	10,760	4,950
Physics	8,370	6,555
Other	**4,055**	**620**

[1] Excluding university certificates above and below the bachelor level and medical degrees.

[2] Master's degrees and earned doctorates.

Source:
1986 Census of Canada, Catalogue No. 93-110.

Table 5. **Distribution of Persons With University Certificates Below and Above Bachelor Level in Broad Fields of Study, Canada, 1986**

Broad fields of study	University certificates			
	Below bachelor's degree		Above bachelor's degree	
	N	%	N	%
Total	381,585	100.0	189,000	100.0
Educational, recreational and counselling services	94,910	24.9	57,325	30.3
Fine and applied arts	12,230	3.2	4,675	2.5
Humanities and related fields	27,125	7.1	29,085	15.4
Social sciences and related fields	25,370	6.6	30,865	16.3
Commerce, management and business administration	100,270	26.3	30,985	16.4
Agricultural and biological sciences/technologies	16,770	4.4	6,855	3.6
Engineering and applied sciences	27,245	7.1	13,090	6.9
Health professions, sciences and technologies	62,015	16.3	7,260	3.8
Mathematics and physical sciences	12,910	3.4	8,450	4.5
Other	2,720	0.7	415	0.2

Source:
1986 Census of Canada, Catalogue No. 93-110.

Table 6. **Distribution of Persons With Medical Degrees in Selected Fields of Study, Canada, 1986**

Selected detailed fields of study	Medical degrees	
	N	%
Total	74,945	100.0
Medicine - General	39,250	52.4
Dentistry	13,005	17.4
Medicine - Specialized	9,555	12.7
Veterinary medicine/science	4,835	6.5
Optometry	2,485	3.3
All other	5,815	7.8

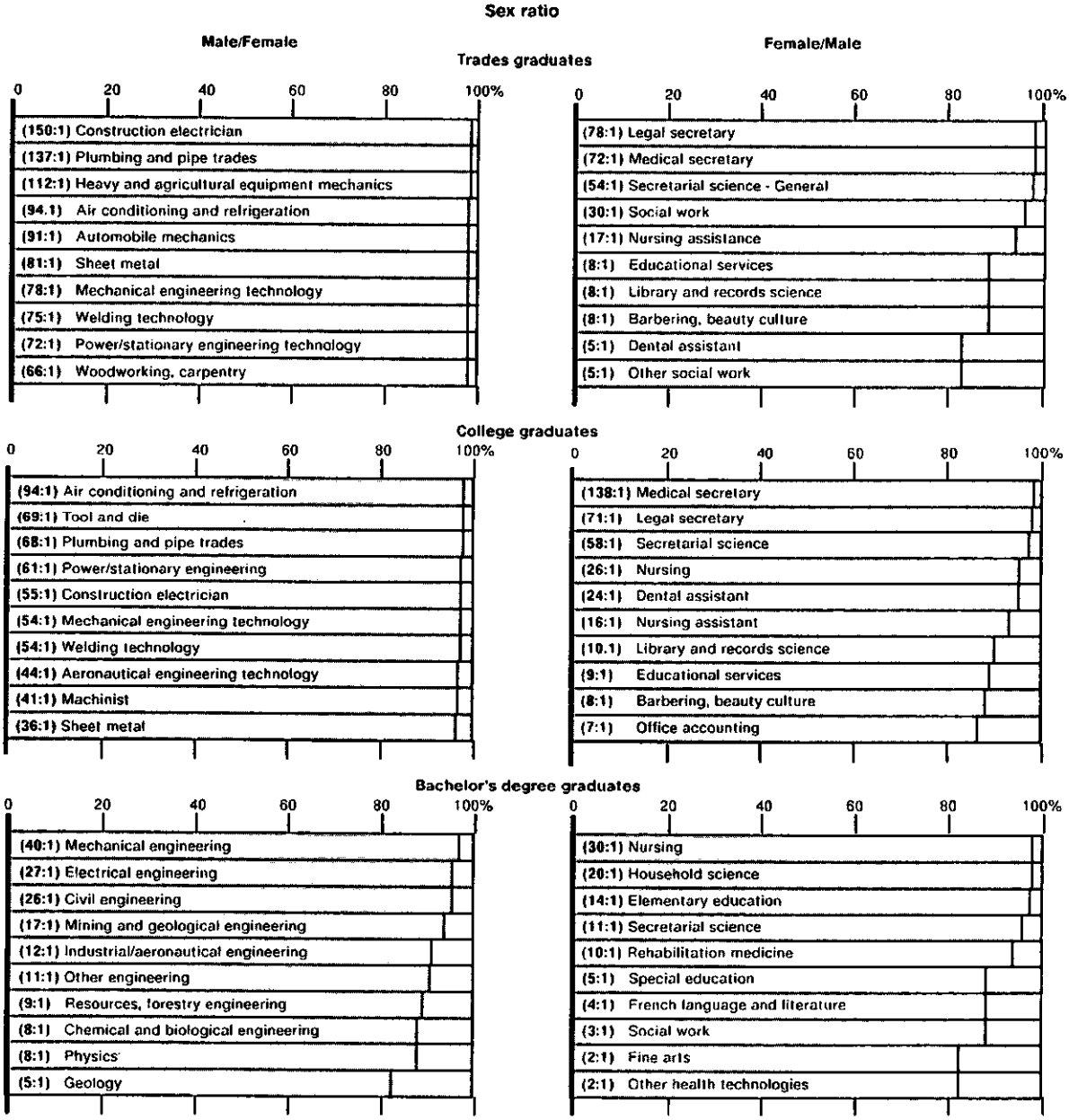
Source:
1986 Census of Canada, Catalogue No. 93-110.

8

GENDER CHARACTERISTICS OF SELECTED FIELDS OF STUDY

It is well known that males and females tend to gravitate to certain areas of study and related occupational activities. Table 7 summarizes the 1986 Census data by showing the top ten fields of study in order of the highest male/female and female/male ratios. These gender (or sex) ratios simply show how much one gender outnumbers the other in given fields of study. At the trades level, the fields most heavily dominated by males were: construction electrician, where there were 150 males to one female; plumbing and pipe trades (137:1), and heavy and agricultural equipment mechanics (112:1). At the college level, the top male dominated field was air conditioning and refrigeration (94:1) followed by tool and die (69:1), and plumbing and pipe trades (68:1). At the bachelor level, eight of the top ten male-dominated fields were in *Engineering and applied sciences*. The top three were: mechanical engineering (40:1); electrical/electronic engineering (27:1) and civil engineering (26:1). The top three trade fields most heavily dominated by females were all in the secretarial field: legal secretary (78:1), medical secretary (72:1) and secretarial science - general (54:1). The same pattern prevailed at the college level for females except that medical and legal secretary fields were reversed. The top three female-dominated fields at the bachelor level were: nursing (30:1); household science and related fields (20:1) and elementary-primary education (14:1).

Table 7. **Selected Top Ten Fields of Study of Male and Female Postsecondary Trades, College and Bachelor's Degree Graduates With Highest Male/Female and Female/Male Sex Ratios, Canada, 1986[1]**



[1] Fields of study with less than 100 persons in either of the male or female subpopulation aged 25-44 are not included.

Source:
1986 Census of Canada, Catalogue No. 93-110.

9

ECONOMIC PERFORMANCE INDICATORS OF POSTSECONDARY GRADUATES IN SELECTED FIELDS OF STUDY

Upon graduating with a degree, certificate or diploma from a postsecondary educational institution or training centre, most Canadians seek to enter the labour market. A smooth transition between school and the work world does not necessarily always take place. Some graduates will succeed in landing a job in their field of study; others will find jobs that have little or no relationship to the area of their studies. And still others will find no employment at all, or perhaps decide to stay out of the labour market altogether. The relationship between schooling and occupational employment is of course complex, but by selecting several census indicators, it is possible to present an overview of how graduation in certain fields of study affects performance in the labour market.

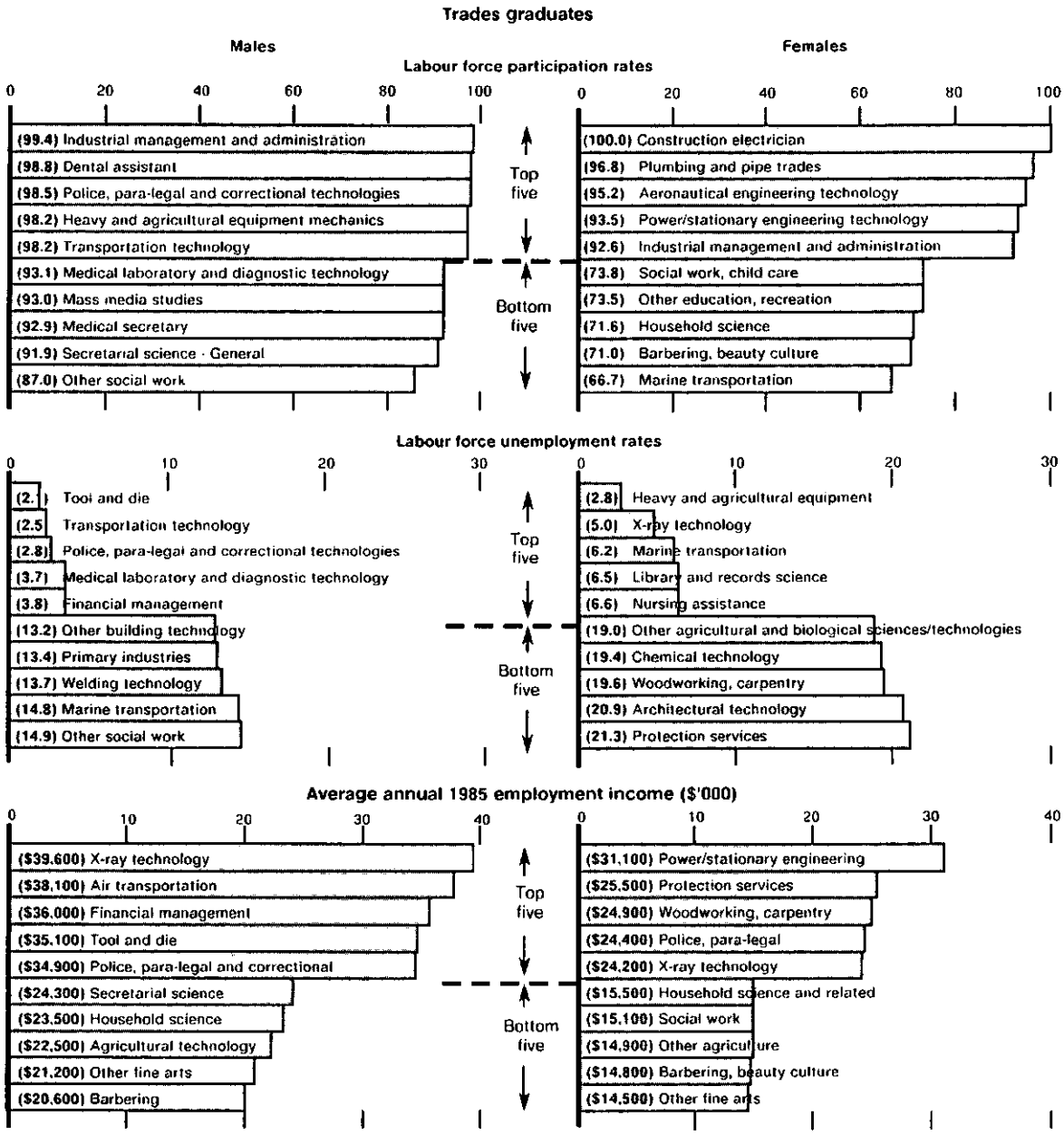
Three economic indicators are used. The first measure is the labour force participation rate, which is an indicator of the proportion of persons in the population who are either unemployed or who are currently employed. A high labour force participation rate for a given category means that persons in that category have qualifications, skills or background that in general makes them more accessible or willing to seek and to obtain employment. The second measure, the unemployment rate is directly related to the first and it measures the proportion of unemployed persons in the labour force who are actively seeking employment. The unemployment rate can be looked upon as an inverse measure of the security of a person's ability to earn employment income. Obviously the lower the unemployment rate of a given field, the more likely people working in that field will be ensured of receiving a regular income. It is also a more direct measure of economic performance or labour market demand. The third economic performance indicator is average employment income. This measure refers to the average annual 1985 employment income of postsecondary graduates who worked full year, full time in 1985. A full-year, full-time worker is defined as anyone who worked 49-52 weeks mostly full time in 1985. Income, of course, is probably the most powerful of the three indicators and can simply be interpreted as a measure of economic reward.

In order to control for variations in these indicators due to sex and age characteristics, the data are shown separately for males and females 25 to 44 years. This age group reflects the majority of postsecondary graduates, including recent graduates as well as persons who can be considered to be in mid-career.

In general, fields with high labour force participation, low unemployment and high average employment income can be interpreted as those in the greatest demand during 1985-1986 in Canada. Although it would certainly be foolhardy for prospective students to rush into these high performance fields without regard for other considerations, the information provided in these tables can be used in a similar fashion to that in consumers' guides that reveal test and other performance measures of various brands of appliances, automobiles and the like. But the low performance fields are not necessarily ones to avoid or to leave. Their performance could possibly have been influenced by short-term business cycle factors during 1985 and 1986 and may not reflect long-term trends. From an employer's point of view these fields could be viewed as pools of available qualified workers who are currently underutilized. In any case, the data shown in these tables can serve as one element in informed analysis and decision-making. It is also necessary to consider that education is not pursued solely for labour market or economic reasons. Obviously, personal development and interest, creativity, and pursuit of knowledge are important factors as well.

Data relating to trades certificate holders are shown in Table 8. For male trades certificate holders, 25-44 years, the highest participation rates were found in industrial management and administration, dental assistant, and police, para-legal and correctional technologies. For female trades graduates, the highest rates were observed in construction electrician, plumbing and pipe trades, and aeronautical engineering technology. Male trades certificate holders had the lowest labour force participation rates in the following fields: other social work and social services (such as applied gerontology, family aide

Table 8. **Top and Bottom Five Fields of Study of Male and Female Trades Graduates 25-44 Years According to Three Selected Economic Indicators, Canada, 1986[1]**



[1] Fields of study with less than 100 persons in either of the male or female subpopulation aged 25-44 are not included.

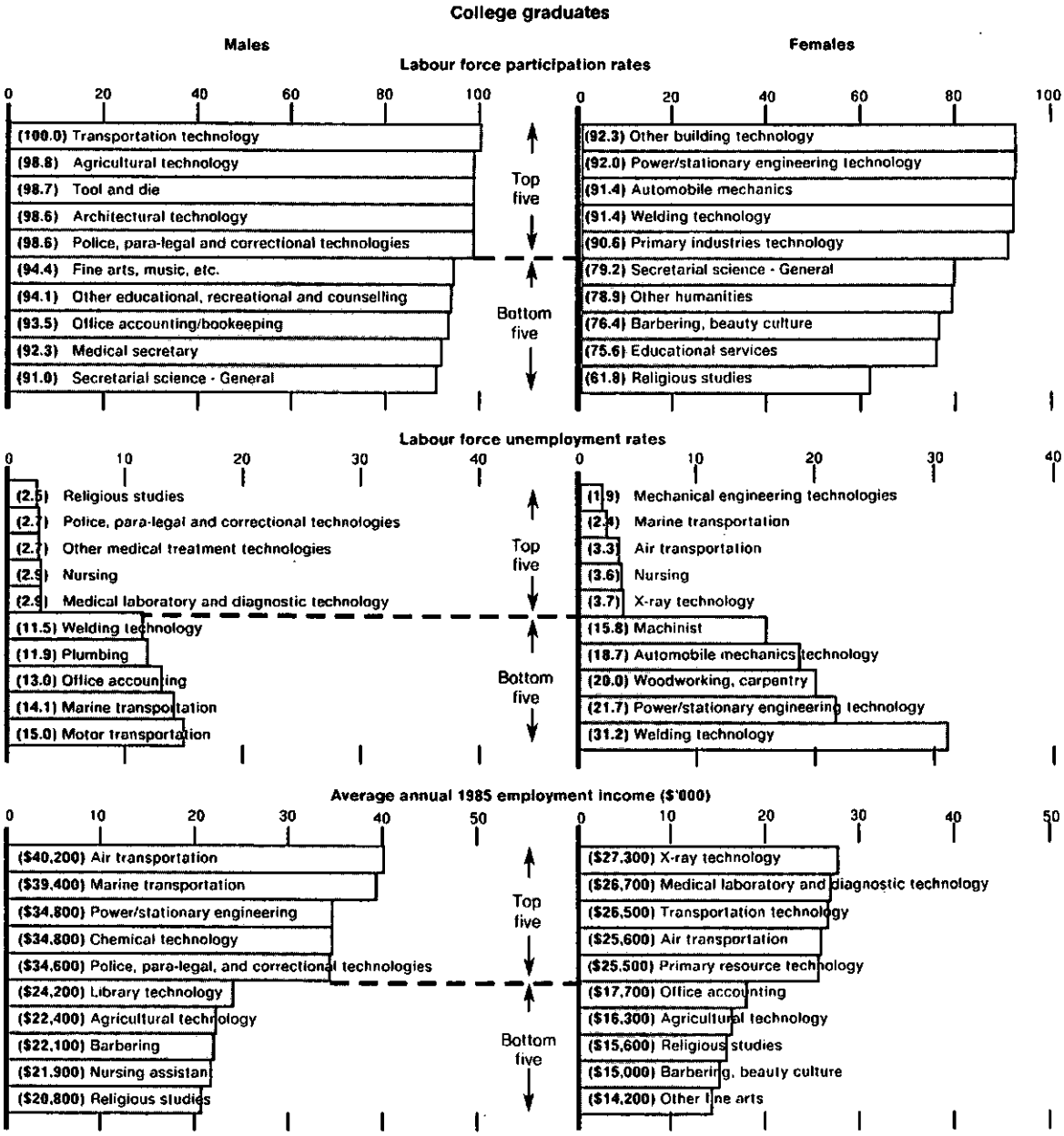
NOTE
Readers interested in economic indicator data for fields of study not shown in Tables 8, 9 or 10 should contact Census Customer Services Section for further information.

Source:
1986 Census of Canada, unpublished data.

and industrial family care), secretarial science - general, and medical secretary. These three fields also tended to be female-dominated and it would thus appear that males who specialized in these fields encountered some difficulty breaking into the labour force. For females at the trades and college levels, barbering, beauty culture and cosmetology had the lowest labour force participation. Marine transportation technology and household sciences were also lowest for female trades graduates. Among male trades certificate holders, the fields with the highest unemployment rates were: other social work and social services (which also had the lowest participation rate), marine transportation technology and welding technologies. Among female trades certificate holders, the highest unemployment fields were: protection services (such as fire prevention and control, home security and safety), architectural technology and woodworking/carpentry. The lowest unemployment rates for male trades certificate holders were noted in tool and die, transportation technology - general, and in police, para-legal and correctional technology fields. For female trades certificate holders, the lowest rates occurred in heavy and agricultural equipment mechanics, x-ray technology and marine transportation technology (which surprisingly had the second highest rate for male trades certificate holders). The highest employment income fields among male trades certificate holders were: x-ray technology, air transportation technology and financial management. The top female trades earners were in power/stationary engineering, protection services and woodworking/carpentry. Protection services, however, as shown earlier, also had the highest unemployment rate.

Data relating to college graduates are shown in Table 9. For males at the college level, the top fields in terms of labour force participation were: transportation technology - general, agricultural technology and science, and tool and die. For female college graduates, the top three fields were: other building technologies (such as interior finishing, drywall, plastering and lathing), power/stationary engineering technology and automobile mechanics technology. At the college level for males, two of the secretarial categories, as well as office accounting and bookkeeping were in the top three fields with the lowest participation rates. Religious studies and educational services had the lowest participation rates at the college level for females. For males at the college level, the three fields with the highest unemployment rates were: motor transportation, marine transportation technology and office accounting/bookkeeping. For females at the college level, the highest unemployment rates were for graduates in welding technology, power/stationary engineering technology and woodworking/carpentry. All three of these fields are typically male-dominated and it appears that females who attempted to enter these fields have encountered the same difficulties as males who entered female-dominated occupational fields. At the college level, low unemployment rates for males were noted for religious studies, police, para-legal and correctional technologies, and other medical treatment technologies (such as chiropractic, emergency paramedical respiratory and ultrasound technologies). Low unemployment rates for female college graduates were noted in mechanical engineering, marine transportation and air transportation. Highest income earners among male college graduates were in air transportation, marine transportation, power/stationary engineering, and chemical technologies. Among female college graduates, the top earning fields were: x-ray technology, medical laboratory and diagnostic technology, and transportation technology - general.

Table 9. **Top and Bottom Five Fields of Study of Male and Female College Graduates 25-44 Years According to Three Selected Economic Indicators, Canada, 1986[1]**

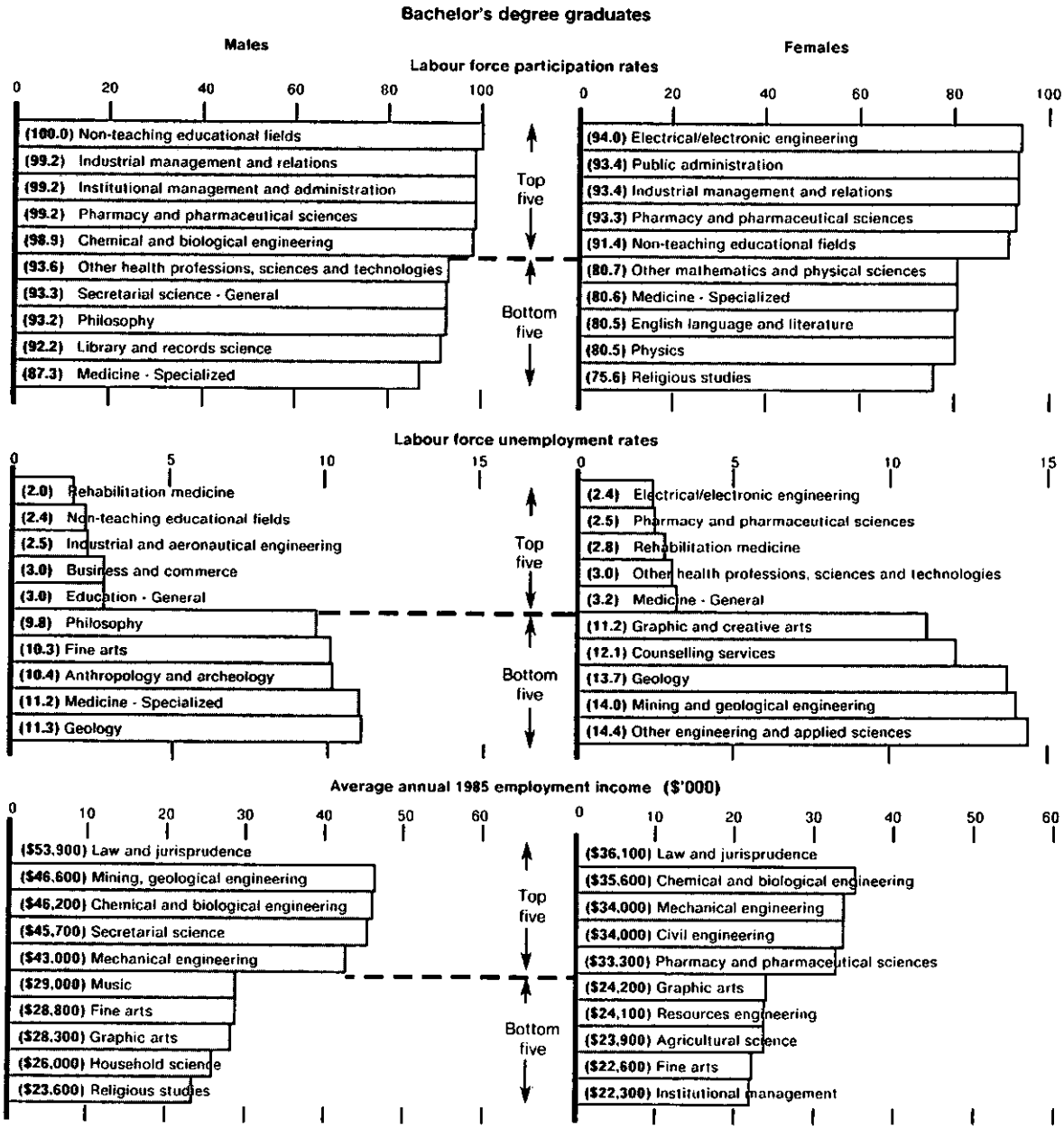


[1] Fields of study with less than 100 persons in either of the male or female subpopulation aged 25-44 are not included.

Source:
1986 Census of Canada, unpublished data.

Data relating to university bachelor's degree graduates are shown in Table 10. The top three fields in terms of labour force participation for male bachelor's degree graduates were: non-teaching educational fields (such as educational administration, educational psychology, and philosophy and theory of education), industrial management and relations - general, and institutional management and administration. The top three fields for female bachelor's degree graduates were: electrical or electronic engineering, public administration, and industrial management and relations. Males with bachelor's degrees had the lowest participation rates in the fields of medicine - specialized, library and records science, and philosophy. The case of medicine - specialized could possibly be the result of persons who had undergone further medical education. For female bachelor's degree graduates, the lowest participation rates occurred for religious studies, physics, and English language and literature. At the bachelor level, male graduates had the highest unemployment rates in geology, medicine - specialized, anthropology and archeology. Unemployment among geology graduates may be a reflection of the downturn in oil prices which resulted in higher unemployment in the petroleum industry during 1985-1986. For females, the highest unemployment rates were observed in other engineering and applied sciences (such as engineering science or physics and other specialized engineering fields), mining, metallurgical, geological engineering and in geology. Again, high unemployment rates among female geology graduates could be attributed to the oil price declines in 1985-1986. At the bachelor's degree level, males had the lowest unemployment rates in rehabilitation medicine, non-teaching educational fields, and industrial and aeronautical engineering. Female bachelor's degree graduates had the lowest unemployment rates in electrical/electronic engineering, pharmacy and pharmaceutical sciences, and rehabilitation medicine. Among bachelor's degree graduates, law and jurisprudence, and chemical and biological engineering were among the top three employment income fields for both males and females. In second place for males was mining, metallurgical, geological and petroleum engineering, and in third place for females was mechanical engineering.

Table 10. **Top and Bottom Five Fields of Study of Male and Female Bachelor's Degree Graduates 25-44 Years According to Three Selected Economic Indicators, Canada, 1986[1]**



[1] Fields of study with less than 100 persons in either of the male or female subpopulation aged 25-44 are not included.

Source:
1986 Census of Canada, unpublished data.

The three economic performance indicators give a general idea of how graduates from certain fields of study performed in terms of accessibility, security and income. But each indicator tells only part of the story. Factors related to individual preference, motivation, life-styles, value systems, and so on, certainly play a large role in an individual's choice of a field of study and how he or she proceeds from there. Also, the data summarized here only looked at the extreme ends of the continuum of each indicator. More detailed data are of course available and can be drawn from the 1986 Census Products and Services. However, in spite of these caveats, it is still possible to arrive at a general overview.

In summary, certain fields of study appeared to be relatively consistent in performing at the high and low ends of each indicator. First, in terms of fields that could be considered high performers (that is, fields exhibiting high participation rates, low unemployment rates, and high income), we found that at both the trades and college levels for males, the police, para-legal and correctional technologies and the tool and die fields appeared in or near the top ten for all three indicators. Likewise for females, at the trades and college levels, x-ray technology appeared in the top ten in two of the three indicators (lowest unemployment and highest average income). At the trades level for males, transportation technology - general appeared in the top ten in all three economic indicators, while air conditioning and refrigeration and industrial management appeared in two (high participation and low unemployment rates). Also at the college level for males, the air transportation and agricultural technology fields figured in two of the indicators and for females, transportation technology - general, nursing and air transportation technology also appeared in two. At the bachelor's degree level, chemical and biological engineering appeared in the top ten of all three indicators for males, while for females, pharmacy and pharmaceutical sciences, applied mathematics and computer science did likewise. Fields that appeared in two of the three indicators for males were rehabilitation medicine and mining, metallurgical, geological and petroleum engineering, while for female bachelor's degree graduates, the fields were electrical/electronic engineering, mechanical engineering, mathematics and related fields.

At the other end of the continuum, the following low performance (that is, low participation, high unemployment, low income) fields were identified. At the trades level for males, other social work and social services (that is, community workers, family aides, etc.) appeared at the low end of all three indicators, while household science and related fields did likewise for females. Trade fields appearing at the low end for two of the three indicators were: for males, fine arts, music, other performing arts, and other fine and applied arts (such as upholstery and furniture, and repair and renovation). Similarly for female trades graduates, architectural technology, chemical technology, and other agricultural and biological sciences/technologies (such as food processing, hunting and trapping) appeared in two of the three indicators. At the college level, other educational, recreational and counselling services (such as counselling psychology, marriage/family/life skills counselling) appeared at the low end of all three measures for males, while barbering, beauty culture and cosmetology did likewise for females. Fields appearing at the low end in two of the three indicators for male college graduates were sheet metal, office accounting/bookkeeping, library and records science, and woodworking/carpentry. Similarly, for females, fields in two of three indicators were fine arts, music, other performing arts, household science and related fields, and other humanities and related fields (such as translation and interpretation, and creative writing). Finally, at the bachelor's degree level, fine arts appeared in the low end of all three measures for both males and females. Music and other performing arts (such as dance and drama) appeared in all three but for males only. Fields appearing at the low end in two indicators were, for males, philosophy and religious studies, and for females, physics.

CONCLUSION

This study has drawn upon 1986 Census data on educational attainment of Canadians and compared them to data from past censuses and other current surveys. The main focus was on the field of study of postsecondary trades, college and university bachelor's degree graduates and how well or poorly graduates from selected fields performed according to three economic criteria. Also, special attention was paid to the importance of secondary school graduation and some of the economic consequences associated with this crucial point of departure. In general, the study has statistically confirmed some general impressions that people may have of the educational attainment of Canadians:

The number of university and college graduates have increased greatly over the past quarter of a century. The proportion of the population considered to be undereducated according to prevailing educational norms has also undergone a corresponding decline. Females have overcome some of the imbalances that previously existed between males and females in terms of postsecondary educational attainment. Immigrants to Canada, in general, have equivalent or higher levels of education than those born in Canada. The changing demographic structure of Canada's population has resulted in a decline in the school age population. In spite of the decline, enrolment rates appear to be increasing at the college and university levels. However, educational expenditures have declined in relationship to Gross Domestic Product and personal income over the past decade and a half. Finally, the 1986 Census data have demonstrated that the field of study that one graduates from does make a difference in such things as labour force activity and employment income. Regardless of the level of postsecondary education, graduates of fields of study that exhibited top economic performance had less than one-third of the unemployment rate and more than double the employment income than those graduates of fields with much lower levels of performance. So, clearly, it is important for most Canadians to obtain higher education, but it is equally important to choose fields of study that will repay all of the time, effort and expense that they invest in their human capital.

It is evident from these data that the scope and scale of education in Canada have changed dramatically over the past 25 years. It is equally evident that these changes in education are still more a reflection of economic changes in Canada and the world around us. With higher levels of competitiveness, aspirations, and fluctuations in the business cycle demand for labour, these trends as well as a fairly large degree of uncertainty are likely to continue. However, in spite of these changes, the essence of education is not likely to differ very much from previous conceptions: life-long learning based on the ability to read and write, to work with numerical and logical concepts, to know one's history and to comprehend world events.

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