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From the Sixties to the Eighties
A Statistical Portrait of Canadian Higher Education

Education, Science
and Culture Division

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FROM THE SIXTIES TO THE EIGHTIES

A STATISTICAL PORTRAIT OF CANADIAN HIGHER EDUCATION

French version available on request. (Portrait statistique de l'évolution de l'enseignement supérieur au Canada des années 60 aux années 80)

PREFACE

The study "From the Sixties to the Eighties - A Statistical Portrait of Canadian Higher Education" was originally prepared for the Twelfth Quinquennial Congress of the Universities of the Commonwealth, held in the fall of 1978 in Vancouver, B.C. The popularity of this report has encouraged Statistics Canada to reprint this volume.

"From the Sixties to the Eighties - A Statistical Portrait of Canadian Higher Education" summarizes trends in university education. Over the years, Statistics Canada has assembled comprehensive data files on education. Most of this report is based on annual surveys conducted by the Education, Science and Culture Division, supplemented by other sources. To present consistent time series here, special tabulations were prepared.

This paper relies heavily on three annual publications: Advanced Statistics of Education, Education in Canada, and Financial Statistics of Education; which are produced by the Projections Section under the direction of Dr. Zoltan Zsigmond. His support and that of his staff together with the assistance of the Post-secondary Section under the direction of Mrs. Louise Desramaux is gratefully acknowledged.

The report was compiled and written by Dr. Max von Zur-Muehlen, with the assistance of Miss Jo-Anne Belliveau, Ms. M.S. Devereaux, Mr. J. Godin, Mrs. Christine Jolicoeur and Mrs. E. Kealey. Inquiries may be addressed to Max von Zur-Muehlen or myself.

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CHAPTER 1

INTRODUCTION

This report outlines the development of university education in Canada during the last two decades. Because Canadian universities are now entering an era of limited growth, a review of the past may put current trends in perspective. The focus is on tracing trends in expenditures, enrolment and graduation. Separate chapters examine some socio-economic characteristics of students, foreign students, characteristics of full-time university teachers and the research support available to them. To put the figures in context, the structure of Canadian education is explained, and the past and future demographic trends are noted. Although the topic of the report is the university sector, the introductory chapters deal with all levels of education. A selected bibliography contains enough references for interested readers to pursue the subject further.

Statistics Canada's education data files are unique in many respects, and mirror the evolution of Canadian education since the 1950s. The purpose of this report is to develop and extend existing historical series, and in particular, to draw attention to the status of university education in 1978. The information deals primarily with national patterns, with occasional references to regional, provincial and institutional variations. The considerable differences between the 10 provinces and the 47 universities could not be explored adequately. Furthermore, as a statistical portrait,

this paper makes no attempt to address the issues in Canadian higher education.

Unless otherwise indicated, the data have been obtained from regular and special Statistics Canada surveys; more detail can be obtained from its regular publications. Partly due to certain structural and definitional changes, coverage in each survey has changed slightly over the years; hence, year-to-year comparisons should be made cautiously. But the important consideration is overall patterns rather than specific data.

CHAPTER 2

The Structure of Education*

Chart 1 is a general picture of the structure of Canadian education. The right side of the chart indicates elementary-secondary grades and post-secondary years of study; on the left, the modal age of students at various stages of each level is shown.

Under the terms of the British North America Act, education is, with certain exceptions, a provincial responsibility. Therefore, at least ten (12 if the Yukon and Northwest Territories are counted) separate systems have been created. Within a province, there may be variations from the general pattern shown on Chart 1.

For classification purposes, three levels of education have been identified; elementary-secondary, trade, and post-secondary. In addition, most provinces offer continuing education courses at each level.

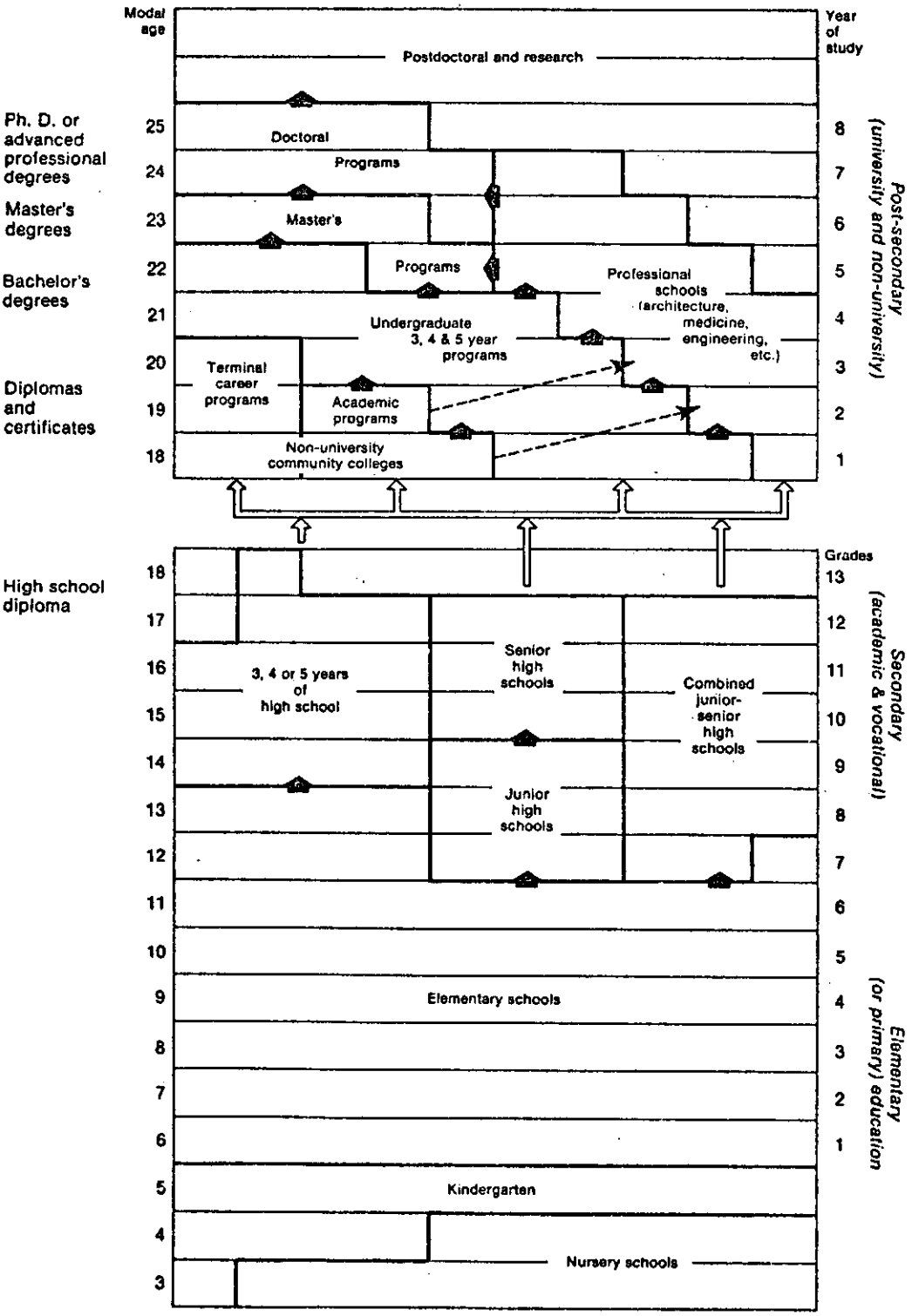
Elementary-secondary level

At the elementary-secondary level, there are five types of schools: (1) public (2) federal, (3) private (4) schools for the handicapped, and (5) private kindergarten and nursery schools.

* Adapted from Statistics Canada's Education in Canada 1977: (A Statistical Review for 1976-77) Ottawa (81-229), 1978.

Chart 1

General Structure of Education in Canada



1. Public schools are established and operated by local educational authorities according to the public school act of the province. Also included in this category are Protestant and Roman Catholic separate schools, and schools operated in Canada by the Department of National Defence within the framework of the public school system.

2. Federal schools are administered by the federal government: overseas schools operated by the Department of National Defence for dependents of servicemen, and Indian schools operated by the Indian and Northern Affairs Department.

3. Private schools, church-affiliated or non-sectarian, are operated and administered by private individuals or groups.

4. Schools for the handicapped provide special facilities and training for the blind and deaf. Most are under direct provincial government administration.

5. Private kindergartens and nursery schools for children of pre-elementary age offer education at that level only. Like their elementary-secondary counter-parts, these schools may be church-affiliated, and are administered by private individuals or groups.

Before the secondary grades, education is quite general and basic. However, at the secondary (high school) level, there is usually a choice of at least two programs: academic or vocational. In metropolitan areas, some high schools may even be oriented mainly toward vocational training (technical and commercial). But most are "composite", offering both purely academic courses preparatory to university, and vocational courses which prepare students either for an occupation or for further post-secondary non-university education. As Chart 1 indicates there are three systems of secondary schooling: those that provide three to five years; those that are divided into junior and senior high schools, and those that combine junior and senior high school.

Trade Level

The trade level (not shown on the charts) is identified separately because it consists of both elementary-secondary schools and post-secondary institutions. Students at this level receive practical training for a specific occupation. Publicly operated trade schools, hospital schools for nursing assistants and community colleges offering vocational instruction are included.

Post-secondary Level

Post-secondary education can be obtained from non-university institutions (non-degree-granting) or universities (degree-granting).

Non-university institutions include community colleges and related institutions:

(collèges d'enseignement général et professionnel - CEGEP's; Colleges of Applied Arts and Technology - CAAT's; agricultural colleges, schools of art, and other specialized institutions), teachers' colleges, and regional and hospital schools of nursing. They offer terminal career programs of one to four years' duration, and generally accept students with junior matriculation. Some also provide one or two-year academic programs after which a student may proceed to university.

Admission to university in most provinces is contingent upon high school graduation. In Quebec, students must first complete the two-year academic program in a CEGEP. Undergraduate degree programs (bachelor's) require from three to five years, depending upon the entrant's qualifications and the nature of the degree sought (pass or honours).

Professional schools begin at different stages and have programs of different lengths, usually three to five years. Students are accepted either with senior matriculation, or with entrance requirements completed in university undergraduate programs or in academic programs of non-university institutions.

A bachelor's degree at the honours level, or the equivalent, is necessary for acceptance into a master's program. Most entail one year of study, but some master's degrees take two years to complete.

Since most universities receive heavy financial support from the federal and provincial governments, it is difficult to make a distinction between public and private. Non-university post-secondary institutions are normally either operated or supervised by the provincial governments.

Continuing Education

Continuing education is offered to persons beyond school-leaving age by local schools boards, provincial departments of education, trade and vocational schools and post-secondary institutions. Courses offered by trade and vocational schools are included in "Colleges". Students can enroll in credit or non-credit programs.

Credit courses sponsored by school boards and Departments of Education may be applied toward a high school diploma. Credits in academic or vocational subjects can be acquired through evening classes or correspondence study. Post-secondary credit courses may count toward a degree, diploma or certificate.

Non-credit programs consist of "interest" courses that students take for personal enrichment or for leisure time use. Instruction is provided in hobby skills (e.g., arts and crafts), liberal arts (e.g., languages and literature), social education (e.g. health and family life), recreation (e.g., sports and games), and driver education. Refresher courses in applied arts, business, and trades are also available to persons with prior training and experience.

This brief overview provides highlights of the present structure of Canadian education without taking into account the existing regional and provincial variations.

CHAPTER 3

PAST AND FUTURE DEMOGRAPHIC TRENDS*

A reversal of demographic trends has played havoc with enrolment in Canada's education systems, and the repercussions will be felt throughout the rest of the century. The sequence of the postwar baby boom, the subsequent precipitous drop in births, and the upturn since 1973 created population waves.(Chart 2).

The baby boom children swell each successive age group as they mature. A lull or trough follows and then a second, though considerably smaller, rise. All levels of education are affected by these waves. The compulsory nature of elementary and much secondary school ensures that enrolment follows population trends. At the post-secondary level, about 80% of all students are 18 to 24, so the size of this age group is a principal determinant of enrolment. Thus, at the elementary level, decline has been the norm rather than the exception since 1970. Secondary schools are just beginning a similar period, and the post-secondary system faces this prospect for the 1980s (Chart 3).

Elementary enrolment grew steadily after World War II to a 1968 peak of about 3.7 million (Chart 4). By 1976 it had declined to 3.4 million and will bottom out at 3.0 million in the early 1980s. (The 22% decrease since 1968 - 800,000 students - is greater than 1976 elementary enrolment in the three Prairie Provinces combined). After the mid-1980s a gradual rise to approximately 3.45 million in the mid-1990s is projected. The magnitude of this increase is somewhat uncertain, as it can be influenced by variations in the fertility rate. However, it appears that the 1968 high will not be reached again this century.

* Derived from: Zsigmond, Z., et al. out of School - Into the Labour Force: A Summary of Findings. Ottawa: Statistics Canada, 1978

Chart 2

Live Births in Canada, 1921 to 2001

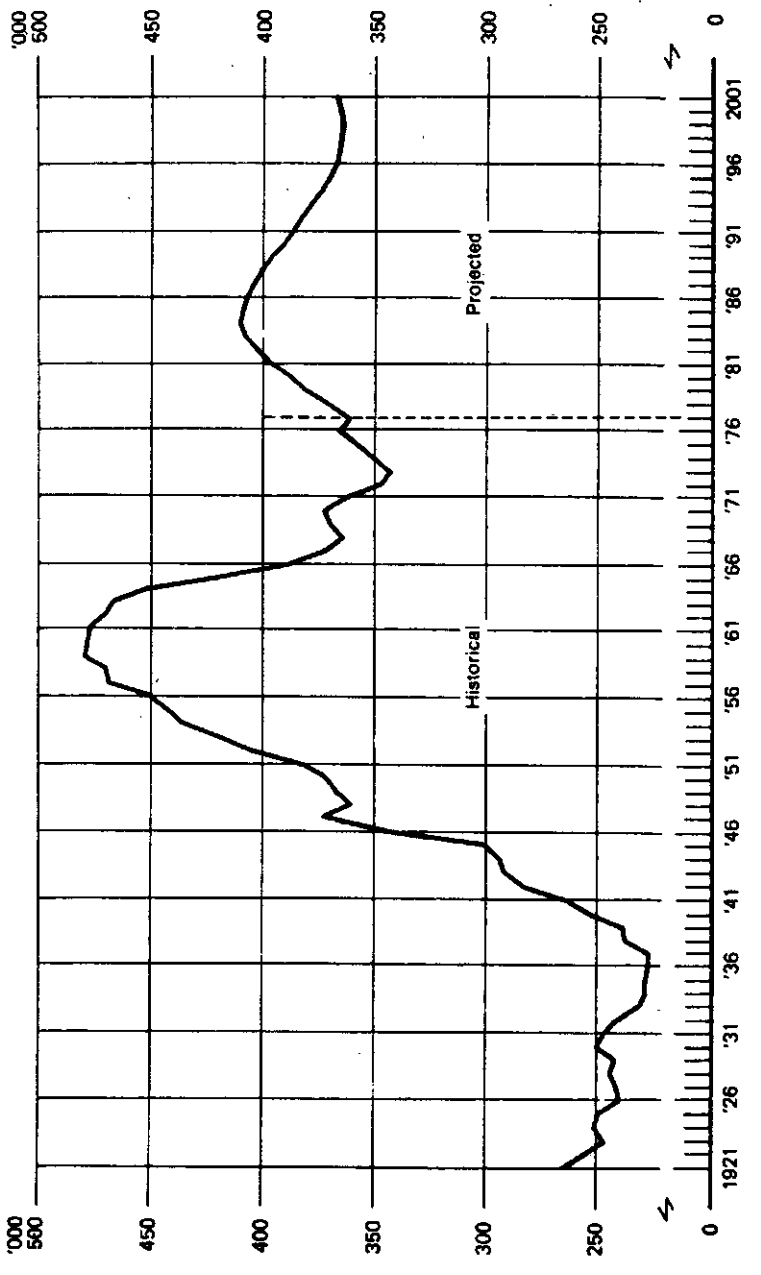


Chart 3

Selected age group populations relevant to school enrolment, Canada, 1961 to 2001

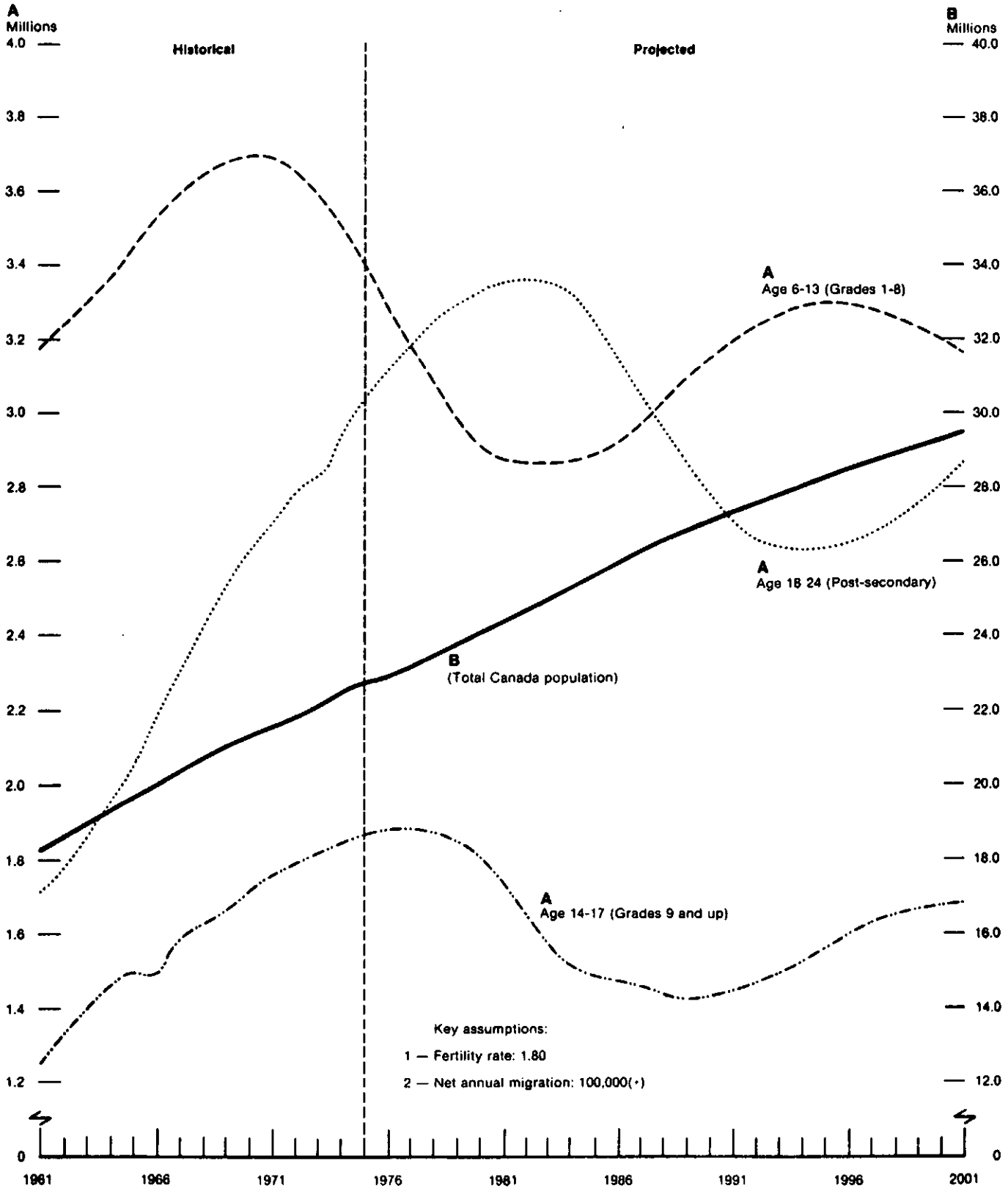
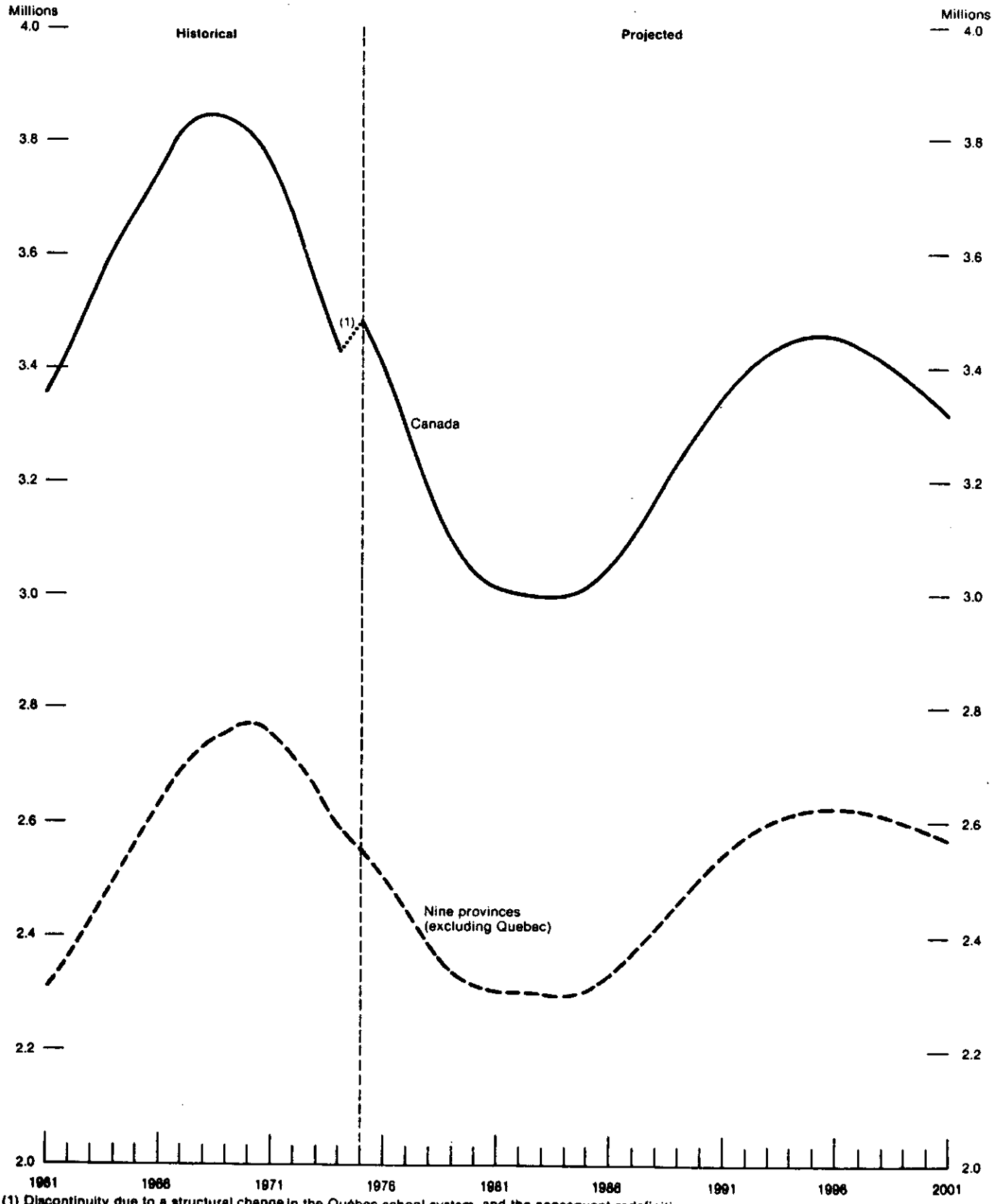


Chart 4

Elementary school enrolment, 1961-2001
(first eight years of schooling excluding kindergarten)



(1) Discontinuity due to a structural change in the Québec school system, and the consequent redefinition, for the purposes of this report, of elementary school enrolment in that province.

Maximum secondary enrolment in Canada was 1.7 million in 1976 (Chart 5). By 1986 it will have dropped 23% to 1.32 million. (The 390,000 loss is larger than current secondary enrolment in both Alberta and British Columbia). Enrolment in the nine provinces excluding Quebec is expected to peak at 1.3 million in 1978, fall 16% to 1.1 million in the early 1980s, remain more or less constant to 1990, and start increasing gradually thereafter. Despite the rise in the early 1990s, the 1987 level will not recur this century[1].

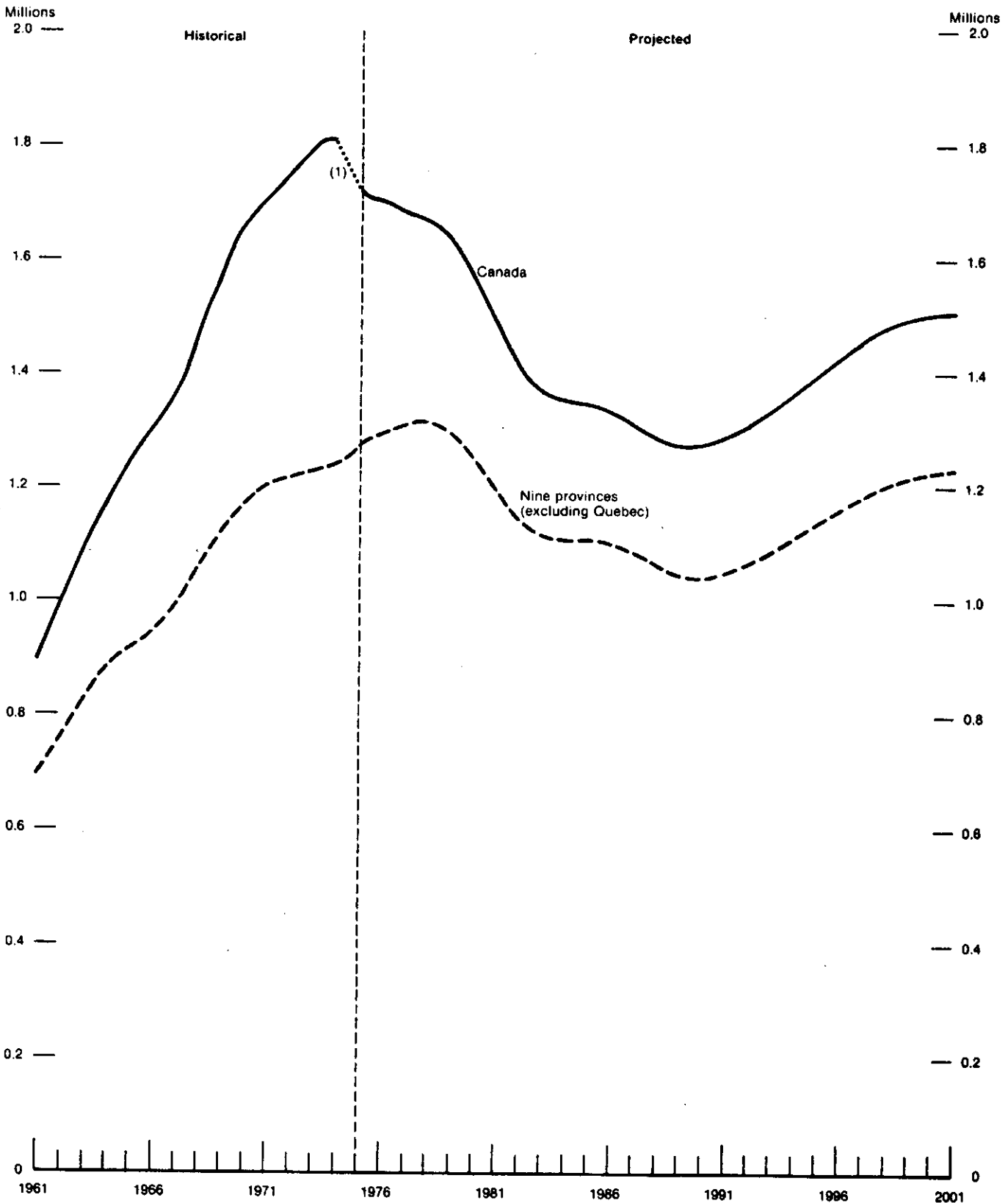
In the 1960s a combination of demographic, social, economic and political factors culminated in unprecedented post-secondary growth. Full-time enrolment more than tripled between 1962 and 1976, from 197,000 to 605,000. The average annual increase in the sixties was a remarkable 11%-12%. It fell to around 4.5% in the early seventies, and by 1976 had decreased to 2.0%. The 208% enrolment gain between 1962 and 1976 resulted from a 75% jump in the size of the 18-24 age group, and a rising enrolment rate.

The enrolment rate - full-time enrolment related to the 18-24 age group - went from 11.1% in 1962 to 19.4% in 1976 (Chart 6). It rose constantly during the 1960s, but in the 1970s the trend changed. After a steady increase the male rate peaked in 1971 at 22.3%, and fell slightly to 21.1% by 1976. On the other hand, the female rate continued climbing from 14.6% in 1971 to 17.7%.

1. In the late 1960s and early 1970s, Quebec's elementary-secondary system was restructured. While not radically influencing total enrolment, this change created irregularities in certain grades. One result is abnormally high enrolment projected for Quebec's colleges in 1977 and 1978, and universities around 1979.

Chart 5

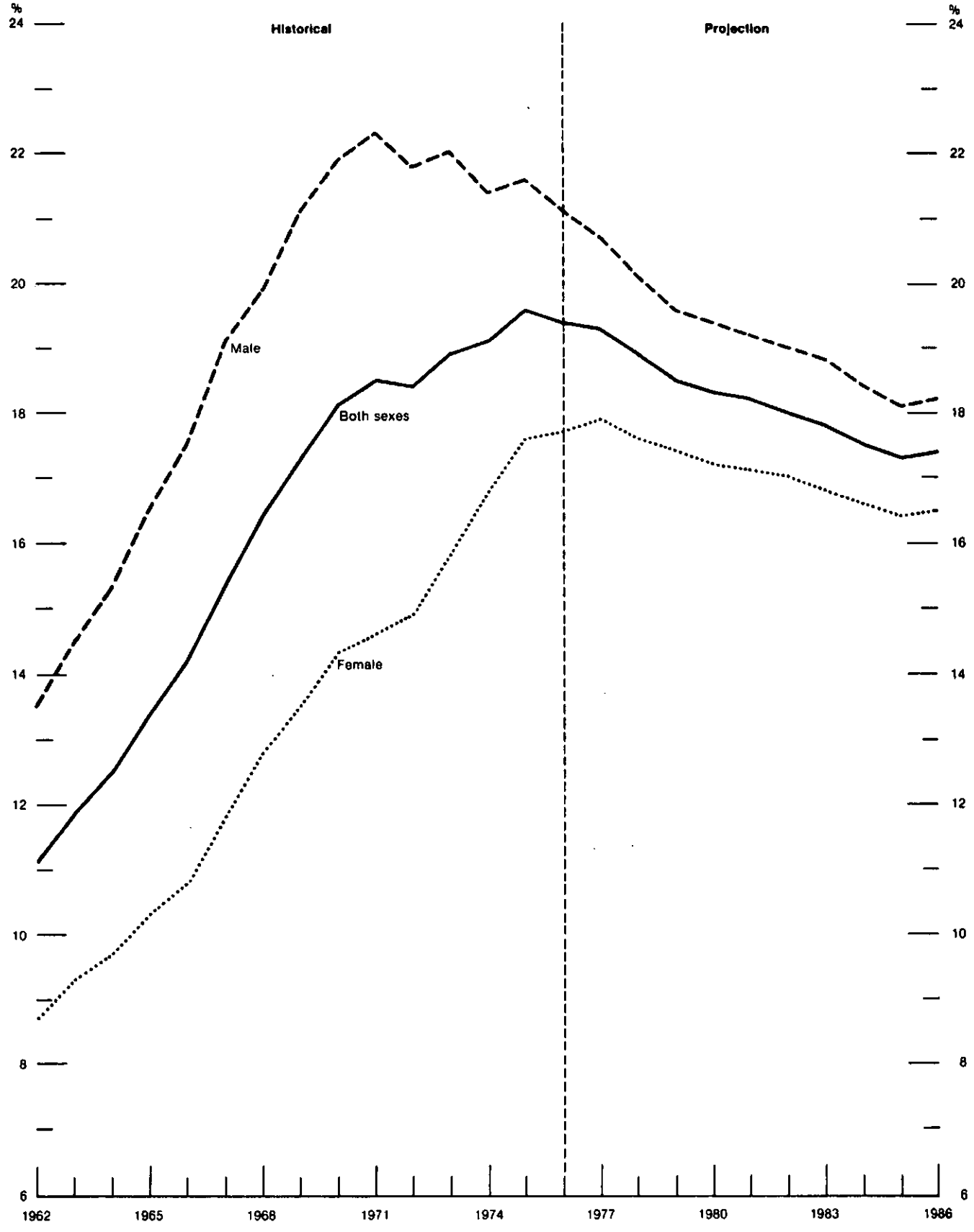
Secondary school enrolment, 1961-2001
(ninth year of schooling and above)



(1) Discontinuity due to a structural change in the Québec school system and the consequent redefinition, for the purposes of the report, of secondary school enrolment in that province.

Chart 6

Post-secondary gross enrolment rate (total full-time enrolment related to 18-24 age group population) Canada, 1962-86



Therefore, the mix of post-secondary students shifted from 30% female in 1962 to 40% in 1971 and 45% in 1976. Only because of growing female participation did the total enrolment rate rise between 1971 and 1976. Provincial enrolment rates differed substantially in 1976-77, ranging from a high of 23.1% in Quebec to a low of 11.5% in Newfoundland (Table 1).

The projection presented here is based on the assumption that the national rate will decline to 17.4% by 1986 because of: (1) a surplus of post-secondary graduates in some disciplines, and consequent unemployment, underemployment and decreasing wages relative to other workers, (2) a diminishing demand for teachers into the 1980s as elementary-secondary enrolment continues to decrease, (3) declining employment opportunities in the public sector, and (4) continuation of the recent drop in the proportion of total government expenditures allocated to education (from 22.2% in 1970 to 17.0% in 1975).

A slowly increasing 18-24 age group (1.2% a year) combined with a falling enrolment rate results in more or less stable post-secondary enrolment between 1977 and 1982 of about 613,000 students. The subsequent decline in the 18-24 age group is expected to lower enrolment to around 550,000 by 1986. This drop is likely to continue into the early 1990s.

Table 1

Enrolment Rate by Age Group of Full-time Post-secondary Students by Type of Study and Province, 1976-77

Province	Post-secondary non-university (18 to 21 age group)	University (18 to 24 age group)	Total Post-secondary (18 to 24 age group)
Newfoundland	4.5	8.8	11.5
Prince Edward Island	8.2	10.0	15.1
Nova Scotia	4.3	16.9	19.4
New Brunswick	2.9	11.8	13.5
Québec	10.8	16.7	23.1
Ontario	9.6	15.4	21.1
Manitoba	4.4	13.7	16.3
Saskatchewan	4.1	12.1	14.7
Alberta	9.3	13.3	18.7
British Columbia	5.1	12.6	15.6
Canada	8.5	14.8	19.8

A breakdown between universities and non-university (college) institutions projects little change in total university enrolment for the early 1980s (383,000 in 1983 compared with 377,000 in 1976) (Chart 7).. However, some provinces - particularly Ontario - have already experienced a decline.

The growing popularity of career-related programs may increase college enrolment vis-à-vis universities. It is projected to peak at 243,000 in 1977 and 1978, and then decline steadily to 195,000 by 1986 (a 20% drop in eight years)(Chart 8). The loss to 1982 is due largely to declines in Québec. Since Quebec accounts for more than half of all non-university students, it has considerable influence on the national trend. Enrolment in the nine provinces excluding Quebec is expected to rise slowly from 107,000 in 1976 to 117,000 in 1982, and then decline 9% to 107,000 in 1986. For Quebec, abnormally high enrolment is expected in 1977 and perhaps 1978 because of the restructured school system. Afterward, owing largely to demographic factors, a steady decline is projected from 133,000 in 1977 to around 89,000 in 1986, a drop of one-third. Such a decline is expected to persist in all regions into the early 1990s.

Enrolment patterns at the elementary-secondary, post-secondary non-university, and university levels affect the number of teachers. During the 1960s elementary and secondary teachers increased to a 1972-73 high of 278,000 but have since declined to an estimated 265,000 in 1977-78 (Table 2).

Chart 7

Full-time university enrolment, 1962-86

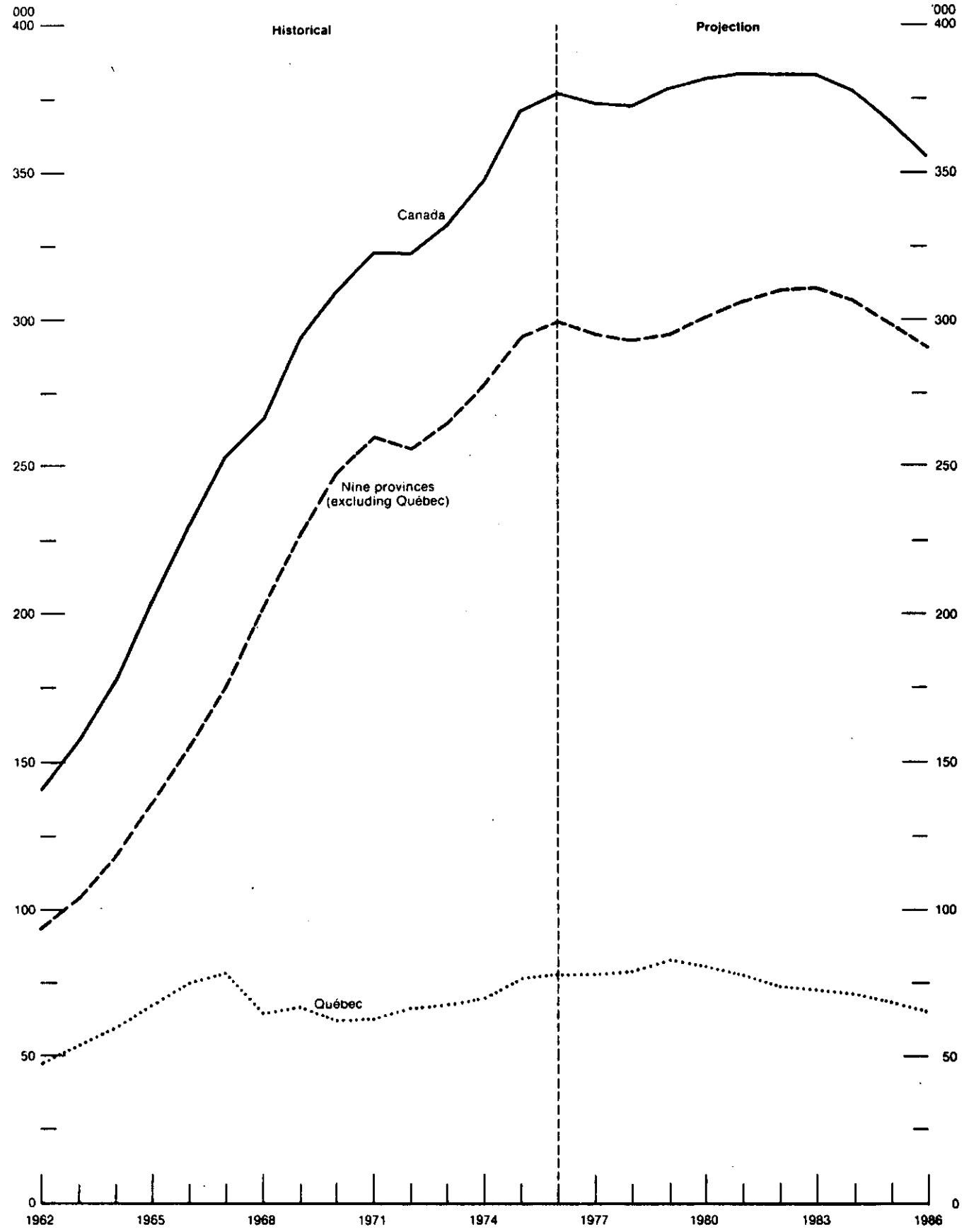


Chart 8

Full-time non-university enrolment, 1962-86

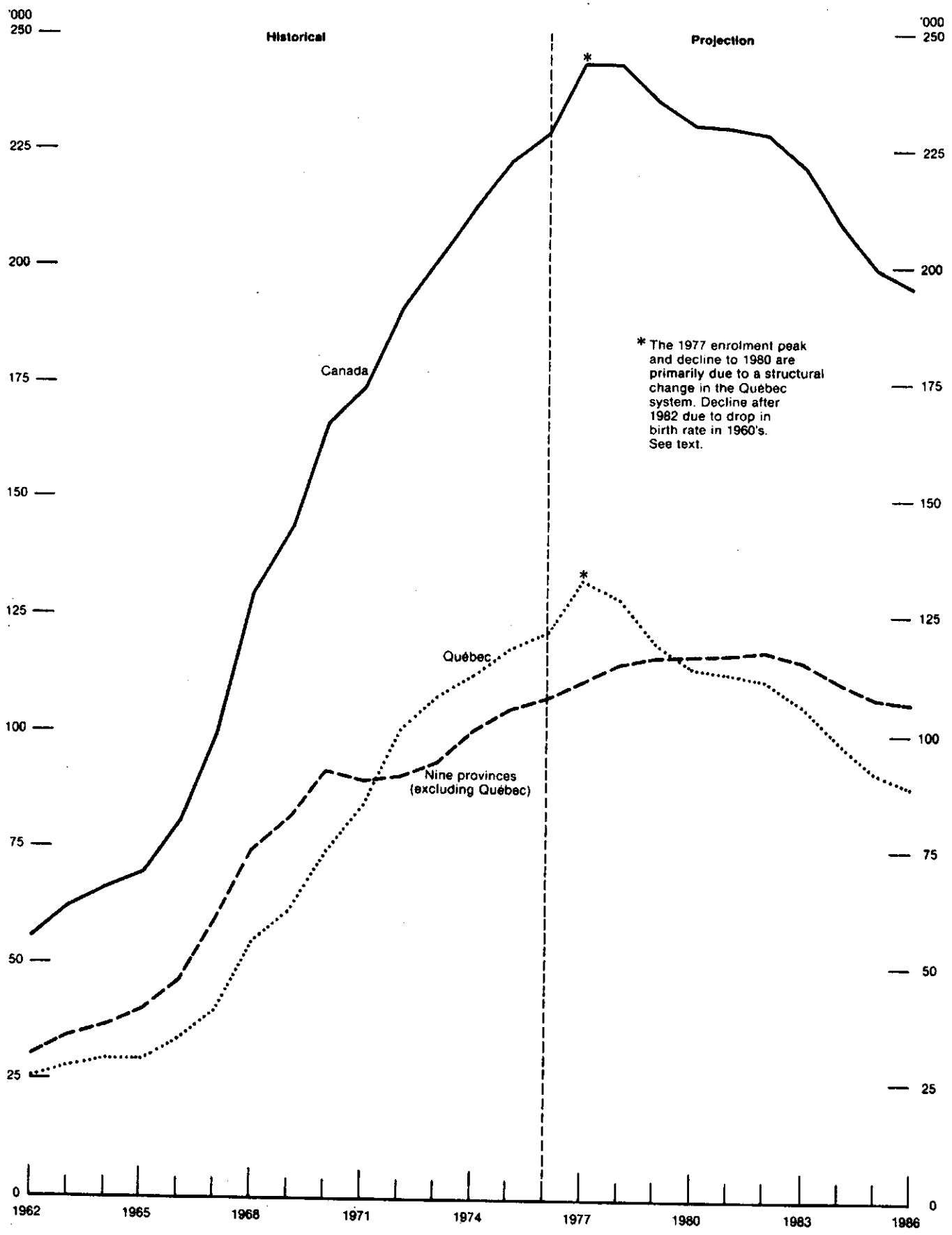


Table 2

Full-time Teachers by Type, 1965-66 to 1977-78

Year	Elementary and Secondary		Post-secondary Non University		Post-secondary University		Total	
	No.	Index	No.	Index	No.	Index	No.	Index
1965-66	211,800 (91.5)	100.0	5,300 (2.3)	100.0	14,400 (6.2)	100.0	231,500 (100.0)	100.0
1966-67	226,000 (90.8)	106.7	6,300 (2.5)	118.9	16,700 (6.7)	116.0	249,000 (100.0)	107.6
1967-68	244,300 (90.3)	115.3	7,200 (2.7)	135.8	19,100 (7.0)	132.6	270,600 (100.0)	116.9
1968-69	258,000 (89.8)	121.8	9,100 (3.2)	171.7	20,100 (7.0)	139.6	287,200 (100.0)	124.1
1969-70	270,900 (89.1)	127.9	10,500 (3.4)	198.1	22,700 (7.5)	157.6	304,100 (100.0)	131.4
1970-71	276,000 (88.3)	130.3	12,000 (3.8)	226.4	24,700 (7.9)	171.5	312,700 (100.0)	135.1
1971-72	275,600 (86.9)	130.1	14,100 (4.4)	266.0	27,600 (8.7)	191.7	317,300 (100.0)	137.1
1972-73	278,300 (86.3)	131.4	15,500 (4.8)	292.4	28,500 (8.8)	197.9	322,300 (100.0)	139.2
1973-74	277,000 (86.1)	130.8	15,900 (4.9)	300.0	28,900 (9.0)	200.7	321,800 (100.0)	139.0
1974-75	277,200 (85.7)	130.9	16,400 (5.1)	309.4	30,000 (9.3)	208.3	323,600 (100.0)	139.8
1975-76	274,263 (85.0)	129.5	17,361 (5.4)	327.6	30,858 (9.6)	214.3	322,482 (100.0)	139.3
1976-77	270,621 (84.4)	127.8	18,040 (5.6)	340.4	31,963 (10.0)	222.0	320,624 (100.0)	138.5
1977-78*	265,042 (83.6)	125.1	19,275 (6.1)	363.7	32,675 (10.3)	226.9	316,992 (100.0)	136.9

* Estimated

Note: Percentage in brackets shows the distribution by type.

At the post-secondary non-university level, numbers grew almost fourfold from 5,300 in 1965-66 to 19,300, and in the university sector, from 14,400 to an estimated 32,675. Whereas about 90% of all teachers during the mid-sixties were at the elementary-secondary level, this proportion has declined to 84%. In all likelihood, it will decrease further until the early eighties because of demography which largely determines enrolment trends.

However, the enrolment projections should not be regarded as predictions. They are developed to show anticipated trends.

CHAPTER 4

EDUCATION FINANCE

Enrolment, education expenditures and other socio-economic indicators in a number of industrialized countries are shown in Table 3 for 1973 and compared with the situation in Canada. That year 28.3% of Canada's population were full-time students, less than the 33.4% in the United States, but substantially more than in other countries. After Sweden (7.7%), Canada spent the largest (7.1%) share of its GNP on education, and education expenditures accounted for 18.7% of the national budget. Education spending per capita in Canada was $397, compared with $410 in the United States, $450 in Sweden, and $229 in Germany. Again, Canada was second only to Sweden with expenditures per student of $1,402.

Expansion of education during the sixties is reflected in the shift of the expenditure pattern among the major functions of government. Federal, provincial and municipal expenditures on all levels of education grew from 17.5% in 1964 to more than 22.0% in the late sixties, but then dropped to 16.7% by 1975 (Table 4). This shift is due to financial restraint programs instituted by some provincial governments, the elementary enrolment decline, and more rapid growth of spending on other spheres such as health and social welfare. Demographic factors and their concomitant enrolment trends, together with the cost consciousness of provincial governments, suggest that the share allocated to education will fall further in the next decade.

Table 3

Comparison of Enrolment, Expenditures on Education and Other Socio-economic Indicators, Canada and other Selected Countries, 1973

	Canada	United States	France	West Germany	Italy	Sweden	United Kingdom	Japan
Population								
1973 .....'000	22,095	210,404	52,130	61,967	54,900	8,137	55,933	108,346
Enrolment								
1973 .....'000	6,256.5	70,266.1	13,351.9	14,159.6	11,907.0	1,524.2	N/A	23,073.9
Enrolment as % of population								
1973	28.3	33.4	25.6	22.9	21.7	18.7	N/A	21.3
GNP								
1973 .....Can. $ million	123,560	1,296,531	235,519	341,954	134,554	47,793	166,121	394,778
Public expenditures on education - Total								
1973 .....Can. $ million	8,772.0	86,236.3	12,753.3	14,172.9	7,157.1	3,665.6	9,412.0	N/A
As % of GNP								
1973	7.1	6.7	5.4	4.1	5.3	7.7	5.7	N/A
As % of total national budget								
1973	18.7	17.9	27.4	14.0	13.4	14.1	N/A	N/A
Public expenditures on education per capita								
1973 .....Can. $	397	410	245	229	130	450	168	N/A
Public expenditures per pupil								
1973 .....Can. $	1,402	1,227	955	1,001	601	2,405	N/A	N/A

Source: United Nations, Department of Economic and Social Affairs, Statistical Office, Statistical Yearbook, 1976 (New York: 1976).

Table 4

Federal, Provincial and Municipal Government Expenditures on Education and Other Major Functions as Percentages of the Total, 1964 to 1975

Year	Total	Major functions					
		Education	Protection of Persons and property	Health	Social Welfare	Transportation and Communication	Other
($)	(million)	Percent					
1964	14,435.4	17.5	14.3	10.0	18.3	14.0	25.9
1965	16,183.6	18.5	13.2	10.1	18.3	14.3	25.6
1966	18,727.1	19.7	12.2	10.3	17.2	13.8	26.8
1967	21,486.6	21.1	11.6	10.5	17.8	12.3	26.7
1968	23,809.7	22.2	10.7	10.9	18.0	11.8	26.4
1969	27,362.3	22.1	10.1	12.4	17.5	11.0	26.9
1970	31,440.4	22.2	9.8	13.5	18.4	10.3	25.8
1971	36,275.5	21.0	9.3	13.5	19.2	10.1	26.9
1972	41,008.6	19.5	8.9	13.4	21.1	10.0	27.1
1973	47,013.0	18.7	8.9	12.9	22.4	10.2	26.9
1974	59,298.2	17.1	8.1	12.4	22.4	10.1	29.9
1975	71,810.5	16.7	8.0	12.7	22.6	9.5	30.5

The British-North American Act of 1867 made education a provincial responsibility, so the major component of education expenditures is at the provincial level. In current dollars, total expenditures increased tenfold from $1.7 billion to $17.1 billion between 1960-61 and 1977-78 (Table 5). Almost two-thirds has been generated by the provincial governments, but this includes federal transfer payments (nearly $2.0 billion of the $10 billion spent in 1976-77), mostly for post-secondary education. The municipal share, primarily for the elementary and secondary level, declined from about one-third during the early sixties to less than 20% by the mid-seventies, while that of the provinces has substantially increased.

The percentage of expenditures allotted to elementary and secondary education declined from three-quarters during the early sixties to two-thirds by the mid-seventies (Table 6). This proportion has remained stable, although the increase in absolute figures was from $3.2 billion in 1967-68 to an estimated $11.4 billion in 1977-78. Relative spending shifted to the post-secondary level, particularly the non-university sector, which grew from 3% to around 7%. Similarly, university expenditures rose from 16% in 1960-61 to close to 25% in 1967-68, but fell to less than 20% by 1977-78. In current dollars, expenditures on university education grew from about $1.0 billion in 1966-67 to 3.3 billion in 1977-78. Vocational training, funded chiefly by the federal government, more than doubled its share from 3% to over 6%, and now amounts to $1.1 billion (1977-78).

Table 5

Expenditures on Education at All Levels by Source of Funds, 1960-61 to 1977-78

Year	Sources of Funds						Total	Federal transfers[1] to provinces included in provincial funds
	Federal Government[1]	Provincial Governments[1]	Municipal Governments	Sub-total Governments	Fees	Other Sources		
				$'000				
1960-61	132,218 (7.8)	729,243 (42.7)	653,207 (38.3)	1,514,668 (88.8)	102,602 (6.0)	88,716 (5.2)	1,705,986 (100.0)	7,713
1961-62	161,023 (8.3)	852,456 (44.2)	691,336 (35.8)	1,704,815 (88.3)	116,111 (6.0)	109,745 (5.7)	1,930,671 (100.0)	7,889
1962-63	355,255 (14.9)	1,035,800 (43.6)	739,655 (31.1)	2,130,710 (89.6)	128,244 (5.4)	118,983 (5.0)	2,377,937 (100.0)	8,057
1963-64	297,677 (11.7)	1,122,363 (44.2)	826,067 (32.5)	2,246,107 (88.4)	148,634 (5.8)	146,066 (5.7)	2,540,807 (100.0)	10,962
1964-65	290,139 (10.0)	1,328,324 (46.0)	914,588 (31.6)	2,533,051 (87.6)	168,819 (5.8)	188,077 (6.5)	2,889,947 (100.0)	11,168
1965-66	368,606 (10.8)	1,588,303 (46.7)	1,036,126 (30.5)	2,993,035 (88.0)	198,937 (5.9)	207,533 (6.1)	3,399,505 (100.0)	11,370
1966-67	539,852 (13.0)	1,984,762 (47.8)	1,155,367 (27.8)	3,679,981 (88.6)	220,322 (5.3)	254,942 (6.1)	4,155,245 (100.0)	28,904
1967-68	626,607 (12.5)	2,596,882 (51.7)	1,312,003 (26.1)	4,535,492 (90.3)	223,673 (4.4)	266,292 (5.3)	5,025,457 (100.0)	424,957
1968-69	658,187 (11.4)	3,141,058 (54.4)	1,477,699 (25.6)	5,276,944 (91.3)	253,081 (4.4)	247,108 (4.3)	5,777,133 (100.0)	527,937
1969-70	756,522 (11.4)	3,656,000 (55.2)	1,626,038 (24.5)	6,038,560 (91.2)	269,709 (4.1)	315,776 (4.8)	6,624,045 (100.0)	654,007
1970-71	930,061 (12.1)	4,315,985 (56.2)	1,719,354 (22.4)	6,965,400 (90.7)	320,509 (4.2)	390,140 (5.1)	7,676,049 (100.0)	847,304
1971-72	923,993 (11.1)	4,966,741 (59.5)	1,713,572 (20.5)	7,604,306 (91.1)	386,806 (4.6)	358,593 (4.3)	8,349,705 (100.0)	993,821

Table 5 (cont'd)

Expenditures on Education at All Levels by Source of Funds, 1960-61 to 1977-78

Year	Source of Funds						Total	Federal transfers[1] to province included in provincial funds
	Federal Government[1]	Provincial Governments[1]	Municipal Governments	Sub-total Governments	Fees	Other Sources		
1972-73	943,829 (10.9)	5,257,033 (60.6)	1,777,306 (20.5)	7,978,168 (92.0)	414,434 (4.8)	276,606 (3.2)	8,669,208 (100.0)	1,085,511
1973-74	984,773 (10.2)	5,847,196 (60.7)	1,940,013 (20.1)	8,771,982 (91.0)	436,581 (4.5)	426,652 (4.4)	9,635,215 (100,0)	1,245,939
1974-75	1,056,478 (9.6)	7,028,879 (63.6)	2,062,773 (18.7)	10,148,130 (91.8)	470,487 (4.3)	430,196 (3.9)	11,048,813 (100.0)	1,438,052
1975-76	1,200,037 (9.2)	8,410,152 (64.8)	2,405,943 (18.5)	12,016,132 (92.5)	528,930 (4.1)	442,731 (3.4)	12,987,793 (100.0)	1,652,755
1976-77*	1,444,485 (9.5)	9,941,295 (65.2)	2,827,750 (18.6)	14,213,530 (93.3)	585,508 (3.8)	439,037 (2.9)	15,238,075 (100.0)	1,895,575
1977-78*	1,610,525 (9.4)	11,224,276 (65.7)	3,131,915 (18.3)	15,966,716 (93.5)	612,862 (3.6)	500,697 (2.9)	17,080,275 (100.0)	N/A

* Preliminary

1) Federal transfers to provinces for post-secondary education and for the minority language program included in provincial funds

Table 6

Expenditures on Education by Level, 1960-61 to 1977-78

Year	Elementary and Secondary	Post-secondary			Vocational training	Total
		Non-university	University	Sub-total Post-secondary		
			$'000			
1960-61	1,328,294 (77.9)	57,600 (3.4)	272,940 (16.0)	330,540 (19.4)	47,152 (2.8)	1,705,986 (100.0)
1961-62	1,499,459 (77.7)	58,428 (3.0)	310,629 (16.1)	369,057 (19.1)	62,155 (3.2)	1,930,671 (100.0)
1962-63	1,808,782 (76.1)	73,633 (3.1)	378,693 (15.9)	452,326 (19.0)	116,829 (4.9)	2,377,937 (100.0)
1963-64	1,879,077 (74.0)	82,108 (3.2)	461,397 (18.2)	543,505 (21.4)	118,225 (4.7)	2,540,807 (100.0)
1964-65	2,066,156 (71.5)	93,112 (3.2)	597,326 (20.7)	690,438 (23.9)	133,353 (4.6)	2,889,947 (100.0)
1965-66	2,410,798 (70.9)	98,763 (2.9)	736,583 (21.7)	835,346 (24.6)	153,361 (4.5)	3,399,505 (100.0)
1966-67	2,790,942 (67.2)	124,965 (3.0)	991,647 (23.9)	1,116,612 (26.9)	247,691 (6.0)	4,155,245 (100.0)
1967-68	3,230,038 (64.3)	200,077 (4.0)	1,243,411 (24.7)	1,443,488 (28.7)	351,931 (7.0)	5,025,457 (100.0)
1968-69	3,775,118 (65.3)	251,203 (4.3)	1,359,972 (23.5)	1,611,175 (27.9)	390,840 (6.8)	5,777,133 (100.0)
1969-70	4,281,421 (64.6)	346,573 (5.2)	1,603,781 (24.2)	1,950,354 (29.4)	392,270 (5.9)	6,624,045 (100.0)
1970-71	4,880,426 (63.6)	429,995 (5.6)	1,790,812 (23.3)	2,220,807 (28.9)	574,816 (7.5)	7,676,049 (100.0)
1971-72	5,389,256 (64.5)	530,023 (6.3)	1,864,517 (22.3)	2,394,540 (28.7)	565,909 (6.8)	8,349,705 (100.0)
1972-73	5,624,968 (64.9)	572,993 (6.6)	1,867,801 (21.5)	2,440,794 (28.1)	603,446 (7.0)	8,669,208 (100.0)
1973-74	6,312,881 (65.5)	656,527 (6.8)	2,029,910 (21.1)	2,686,437 (27.9)	635,897 (6.6)	9,635,215 (100.0)
1974-75	7,190,845 (65.1)	792,408 (7.2)	2,372,171 (21.5)	3,164,579 (28.6)	693,389 (6.3)	11,048,813 (100.0)
1975-76	8,433,773 (65.0)	946,674 (7.3)	2,760,542 (21.3)	3,707,216 (28.6)	846,804 (6.5)	12,987,793 (100.0)
1976-77*	10,131,680 (66.5)	1,069,758 (7.0)	3,062,674 (20.1)	4,132,432 (27.1)	973,963 (6.4)	15,238,075 (100.0)
1977-78*	11,364,390 (66.5)	1,261,097 (7.4)	3,335,382 (19.5)	4,596,479 (26.9)	1,119,406 (6.6)	17,080,275 (100.0)

* Preliminary

Although it is almost impossible to project future expenditure patterns, the rate of growth is diminishing, and the distribution among the four sectors is likely to remain stable over the next few years.

Table 7 shows university expenditures by source of funds. The federal contribution accounted for about 20% during the early sixties, but as indicated before, federal transfer payments are included with provincial government contributions. Otherwise, the table would show that from 1967-68 to 1976-77 when the Federal Provincial Fiscal Arrangements Act of 1967 was in force, about 50% of universities' operating expenditures, as well as those of other post-secondary institutions, have been funded by the federal government.

The Act expired on March 31, 1977, and was replaced by the Established Programs Financing (EPF) which covers education, hospital insurance and medicare. Half of the federal payment consists of a transfer of tax points to the provinces (13.5 points of personal income tax and 1 point of corporation tax). The other half is a per capita cash grant. The tax portion, based on 1975-76, will grow with the tax base, while per capita grants will increase in relation to the Gross National Product. EPF will be in effect for at least five years with a three-year notice of termination.

The proportion of university income derived from student fees fell from about 16% to less than 10%, and a similar decline occurred for other sources such as endowments and donations.

Table 7

Expenditures on University Education by Source of Funds, 1960-61 to 1977-78

Year	Federal Government	Provincial Governments**	Municipal Governments	Sub-total	Fees	Other Sources	Total
			$'000				
1960-61	53,265 (19.5)	118,859 (43.5)	704 (0.3)	172,828 (63.3)	45,991 (16.9)	54,121 (19.8)	272,940 (100.0)
1961-62	53,297 (17.2)	148,405 (47.8)	1,504 (0.5)	203,206 (65.4)	56,249 (18.1)	51,174 (16.5)	310,629 (100.0)
1962-63	68,350 (18.0)	180,663 (47.7)	920 (0.2)	249,933 (66.0)	62,397 (16.5)	66,363 (17.5)	378,693 (100.0)
1963-64	80,685 (17.5)	212,436 (46.0)	1,182 (0.3)	294,303 (63.8)	75,573 (16.4)	91,521 (19.8)	461,397 (100.0)
1964-65	90,297 (15.1)	276,361 (46.3)	1,181 (0.2)	367,839 (61.6)	89,738 (15.0)	139,749 (23.4)	597,326 (100.0)
1965-66	107,950 (14.6)	371,210 (50.4)	1,174 (0.2)	480,334 (65.2)	110,624 (15.0)	145,625 (19.8)	736,583 (100.0)
1966-67	189,968 (19.2)	500,645 (50.5)	4,245 (0.4)	694,858 (70.1)	129,953 (13.1)	166,836 (16.8)	991,647 (100.0)
1967-68	161,270 (13.0)	750,784 (60.4)	3,146 (0.2)	915,200 (73.6)	144,490 (11.6)	183,721 (14.8)	1,243,411 (100.0)
1968-69	185,189 (13.6)	880,692 (64.8)	2,238 (0.2)	1,068,119 (78.6)	162,332 (11.9)	129,521 (9.5)	1,359,972 (100.0)
1969-70	194,381 (12.1)	1,026,443 (64.0)	3,117 (0.2)	1,223,941 (76.3)	178,782 (11.1)	201,058 (12.5)	1,603,781 (100.0)
1970-71	209,827 (11.7)	1,191,524 (66.5)	1,043 (0.1)	1,402,394 (78.3)	190,456 (10.6)	197,962 (11.1)	1,790,812 (100.0)
1971-72	244,882 (13.1)	1,204,199 (64.6)	1,052 (0.1)	1,450,133 (77.8)	225,838 (12.1)	188,546 (10.1)	1,864,517 (100.0)

Table 7 (cont'd)

Expenditures on University Education by Source of Funds, 1960-61 to 1977-78

Year	Federal Government	Provincial Governments**	Municipal Governments	Sub-total	Fees	Other Sources	Total
			$'000				
1972-73	267,464 (14.3)	1,233,405 (66.0)	629 (0.0)	1,501,498 (80.4)	223,019 (11.9)	143,284 (7.7)	1,867,801 (100.0)
1973-74	279,881 (13.8)	1,344,367 (66.2)	4,661 (0.2)	1,628,909 (80.2)	238,105 (11.7)	162,896 (8.0)	2,029,910 (100.0)
1974-75	304,652 (12.8)	1,583,099 (66.7)	756 (0.0)	1,888,507 (79.6)	252,999 (10.7)	230,665 (9.7)	2,372,171 (100.0)
1975-76	332,210 (12.0)	1,925,561 (69.8)	1,034 (0.0)	2,258,805 (81.8)	275,995 (10.0)	225,742 (8.2)	2,760,542 (100.0)
1976-77	440,296 (14.4)	2,143,608 (70.0)	728 (0.0)	2,584,632 (84.4)	292,805 (9.6)	185,237 (6.0)	3,062,674 (100.0)
1977-78*	448,051 (14.6)	2,317,124 (69.5)	948 (0.0)	2,806,123 (84.1)	301,219 (9.0)	228,040 (6.8)	3,335,382 (100.0)

Note: Includes operating and capital expenditures, scholarships and other departmental expenditures

* Preliminary
** Includes federal transfer payments.

Table 8

Expenditures on University Education by Type of Expenditures, Canada, 1960-61 to 1977-78

Year	Operating	Capital	Scholarships, Student Aid	Other (departmental)	Total
			($'000)		
1960-61	182,568 (67.0)	79,800 (29.2)	9,659 (3.5)	913 (0.3)	272,940 (100.0)
1961-62	211,330 (68.0)	85,008 (27.4)	13,211 (4.3)	1,080 (0.3)	310,629 (100.0)
1962-63	244,015 (64.4)	112,487 (29.7)	21,044 (5.6)	1,147 (0.3)	378,693 (100.0)
1963-64	289,931 (62.8)	146,100 (31.7)	24,040 (5.2)	1,326 (0.3)	461,397 (100.0)
1964-65	345,222 (57.8)	217,746 (36.4)	32,789 (5.5)	1,569 (0.3)	597,326 (100.0)
1965-66	432,732 (58.7)	251,812 (34.2)	49,618 (6.7)	2,421 (0.3)	736,583 (100.0)
1966-67	582,295 (58.7)	324,466 (32.7)	73,618 (7.4)	11,268 (1.1)	991,647 (100.0)
1967-68	748,868 (60.2)	378,101 (30.4)	100,277 (8.1)	16,165 (1.3)	1,243,411 (100.0)
1968-69	896,853 (65.9)	335,936 (24.7)	108,572 (8.0)	18,611 (1.4)	1,359,972 (100.0)
1969-70	1,084,197 (67.6)	356,305 (22.2)	140,173 (8.7)	23,106 (1.4)	1,603,781 (100.0)
1970-71	1,223,947 (68.3)	392,243 (21.9)	159,815 (8.9)	14,807 (0.8)	1,790,812 (100.0)
1971-72	1,365,727 (73.2)	315,194 (16.9)	163,139 (8.7)	20,457 (1.1)	1,864,517 (100.0)
1972-73	1,433,712 (76.8)	238,924 (12.8)	161,652 (8.6)	33,513 (1.8)	1,867,801 (100.0)
1973-74	1,580,956 (77.9)	223,819 (11.0)	184,202 (9.1)	40,933 (2.0)	2,029,910 (100.0)
1974-75	1,837,964 (77.5)	188,854 (8.0)	197,558 (8.3)	147,795 (6.2)	2,372,171 (100.0)
1975-76	2,175,362, (78.8)	214,258 (7.8)	230,877 (8.4)	140,045 (5.1)	2,760,542 (100.0)
1976-77	2,442,321 (79.7)	156,254 (5.1)	313,029 (10.2)	151,070 (4.9)	3,062,674 (100.0)
1977-78*	2,620,003 (78.6)	186,811 (5.6)	384,447 (11.5)	144,121 (4.3)	3,335,382 (100.0)

* Preliminary

Expenditures on universities can be further broken down by type. The major components are "operating", "capital", "scholarships" and "other". During the rapid expansion of the mid-sixties, capital expenditures, primarily for buildings and equipment, accounted for about one-third, but this dropped to about 5% or 6% in recent years (Table 8). In contrast, operating expenditures rose rapidly, and now account for close to 80% of total expenditures. Student support programs (e.g., scholarships and student aid) also grew, from about 5% in the early sixties to more than 10%.

As the OECD Reviews of National Policies for Education (Canada) stated in 1975 the immense investment Canadian society made in education during the sixties and early seventies can be regarded as "a second great pioneering achievement"(1).

1. Organization for Economic Co-operation and Development, Review of National Policies for Education - Canada: Paris, 1975, page 31.

CHAPTER 5

UNIVERSITY ENROLMENT PATTERNS

Full-time undergraduate enrolment doubled between 1962-63 to 1969-70 from 133,000 to 264,000, but then grew only gradually to a high of 336,000 in 1976-77 (Table 9). The proportion of full-time undergraduate students in arts and science fell from a high of 58.1% in 1967-68 to 47.3% in 1976-77. In contrast, business administration almost doubled from 5.8% to about 10%. This is indicative of a general trend toward professional programs. As a further illustration, law tripled from less than 3,000 students to more than 9,000, while enrolment in professional disciplines such as engineering and medicine doubled. Part-time undergraduate enrolment increased from 39,000 in 1962-63 to 142,000 in 1970-71 and to 171,000 in 1977-78 (Table 10).

At the graduate level, full-time students increased even more rapidly between 1962-63 and 1969-70 from 8,400 to 30,200, but has stabilized around 30,000 (Table 11). The humanities and social sciences, including education, accounted for more than half of 1976 graduate enrolment. Since the late sixties the number of graduate students in the sciences has changed little: around 3,300 in engineering and 4,000 in the physical sciences. But whereas the physical sciences accounted for well over 20% of total graduate enrolment during the sixties, the percentage fell below 12% in the seventies.

Table 9

Full-time Undergraduate Enrolment by Field of Specialization, 1962-63 to 1976-77

Field of Specialization	62-63	63-64	64-65	65-66	66-67	67-68	68-69	69-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77
Arts	55,869 (42.1)	60,656 (41.3)	69,489 (42.4)	81,673 (43.7)	92,680 (44.0)	100,175 (43.7)	100,876 (42.1)	98,164 (37.2)	95,511 (34.6)	93,379 (32.5)	84,202 (29.6)	85,061 (28.8)	86,008 (27.8)	89,364 (27.0)	89,440 (26.6)
Science	14,958 (11.3)	19,152 (13.0)	21,710 (13.3)	25,320 (13.5)	29,223 (13.9)	32,913 (14.4)	36,919 (15.4)	40,947 (15.5)	43,910 (15.9)	42,177 (14.7)	45,311 (15.9)	46,623 (15.8)	46,581 (15.0)	45,770 (13.8)	44,380 (13.2)
Arts or Science	-	-	-	-	-	-	-	9,928 (3.8)	15,194 (5.5)	20,302 (7.1)	20,664 (7.2)	20,996 (7.1)	23,050 (7.4)	26,721 (8.1)	25,341 (7.5)
Sub-total	70,827 (53.4)	79,808 (54.4)	91,199 (55.7)	106,993 (57.2)	121,903 (57.9)	133,088 (58.1)	137,795 (57.5)	149,039 (56.5)	154,615 (56.0)	155,858 (54.3)	150,177 (52.7)	152,680 (51.8)	155,639 (50.3)	161,855 (48.9)	159,161 (47.4)
Agriculture	1,974 (1.5)	2,201 (1.5)	2,338 (1.4)	2,414 (1.3)	2,561 (1.2)	2,685 (1.2)	2,745 (1.1)	3,538 (1.3)	3,721 (1.3)	3,527 (1.2)	3,117 (1.1)	3,591 (1.2)	4,257 (1.4)	4,613 (1.4)	5,201 (1.5)
Commerce and Business Admin.	7,854 (5.9)	8,787 (6.0)	9,747 (6.0)	10,740 (5.7)	12,232 (5.8)	13,381 (5.8)	14.982 (6.2)	16,117 (6.1)	16,747 (6.1)	20,189 (7.0)	22,266 (7.8)	25,177 (8.5)	27,091 (8.8)	29,970 (9.1)	32,161 (9.6)
Education	16,061 (12.1)	17,948 (12.2)	20,628 (12.6)	24,045 (12.9)	27,277 (13.0)	28,101 (12.2)	28,757 (12.0)	35,627 (13.5)	38,531 (13.9)	38,841 (13.5)	36,770 (12.9)	38,450 (13.0)	40,305 (13.0)	45,118 (13.6)	46,787 (13.9)
Engineering and Applied Sciences	15,950 (12.0)	16,519 (11.2)	17,156 (10.5)	18,680 (10.0)	20,875 (9.9)	23,280 (10.2)	24,866 (10.4)	25,076 (9.5)	25,706 (9.3)	26,635 (9.3)	25,656 (9.0)	25,915 (8.8)	28,054 (9.1)	30,868 (9.3)	32,815 (9.8)
Fine and Applied Arts	719 (0.5)	864 (0.6)	987 (0.6)	1,239 (0.7)	1,620 (0.8)	1,938 (0.8)	2,459 (1.0)	4,411 (1.7)	5,446 (2.0)	7,505 (2.6)	9,005 (3.2)	9,900 (3.4)	10,514 (3.4)	11,422 (3.4)	11,838 (3.5)
Dentistry	1,255 (0.9)	1,182 (0.8)	1,241 (0.8)	1,284 (0.7)	1,335 (0.6)	1,366 (0.6)	1,487 (0.6)	1,796 (0.7)	1,878 (0.7)	2,034 (0.7)	1,835 (0.6)	1,886 (0.6)	1,868 (0.6)	1,916 (0.6)	1,961 (0.6)
Medicine	4,306 (3.2)	4,443 (3.0)	4,635 (2.8)	4,580 (2.4)	4,795 (2.3)	5,003 (2.2)	5,240 (2.2)	5,558 (2.1)	5,733 (2.1)	6,330 (2.2)	6,815 (2.4)	7,088 (2.4)	8,361 (2.7)	8,843 (2.7)	9,328 (2.8)

Table 9 (cont'd)

Full-time Undergraduate Enrolment by Field of Specialization, 1962-63 to 1976-77

Field of Specialization	62-63	63-64	64-65	65-66	66-67	67-68	68-69	69-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77
Other Health Sciences	862 (0.6)	980 (0.7)	1,008 (0.6)	1,140 (0.6)	1,212 (0.6)	1,346 (0.6)	1,573 (0.7)	2,347 (0.9)	2,273 (0.8)	2,601 (0.9)	2,601 (0.9)	2,902 (1.0)	2,585 (0.8)	2,873 (0.9)	3,162 (0.9)
Nursing	2,120 (1.6)	2,717 (1.9)	3,015 (1.8)	3,202 (1.7)	3,560 (1.7)	3,570 (1.6)	3,996 (1.7)	4,222 (1.6)	4,391 (1.6)	4,740 (1.7)	4,860 (1.7)	5,105 (1.7)	5,733 (1.9)	6,421 (1.9)	6,176 (1.8)
Pharmacy	1,636 (1.2)	1,665 (1.1)	1,653 (1.0)	1,654 (0.9)	1,662 (0.8)	1,735 (0.8)	1,789 (0.7)	1,944 (0.7)	2,068 (0.7)	2,294 (0.8)	2,537 (0.9)	2,562 (0.9)	2,633 (0.9)	2,686 (0.8)	2,734 (0.8)
Household Science	1,737 (1.3)	1,804 (1.2)	1,931 (1.2)	2,285 (1.2)	2,504 (1.2)	2,594 (1.1)	2,745 (1.1)	2,835 (1.1)	2,941 (1.1)	3,403 (1.2)	3,837 (1.3)	4,435 (1.5)	4,494 (1.5)	4,321 (1.3)	3,878 (1.2)
Law	2,892 (2.2)	3,170 (2.2)	3,520 (2.1)	4,053 (2.2)	4,464 (2.1)	5,067 (2.2)	5,735 (2.4)	6,459 (2.4)	7,250 (2.6)	7,764 (2.7)	8,134 (2.9)	8,453 (2.9)	8,397 (2.7)	8,885 (2.7)	9,294 (2.8)
Religion and Theology	2,988 (2.3)	3,120 (2.1)	3,036 (1.9)	2,847 (1.5)	2,716 (1.3)	3,484 (1.5)	2,959 (1.2)	3,053 (1.2)	2,670 (1.0)	2,290 (0.8)	2,218 (0.8)	2,115 (0.7)	2,212 (0.7)	2,252 (0.7)	2,451 (0.7)
Veterinary Medicine	474 (0.4)	526 (0.4)	561 (0.3)	512 (0.3)	508 (0.2)	556 (0.2)	605 (0.3)	641 (0.2)	707 (0.2)	793 (0.3)	856 (0.3)	892 (0.3)	943 (0.3)	999 (0.3)	1,000 (0.3)
Unclassified	1,026 (0.8)	1,093 (0.7)	1,147 (0.7)	1,381 (0.7)	1,394 (0.7)	2,105 (0.9)	1,990 (0.8)	1,252 (0.5)	1,620 (0.6)	2,314 (0.8)	4,213 (1.5)	3,825 (1.3)	6,455 (2.1)	7,912 (2.4)	7,899 (2.4)
Total	132,681 (100.0)	146,827 (100.0)	163,802 (100.0)	187,049 (100.0)	210,618 (100.0)	229,299 (100.0)	239,723 (100.0)	263,915 (100.0)	276,297 (100.0)	287,118 (100.0)	284,897 (100.0)	294,976 (100.0)	309,541 (100.0)	330,954 (100.0)	335,866 (100.0)

Note: Percentage by field of specialization in brackets.

Table 10

Part-time University Enrolment by Level, 1962-63 to 1977-78

	Undergraduate		Graduate		Total	
	No.	Index	No.	Index	No.	Index
1962-63	38,639 (87.8)	100.0	5,351 (12.2)	100.0	43,990 (100.0)	100.0
1963-64	50,427 (88.6)	130.5	6,498 (11.4)	121.4	56,925 (100.0)	129.4
1964-65	56,481 (88.6)	146.2	7,268 (11.4)	135.8	63,749 (100.0)	144.9
1965-66	65,299 (89.4)	169.0	7,724 (10.6)	144.3	73,023 (100.0)	166.0
1966-67	74,678 (88.1)	193.3	10,111 (11.9)	189.0	84,789 (100.0)	192.7
1967-68	87,168 (89.1)	225.6	10,696 (10.9)	199.9	97,864 (100.0)	222.5
1968-69	91,182 (89.7)	236.0	10,484 (10.3)	195.9	101,666 (100.0)	231.1
1969-70	108,287 (88.8)	280.2	13,719 (11.2)	256.4	122,006 (100.0)	277.3
1970-71	142,206 (90.8)	368.0	14,370 (9.2)	268.5	156,576 (100.0)	355.9
1971-72	137,358 (88.4)	355.5	18,029 (11.6)	336.9	155,387 (100.0)	353.2
1972-73	132,500 (86.6)	342.9	20,481 (13.4)	382.8	152,981 (100.0)	347.8
1973-74	137,654 (85.4)	356.2	23,510 (14.6)	439.4	161,164 (100.0)	366.4
1974-75	145,789 (85.6)	377.3	24,460 (14.4)	457.1	170,249 (100.0)	387.0
1975-76	158,294 (85.4)	409.7	26,960 (14.6)	503.8	185,254 (100.0)	421.1
1976-77	163,272 (85.5)	422.6	27,685 (14.5)	517.4	190,957 (100.0)	434.1
1977-78	170,840 (85.8)	442.1	28,240 (14.2)	527.8	199,080 (100.0)	452.6

Note: Percentage in brackets shows the distribution between undergraduate and graduate categories.

Table 11

Full-time Graduate Enrolment by Field of Specialization, 1962-63 to 1976-77

Field of Specialization	62-63	63-64	64-65	65-66	66-67	67-68	68-69	69-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77
Education	534	465	609	874	1,068	1,253	1,691	1,867	2,803	2,774	2,547	2,754	2,728	3,194	3,383
	(6.3)	(4.2)	(4.4)	(5.1)	(5.4)	(5.2)	(6.5)	(6.2)	(9.1)	(8.9)	(8.7)	(9.3)	(8.7)	(9.6)	(10.0)
Fine and Applied Arts	11	58	48	44	58	76	114	147	284	297	335	396	461	487	464
	(0.1)	(0.5)	(0.3)	(0.3)	(0.3)	(0.3)	(0.4)	(0.5)	(0.9)	(1.0)	(1.1)	(1.3)	(1.5)	(1.5)	(1.4)
Commerce and Business	573	762	880	1,016	1,227	1,538	1,634	1,870	2,142	2,218	2,281	2,480	2,691	2,933	2,868
	(6.8)	(6.8)	(6.4)	(5.9)	(6.2)	(6.4)	(6.3)	(6.2)	(7.0)	(7.1)	(7.8)	(8.4)	(8.6)	(8.8)	(8.5)
Law	79	79	127	63	104	134	126	152	133	149	152	159	173	187	192
	(0.9)	(0.7)	(0.9)	(0.4)	(0.5)	(0.6)	(0.5)	(0.5)	(0.4)	(0.5)	(0.5)	(0.5)	(0.6)	(0.6)	(0.6)
Religion and Theology	297	147	137	219	298	277	334	458	670	1,000	1,246	1,106	1,236	1,194	1,483
	(3.5)	(1.3)	(1.0)	(1.3)	(1.5)	(1.1)	(1.3)	(1.5)	(2.2)	(3.2)	(4.2)	(3.7)	(3.9)	(3.6)	(4.4)
Humanities and Social Sciences	2,429	4,096	5,346	7,042	7,953	9,874	9,367	11,628	12,223	12,364	11,883	12,164	12,816	13,349	13,680
	(28.8)	(36.8)	(38.7)	(41.0)	(40.3)	(40.8)	(35.9)	(38.5)	(39.7)	(39.8)	(40.5)	(41.2)	(41.0)	(40.2)	(40.4)
Engineering and Applied Sciences	969	1,217	1,469	1.871	2,227	2,758	3,268	3,494	3,595	3.394	3,133	3,002	3,160	3,402	3,335
	(11.5)	(10.9)	(10.6)	(10.9)	(11.3)	(11.4)	(12.5)	(11.6)	(11.7)	(10.9)	(10.7)	(10.2)	(10.1)	(10.3)	(9.8)
Agriculture	334	424	517	504	454	662	921	652	2,427	2,429	2,055	2,171	2,067	2,404	2,708
	(4.0)	(3.8)	(3.7)	(2.9)	(2.3)	(2.7)	(3.5)	(2.2)	(7.9)	(7.8)	(7.0)	(7.3)	(6.6)	(7.2)	(8.0)
Household Sciences	4	14	15	15	20	38	44	73	82	22	-	-	57	81	98
	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)	(0.3)	(0.1)	(0.0)	(0.0)	(0.2)	(0.2)	(0.3)
Veterinary Medicine	13	23	21	29	39	48	56	92	88	38	34	61	22	50	90
	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)	(0.3)	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)	(0.3)
Dentistry	33	39	49	55	70	67	100	91	41	42	34	35	36	39	34
	(0.4)	(0.4)	(0.4)	(0.3)	(0.4)	(0.3)	(0.4)	(0.3)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Medicine	560	898	789	871	1,018	1,334	1,301	1,565	1,223	1,549	805	753	831	944	1,010
	(6.6)	(8.1)	(5.7)	(5.1)	(5.2)	(5.5)	(5.0)	(5.2)	(4.0)	(5.0)	(2.7)	(2.5)	(2.7)	(2.8)	(3.0)

Table 11 (cont'd)

Full-time Graduate Enrolment by Field of Specialization, 1962-63 to 1976-77

Field of Specialization	62-63	63-64	64-65	65-66	66-67	67-68	68-69	69-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77
Nursing	49 (0.6)	20 (0.2)	23 (0.2)	28 (0.2)	27 (0.1)	90 (0.4)	64 (0.2)	47 (0.2)	65 (0.2)	109 (0.4)	79 (0.3)	94 (0.3)	86 (0.3)	126 (0.4)	124 (0.4)
Pharmacy	56 (0.7)	45 (0.4)	65 (0.5)	72 (0.4)	78 (0.4)	77 (0.3)	94 (0.4)	105 (0.3)	138 (0.4)	100 (0.3)	85 (0.3)	70 (0.2)	99 (0.3)	77 (0.2)	74 (0.2)
Other Health Sciences	27 (0.3)	37 (0.3)	44 (0.3)	48 (0.3)	61 (0.3)	54 (0.2)	50 (0.2)	45 (0.1)	5 (0.0)	13 (0.1)	92 (0.3)	202 (0.7)	249 (0.8)	215 (0.6)	240 (0.7)
Mathemntics and Physical Sciences	2,266 (26.9)	2,471 (22.2)	3,286 (23.8)	4,059 (23.6)	4,567 (23.2)	5,426 (22.4)	6,200 (23.7)	7,105 (23.5)	4,779 (15.5)	4,425 (14.3)	4,104 (14.0)	3,834 (13.0)	3,729 (11.9)	3,899 (11.8)	3,918 (11.6)
Unclassified and Other	202 (2.4)	338 (3.0)	372 (2.7)	386 (2.2)	450 (2.3)	481 (2.0)	756 (2.9)	840 (2.8)	127 (0.4)	111 (0.4)	462 (1.6)	259 (0.9)	855 (2.7)	594 (1.8)	164 (0.5)
Total	8,436 (100.0)	11,133 (100.0)	13,798 (100.0)	17,196 (100.0)	19,719 (100.0)	24,187 (100.0)	26,120 (100.0)	30,231 (100.0)	30,820 (100.0)	31,034 (100.0)	29,327 (100.0)	29,540 (100.0)	31,296 (100.0)	33,175 (100.0)	33,865 (100.0)

Note: Percentage in brackets.

Part-time graduate students were almost as numerous, many of them in professional programs like education and business administration. Part-time graduate enrolment grew from 5,400 in 1962-63 to 28,200 in 1977-78, and now accounts for about 15% of all part-time students.

Tables 12 and 13 provide more detailed information about graduate students in the seventies. As the master's level full-time enrolment increased modestly from 21,000 to 25,000 and in engineering and physical sciences, actually declined. But part-time master's enrolment almost doubled from 10,000 to 20,000. This increase was particularly strong in the social sciences including education and business administration. In 1977-78, 82% of part-time students were in the human sciences.

A similar pattern prevailed in these fields at the doctoral level. For example, the number of full-time doctoral students in engineering declined from a high of 1,250 in 1970-71 to 950 in 1977-78. The same applies for mathematics and the physical sciences which had 2,526 doctoral students in 1970-71, but 1,670 seven years later. By contrast, during the same period full-time doctoral enrolment in the social sciences rose from 2,005 to 2,750. Overall, the number of full-time doctoral students has stabilized between nine and ten thousand, whereas part-time doctoral enrolment grew from 2,500 to 3,500. The shift to the human sciences was marked this seven-year period, from 45% to 65% for full-time doctoral students.

Table 12

Full-time and Part-time Master's Enrolment by Field of Specialization, 1970-71 to 1977-78

Field of Specialization	1970-71		1971-72		1972-73		1973-74		1974-75		1975-76		1976-77		1977-78	
	F.T.	P.T.	F.T.	P.T.	F.T.	P.T.	F.T.	P.T.	F.T.	P.T.	F.T.	P.T.	F.T.	P.T.	F.T.	P.T.
Education	2,223 (10.8)	3,224 (31.3)	2,156 (10.2)	3,662 (29.8)	1,893 (9.9)	4,282 (30.9)	2,095 (10.5)	5,591 (35.0)	2,049 (9.6)	5,950 (35.4)	2,472 (10.4)	6,779 (35.0)	2,635 (10.9)	7,044 (35.2)	2,683 (10.9)	7,064 (34.5)
Fine and Applied Arts	239 (1.2)	92 (0.9)	249 (1.2)	178 (1.5)	281 (1.5)	135 (1.0)	339 (1.7)	132 (0.8)	402 (1.9)	230 (1.4)	423 (1.8)	201 (1.0)	399 (1.6)	183 (0.9)	585 (2.4)	197 (1.0)
Humanities	4,003 (19.4)	2,138 (20.8)	4,278 (20.3)	2,404 (19.5)	4,196 (22.0)	2,680 (19.3)	4,066 (20.3)	2,741 (17.1)	4,409 (20.7)	2,472 (14.7)	4,460 (18.7)	2,544 (13.1)	4,576 (19.0)	2,630 (13.2)	4,725 (19.1)	2,633 (12.9)
Social Sciences	7,289 (35.3)	3,213 (31.2)	7,411 (35.2)	3,896 (31.7)	7,107 (37.2)	4,376 (31.5)	7,624 (38.2)	4,683 (29.3)	8,165 (38.3)	5,149 (30.6)	8,789 (36.8)	6,365 (32.9)	8,958 (37.1)	6,428 (32.1)	9,260 (37.5)	6,769 (33.1)
Agriculture and Biological Sciences	1,508 (7.3)	261 (2.5)	1,405 (6.7)	345 (2.8)	1,144 (6.0)	383 (2.8)	1,299 (6.5)	441 (2.8)	1,283 (6.0)	453 (2.7)	1,611 (6.8)	538 (2.8)	1,915 (7.9)	501 (2.5)	1,889 (7.6)	551 (2.7)
Engineering and Applied Sciences	2,345 (11.4)	818 (7.9)	2,192 (10.4)	991 (8.1)	1,955 (10.2)	1,150 (8.3)	1,955 (9.8)	1,334 (8.3)	2,174 (10.2)	1,512 (9.0)	2,431 (10.2)	1,626 (8.4)	2,357 (9.8)	1,880 (9.4)	2,383 (9.6)	1,827 (8.9)
Health Sciences	739 (3.6)	178 (1.7)	1,224* (5.8)	219 (1.8)	568 (3.0)	240 (1.7)	684 (3.4)	308 (1.9)	866 (4.1)	227 (1.3)	923 (3.9)	324 (1.7)	1,008 (4.2)	362 (1.8)	1,035 (4.2)	414 (2.0)
Mathematics and Physical Sciences	2,282 (11.1)	379 (3.7)	2,137 (10.2)	606 (4.9)	1,947 (10.2)	631 (4.6)	1,924 (9.6)	765 (4.8)	1,984 (9.3)	826 (4.9)	2,161 (9.1)	933 (4.8)	2,175 (9.0)	925 (4.6)	1,983 (8.0)	830 (4.0)
Specialization not Reported	-	-	-	-	-	-	-	-	-	-	576 (2.4)	47 (0.2)	129 (0.5)	51 (0.3)	174 (0.7)	187 (0.9)
Total	20,628 (100.0)	10,303 (100.0)	21,052 (100.0)	12,301 (100.0)	19,091 (100.0)	13,877 (100.0)	19,986 (100.0)	15,995 (100.0)	21,332 (100.0)	16,819 (100.0)	23,826 (100.0)	19,357 (100.0)	24,152 (100.0)	20,004 (100.0)	24,717 (100.0)	20,472 (100.0)

* Includes diploma students in Québec.

Note: Percentage in brackets shows the distribution by field of specialization.

Table 13

Full-time and Part-time Doctoral Enrolment by Field of Specialization, 1970-71 to 1977-78

Field of Specialization	1970-71		1971-72		1972-73		1973-74		1974-75		1975-76		1976-77		1977-78	
	F.T.	P.T.	F.T.	P.T.	F.T.	P.T.	F.T.	P.T.	F.T.	P.T.	F.T.	P.T.	F.T.	P.T.	F.T.	P.T.
Education	580 (5.8)	294 (11.9)	618 (6.2)	369 (12.2)	654 (6.7)	428 (12.2)	659 (7.1)	524 (13.7)	679 (7.4)	592 (16.0)	722 (7.7)	624 (16.3)	748 (7.7)	689 (19.4)	759 (7.8)	590 (16.9)
Fine and Applied Arts	45 (0.4)	27 (1.1)	48 (0.5)	21 (0.7)	54 (0.5)	28 (0.8)	57 (0.6)	34 (0.9)	59 (0.6)	35 (0.9)	64 (0.7)	34 (0.9)	65 (0.7)	28 (0.8)	79 (0.8)	27 (0.8)
Humanities	1,871 (18.5)	793 (32.0)	1,939 (19.5)	933 (30.8)	2,054 (21.0)	1,091 (31.2)	1,933 (20.8)	1,152 (30.2)	1,985 (21.8)	996 (26.9)	1,936 (20.7)	977 (25.5)	1,989 (20.5)	848 (23.9)	1,943 (20.1)	820 (23.5)
Social Sciences	2,005 (19.9)	718 (29.0)	2,103 (21.1)	911 (30.0)	2,205 (22.6)	1,058 (30.3)	2,286 (24.6)	1,162 (30.5)	2,357 (25.9)	1,116 (30.1)	2,498 (26.7)	1,244 (32.5)	2,700 (27.8)	1,151 (32.5)	2,750 (28.4)	1,195 (34.2)
Agriculture and Biological Sciences	1,089 (10.8)	149 (6.0)	1,084 (10.9)	150 (5.0)	945 (9.7)	168 (4.8)	933 (10.0)	199 (5.2)	863 (9.5)	159 (4.3)	924 (9.9)	189 (4.9)	981 (10.1)	146 (4.1)	974 (10.1)	142 (4.1)
Engineering and Applied Sciences	1,250 (12.4)	212 (8.6)	1,202 (12.1)	261 (8.6)	1,178 (12.0)	262 (7.5)	1,047 (11.3)	288 (7.6)	986 (10.8)	292 (7.9)	971 (10.4)	281 (7.3)	978 (10.1)	279 (7.9)	950 (9.8)	293 (8.4)
Health Sciences	728 (7.2)	63 (2.5)	589 (5.9)	97 (3.2)	527 (5.4)	119 (3.4)	470 (5.1)	116 (3.0)	435 (4.8)	123 (3.3)	478 (5.1)	111 (2.9)	474 (4.9)	104 (2.9)	506 (5.2)	108 (3.1)
Mathematics and Physical Sciences	2,526 (25.0)	221 (8.9)	2,376 (23.9)	290 (9.5)	2,157 (22.1)	344 (9.8)	1,910 (20.5)	341 (8.9)	1,745 (19.2)	347 (9.4)	1,738 (18.6)	354 (9.2)	1,743 (17.9)	292 (8.2)	1,670 (17.3)	299 (8.6)
Specialization not Reported	-	-	-	-	-	-	-	-	-	-	18 (0.2)	19 (0.5)	35 (0.4)	10 (0.3)	50 (0.5)	16 (0.5)
Total	10,094 (100.0)	2,477 (100.0)	9,959 (100.0)	3,032 (100.0)	9,774 (100.0)	3,498 (100.0)	9,295 (100.0)	3,816 (100.0)	9,109 (100.0)	3,660 (100.0)	9,349 (100.0)	3,833 (100.0)	9,713 (100.0)	3,547 (100.0)	9,681 (100.0)	3,490 (100.0)

Note: Percentage in brackets shows the distribution by field of specialization.

Full-time enrolment in 47 universities is shown between 1967-68 and 1977-78, and an index of growth using 1967-68 as a base of 100 has been developed (Tables 14 and 15). Overall enrolment rose from 244,000 to 374,000, but most growth was before 1970-71. Numbers actually declined in two years 1972-73 and 1977-78 and another drop is expected for 1978-79. The decrease would have been greater if Quebec's French-speaking institutions had not continued to grow. Part of the increase between 1973-74 and 1976-77 was attributable to foreign students who nearly doubled from 15,000 to 29,300; expansion of certain professional disciplines, such as commerce and business administration (from 39,834 to 59,671), was another factor contributing to this growth (in full- and part-time enrolment).

Enrolment patterns varied considerably by province and university. The University of Prince Edward Island's full-time enrolment has remained stable at around 1,500 since 1967-68, whereas Dalhousie and St. Mary's doubled from 3,500 and 1,200 to 7,200 and 2,400, respectively. Enrolment in Ontario's 16 universities went from 77,000 to a high of 161,000 in 1976-77, but declined to 157,000. In most Western universities, enrolment has remained at the 1970-71 level.

The enrolment index in Table 15 rose to 134.0 in 1970-71 and 160.7 in 1977-78, but with considerable variations by province and institution. Ontario's index stood at 205.1, Manitoba's at 131.4, British Columbia's at 117.8, and

Table 14

Full-time University Enrolment by Province and Institution, 1967-68 to 1977-78

Province and University	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
Memorial	4,473	4,782	5,157	6,378	7,077	7,309	6,418	5,987	6,181	6,635	6,764
Prince Edward Island	1,369	1,555	1,566	1,755	1,771	1,581	1,409	1,343	1,463	1,478	1,542
Acadia	1,657	1,932	2,040	2,350	2,398	2,487	2,552	2,589	2,761	2,794	2,701
Dalhousie	3,454	3,886	4,831	5,830	6,354	6,150	6,645	7,042	7,404	7,534	7,216
Mount St. Vincent	625	642	710	944	998	1,033	1,194	1,179	1,335	1,431	1,521
Nova Scotia College of Art and Design	280*	300*	325	388	342	358	380	401	452	382	418
Nova Scotia Technical College	411	496	576	567	490	442	426	468	465	452	549
St Francis Xavier	2,507	2,669	2,954	3,087	2,960	2,814	2,629	2,133	2,153	2,225	2,276
St Mary's	1,217	1,562	2,070	2,296	2,548	2,562	2,394	2,331	2,441	2,453	2,370
Sub-total Nova Scotia	10,151	11,487	13,506	15,462	16,090	15,846	16,220	16,143	17,011	17,271	17,051
Moncton	1,961	2,316	2,686	3,149	3,337	3,151	3,118	3,080	3,094	3,053	3,038
Mount Allison	1,294	1,281	1,331	1,347	1,338	1,337	1,356	1,405	1,386	1,362	1,393
New Brunswick	4,167	4,724	4,806	5,102	5,182	4,723	5,097	5,204	5,909	5,883	5,922
Sub-total New Brunswick	7,422	8,321	8,823	9,598	9,857	9,211	9,571	9,689	10,389	10,298	10,353

* Estimated

Table 14 (cont'd)

Full-time University Enrolment by Province and Institution, 1967-68 to 1977-78

Province and University	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
Bishop's	924	991	1,025	1,159	526	618	722	721	806	847	916
McGill	14,009	14,997	14,754	15,187	14,695	15,275	15,995	16,106	16,853	16,747	16,254
Montreal	15,000*	15,100*	15,350	13,430	14,681	16,092	15,728	15,681	16,919	17,113	17,732
Loyola	3,108	3,680	4,281	3,865	4,065	4,606	4,680		(Concordia)		
Sir George Williams	5,171	5,604	5,919	5,766	6,094	6,001	5,409	9,407	10,022	9,553	9,577
Quebec	N/A	N/A	7,255	6,873	8,080	8,703	9,015	10,080	11,650	11,094	13,350
Sherbrooke	3,864	4,070	4,460	4,165	4,929	5,006	5,367	5,071	5,527	5,967	6,424
Laval	15,682	14,634	13,369	11,273	9,749	9,943	10,960	13,074	14,353	15,677	16,538
Sub-total Quebec	57,758	59,076	66,413	61,718	62,819	66,244	67,876	70,140	76,130	76,998	80,791
Brock	682	1,126	1,651	2,163	2,370	2,358	2,245	2,291	2,389	2,606	2,492
Carleton	5,167	5,971	7,139	8,270	8,454	8,193	8,241	8,444	9,120	9,212	8,761
Guelph	4,014	4,826	5,921	6,217	7,310	7,792	8,620	9,381	9,529	10,050	10,057
Lakehead	1,068	1,518	2,364	2,931	2,870	2,576	2,358	2,388	2,619	2,824	2,887
Laurentian	1,429	1,758	2,036	2,462	2,513	2,417	2,413	2,693	2,888	3,214	2,999
McMaster	5,227	6,354	6,924	7,928	8,428	8,427	8,620	9,546	10,147	10,477	10,292

* Estimated

Table 14 (cont'd)

Full-time University Enrolment by Province and Institution, 1967-68 to 1977-78

Province and University	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
Ottawa	5,566	5,961	7,764	8,797	8,825	9,061	9,758	10,584	11,122	11,319	11,215
Queen's	5,825	6,799	7,557	8,087	8,661	8,872	9,354	9,792	10,286	10,627	10,418
Ryerson	N/A	N/A	N/A	N/A	7,070	7,145	8,278	8,672	8,757	8,950	9,119
Toronto	21,484	23,684	26,720	26,904	27,520	28,142	29,639	32,011	33,036	32,946	31,978
Trent	746	1,077	1,287	1,653	1,776	1,903	1,829	2,004	2,220	2,463	2,440
Waterloo	7,013	8,777	10,651	11,919	12,284	12,666	12,935	13,425	14,172	14,678	14,448
Western	8,684	10,220	12,048	13,788	15,163	15,123	16,215	17,201	18,024	18,086	17,520
Wilfrid Laurier	2,563	2,580	2,758	2,826	2,792	2,560	2,517	2,658	2,969	3,267	3,262
Windsor	3,319	4,214	5,020	5,940	5,838	5,459	5,705	6,001	7,001	7,404	6,758
York	3,735	5,921	7,734	9,787	11,340	11,205	11,475	11,561	12,501	13,182	12,337
Sub-total Ontario	76,522	90,786	107,574	119,672	133,214	133,899	140,202	148,652	156,780	161,305	156,983
Brandon	832	1,014	1,218	1,150	1,220	999	933	959	1,066	1,169	1,227
Manitoba	10,233	11,535	12,775	13,217	13,605	13,566	13,554	14,025	14,705	13,966	13,329
Winnipeg	2,131	2,334	2,420	2,408	2,378	2,317	2,381	2,516	2,725	2,914	2,785
Sub-total Manitoba	13,196	14,883	16,413	16,775	17,203	16,882	16,868	17,500	18,496	18,049	17,341
Regina	12,604 (combined)	13,605	4,349	4,245	3,739	3,478	3,558	3,638	3,557	3,650	3,810
Saskatchewan			10,327	10,355	10,773	9,606	9,684	9,566	10,403	10,931	10,755
Sub-total Saskatchewan	12,604	13,605	14,676	14,600	14,512	13,084	13,242	13,204	13,960	14,581	14,565

Table 14 (cont'd)

Full-time University Enrolment by Province and Institution, 1967-68 to 1977-78

Province and University	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
Alberta	13,486	15,854	18,172	19,760	18,245	17,758	18,525	19,156	19,740	20,033	19,501
Calgary	5,258	7,775	8,995	9,771	9,173	8,780	9,277	9,569	10,949	10,868	10,804
Lethbridge	637	1,032	1,261	1,409	1,218	1,083	1,086	1,154	1,336	1,471	1,527
Sub-total Alberta	19,381	24,661	28,428	30,940	28,636	27,621	28,888	29,879	32,025	32,372	31,832
British Columbia	17,525	18,977	19,620	20,195	18,993	18,231	18,576	19,296	19,974	20,350	20,108
Simon Fraser	4,497	4,864	4,365	4,377	4,123	4,202	4,517	5,305	5,866	5,391	5,162
Victoria	3,847	4,651	5,239	5,119	4,800	4,374	4,602	5,215	5,511	5,371	5,203
Sub-total British Columbia	25,869	28,492	29,224	29,691	27,916	26,807	27,695	29,816	31,351	31,112	30,473
Total	228,745	257,648	291,780	306,589	319,095	318,484	328,389	342,353	363,786	370,099	367,695
Others institutions	15,285	7,808	8,109	10,364	3,931	3,920	3,735	4,907	7,276	6,843	6,492
Total	244,030	265,456	299,889	316,953	323,026	322,404	332,124	347,260	371,062	376,942	374,187

Note: The affiliated and federated institutions are, in most instances, included in the parent university.

Table 15

Index (1967-68 = 100.0) of Full-time University Enrolment by Province and Institution, 1967-68 to 1977-78

Province and University	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
Memorial	100.0	106.9	115.3	142.6	158.2	163.4	143.5	133.8	138.2	148.3	151.2
Prince Edward Island	100.0	113.6	114.4	128.2	129.4	115.5	102.9	98.1	106.9	108.0	112.6
Acadia	100.0	116.6	123.1	141.8	144.7	150.1	154.0	156.2	166.6	168.6	163.0
Dalhousie	100.0	112.5	139.9	168.8	184.0	178.0	192.4	203.9	214.4	218.1	208.9
Mount St. Vincent	100.0	102.7	113.6	151.0	159.7	165.3	191.0	188.6	213.6	229.0	243.4
Nova Scotia College of Art & Design	100.0	107.1	116.1	138.6	122.1	127.8	135.7	143.2	161.4	136.4	149.3
Nova Scotia Technical College	100.0	120.7	140.1	138.0	119.2	107.5	103.6	113.9	113.1	110.0	113.6
St Francis Xavier	100.0	106.5	117.8	123.1	118.1	112.2	104.9	85.1	85.9	88.8	90.8
St. Mary's	100.0	128.3	170.1	188.7	209.4	210.5	196.7	191.5	200.6	201.6	194.7
Sub-total Nova Scotia	100.0	113.2	133.0	152.3	158.5	156.1	159.8	159.0	167.6	170.1	168.0
Moncton	100.0	118.1	137.0	160.6	170.2	160.7	159.0	157.1	157.8	155.7	154.9
Mount Allison	100.0	99.0	102.8	104.1	103.4	103.3	104.8	108.6	107.1	105.2	107.6
New Brunswick	100.0	113.4	115.3	122.4	124.4	113.3	122.3	124.9	141.8	141.2	142.1
Sub-total New Brunswick	100.0	112.1	118.9	129.3	132.8	124.1	129.0	130.5	140.0	138.7	139.5

Table 15 (cont'd)

Index (1967-68 = 100.0) of Full-time University Enrolment by Province and Institution, 1967-68 to 1977-78

Province and University	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
Bishop's	100.0	107.2	110.9	125.4	56.9	66.9	78.1	78.0	87.2	91.7	99.1
McGill	100.0	107.0	105.3	108.4	104.9	109.0	114.2	115.0	120.3	119.5	116.0
Montreal	100.0	100.7	102.3	89.5	97.9	107.3	104.8	104.5	112.8	114.1	118.2
Loyola	100.0	118.4	137.7	124.4	130.8	148.2	150.6		Concordia		
Sir George Williams	100.0	108.4	114.5	111.5	117.8	116.0	104.6	113.6	121.0	115.4	115.7
Quebec			100.0	94.7	111.4	120.0	124.2	138.9	160.6	152.9	184.0
Sherbrooke	100.0	105.3	115.4	107.8	127.6	129.6	138.9	131.2	143.0	154.4	166.2
Laval	100.0	93.3	85.3	71.9	62.2	63.4	69.9	83.4	91.5	100.0	105.4
Sub-total Quebec	100.0	102.3	115.0	106.8	108.8	114.7	117.5	121.4	131.8	133.3	139.8
Brock	100.0	165.1	242.1	317.2	347.5	345.7	329.2	335.9	350.3	382.1	365.4
Carleton	100.0	115.6	138.2	160.0	163.6	158.6	159.5	163.4	176.5	178.3	169.6
Guelph	100.0	120.2	147.5	154.9	182.1	194.1	214.7	233.7	237.4	250.4	250.5
Lakehead	100.0	142.1	221.3	274.4	268.7	241.2	220.8	223.6	245.2	264.4	270.3
Laurentian	100.0	123.0	142.5	172.3	175.8	169.1	168.8	188.4	202.1	224.9	209.9

Table 15 (cont'd)

Index (1967-68 = 100.0) of Full-time University Enrolment by Province and Institution, 1967-68 to 1977-78

Province and University	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
Mc Master	100.0	121.6	132.5	151.7	161.2	161.2	164.9	182.6	194.1	200.4	196.9
Ottawa	100.0	107.1	139.5	158.0	158.6	162.8	175.3	190.2	199.8	203.4	201.5
Queen's	100.0	116.7	129.7	138.8	148.7	152.3	160.6	168.1	176.6	182.4	178.8
Toronto	100.0	110.2	124.4	125.2	128.1	131.0	138.0	149.0	153.8	153.4	148.8
Trent	100.0	144.4	172.5	221.6	238.1	255.1	245.2	268.6	297.6	330.2	327.1
Waterloo	100.0	125.2	151.9	170.0	175.2	180.6	184.4	191.4	202.1	209.3	206.0
Western	100.0	117.7	138.7	158.8	174.6	174.1	186.7	198.1	207.6	208.3	201.8
Wilfrid Laurier	100.0	100.7	107.6	110.3	108.9	99.9	98.2	103.7	115.8	127.5	127.3
Windsor	100.0	127.0	151.2	179.0	175.9	164.5	171.9	180.8	210.9	223.1	203.6
York	100.0	158.5	207.1	262.0	303.6	300.0	307.2	309.5	334.7	352.9	330.3
Sub-total Ontario (1)	100.0	118.6	140.6	156.4	174.1	175.0	183.2	194.3	204.9	210.8	205.1
Brandon	100.0	121.9	146.4	138.2	146.6	120.1	112.1	115.3	128.1	140.5	147.5
Manitoba	100.0	112.7	124.8	129.2	133.0	132.6	132.4	137.0	143.7	136.5	130.2
Winnipeg	100.0	109.5	113.6	113.0	111.6	108.7	111.7	118.1	127.9	136.7	130.7
Sub-total Manitoba	100.0	112.8	124.4	127.1	130.4	127.9	127.8	132.6	140.2	136.8	131.4

(1) Includes Ryerson since 1970-71

Table 15 (cont'd)

Index (1967-68 = 100.0) of Full-time University Enrolment by Province and Institution, 1967-68 to 1977-78

Province and University	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
Regina			100.0	97.6	86.0	80.0	81.8	83.6	81.8	83.9	87.6
Saskatchewan			100.0	100.3	104.3	93.0	93.8	92.6	100.7	105.8	104.1
Sub-total Saskatchewan			100.0	99.5	98.9	89.2	90.2	90.0	95.1	99.4	99.2
Alberta	100.0	117.6	134.7	146.5	135.3	131.7	137.4	142.0	146.4	148.5	144.6
Calgary	100.0	147.9	171.1	185.8	174.4	167.0	176.4	182.0	208.2	206.7	205.5
Lethbridge	100.0	162.0	198.0	221.2	191.2	170.0	170.5	181.2	209.7	230.9	239.7
Sub-total Alberta	100.0	127.2	146.7	159.6	147.8	142.5	149.0	154.2	165.2	167.0	164.2
British Columbia	100.0	108.3	112.0	115.2	108.4	104.0	106.0	110.1	114.0	116.1	114.7
Simon Fraser	100.0	108.2	97.1	97.3	91.7	93.4	100.4	118.0	130.4	119.9	114.8
Victoria	100.0	120.9	136.2	133.1	124.8	113.7	119.6	135.6	143.2	139.6	135.2
Sub-total British Columbia	100.0	110.1	113.0	114.8	107.9	103.6	107.0	115.2	121.2	120.3	117.8
Total	100.0	112.6	127.6	134.0	139.5	139.2	143.6	149.7	159.0	161.8	160.7

Saskatchewan's declined slightly to 99.2. The institutional differences were even more marked; York 330.3, and Calgary 205.5, in contrast to St. Francis Xavier 90.8, Mount Allison 107.6, Regina 87.6, and the University of British Columbia 114.7.

Based on this enrolment pattern, the likely number of graduate degrees can be projected. A feature of graduate enrolment is the number of foreign students, a topic that will be explored in chapter 6 together with some socio-economic characteristics of university students in the next chapter.

CHAPTER 6

UNIVERSITY STUDENT CHARACTERISTICS

This chapter deals with the economics of being a full-time undergraduate: socio-economic background, tuition fees, expenditure patterns, and assistance programs.

As in many other countries, a large percentage of Canada's full-time students come from the economically and socially advantaged segments of society. On the assumption that most university students' fathers would be 45-64, their educational attainment has been compared with that of the age group as a whole. Table 16 shows that the proportion of male undergraduates whose fathers were degree-holders rose from 16.4% in 1968-69 to 21.7% in 1974-75. A similar trend was evident among female students: 19.5% had fathers with a degree in 1969, 23.3% in 1975. However, according to the 1971 Census, only 5.7% of 45-64-year-old males had degrees.*

Table 17 shows that tuition fees for arts and science undergraduates have changed little during the seven years between 1970-71 and 1977-78. Fees have generally been higher in the Atlantic provinces, and lower in the West. In most instances, professional and graduate students paid slightly more. As well as tuition, additional student fees averaged $50 in 1965-66 and $90 in 1977-78.

On average, tuition fees accounted for about 15% of Canadian universities' expenditures during the early sixties, but in recent years the percentage

* See "The Educational Background of Parents of Post-secondary Students in Canada" by Max von Zur-Muehlen, Statistics Canada, 1978.

Table 16

Educational Attainment of Fathers of Full-time Undergraduates Compared with the 45 to 64 Male Population, 1968-69 and 1974-75

Level of Study	Father's Educational Attainment of Full-Time Undergraduates (Post-Secondary Student Survey, 1968-69) Male	Female	Father's Educational Attainment of Full-Time Undergraduates (Post-Secondary Student Survey, 1974-75) Male	Female	Educational Attainment of the 45 to 64 Male Population (Census 1971)
Elementary	21.8	15.3	19.8	17.0	44.2
Some Secondary	23.5	24.6	24.3	29.5	N/A
Completed Secondary	14.3	13.1	15.3	14.9	N/A
Sub-Total Secondary	37.8	37.8	39.6	39.6	29.6
Total Elementary and Secondary	59.6	53.0	59.3	56.3	73.7
Other Education or Training	17.0	19.4	10.0	10.9	9.4
Post-Secondary Non-University	N/A	N/A	1.6	1.7	6.7
Some University	7.0	8.0	7.3	7.7	4.4
University Degree(s)	16.4	19.5	21.7	23.3	5.7
Sub-Total University	23.4	27.5	29.0	31.0	10.1
Total Post-Secondary (Trade or Vocational)	N/A	N/A	30.6	32.7	16.8
Grand Total	100.0	100.0	100.0	100.0	100.0
Number Reported	133,259	74,967	89,606	75,723	1,978,850

Table 17

Undergraduate Arts and Science Tuition Fees at Selected Universities, Selected Academic Years, 1965-66 to 1977-78

University	1965-66 $	1970-71 $	1975-76 $	1977-78 $
Memorial	385	550	500	600
Prince Edward Island	400	550	600	680
Dalhousie	600	577	720	675
New Brunswick	570	610	672	740
McGill	635-700	619	570	570
Montréal	500	493-543	500	540
Western Ontario	515	542	589	689
Manitoba	375	425	425	450
Saskatchewan	265-285	410-425	460-475	572
Alberta	300-350	400	400	500
British Columbia	457	428	428	536

fell below 10%. On the suggestion of provincial authorities, most universities have raised tuition fees by 10%-25% for the 1978-79 academic year.

Nearly all universities provide student residences. The cost (room and board) for an academic year has increased substantially. It was $700 to $1,200 in 1971-72, but is now $1,300 to $1,900. According to a 1974-75 Statistics Canada Post-secondary Student Survey, the average undergraduate spent $2,590 annually: approximately 24% on fees, 55% on food and accommodation, and the balance on academic and other expenditures (e.g., books, transportation).

Student assistance programs have been developed by the federal and provincial governments. More than one-third of all full-time students (excluding Québec) are supported by the Federal Canada Student Loan Plan. Eligible students (eligibility varies by province) can borrow, interest free, up to $10,000 during their studies. Repayments must start six months after they have left post-secondary education. As of June 1977, $608.2 million in loans, secured by the federal government, were outstanding from Canadian banking institutions. As well as this federal plan, most provinces have student support programs, consisting of grants and/or loans. And post-secondary institutions themselves have programs of student support in the form of bursaries, scholarships and assistantships.

In addition, the federal government and some provinces offer substantial scholarships based on academic merit. As an illustration, the former Canada Council (now the Social Sciences and Humanities Research Council) was supporting 2,456 doctoral students in Canada and abroad in 1970-71; the number has declined to less than 1,500. The National Research Council (now the Natural Sciences and Engineering Research Council) and the Medical Research Council operate similar programs for the sciences.

CHAPTER 7

FOREIGN STUDENTS AND CANADIAN STUDENTS ABROAD*

As their numbers have grown, particularly at the post-secondary level, foreign students have become a subject of debate. At all levels of education, foreign students increased rapidly from 30,000 in 1973 to 56,000 in 1976, but declined to 53,000 in 1977 (Table 18). Those admitted to study in universities almost doubled from 15,000 in 1973 to nearly 30,000 in 1976, but levelled off in 1977 (Table 19).

Two geographic areas, the United States and Hong Kong, together provided more than 50% of all foreign university students. The proportion from the United States has declined substantially since 1973, whereas the number from Hong Kong rose from 2,100 in 1973 to 9,200 in 1977. In contrast, students from the 29 least developed countries of Asia and Africa constitute fewer than 5%. More than two-thirds of all foreign university students are in Ontario and Quebec; the three Prairie provinces have also sizeable numbers.

Table 20 shows the legal residence status of full-time and part-time university students by province for 1977-78. According to these preliminary data, 88.0% were Canadian citizens, 7.1% were landed immigrants, and 4.9% were foreign. The proportion of foreign students varied by province from

* This chapter is based on a 156 page report "Foreign Students in Canada and Canadian Students Abroad" which was prepared by Max von Zur-Muehlen for the Canadian Bureau for International Education, Statistics Canada, 1978.

Table 18

Foreign Students by Intended Province, 1973 to 1977

Province	1973		1974		1975		1976		1977	
	No.	%	No.	%	No.	%	No.	%	No.	%
Newfoundland	125	0.4	176 (39.7)	0.4	202 (14.8)	0.4	216 (6.9)	0.4	242 (12.0)	0.5
Prince Edward Island	104	0.3	74 (-28.9)	0.2	91 (23.0)	0.2	78 (-14.3)	0.1	84 (7.7)	0.2
Nova Scotia	1,060	3.5	1,342 (26.6)	3.3	1,376 (2.5)	2.7	1,623 (18.0)	2.9	1,740 (7.2)	3.3
New Brunswick	452	1.5	562 (24.3)	1.4	587 (4.4)	1.1	671 (14.3)	1.2	737 (9.8)	1.4
Quebec	7,550	24.9	9,998 (32.4)	24.4	11,967 (19.7)	23.3	13,761 (15.0)	24.6	13,058 (-5.1)	24.8
Ontario	13,140	43.3	18,378 (39.9)	44.8	23,851 (29.8)	46.3	24,305 (1.9)	43.5	21,999 (-9.5)	41.8
Manitoba	887	2.9	1,418 (59.9)	3.5	2,073 (46.2)	4.0	2,376 (14.6)	4.3	2,481 (4.4)	4.7
Saskatchewan	1,056	3.5	1,359 (28.7)	3.3	1,868 (37.5)	3.6	2,500 (33.8)	4.5	2,136 (-14.6)	4.1
Alberta	2,935	9.7	3,918 (33.5)	9.6	5,043 (28.7)	9.8	5,466 (8.4)	9.8	5,357 (-2.0)	10.2
British Columbia	3,026	10.0	3,787 (25.1)	9.2	4,401 (16.2)	8.6	4,907 (11.5)	8.8	4,746 (-3.3)	9.0
Total	30,336	100.0	41,012 (35.2)	100.0	51,459 (25.5)	100.0	55,902 (8.6)	100.0	52,580 (-6.0)	100.0

Note: Percentage change over previous year in brackets; these figures show the number of non-immigrant 7(1)(F) foreign students who were admitted or re-admitted to Canada during each calendar year and their intended province of study, at five levels (primary, secondary, post-secondary non-university, university and other).

Source: Employment and Immigration Commission.

Table 19

Foreign University Students by Intended Province,
1973 to 1977

Province	1973	1974	1975	1976	1977
Newfoundland	83 (0.6)	127 (0.7)	142 (0.6)	163 (0.6)	193 (0.7)
Prince Edward Island	61 (0.4)	61 (0.3)	67 (0.3)	58 (0.2)	62 (0.2)
Nova Scotia	927 (6.5)	1,189 (6.8)	1,137 (4.8)	1,334 (4.6)	1,463 (5.1)
New Brunswick	264 (1.9)	289 (1.6)	310 (1.3)	416 (1.4)	454 (1.6)
Quebec	4,650 (32.8)	5,494 (31.4)	6,771 (28.9)	8,164 (28.4)	8,105 (28.2)
Ontario	5,675 (40.0)	6,991 (40.0)	9,757 (41.7)	11,631 (40.5)	11,370 (39.6)
Manitoba	449 (3.2)	703 (4.0)	1,070 (4.6)	1,406 (4.9)	1,623 (5.6)
Saskatchewan	250 (1.8)	386 (2.2)	896 (3.8)	1,633 (5.7)	1,379 (4.8)
Alberta	865 (6.1)	1,219 (7.0)	2,006 (8.6)	2,304 (8.0)	2,262 (7.9)
British Columbia	952 (6.7)	1,030 (5.9)	1,243 (5.3)	1,616 (5.6)	1,770 (6.2)
Sub-total	14,176 (100.0)	17,489 (100.0)	23,399 (100.0)	28,725 (100.0)	28,681 (100.0)
Other University-related institutions	774	546	605	711	699
Total	14,950	18,035	24,004	29,436	29,380
Percentage change over previous year		+20.6%	+33.1%	+22.6%	- 0.2%

Note: Percentage figures by province in brackets

Source: Employment and Immigration Commission

Table 20

Full- and Part-time University Students by Legal Status and Province, 1977-78

	Canadian Citizen	Landed Immigrant	Foreign Student	Total	Not Reported	Total
Newfoundland	9,532 (94.6)	320 (3.2)	221 (2.2)	10,073 (100.0)	-	10,073
Prince Edward Island	2,255 (96.2)	43 (1.8)	47 (2.0)	2,345 (100.0)	-	2,345
Nova Scotia	19,443 (90.8)	725 (3.4)	1,231 (5.8)	21,399 (100.0)	71	21,470
New Brunswick*	11,492 (93.8)	301 (2.4)	464 (3.8)	12,257 (100.0)	9	12,266
Québec*	95,741 (87.2)	7,463 (6.8)	6,631 (6.0)	109,835 (100.0)	813	110,648
Ontario	204,175 (87.2)	19,311 (8.3)	10,583 (4.5)	234,069 (100.0)	233	234,302
Manitoba	26,387 (89.5)	1,490 (5.0)	1,612 (5.5)	29,489 (100.0)	2	29,491
Saskatchewan	19,834 (91.7)	715 (3.3)	1,083 (5.0)	21,632 (100.0)	477	22,109
Alberta	34,483 (87.8)	2,581 (6.6)	2,225 (5.7)	39,289 (100.0)	23	39,312
British Columbia*	34,746 (86.5)	3,847 (9.6)	1,583 (3.9)	40,176 (100.0)	-	40,176
Total	458,088 (88.0)	36,796 (7.1)	25,680 (4.9)	520,564 (100.0)	1,628	522,192

* Incomplete data.

Note: Percentage in brackets shows the distribution by field of specialization.

a high of 6.0% in Quebec (mostly at the English institutions) to lows of 2.0% in Prince Edward Island and 2.2% in Newfoundland.

The percentage of foreign students was higher for full-time study. They made up 5.1% of the undergraduates, but nearly doubled this proportion in the physical sciences and engineering (Table 21). At the master's level 24.2% and 29.8% in these two disciplines were foreign, compared with 9.6% in education (Table 22). And at the full-time doctoral level, 23.7% were foreign, ranging from a high of 29% in the physical sciences and engineering to 14.4% in education (Table 23). Landed immigrants accounted for another 20% of doctoral students, with a high of 34.8% in engineering.

Growth in the number of foreign students at Canadian universities has been a rather recent development. In the past, Canada relied heavily on the educational institutions of other countries. Particularly at the graduate level, many Canadians obtained advanced training abroad, primarily in the United States, United Kingdom and France. In addition, immigration has long been a chief source of Canada's highly qualified manpower. For example, an estimated 60% of all Ph.D.'s in Canada received their degree abroad. The number of Canadians studying in the United States has been in the neighbrouhood of 10,000 annually, more than half in professional and graduate school (Table 24). However, in recent years, numbers have declined. The country where the second largest group of Canadians have studied (about 1,000

Table 21

Full-time Undergraduate Students by Legal Status and Field of Specialization, 1977-78

Field of Specialization	Canadian Citizen	Landed Immigrant	Foreign Student	Sub-total	Citizenship Status Unknown	Total
Arts and Science (General)	48,433 (87.5)	3,604 (6.5)	3,305 (6.0)	55,342 (100.0)	55	55,397
Education	37,300 (96.4)	1,033 (2.6)	349 (0.9)	38,682 (100.0)	17	38,699
Fine and Applied Arts	9,727 (91.1)	548 (5.1)	404 (3.8)	10,679 (100.0)	26	10,705
Humanities	21,057 (92.1)	1,112 (4.9)	696 (3.0)	22,865 (100.0)	11	22,876
Social Sciences	71,910 (90.2)	3,572 (4.5)	4,260 (5.3)	79,942 (100.0)	63	79,805
Agriculture and Biological Sciences	20,366 (91.6)	1,028 (4.6)	835 (3.8)	22,229 (100.0)	8	22,237
Engineering and Applied Sciences	27,253 (82.2)	2,609 (7.9)	3,285 (9.9)	33,147 (100.0)	15	33,162
Health Sciences	25,180 (89.4)	1,975 (7.0)	1,001 (3.6)	28,156 (100.0)	7	28,163
Mathematics and Physical Sciences	13,595 (83.5)	1,193 (7.3)	1,500 (9.2)	16,288 (100.0)	8	16,296
Sub-total	274,821 (89.5)	16,674 (5.4)	15,635 (5.1)	307,128 (100.0)	210	307,340
Specialization not Reported	4,569 (87.6)	414 (7.9)	232 (4.4)	5,215 (100.0)	1	5,216
Total	279,390 (89.4)	17,088 (5.5)	15,867 (5.1)	312,343 (100.0)	211	312,556

Note: Percentage distribution by legal status in brackets; for few universities, in Tables 21 to 23 the data are incomplete which is unlikely to effect the percentage distribution, but the absolute figures. Part-time students have been excluded as well as full-time diploma and certificate students.

Table 22

Full-time Masters Students by Legal Status and Field of Specialization, 1977-78

Field of Specialization	Canadian Citizen	Landed Immigrant	Foreign Student	Sub-total	Citizenship Status Unknown	Total
Education	1,990 (82.8)	183 (7.6)	230 (9.6)	2,403 (100.0)	3	2,406
Fine and Applied Arts	434 (81.9)	35 (6.6)	61 (11.5)	530 (100.0)	1	531
Humanities	3,295 (79.4)	354 (8.5)	499 (12.0)	4,148 (100.0)	4	4,152
Social Sciences	6,651 (78.2)	682 (8.0)	1,167 (13.7)	8,500 (100.0)	6	8,506
Agriculture and Biological Sciences	1,387 (76.0)	152 (8.3)	287 (15.7)	1,826 (100.0)	-	1,826
Engineering and Applied Sciences	1,189 (51.6)	429 (18.6)	686 (29.8)	2,304 (100.0)	-	2,304
Health Sciences	794 (77.2)	122 (11.8)	113 (11.0)	1,029 (100.0)	1	1,030
Mathematics and Physical Sciences	1,235 (64.9)	207 (10.9)	461 (24.2)	1,903 (100.0)	-	1,903
Sub-total	16,975 (75.0)	2,164 (9.6)	3,504 (15.5)	22,643 (100.0)	15	22,658
Specialization not Reported	95 (69.8)	12 (8.8)	28 (21.3)	136 (100.0)	1	137
Total	17,070 (74.9)	2,176 (9.6)	3,533 (15.5)	22,779 (100.0)	16	22,795

Note: Percentage distribution by legal status in brackets.

Table 23

Full-time Doctoral Students by Legal Status and Field of Specialization, 1977-78

Field of Specialization	Canadian Citizen	Landed Immigrant	Foreign Student	Sub-total	Citizenship Status Unknown	Total
Education	518 (68.2)	132 (17.4)	109 (14.4)	759 (100.0)	-	759
Fine and Applied Arts	56 (70.9)	13 (16.5)	10 (12.6)	79 (100.0)	-	79
Humanities	1,157 (60.2)	382 (19.9)	382 (19.9)	1,921 (100.0)	2	1,923
Social Sciences	1,511 (56.7)	466 (17.5)	687 (25.8)	2,664 (100.0)	2	2,666
Agriculture and Biological Sciences	552 (57.6)	169 (17.6)	238 (24.8)	959 (100.0)	-	959
Engineering and Applied Sciences	341 (36.0)	330 (34.8)	276 (29.1)	947 (100.0)	-	947
Health Sciences	352 (69.6)	92 (18.2)	62 (12.2)	506 (100.0)	-	506
Mathematics and Physical Sciences	841 (51.6)	307 (18.8)	481 (29.5)	1,629 (100.0)	1	1,630
Sub-total	5,328 (56.3)	1,891 (20.0)	2,245 (23.7)	9,464 (100.0)	5	9,469
Specialization not Reported	21 (58.3)	5 (13.9)	10 (27.9)	36 (100.0)	-	36
Total	5,349 (56.3)	1,896 (20.0)	2,255 (23.7)	9,500 (100.0)	5	9,505

Note: Percentage distribution by legal status in brackets.

Table 24

Canadian Students at U.S. Universities by Level, 1963-64 to 1976-77

	Under-Graduates	Professional Programs	Masters	Doctorates	Sub-total Graduate	Percent Graduate	Total
1963-64	5,056	593	1,268	1,125	2,986	37.1	8,042
1964-65	5,360	707	1,327	1,288	3,322	38.3	8,682
1965-66	5,760	788	1,392	1,409	3,589	38.4	9,349
1966-67	7,189	1,314	1,636	1,670	4,620	39.1	11,809
1967-68	6,888	1,246	1,733	1,813	4,792	41.0	11,680
1968-69	7,276	1,447	1,974	1,747	5,168	41.5	12,444
1969-70	7,247	1,369	2,122	1,716	5,207	41.8	12,454
1970-71	6,902	1,902	1,821	1,531	5,254	43.2	12,156
1971-72	5,722	1,110	1,787	1,316	4,213	42.4	9,935
1972-73	5,357	1,793	1,143	1,023	3,959	42.5	9,316
1973-74	4,821	2,099	737	517	3,353	41.0	8,174
1974-75*	-	-	-	-	-	-	8,430
1975-76*	-	-	-	-	-	-	9,540
1976-77*	-	-	-	-	-	-	11,120

Note: Exclude special students which accounted for about 250 additional students each year, and a few hundred who did not answer between 1963-64 and 1973-74.

* The basis of collecting foreign student data in the United States was changed; consequently the data sets are not comparable after 1973-74.

Source: Institute of International Education (New York), Open Doors (1963 to 1976), and correspondence with the Institute.

Table 25

Canadian Full-time Students in British Universities by Type of Study and Sex, 1960-61 to 1976-77

	Under-Graduate	Percent Under-Graduate	Graduate	Percent Graduate	Total	Male	Percent Male	Female	Percent Female	Known to hold Award	Percent with Award
1960-61	98	19.5	404	80.5	502	436	86.9	66	13.1	226	45.0
1961-62	117	20.9	442	79.1	559	480	85.9	79	14.1	279	49.9
1962-63	104	15.8	553	84.2	657	553	84.2	104	15.8	311	47.3
1963-64	110	16.9	542	83.1	652	559	85.7	93	14.3	328	50.3
1964-65	98	14.9	559	85.1	657	558	84.9	99	15.1	341	51.9
1965-66	98	14.8	562	85.2	660	548	83.0	112	17.0	363	55.0
1966-67	114	15.4	628	84.6	742	608	81.9	134	18.1	384	51.8
1967-68	93	11.9	691	88.1	784	648	82.7	136	17.3	429	54.7
1968-69	92	11.1	734	88.9	826	696	84.3	130	15.7	462	55.9
1969-70	104	11.2	827	88.8	931	764	82.1	167	17.9	486	52.2
1970-71	124	11.8	928	88.2	1,052	868	82.5	184	17.5	503	47.8
1971-72	93	9.6	880	90.4	973	776	79.8	197	20.2	682	70.1
1972-73	97	9.7	898	90.3	995	773	77.7	222	22.3	455	45.7
1973-74	170	19.0	725	81.0	895	672	75.1	223	24.9	290	32.4
1974-75	238	25.8	686	74.2	924	667	72.2	257	27.8	329	35.6
1975-76	255	29.4	612	70.6	867	640	73.8	227	26.2	322	37.1
1976-77	276	31.4	603	68.6	879	621	70.6	258	29.4	304	34.6

Source: Commonwealth Universities Yearbook (1960 to 1975), and correspondence with the Association of Commonwealth Universities

and most at the graduate level) is Great Britain (Table 25). There are also more than 1,000 in France, Belgium, Switzerland and Germany.

During the sixties more Canadians were studying abroad than there were foreign university students in Canada, but this pattern has been reversed. Now twice as many foreign university students are in Canada than there are Canadian students abroad. However, numbers have been levelling off, partly because of differential foreign student fees in Alberta, Ontario and Québec.

CHAPTER 8

DEGREES AWARDED

The number of bachelor's and professional degrees awarded by Canadian universities increased more than fourfold between 1960-61 and 1976-77 from 20,000 to 87,000 (Table 26). Some specializations, such as education and commerce and business administration, grew even more rapidly, from 3,400 and 1,100 to 17,000 and 6,500, respectively. Arts and science graduates accounted for 58.0% of the 1968-69 total, but only 48.7% in 1976-77. The proportion of graduates of some fields increased, for example, education from 15.0% to 20.0% and fine and applied arts from a fraction of a percentage to about 1.0%; others, such as religion and engineering declined, from 2.5% and 10.7% to 0.5% and 5.0%.

Another development has been a change in the relative numbers of male and female graduates. During the early sixties close to three-quarters were males, but the proportion gradually fell to almost 50% (52.3% in 1976-77) (Table 27). The trend at the graduate level is similar. The proportion of female master's recipients rose from 16% to 31%, and among doctoral graduates from about 9% to 18%.

Table 28 shows master's degrees conferred between 1960-61 and 1976-77 by field of specialization. Numbers nearly quadrupled in the sixties from 2,200 in 1960-61 to 8,500 in 1969-70, and have since increased to 12,500 in 1976-77.

Table 26

Bachelor's and First Professional Degrees Awarded by Field of Specialization, 1961-62 to 1976-77

Field of Specialization	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
Agriculture	351	357	392	443	435	508	538	537	531	573	617	608	599	613	717	900
	(1.5)	(1.4)	(1.4)	(1.3)	(1.1)	(1.2)	(1.1)	(1.0)	(0.9)	(0.9)	(0.9)	(0.9)	(0.8)	(0.8)	(0.9)	(1.0)
Architecture	102	79	101	118	139	132	204	199	368	287	249	243	346	477	473	520
	(0.4)	(0.3)	(0.4)	(0.4)	(0.4)	(0.3)	(0.4)	(0.4)	(0.6)	(0.4)	(0.3)	(0.3)	(0.5)	(0.6)	(0.6)	(0.6)
Arts	9,150	10,506	12,537	14,381	16,866	20,581	23,137	25,397	26,329	27,585	29,706	27,832	29,583	29,669	29,561	31,875
	(40.1)	(42.1)	(43.6)	(43.5)	(44.6)	(47.6)	(47.4)	(46.4)	(43.6)	(41.1)	(40.9)	(39.4)	(39.5)	(36.7)	(35.5)	(36.6)
Science	1,927	2,225	2,707	3,132	3,595	4,193	5,127	6,320	6,739	7,725	8,788	8,862	9,762	11,020	11,189	10,530
	(8.4)	(8.9)	(9.4)	(9.5)	(9.5)	(9.7)	(10.5)	(11.6)	(11.1)	(11.5)	(12.1)	(12.5)	(13.0)	(13.6)	(13.4)	(12.1)
Commerce and Business Administration	1,143	1,238	1,468	1,678	1,831	1,870	2,279	2,386	2,949	3,345	3,656	3,965	4,604	5,246	5,983	6,500
	(5.0)	(5.0)	(5.1)	(5.1)	(4.8)	(4.3)	(4.7)	(4.4)	(4.9)	(5.0)	(5.0)	(5.6)	(6.2)	(6.5)	(7.2)	(7.5)
Dentistry	229	257	258	286	299	310	334	364	341	369	398	414	465	456	478	465
	(1.0)	(1.0)	(0.9)	(0.9)	(0.8)	(0.7)	(0.7)	(0.7)	(0.6)	(0.5)	(0.5)	(0.6)	(0.6)	(0.6)	(0.6)	(0.5)
Education	3,425	3,904	4,269	5,392	6,568	7,036	7,859	9,307	11,244	14,131	14,665	13,744	13,194	15,908	16,891	17,040
	(15.0)	(15.7)	(14.9)	(16.3)	(17.3)	(16.3)	(16.1)	(17.0)	(18.6)	(21.1)	(20.2)	(19.4)	(17.6)	(19.7)	(20.3)	(19.6)
Engineering and Applied Sciences	2,437	2,246	2,423	2,259	2,327	2,420	2,681	2,966	3,543	3,898	4,068	4,122	4,055	4,057	3,852	4,370
	(10.7)	(9.0)	(8.4)	(6.8)	(6.1)	(5.6)	(5.5)	(5.4)	(5.9)	(5.8)	(5.6)	(5.8)	(5.4)	(5.0)	(4.6)	(5.0)
Fine and Applied Arts	24	44	64	70	62	99	104	163	195	284	498	630	579	744	848	1,000
	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)	(0.3)	(0.4)	(0.7)	(0.9)	(0.8)	(0.9)	(1.0)	(1.1)
Forestry	110	72	105	114	116	112	113	141	185	225	222	204	209	194	235	270
	(0.5)	(0.3)	(0.4)	(0.3)	(0.3)	(0.3)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.2)	(0.3)	(0.3)
Household Sciences	303	336	338	342	420	491	527	595	617	561	600	529	814	925	1,039	965
	(1.3)	(1.3)	(1.2)	(1.0)	(1.1)	(1.1)	(1.1)	(1.1)	(1.0)	(0.8)	(0.8)	(0.7)	(1.1)	(1.1)	(1.2)	(1.1)
Law	656	623	685	740	938	1,093	1,167	1,322	1,502	1,949	2,152	2,268	2,443	2,629	2,578	2,660
	(2.9)	(2.5)	(2.4)	(2.2)	(2.5)	(2.5)	(2.4)	(2.4)	(2.5)	(2.9)	(3.0)	(3.2)	(3.3)	(3.2)	(3.1)	(3.1)

Note: Percentage in brackets shows the distribution by field of specialization

Table 26 (cont'd)

Bachelor's and First Professional Degrees Awarded by Field of Specialization, 1961-62 to 1976-77

Field of Specialization	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
Library Science	232	232	277	311	337	309	384	486	459	306	152	96	71	56	46	-
	(1.0)	(0.9	(1.0)	(0.9)	(0.9)	(0.7)	(0.8)	(0.9)	(0.7)	(0.5)	(0.2)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)
Medicine	846	826	774	1,033	890	987	1,001	1,019	1,073	1,133	1,550	1,478	2,042	1,894	2,005	2,040
	(3.7)	(3.3)	(2.7)	(3.1)	(2.4)	(2.3)	(2.1)	(1.9)	(1.8)	(1.7)	(2.1)	(2.1)	(2.7)	(2.7)	(2.4)	(2.3)
Music	88	79	95	129	144	171	208	287	334	337	449	448	485	654	675	800
	(0.4)	(0.3)	(0.3)	(0.4)	(0.4)	(0.4)	(0.4)	(0.5)	(0.6)	(0.5)	(0.6)	(0.6)	(0.6)	(0.8)	(0.8)	(0.9)
Nursing	366	384	407	563	662	809	954	1,059	1,245	1,258	1,156	1,215	1,161	1,240	1,249	1,300
	(1.6)	(1.5)	(1.4)	(1.7)	(1.7)	(1.9)	(2.0)	(1.9)	(2.0)	(1.9)	(1.6)	(1.7)	(1.6)	(1.5)	(1.5)	(1.5)
Rehabilitation Medicine	-	2	11	9	26	38	57	94	228	205	241	272	402	540	581	700
	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)	(0.2)	(0.4)	(0.3)	(0.3)	(0.4)	(0.6)	(0.7)	(0.7)	(0.8)
Pharmacy	275	277	357	375	364	331	406	346	404	441	461	549	591	639	710	780
	(1.2)	(1.1)	(1.2)	(1.1)	(1.0)	(0.8)	(0.8)	(0.6)	(0.7)	(0.7)	(0.6)	(0.8)	(0.8)	(0.8)	(0.8)	(0.9)
Physical and Health Education	315	357	496	525	616	731	805	759	837	1,078	1,354	1,541	1,594	1,665	1,867	1,900
	(1.4)	(1.4)	(1.7)	(1.6)	(1.6)	(1.7)	(1.6)	(1.4)	(1.4)	(1.6)	(1.9)	(2.2)	(2.1)	(2.1)	(2.2)	(2.2)
Social Work														743	773	820
														(0.9)	(0.9)	(0.9)
Religion and Theology	566	509	611	767	805	805	727	693	869	743	600	508	324	287	297	405
	(2.5)	(2.0)	(2.1)	(2.3)	(2.1)	(1.9)	(1.5)	(1.3)	(1.4)	(1.1)	(0.8)	(0.7)	(0.4)	(0.4)	(0.4)	(0.5)
Veterinary Medicine	72	70	83	81	90	103	94	112	117	132	138	176	182	200	224	230
	(0.3)	(0.3)	(0.3)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)	(0.3)
Other	219	316	277	307	328	98	81	143	344	535	844	992	1,286	881	1,005	995
	(1.0)	(1.3)	(1.0)	(0.9)	(0.9)	(0.2)	(0.2)	(0.3)	(0.6)	(0.8)	(1.2)	(1.4)	(1.7)	(1.1)	(1.2)	(1.1)
Total	22,836	24,939	28,735	33,055	37,858	43,227	48,787	54,695	60,453	67,100	72,564	70,696	74,851	80,737	83,276	87,070

Note: Percentage in brackets shows the distribution by Field of Specialization

Table 27

Degrees Awarded by Type and by Sex, 1960-61 to 1976-77

Year	Bachelor and 1st professional			Master's degree			Doctorate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1960-61	14,689	5,108	19,797	1,874	354	2,228	279	27	306
	(74.2)	(25.8)	(100.0)	(84.1)	(15.9)	(100.0)	(91.2)	(8.8)	(100.0)
1961-62	16,566	6,270	22,836	2,026	415	2,441	295	26	321
	(72.5)	(27.5)	(100.0)	(83.0)	(17.0)	(100.0)	(91.9)	(8.1)	(100.0)
1962-63	18,017	6,922	24,939	2,256	499	2,755	387	34	421
	(72.2)	(27.8)	(100.0)	(81.9)	(18.1)	(100.0)	(91.9)	(8.1)	(100.0)
1963-64	20,577	8,158	28,735	2,601	564	3,165	443	38	481
	(71.6)	(28.4)	(100.0)	(82.2)	(17.8)	(100.0)	(92.1)	(7.9)	(100.0)
1964-65	23,013	10,042	33,055	2,894	687	3,581	512	54	566
	(69.6)	(30.4)	(100.0)	(80.8)	(19.2)	(100.0)	(90.5)	(9.5)	(100.0)
1965-66	25,501	12,357	37,858	3,660	812	4,472	619	77	696
	(67.4)	(32.6)	(100.0)	(81.8)	(18.2)	(100.0)	(88.9)	(11.1)	(100.0)
1966-67	28,498	14,729	43,227	4,214	1,051	5,265	716	63	779
	(65.9)	(34.1)	(100.0)	(80.0)	(20.0)	(100.0)	(91.9)	(8.1)	(100.0)
1967-68	31,602	17,186	48,788	4,594	1,148	5,742	908	98	1,006
	(64.8)	(35.2)	(100.0)	(80.0)	(20.0)	(100.0)	(90.3)	(9.7)	(100.0)
1968-69	34,494	20,201	54,695	5,486	1,549	7,035	1,021	87	1,108
	(63.1)	(36.9)	(100.0)	(78.0)	(22.0)	(100.0)	(92.1)	(7.9)	(100.0)
1969-70	37,273	23,180	60,453	6,640	1,821	8,461	1,247	128	1,375
	(61.7)	(38.3)	(100.0)	(78.5)	(21.5)	(100.0)	(90.7)	(9.3)	(100.0)
1970-71	41,596	25,504	67,100	7,516	2,122	9,638	1,474	151	1,625
	(62.0)	(38.0)	(100.0)	(78.0)	(22.0)	(100.0)	(90.7)	(9.3)	(100.0)
1971-72	43,982	28,582	72,564	7,715	2,543	10,258	1,564	160	1,724
	(60.6)	(39.4)	(100.0)	(75.2)	(24.8)	(100.0)	(90.7)	(9.3)	(100.0)
1972-73	42,592	28,104	70,696	7,778	2,852	10,630	1,712	217	1,929
	(60.2)	(39.8)	(100.0)	(73.2)	(26.8)	(100.0)	(88.8)	(11.2)	(100.0)
1973-74	43,784	31,067	74,851	7,426	2,770	10,196	1,662	234	1,896
	(58.5)	(41.5)	(100.0)	(72.8)	(27.2)	(100.0)	(87.7)	(12.3)	(100.0)
1974-75	44,891	35,846	80,737	7,950	3,118	11,068	1,544	296	1,840
	(55.6)	(44.4)	(100.0)	(71.8)	(28.2)	(100.0)	(83.9)	(16.1)	(100.0)
1975-76	44,740	38,536	83,276	8,030	3,525	11,555	1,375	318	1,693
	(53.7)	(46.3)	(100.0)	(69.5)	(30.5)	(100.0)	(81.2)	(18.8)	(100.0)
1976-77 *	45,570	41,500	87,070	8,635	3,855	12,490	1,406	303	1,709
	(52.3)	(47.7)	(100.0)	(69.1)	(30.9)	(100.0)	(82.3)	(17.7)	(100.0)

* Preliminary

Note: Percentage in brackets show the sex breakdown.

Table 28

Master's Degrees Granted by Field of Specialization, 1960-61 to 1976-77

Field of Specialization	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
Agriculture and Biological Sciences	147	157	192	217	239	330	347	389	376	491	552	544	473	451	490	594	690
	(6.6)	(6.4)	(7.0)	(6.9)	(6.7)	(7.4)	(6.6)	(6.8)	(5.3)	(5.8)	(5.7)	(5.3)	(4.4)	(4.4)	(4.4)	(5.1)	(5.5)
Education	227	259	338	377	390	499	525	593	902	1,245	1,421	1,721	1,952	1,992	2,161	2,354	2,460
	(10.2)	(10.6)	(12.3)	(11.9)	(10.9)	(11.2)	(10.0)	(10.3)	(12.8)	(14.7)	(14.7)	(16.8)	(18.4)	(19.5)	(19.5)	(20.4)	(19.7)
Engineering and Applied Sciences	243	286	295	362	445	518	550	730	932	986	1,175	1,026	1,011	928	963	1,015	1,060
	(10.9)	(11.7)	(10.7)	(11.4)	(12.4)	(11.6)	(10.4)	(12.7)	(13.2)	(11.7)	(12.2)	(10.0)	(9.5)	(9.1)	(8.7)	(8.8)	(8.5)
Fine and Applied Arts	14	15	16	40	20	22	45	60	111	69	86	97	95	120	130	158	160
	(0.6)	(0.6)	(0.6)	(1.3)	(0.6)	(0.5)	(0.8)	(1.0)	(1.6)	(0.8)	(0.9)	(0.9)	(0.9)	(1.2)	(1.2)	(1.4)	(1.3)
Health Sciences	83	99	108	125	154	165	227	231	246	290	277	292	320	262	303	321	375
	(3.7)	(4.1)	(3.9)	(3.9)	(4.3)	(3.7)	(4.3)	(4.0)	(3.5)	(3.4)	(2.9)	(2.8)	(3.0)	(2.6)	(2.7)	(2.8)	(3.0)
Humanities	452	457	520	609	679	872	1,088	1,164	1,373	1,689	1,998	2,262	2,271	1,996	2,081	1,917	2,105
	(20.3)	(18.7)	(18.9)	(19.2)	(19.0)	(19.5)	(20.7)	(20.3)	(19.5)	(20.0)	(20.7)	(22.1)	(21.4)	(19.6)	(18.8)	(16.6)	(16.8)
Mathematics and Physical Sciences	282	299	344	386	402	535	613	631	693	885	949	957	925	818	828	860	960
	(12.7)	(12.2)	(12.5)	(12.2)	(11.2)	(12.0)	(11.6)	(11.0)	(9.9)	(10.4)	(9.8)	(9.3)	(8.7)	(8.0)	(7.5)	(7.4)	(7.7)
Social Sciences	779	869	942	1,049	1,252	1,531	1,870	1,944	2,402	2,806	3,180	3,359	3,583	3,629	4,112	4,336	4,680
	(35.0)	(35.6)	(34.2)	(33.1)	(35.0)	(34.2)	(35.5)	(33.9)	(34.1)	(33.2)	(33.0)	(32.7)	(33.7)	(35.6)	(37.2)	(37.5)	(37.5)
Total	2,227	2,441	2,755	3,165	3,581	4,472	5,265	5,742	7,035	8,461	9,638	10,258	10,630	10,196	11,068	11,555	12,490
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

Note: Percentage in brackets shows the distribution by field of specialization.

Table 29

Earned Doctoral Degrees by Field of Specialization, 1960-61 to 1976-77

Field of Specialization	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
Agriculture and Biological Sciences	57	67	100	99	97	125	115	154	173	235	276	240	250	247	241	199	230
	(18.6)	(20.9)	(23.8)	(20.6)	(17.1)	(18.0)	(14.8)	(15.3)	(15.6)	(17.1)	(17.0)	(13.9)	(13.0)	(13.0)	(13.1)	(11.8)	(13.4)
Education	7	17	12	13	22	25	39	73	60	78	77	109	122	128	172	157	175
	(2.3)	(5.3)	(2.8)	(2.7)	(3.9)	(3.6)	(5.0)	(7.2)	(5.4)	(5.7)	(4.7)	(6.3)	(6.3)	(6.8)	(9.3)	(9.3)	(10.2)
Engineering and Applied Sciences	19	20	26	46	45	83	105	103	168	188	225	261	299	301	227	189	201
	(6.2)	(6.2)	(6.2)	(9.6)	(8.0)	(11.9)	(13.5)	(10.2)	(15.2)	(13.7)	(13.8)	(15.1)	(15.5)	(15.9)	(12.3)	(11.2)	(11.8)
Fine and Applied Arts	-	-	-	2	1	1	2	-	-	3	6	6	5	4	7	5	9
	-	-	-	(0.4)	(0.2)	(0.1)	(0.2)	-	-	(0.2)	(0.4)	(0.3)	(0.3)	(0.2)	(0.4)	(0.3)	(0.5)
Health Sciences	24	25	30	31	44	46	50	58	56	95	102	151	178	153	122	105	109
	(7.8)	(7.8)	(7.1)	(6.4)	(7.8)	(6.6)	(6.4)	(5.8)	(5.1)	(6.9)	(6.3)	(8.8)	(9.2)	(8.1)	(6.6)	(6.2)	(6.4)
Humanities	57	42	57	50	73	86	92	96	119	154	182	202	228	264	277	248	253
	(18.6)	(13.1)	(13.5)	(10.4)	(12.9)	(12.4)	(11.8)	(9.5)	(10.7)	(11.2)	(11.2)	(11.7)	(11.8)	(13.9)	(15.1)	(14.6)	(14.8)
Mathematics and Physical Sciences	101	115	157	184	228	260	298	388	375	456	528	524	557	474	422	380	371
	(33.0)	(35.8)	(37.3)	(38.2)	(40.3)	(37.4)	(38.2)	(38.6)	(33.8)	(33.2)	(32.5)	(30.4)	(28.9)	(25.0)	(22.9)	(22.4)	(21.7)
Social Sciences	41	35	39	56	56	70	78	134	157	166	229	231	290	325	372	410	361
	(13.4)	(10.9)	(9.3)	(11.6)	(9.9)	(10.0)	(10.0)	(13.3)	(14.2)	(12.1)	(14.1)	(13.4)	(15.0)	(17.1)	(20.2)	(24.2)	(21.1)
Total	306	321	421	481	566	696	779	1,006	1,108	1,375	1,625	1,724	1,929	1,896	1,840	1,693	1,709
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

Note: Percentage in brackets shows the distribution by field of specialization.

But the pattern among fields of specialization was uneven. For example, the number of master's graduates in education rose more than tenfold from 230 to 2,500. As a percentage of all recipients, mathematics and the physical sciences declined from about 12% to 8%, whereas education grew from 10% to 20%.

At the doctoral level, the number of degrees increased from 300 (1960-61) to 1,400 in 1969-70, and has since levelled off to an annual average of 1,800 (Table 29). The growth pattern was unusual in certain fields. The number of earned doctorates in engineering increased from 19 in 1960-61 to a high of 301 in 1973-74, but then fell to about 200 a year. Overall, Ph.D's in the human sciences (fine and applied arts, education, social sciences and humanities) grew from one-third of the total to about 50%.

During the 1960s a sizeable group of Canadians obtained doctorates abroad, particularly in the United States, Great Britain and France; and many of the awarded doctorates in Canada were for foreign students (about 12% in recent years).(1)

From present enrolment, it is possible to estimate the number of degrees that will be granted over the next few years. The projected numbers are about 90,000 bachelor's and first professional degrees, 12,000 master's and 1,800 doctorates. Master's and Ph.D.'s are levelling off. Moreover, shifts are occurring among fields of specialization, particularly toward those with a professional orientation such as business administration.

1. See the "Ph.D. Dilemma in Canada Revisited" by Max von Zur-Muehlen, The Canadian Journal of Higher Education, Vol III, No. 2, July 1978.

CHAPTER 9

Faculty Characteristics*

This chapter is a statistical description of some characteristics (age, sex, rank, doctoral qualifications, citizenship, salary and teaching discipline) of full-time university teachers, and how they have changed over the 22 years between 1956-57 to 1977-78. Because Canadian universities are now entering an era of limited growth, a review of the past may put current trends in perspective.

Table 30 reveals the unprecedented growth in the number of teachers during the sixties and early seventies. The total in the 46 universities rose from 4,973 in 1958-59 to an estimated 30,567 in 1977-78, more than a sixfold increase. For several years their ranks swelled by more than 2,000 annually. This rapid increase is exemplified by Memorial where numbers rose from 59 in 1958-59 to 805 in 1977-78. The teaching staff at many other universities grew tenfold during these 19 years, and none of the institutions in Table 30 failed to at least double its full-time faculty.

Expansion at French-speaking universities in Quebec was particularly rapid, and most Ontario universities experienced six- to tenfold increases. Furthermore, six of Ontario's universities were created after 1958-59. The staff at one of the new institutions, York, grew from 7 to around 1,000. By

* The information in this chapter is based on the July article in the Canadian Statistical Review by Max von Zur-Muehlen "Some Characteristics of Full-time University Teachers, 1956-57 to 1977-78".

Table 30

Full-time University Teachers by Province and by University, 1956-57 to 1977-78

Province and University	56/57	58/59	60/61	62/63	63/64	65/66	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78**
Memorial	41	59	68	108	125	170	239	340	422	500	601	662	706	747	679	765	805
Prince Edward Island	10	14	20	23	24	33	98	119	120	123	125	129	122	117	121	114	118
Acadia	54	64	75	79	83	89	109	115	134	149	162	161	169	176	195	195	198
Dalhousie	89	105	104	154	179	226	330	391	422	492	572	622	625	699	753	779	790
Mount St. Vincent	18	22	25	25	26	31	50	55	56	52	62	69	75	80	82	95	99
N.S. Tech. College	25	27	30	32	39	49	55	63	68	70	69	64	67	65	66	66	68
St. Francis Xavier *	78	80	89	106	121	119	150	158	170	192	230	228	205	205	162	158	162
St. Mary's	25	29	37	47	49	57	82	106	140	146	161	165	172	163	168	173	177
Sub-Total Nova Scotia	289	327	360	443	497	571	776	888	990	1,101	1,256	1,309	1,313	1,388	1,426	1,466	1,494
Mount Allison	60	63	67	79	84	97	102	109	104	109	112	117	120	120	122	129	130
New Brunswick	83	97	125	152	171	216	296	330	373	387	418	447	500	516	507	573	537
Moncton	12	33	43	44	46	72	92	124	147	160	195	208	250	265	340	341	341
Sub-total New Brunswick	155	193	235	275	301	385	490	563	624	656	725	772	870	901	969	1,043	1,008
Bishop's	17	21	27	31	37	52	67	73	79	81	90	70	73	75	67	65	65
McGill	433	448	497	615	668	795	962	1,091	1,168	1,178	1,138	1,155	1,245	1,260	1,254	1,306	1,306
Sir George Williams(1)	0	0	0	0	84	157	228	304	322	351	349	356	377	385	372	411	411
Montréal	269	277	320	349	447	630	977	1,067	1,168	1,212	1,372	1,405	1,427	1,484	1,596	1,645	1,645
Loyola(1)	23	27	44	61	90	120	183	196	236	237	216	244	247	252	270*	270*	270*
Québec	0	0	0	0	0	0	0	0	0	761	949	992	1,008	1,048	1,185	1,241	1,241
Laval	191	241	264	340	410	628	747	877	1,021	1,263	1,162	1,192	1,231	1,280	1,340	1,360	1,360
Sherbrooke	84	53	58	103	124	136	216	280	366	449	530	554	560	582	648	651	651
Sub-total Québec	1,017	1,067	1,210	1,499	1,860	2,518	3,380	3,888	4,360	5,532	5,806	5,968	6,168	6,366	6,732	6,949	6,949

(1) Since 1974, Sir George Williams and Loyola have been amalgamated with separate campuses as Concordia University.
* Xavier College in Sidney which became the College of Cape Breton in 1974 has been excluded.

Table 30 (cont'd)

Full-time University Teachers by Province and by University, 1956-57 to 1977-78

Province and University	56/57	58/59	60/61	62/63	63/64	65/66	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78**
Brock	0	0	0	0	0	25	77	92	123	152	186	198	203	219	219	219	220
Carleton	45	83	113	112	167	190	322	368	420	480	578	583	589	604	607	633	632
Guelph	252	245	243	263	264	322	541	600	632	698	704	731	738	740	720	782	774
Lakehead	0	0	0	15	21	46	115	133	176	209	240	233	225	232	246	240	242
Laurentian	0	0	25	33	36	61	108	126	159	192	218	233	241	263	324	323	334
McMaster	103	102	126	171	195	293	365	389	436	477	675	711	747	771	806	831	877
Ottawa	162	198	226	254	291	297	408	467	591	653	835	877	886	901	935	934	945
Queen's	171	189	217	257	300	391	498	565	668	699	764	808	828	821	875	899	886
Toronto	998	778	942	1,073	1,125	1,376	1,856	2,054	2,165	2,340	2,379	2,423	2,420	2,471	2,420	2,566	2,468
OISE	0	0	0	0	0	0	101	131	137	144	133	134	136	139	140*	140*	140*
Trent	0	0	0	0	0	39	79	101	113	120	157	160	172	175	177	186	182
Waterloo	0	0	65	117	160	301	454	471	563	649	728	714	729	741	802	800	805
Wilfrid Laurier	0	0	34	49	61	92	119	124	129	141	136	142	144	178	194	206	219
Western	193	187	227	287	336	506	661	665	753	867	1,085	1,183	1,207	1,269	1,353	1,368	1,422
Windsor	49	82	108	126	146	175	238	289	380	477	477	468	494	498	491	503	503
York	7	7	18	53	64	160	341	439	578	636	867	1,008	1,007	1,056	1,039	1,037	977
Sub-Total Ontario	1,980	1,871	2,344	2,810	3,166	4,274	6,283	7,014	8,023	8,934	10,162	10,606	10,766	11,078	11,348	11,667	11,626
Brandon	0	20	24	34	40	55	74	80	89	95	128	109	116	108	131	134	136
Manitoba	270	272	309	377	403	492	679	804	896	1,034	1,126	1,133	1,173	1,210	1,236	1,249	1,249
Winnipeg	29	33	42	71	99	113	138	104	135	186	184	171	161	183	190	191	194
Sub-total Manitoba	299	325	375	482	542	660	891	988	1,120	1,315	1,438	1,413	1,450	1,501	1,557	1,574	1,579
Saskatchewan[2]	260	258	310	358	395	602	813	946	1,011	1,156	1,240	886	886	887	972	977	977
Regina[2]	0	0	0	0	0	0	0	0	0	0	0	362	394	386	372	376	376
Sub-Total Saskatchewan	260	258	310	358	395	602	813	946	1,011	1,156	1,240	1,248	1,280	1,273	1,344	1,353	1,353

2. Until 1971-72, the University of Regina data were included with the University of Saskatchewan

Table 30 (cont'd)

Full-time University Teachers by Province and by University, 1956-57 to 1977-78

Province and University	56/57	58/59	60/61	62/63	63/64	65/66	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78**
Alberta[3]	267	336	456	614	742	707	920	1,010	1,190	1,266	1,420	1,441	1,513	1,487	1,513	1,548	1,620
Calgary[3]	0	0	0	0	0	240	437	549	722	668	791	764	799	851	885	933	997
Lethbridge	0	0	0	0	0	0	0	0	0	139	141	136	135	135	152	154	159
Sub-Total Alberta	267	336	456	614	742	947	1,357	1,559	1,912	2,073	2,352	2,341	2,447	2,473	2,550	2,635	2,776
British Columbia	419	523	665	785	859	1,044	1,218	1,292	1,450	1,530	1,642	1,665	1,653	1,789	1,875	1,862	1,971
Simon Fraser	0	0	0	0	0	0	312	339	345	329	336	325	380	373	417	435	456
Victoria	0	0	78	124	140	188	273	333	385	416	415	417	396	438	478	484	432
Sub-total British Columbia	419	523	743	909	999	1,232	1,803	1,964	2,180	2,275	2,393	2,407	2,429	2,600	2,770	2,781	2,859
Total	4,737	4,973	6,121	7,521	8,651	11,392	16,130	18,269	20,762	23,665	26,098	26,855	27,551	28,444	29,496	30,347	30,567
Other Institutions	261	344	394	465	474	696	573	595	1,077	939	815	920	859	1,498	1,288	1,326	1,350
Grand Total	4,998	5,317	6,515	7,986	9,125	12,088	16,703	18,864	21,839	24,604	26,913	27,775	28,410	29,942	30,784	31,673	31,917

* Estimated

** For some universities, particularly in Québec, 1976-77 data have been substituted for 1977-78.

3. Until 1963-64, the University of Alberta includes the faculty of the University of Calgary.

1974-75 Ontario alone had more than twice as many teachers (11,078) as there had been in all Canada 16 years before. Faculty growth in the Western Provinces proceeded at a similar rate: at the University of Manitoba from 272 to 1,249; at the University of Saskatchewan (including Regina) from 258 to 1,353; at the University of Alberta from 336 to 1,620, and at the University of British Columbia from 523 to 1,971. Growth in Nova Scotia and New Brunswick was slower. However, in these two provinces the faculties of Dalhousie, St. Mary's and Moncton increased as rapidly as the national trend.

Table 31 expressed growth in the number of teachers as an index, with 1967-68 as a base of 100. The index rose to 191 in 1977-78, but with considerable provincial and institutional variation. Gains were greatest during the late sixties. and have levelled off since 1972-73. Although the faculty of some Ontario universities has doubled or tripled since 1967-68, the province's index stood at 185 in 1977-78, slightly below the national average. The number of Quebec's French-speaking universities rose more quickly than in the English-speaking institutions. Except for Alberta, the Western provinces experienced average growth.

Table 32 indicates growth in the number of full-time teachers in every field and discipline, but more in some than others. Thus, classics teachers

Table 31

Index (1967-1968 = 100) of Full-time University Teachers, by Province and University, 1967-68 to 1977-78

Province and University	67/68	68/69	69/70	70/71	71/72	72/73	73/74	74/75	75/76	76/77	77/78
Memorial	100	142	177	209	251	260	295	313	284	320	337
Prince Edward Island	100	121	122	125	125	132	124	119	123	116	120
Acadia	100	106	123	137	149	148	155	161	179	179	182
Dalhousie	100	118	128	149	173	188	189	212	228	236	240
Mount St. Vincent	100	110	112	104	124	138	150	160	164	190	198
N.S. Technical College	100	114	124	127	125	116	122	118	120	120	124
St. Francis Xavier	100	105	113	128	153	152	137	137	108	105	108
St. Mary's	100	129	171	178	196	201	210	199	205	211	216
Sub-total Nova Scotia	100	114	128	142	162	169	169	179	184	189	193
Mount Allison	100	107	102	107	110	115	118	118	120	126	127
New Brunswick	100	111	126	131	141	151	169	174	171	194	181
Moncton	100	135	160	174	212	226	272	288	370	371	371
Sub-total New Brunswick	100	115	127	134	148	158	178	184	198	213	206
Bishop's	100	109	118	121	134	104	109	112	100	97	97
McGill	100	113	121	122	118	120	129	131	130	136	136
Sir George Williams	100	133	141	154	153	156	165	169	163	180	180
Montréal	100	109	120	124	140	144	146	152	163	168	168
Loyola	100	107	129	129	112	133	135	138	148	148	148
Laval	100	117	137	169	156	160	165	171	179	182	182
Sherbrooke	100	130	169	208	245	256	259	267	300	301	301
Sub-total Quebec*	100	115	129	164	172	177	182	188	199	206	206
Brock	100	119	160	197	242	257	264	284	284	284	286
Carleton	100	114	130	149	179	181	183	188	188	197	196
Guelph	100	111	117	129	130	135	136	137	133	145	143
Lakehead	100	116	153	182	209	213	196	202	214	209	210
Laurentian	100	117	147	178	202	216	223	244	300	299	309
McMaster	100	107	119	131	185	195	205	211	221	228	240
Ottawa	100	114	145	160	205	215	217	221	229	229	232
Queen's	100	113	134	140	153	162	147	165	176	181	178
Toronto	100	111	117	126	128	131	130	133	130	138	133
OISE	100	130	136	143	132	133	135	158	139	139	139
Trent	100	128	143	152	199	203	218	222	224	235	230
Waterloo	100	104	124	143	160	157	161	163	177	176	177
Wilfrid Laurier	100	104	108	118	114	119	121	150	163	173	184
Western	100	101	114	131	166	179	183	192	205	207	215
Windsor	100	121	160	200	200	197	208	209	206	211	211
York	100	129	170	187	254	296	295	310	305	304	286
Sub-total Ontario	100	112	128	142	162	169	171	176	181	186	185
Brandon	100	108	120	128	173	147	157	146	177	181	184
Manitoba	100	118	132	152	166	167	173	178	182	184	184
Winnipeg	100	75	98	135	133	124	117	133	138	138	141
Sub-total Manitoba	100	111	126	148	161	159	163	168	175	177	177
Saskatchewan (Saskatoon & Regina)	100	116	124	142	152	154	157	157	165	166	166
Alberta	100	110	129	138	154	154	164	162	164	168	176
Calgary	100	126	165	153	181	175	183	195	203	214	228
Sub-total Alberta**	100	115	141	153	173	172	180	182	188	194	205
British Columbia	100	106	119	126	135	137	136	147	154	153	162
Simon Fraser	100	109	111	105	108	104	122	120	134	139	146
Victoria	100	122	141	152	152	153	145	160	175	177	158
Sub-total British Columbia	100	109	121	126	133	133	135	144	154	154	159
Total Universities	100	113	129	147	162	166	171	176	184	190	191

* Includes since 1970-71 the University of Québec
** Includes since 1970-71 the University of Lethbridge

Table 32

Full-time University Teachers by Teaching Field and Selected Discipline, 1956-57 to 1976-77

Teaching Field and Discipline	1956/ 1957	1958/ 1959	1960/ 1961	1962/ 1963	1963/ 1964	1965/ 1966	1967/ 1968	1968/ 1969	1969/ 1970	1970/ 1971	1971/ 1972	1972/ 1973	1973/ 1974	1974/ 1975	1975/ 1976	1976/ 1977
Physical Education	97	101	121	149	183	238	334	385	440	425	579	620	632	659	712	717
Education	185	234	364	471	527	670	956	1,075	1,210	1,877	1,891	1,918	2,050	2,247	2,586	2,509
Sub-total Education	282	335	485	620	710	908	1,290	1,460	1,650	2,302	2,470	2,538	2,682	2,906	3,298	3,226
Music	52	47	57	67	79	131	209	237	296	368	396	423	425	435	465	489
Fine & Applied Arts	65	53	54	80	91	150	272	312	423	544	533	608	623	726	753	768
Sub-total Fine Arts	117	100	111	147	170	281	481	549	719	912	929	1,031	1,048	1,161	1,218	1,257
Classics	119	135	163	177	196	222	261	284	329	269	277	275	269	264	256	260
History	125	146	187	250	305	443	626	714	856	935	1,008	1,069	1,037	1,042	1,026	1,063
Library and Records Science	18	10	13	23	26	36	53	63	80	88	94	92	93	95	98	99
Mass Media Studies	7	5	4	4	4	6	8	10	13	31	72	72	83	101	125	140
English	253	324	398	506	602	842	1,130	1,217	1,372	1,469	1,500	1,479	1,465	1,401	1,350	1,374
French	113	181	233	261	348	496	597	687	734	805	877	864	776	787	757	768
German	42	47	61	72	72	110	137	148	166	195	210	222	224	215	201	189
Spanish	9	16	18	24	29	58	68	86	94	127	151	154	156	156	154	150
Other Modern Languages	113	85	106	173	226	301	469	513	581	630	654	675	667	658	672	690
Philosophy	148	187	217	285	326	405	505	554	618	635	697	701	693	709	666	661
Religious Studies	117	144	158	165	180	206	248	248	288	530	503	504	537	579	578	570
Sub-total Humanities	1,064	1,280	1,558	1,940	2,314	3,125	4,102	4,524	5,131	5,714	6,043	6,107	6,000	6,007	5,883	5,964
Anthropology (incl. Archeology)	9	12	19	21	32	51	103	117	141	195	269	334	331	346	370	388
Area Studies	62	56	51	67	69	110	153	173	174	140	105	95	119	122	87	92
Commerce, Business Administration	107	146	161	192	236	331	502	607	685	712	923	952	1,051	1,227	1,348	1,490
Economics	173	186	216	272	312	423	594	679	762	766	860	893	904	952	960	960
Geography	38	56	79	109	142	215	325	368	453	505	589	618	609	615	636	664
Law	62	82	105	134	141	187	278	308	359	398	428	417	504	526	549	582
Political Science	21	36	54	93	123	200	328	385	450	561	684	726	691	682	712	729
Psychology	88	115	130	170	228	400	672	756	1,010	1,013	1,163	1,196	1,229	1,268	1,322	1,376
Social Work	57	59	66	72	102	113	131	161	198	234	274	271	289	333	352	352
Sociology	32	43	61	84	115	195	300	410	548	702	829	806	848	886	903	917
Sub-total Social Sciences	649	791	942	1,214	1,500	2,225	3,386	3,964	4,780	5,226	6,124	6,308	6,575	6,957	7,239	7,550

Table 32 (cont'd)

Full-time University Teachers by Teaching Field and Selected Discipline, 1956-57 to 1976-77

Teaching Field and Discipline	1956/ 1957	1958/ 1959	1960/ 1961	1962/ 1963	1963/ 1964	1965/ 1966	1967/ 1968	1968/ 1969	1969/ 1970	1970/ 1971	1971/ 1972	1972/ 1973	1973/ 1974	1974/ 1975	1975/ 1976	1976/ 1977
Agriculture	243	217	199	232	239	267	307	327	336	381	366	385	412	366	429	457
Biology	118	105	120	161	223	278	452	523	691	609	634	658	697	711	835	872
Botany	68	65	70	79	88	127	133	137	145	187	159	188	191	175	212	200
Household Science & Related	57	86	98	101	107	118	134	146	197	160	208	221	238	224	276	290
Veterinary Medicine & Sciences	58	51	54	56	52	65	85	96	125	128	106	157	135	170	194	231
Zoology	246	218	240	271	310	393	442	530	552	246	292	319	315	436	336	342
Sub-total Biological Sciences	790	742	781	900	1,019	1,248	1,553	1,759	2,046	1,711	1,765	1,928	1,988	2,082	2,281	2,392
Architecture	42	50	56	60	69	83	120	138	211	135	175	182	188	214	194	199
Chemical Engineering	38	49	64	73	80	105	153	170	183	213	246	240	241	242	219	228
Civil Engineering	152	140	194	224	232	268	353	320	408	415	440	428	444	427	349	384
Electrical Engineering	74	99	138	171	186	225	282	318	335	393	387	289	286	394	419	476
Mechanical Engineering	79	117	160	173	182	208	244	285	308	347	337	346	331	336	345	379
Mining Engineering	100	56	65	67	77	88	116	117	135	196	111	121	109	112	49	50
Forestry	20	29	36	39	41	49	60	69	91	95	90	78	81	153	90	85
Other Applied Sciences	74	93	92	126	144	152	246	281	404	291	295	468	502	417	618	558
Sub-total Applied Sciences	579	633	805	933	1,011	1,178	1,574	1,698	2,075	2,085	2,081	2,152	2,182	2,295	2,283	2,359
Dentistry	55	39	58	69	81	99	141	170	191	233	236	188	260	273	295	310
Medicine	443	304	369	434	477	626	1,109	1,276	1,369	2,394	2,747	2,880	3,032	3,010	3,175	3,311
Nursing	57	64	73	91	102	146	233	287	300	349	383	412	431	540	554	590
Pharmacy	25	32	36	52	61	64	85	106	181	102	113	118	143	137	149	153
Sub-total Health Sciences	580	439	536	646	721	935	1,568	1,839	2,041	3,078	3,479	3,598	3,866	3,960	4,173	4,364
Mathematics	245	322	402	471	560	753	983	1,062	1,223	1,372	1,481	1,394	1,315	1,251	1,867*	1,868*
Chemistry	334	320	402	487	539	692	838	939	1,016	927	1,051	1,183	1,162	1,122	896	911
Geology and Related	83	113	110	136	130	181	220	253	292	330	457	506	516	507	457	478
Physics	250	260	322	396	450	558	708	769	867	946	1,079	1,158	1,124	1,462	989	983
Sub-total Physical Sciences	912	1,015	1,236	1,490	1,679	2,184	2,749	3,023	3,398	3,575	4,068	4,241	4,117	4,342	4,209	4,240
GRAND TOTAL	4,973	5,335	6,454	7,890	9,124	12,084	16,703	18,816	21,840	24,603	26,959	27,903	28,458	29,710	30,784**	31,673**

*Includes applied mathematics and computer science

** Includes, for 1975-76, 200 unclassified university teachers and 324 for 1976-77.

(Latin, Greek, Hebrew and classical studies) increased from 119 in 1956-57 to only 260 in 1976-77. In contrast, the number of history teachers burgeoned from 125 to 1,063. Most other humanities disciplines underwent a similar rise. For example, teachers of Spanish increased from 9 to 150, and of English from 253 to 1,374. Numbers in the humanities levelled off or even declined slightly since the early seventies as enrolment shifted toward the social sciences. Teachers of anthropology increased from 9 in 1956-57 to 388 in 1976-77; of sociology from 32 to 917, and of psychology from 88 to 1,376. A feature of the early seventies has been the continuous growth in applied subjects such as commerce and business administration where the faculty rose from 923 in 1971-72 to 1,490 in 1976-77; law from 428 to 582, and social work from 274 to 352. Numbers in agriculture did not rise so rapidly: from 243 in 1956-57 to 457 in 1976-77. The number of teachers of chemical and electrical engineering rose sixfold from 38 to 228, and from 74 to 476, respectively; the gain in civil engineering was only from 152 to 384. The greatest increase in the physical sciences was among teachers of chemistry (from 334 in 1956-57 to 1,016 in 1969-70), but their numbers have since levelled off.

Although all faculties expanded, shifts among individual disciplines have been marked (Table 33). A discernible trend reflects the more rapid growth of social science faculties in relation to some other disciplines. The

Table 33

Percentage Distribution of Full-time University Teachers by Teaching Field and Selected Discipline, 1956-57 to 1976-77

Teaching Field and Discipline	1956/ 1957	1958/ 1959	1960/ 1961	1962/ 1963	1963/ 1964	1965/ 1966	1967/ 1968	1968/ 1969	1969/ 1970	1970/ 1971	1971/ 1972	1972/ 1973	1973/ 1974	1974/ 1975	1975/ 1976	1976/ 1977
Physical Education	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	1.7	2.2	2.2	2.2	2.2	2.3	2.3
Education	3.7	4.4	5.6	6.0	5.8	5.5	5.7	5.7	5.5	7.6	7.0	6.9	7.2	7.6	8.5	8.0
Sub-total Education	5.7	6.3	7.5	7.9	7.8	7.5	7.7	7.7	7.5	9.3	9.2	9.1	9.4	9.8	10.8	10.3
Music	1.0	0.9	0.9	0.8	0.9	1.1	1.3	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Fine & Applied Arts	1.3	1.0	0.8	1.0	1.0	1.2	1.6	1.6	1.9	2.2	1.9	2.2	2.2	2.4	2.5	2.4
Sub-total Fine Arts	2.3	1.9	1.7	1.8	1.9	2.3	2.9	2.9	3.3	3.7	3.4	3.7	3.7	3.9	4.0	4.0
Classics	2.4	2.5	2.5	2.2	2.1	1.8	1.6	1.5	1.5	1.1	1.0	1.0	1.0	0.9	0.8	0.8
History	2.5	2.7	2.9	3.2	3.3	3.7	3.7	3.8	3.9	3.8	3.7	3.9	3.6	3.5	3.3	3.4
Library and Records Science	0.4	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
Mass Media Studies	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.2	0.3	0.3	0.4	0.5
English	5.1	6.1	6.2	6.4	6.6	7.0	6.8	6.5	6.3	6.0	5.5	5.3	5.2	4.7	4.4	4.4
French	2.2	3.4	3.6	3.3	3.8	4.1	3.6	3.6	3.3	3.3	3.3	3.1	2.7	2.7	2.5	2.4
German	0.8	0.9	0.9	0.9	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6
Spanish	0.2	0.4	0.3	0.3	0.3	0.5	0.4	0.5	0.4	0.5	0.6	0.6	0.6	0.5	0.5	0.5
Other Modern Languages	2.3	1.5	1.6	2.2	2.5	2.5	2.8	2.7	2.7	2.5	2.4	2.4	2.3	2.2	2.2	2.1
Philosophy	3.0	3.5	3.4	3.6	3.6	3.4	3.0	3.0	2.8	2.6	2.6	2.5	2.5	2.4	2.2	2.1
Religious Studies	2.4	2.7	2.5	2.1	2.0	1.7	1.5	1.3	1.3	2.2	1.9	1.8	1.9	2.0	1.9	1.8
Sub-total Humanities	21.4	24.0	24.1	24.5	25.3	25.9	24.5	24.0	23.5	23.3	22.4	21.9	21.1	20.2	19.2	19.0
Anthropology (incl. Archaeology)	0.2	0.2	0.3	0.3	0.4	0.4	0.6	0.7	0.6	0.8	1.0	1.2	1.2	1.2	1.2	1.2
Area Studies	1.2	1.1	0.8	0.8	0.7	0.9	0.9	0.9	0.8	0.6	0.4	0.3	0.4	0.4	0.3	0.3
Commerce, Business Administration	2.2	2.7	2.5	2.4	2.6	2.7	3.0	3.2	3.1	2.9	3.4	3.4	3.7	4.1	4.4	4.8
Economics	3.5	3.5	3.3	3.5	3.4	3.5	3.6	3.6	3.5	3.1	3.2	3.2	3.1	3.2	3.1	3.1
Geography	0.8	1.1	1.2	1.4	1.6	1.8	1.9	2.0	2.1	2.0	2.2	2.2	2.1	2.1	2.1	2.1
Law	1.2	1.5	1.6	1.7	1.5	1.6	1.7	1.6	1.6	1.6	1.6	1.5	1.8	1.8	1.8	1.9
Political Science	0.4	0.7	0.9	1.2	1.3	1.7	2.0	2.0	2.1	2.3	2.5	2.6	2.4	2.3	2.3	2.3
Psychology	1.8	2.2	2.0	2.2	2.5	3.3	4.0	4.0	4.6	4.1	4.3	4.3	4.3	4.3	4.3	4.4
Social Work	1.1	1.1	1.0	0.9	1.1	0.9	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.2	1.1
Sociology	0.7	0.8	1.0	1.1	1.3	1.6	1.8	2.2	2.5	2.8	3.1	2.9	3.0	3.0	3.0	2.9
Sub-total Social Sciences	13.1	14.9	14.6	15.5	16.4	18.4	20.3	21.1	21.9	21.2	22.7	22.6	23.0	23.4	23.7	24.1

Table 33 (cont'd)

Percentage Distribution of Full-time University Teachers by Teaching Field and Selected Discipline, 1956-57 to 1976-77

Teaching Field and Discipline	1956/ 1957	1958/ 1959	1960/ 1961	1962/ 1963	1963/ 1964	1965/ 1966	1967/ 1968	1968/ 1969	1969/ 1970	1970/ 1971	1971/ 1972	1972/ 1973	1973/ 1974	1974/ 1975	1975/ 1976	1976/ 1977
Agriculture	4.9	4.0	3.1	3.0	2.6	2.2	1.8	1.7	1.5	1.5	1.4	1.4	1.5	1.2	1.4	1.4
Biology	2.4	2.0	1.9	2.0	2.4	2.3	2.7	2.8	3.2	2.5	2.3	2.4	2.4	2.4	2.7	2.8
Botany	1.4	1.2	1.1	1.0	1.0	1.1	0.8	0.7	0.7	0.8	0.6	0.6	0.7	0.6	0.7	0.6
Household Science & Related	1.1	1.6	1.5	1.3	1.2	1.0	0.8	0.8	0.9	0.7	0.8	0.8	0.8	0.8	0.9	0.9
Veterinary Medicine & Science	1.2	1.0	0.8	0.7	0.6	0.5	0.5	0.5	0.6	0.5	0.4	0.6	0.5	0.6	0.6	0.7
Zoology	4.9	4.1	3.7	3.4	3.4	3.2	2.7	2.8	2.5	1.0	1.1	1.1	1.1	1.5	1.1	1.1
Sub-total Biological Science	15.9	13.9	12.1	11.4	11.2	10.3	9.3	9.3	9.4	7.0	6.6	6.9	7.0	7.1	7.4	7.6
Architecture	0.8	0.9	0.9	0.8	0.8	0.7	0.7	0.7	1.0	0.5	0.7	0.7	0.7	0.7	0.6	0.6
Chemical Engineering	0.8	0.9	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.9	0.9	0.9	0.8	0.8	0.7	0.7
Civil Engineering	3.0	2.6	3.0	2.8	2.5	2.2	2.1	2.0	1.9	1.7	1.6	1.5	1.6	1.4	1.1	1.2
Electrical Engineering	1.5	1.9	2.2	2.2	2.0	1.9	1.7	1.7	1.5	1.6	1.5	1.0	1.0	1.3	1.4	1.5
Mechanical Engineering	1.6	2.2	2.5	2.2	2.0	1.7	1.5	1.5	1.4	1.4	1.2	1.2	1.1	1.1	1.1	1.2
Mining Engineering	2.0	1.1	1.0	0.8	0.8	0.7	0.7	0.6	0.6	0.8	0.4	0.4	0.4	0.4	0.2	0.2
Forestry	0.4	0.5	0.6	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.5	0.3	0.3
Other Applied Sciences	1.5	1.8	1.4	1.6	1.6	1.2	1.5	1.5	1.9	1.2	1.1	1.7	1.7	1.4	2.0	1.8
Sub-total Applied Sciences	11.6	11.9	12.5	11.8	11.1	9.7	9.4	9.3	9.5	8.5	7.7	7.7	7.6	7.6	7.4	7.5
Dentistry	1.1	0.7	0.9	0.9	0.9	0.8	0.8	0.9	0.9	1.0	0.9	0.7	0.9	0.9	1.0	1.0
Medicine	8.9	5.7	5.7	5.5	5.2	5.2	6.6	6.8	6.2	9.7	10.2	10.3	10.6	10.1	10.4	10.5
Nursing	1.2	1.2	1.1	1.2	1.1	1.2	1.4	1.5	1.4	1.4	1.4	1.5	1.5	1.8	1.8	1.9
Pharmacy	0.5	0.6	0.6	0.6	0.7	0.5	0.5	0.5	0.8	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Sub-total Health Sciences	11.7	8.2	8.3	8.2	7.9	7.7	9.4	9.7	9.3	12.5	12.9	12.9	13.5	13.3	13.7	13.9
Mathematics	4.9	6.0	6.2	6.0	6.1	6.1	5.9	5.6	5.5	5.6	5.5	5.0	4.6	4.2	6.1	6.0
Chemistry	6.7	5.9	6.2	6.2	5.9	5.7	5.0	4.9	4.6	3.8	3.9	4.2	4.1	3.8	2.9	2.9
Geology and Related	1.7	1.9	1.7	1.7	1.4	1.5	1.3	1.3	1.3	1.3	1.7	1.8	1.8	1.7	1.5	1.5
Physics	5.0	4.9	5.0	5.0	4.9	4.6	4.2	4.1	4.0	3.8	4.0	4.2	4.0	4.9	3.2	3.1
Sub-total Physical Sciences	18.3	18.9	19.1	18.9	18.4	18.1	16.5	16.0	15.6	14.5	15.1	15.2	14.5	14.6	13.8	13.5
GRAND TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

proportion of classics teachers declined from 2.4% of the total in 1956-57 to 0.8% in 1976-77; agriculture, from 4.9% to 1.4%, and chemistry, from 6.7% to 2.9%. The percentage of teachers in all engineering disciplines has declined from 11.6% to 7.5%. In contrast, some social science disciplines doubled, tripled and even quadrupled their representation, e.g., commerce and business administration (2.2% to 4.8%), geography (0.8% to 2.1%), psychology (1.8% to 4.4%), and anthropology and sociology (0.9% to 4.1%).

University teaching has long been the preserve of males. In 1958-59 only 10.7% were female, a proportion that increased to 14.4% in 1976-77 (Table 34). The percentage of women teaching in traditional "female" fields (education and nursing) has declined since 1958-59, although they still constitute more than one-fifth of each. In fine and applied arts the proportion of women increased slightly to 20.4%. Their representation on humanities and social science faculties has grown substantially from 9.7% and 7.8% to 17.1% and 12.4%. Over the years the percentage of females in science, excluding health and biological sciences, has been small (1.0% in engineering and 3.7% in the physical sciences in 1976-77).

Although the teachers' average age varies among fields, the group as a whole has aged slowly. In 1958-59 the average was 38.9; by 1976-77 it had risen to 41.4 (Table 35). The oldest teachers were in the humanities (42.7), health sciences (42.4)and physical sciences (40.9). This young age structure

Table 34

Teaching Field	Full-time Female University Teachers as a Percentage of the Total, by Teaching Field, Selected Years				
	1958-59	1963-64	1968-69	1973-74	1976-77
Education	29.5	25.1	23.8	21.3	23.2
Fine and Applied Arts	17.5	16.4	17.5	18.7	20.4
Humanities	9.7	12.8	18.1	16.6	17.1
Social Sciences	7.8	8.0	8.7	10.2	12.4
Biological Sciences	16.5	16.4	16.2	15.7	16.1
Engineering and Applied Sciences	0.3	1.1	0.7	0.7	1.0
Health Sciences	25.6	27.1	24.8	20.6	22.9
Mathematics and Physical Sciences	3.6	4.1	4.8	4.1	3.7
Total	10.7	11.6	13.2	13.0	14.4

Table 35

Teaching Field	Average Age of Full-time University Teachers, by Teaching Field, Selected Years				
	1958-59	1963-64	1968-69	1973-74	1976-77
Education	40.4	40.6	40.0	40.6	41.9
Fine and Applied Arts	39.2	39.8	39.7	39.9	41.3
Humanities	39.3	39.3	38.0	40.5	42.7
Social Sciences	37.8	37.9	36.9	39.9	39.4
Biological Sciences	39.2	40.6	40.5	40.8	41.9
Engineering and Applied Sciences	37.4	38.5	38.7	40.6	42.5
Health Sciences	40.2	41.9	40.6	41.4	42.4
Mathematics and Physical Sciences	37.8	37.9	37.4	38.9	40.9
Total	38.9	39.4	38.6	40.0	41.4

means that few replacement positions will be opened by retirement and death over the next few years.

Age is related to rank distribution. Between 1967-68 and 1973-74 assistant professors were the modal group, but have been replaced by associate professors (Table 36). The proportion of assistant professors fell from a high of 38.0% in 1969-70 to 28.0% in 1977-78, whereas associate professors increased from 26.8% to 38.2%. To some extent, shifts in rank distribution parallel growing numbers, particularly during the mid-sixties, when many assistant professors were hired. In 1967-68, 43.7% were at the two senior levels (full professor and associate professor), but the proportion rose to 66.0% in 1977-78. The increase occurred as the assistant professors of the mid-sixties were promoted to the associate and full professor levels, especially in expanding fields such as education, fine and applied arts, humanities and social sciences. In the sciences about 70% were at these ranks in 1976-77.

Table 37 shows doctoral qualifications for five selected years, by field and discipline. The overall proportion with Ph.D.'s increased from 41.7% in 1958-59 to 49.4% in 1968-69, and to 60.0% in 1976-77. Qualifications varied substantially among disciplines, reflecting the distinction between theoretical and applied fields, for in many of the latter a Ph.D. is not a teaching prerequisite. In 1976-77 an average of 84.6% of the teachers in the physical sciences had doctorates, ranging from 80.5% in mathematics to 91.0% in chemistry. Proportions were low in applied disciplines like nursing (5.4%),

Table 36

Academic Rank Distribution of Full-time University Teachers, 1967-68 to 1977-78

	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78**
	(in percent)										
Full Professor	18.5	18.5	18.6	18.8	21.3	21.7	23.2	24.5	25.7	26.7	27.8
Associate Professor	25.2	26.3	26.8	27.2	29.1	29.9	32.5	34.2	35.6	37.1	38.2
Sub-total	43.7	44.8	45.4	46.0	50.4	51.6	55.7	58.7	61.3	63.8	66.0
Assistant Professor	37.0	37.9	38.0	37.7	37.4	37.2	34.7	33.2	31.3	29.7	28.0
Rank below Assistant Prof.	19.3	17.3	16.6	16.3	12.2	11.1	9.8	8.1	7.4	6.5	6.0
Sub-total	56.3	55.2	54.6	54.0	49.6	48.3	44.5	41.3	38.7	36.2	34.0
Number Reported*	16,132	18,865	21,268	23,786	26,973	27,771	28,399	29,959	30,784	31,676	N/A

* Includes the "other" category of teachers ungraded and visiting professors.

** Estimated based on 40 universities.

Table 37

Doctoral Qualifications of Full-time University Teachers, by Teaching Field and Selected Discipline, Selected Years

Teaching Field and Discipline	58/59	63/64	68/69	73/74	76/77
Physical education	6.1	8.4	11.1	29.3	38.4
Education	27.0	27.5	35.3	43.5	47.9
Sub-total education	20.7	22.6	29.9	40.1	45.8
Music	15.2	13.2	15.5	22.8	25.6
Fine and Applied Arts	17.6	21.6	21.0	15.9	17.7
Sub-total Fine Arts	16.5	17.7	18.6	18.7	20.8
Classics	46.6	37.2	47.3	62.0	67.4
History	55.3	49.2	54.3	63.0	77.1
Library and Records Science	0.0	16.0	11.3	23.9	28.4
Mass Media Studies	0.0	0.0	0.0	17.7	19.0
English	40.3	37.9	42.9	60.7	70.0
French	34.9	31.7	33.2	47.8	58.8
German	80.0	55.7	51.7	72.3	76.6
Spanish	20.0	28.6	34.5	52.3	69.4
Other Modern Languages	41.5	41.8	43.1	49.9	59.9
Philosophy	55.2	52.5	48.5	67.0	75.7
Religious Studies	41.0	43.4	49.8	60.1	67.2
Sub-total Humanities	44.9	41.4	44.2	58.9	67.4
Anthropology	58.3	60.0	54.1	61.8	71.9
Area Studies	38.5	38.5	42.3	62.8	54.0
Commerce, Business Administration	11.8	17.1	25.6	39.1	41.5
Economics	47.4	44.4	52.0	63.8	70.4
Geography	51.9	48.5	54.3	66.7	74.2
Law	17.1	18.0	15.5	16.5	18.1
Political Science	45.5	50.0	46.4	58.6	68.8
Psychology	60.7	69.8	69.7	77.0	81.1
Social Work	14.5	14.6	15.8	23.4	29.1
Sociology	40.0	50.9	47.3	55.7	66.1
Sub-total Social Sciences	36.9	41.2	45.9	55.4	60.3
Agriculture	53.3	64.7	70.3	79.8	83.4
Biology	59.4	65.4	76.1	83.1	83.4
Botany	81.0	81.4	85.8	89.2	91.7
Household Science and related	3.6	8.7	17.5	38.9	44.5
Veterinary Medicine and Sciences	20.4	17.6	29.8	40.7	47.2
Zoology	61.6	61.6	71.2	89.2	90.0
Sub-total Biological Sciences	51.0	57.1	66.9	76.1	78.3
Architecture	2.1	6.0	8.9	7.7	10.1
Chemical Engineering	63.8	70.5	83.1	87.2	89.5
Civil Engineering	14.8	22.7	45.6	57.8	67.7
Electrical Engineering	21.9	28.2	59.2	72.7	68.5
Forestry	32.1	25.0	46.3	50.6	19.0
Mechanical Engineering	10.6	24.3	52.0	63.6	64.4
Mining Engineering	42.6	58.7	72.8	72.6	60.0
Sub-total Applied Sciences	20.8	29.9	51.4	59.7	61.2
Dentistry	7.9	12.7	23.2	18.7	22.3
Medicine	26.9	29.7	23.7	42.7	46.3
Nursing	1.6	2.0	3.2	3.9	5.4
Pharmacy	51.6	59.3	76.9	79.6	82.4
Sub-total Health Sciences	23.3	26.4	30.5	38.2	38.6
Mathematics	48.9	47.3	60.5	78.2	80.5
Chemistry	76.7	81.0	85.9	90.3	91.0
Geology and Related	74.5	80.0	87.3	86.9	90.5
Physics	69.8	67.8	81.2	86.6	88.4
Sub-total Physical Sciences	65.4	66.1	75.9	82.0	84.6
GRAND TOTAL	41.7	43.4	49.4	56.8	60.0

architecture (10.1%), fine and applied arts (20.8%), law (18.1%), and dentistry (22.3%).

The percentage of teachers with doctorates increased considerably in some disciplines. For example, in 1958-59, 11.8% in commerce and business administration held Ph.D.'s; this rose to 41.5% by 1976-77. Since a sizeable number of teachers are still completing their studies, the proportion of doctorates in most disciplines is apt to grow.

The median salary for all ranks of full-time university teachers more than doubled between 1967-68 and 1977-78 from $11,400 to $26,700 (Table 38). At the full professor level the median is now $36,700. The salary hike outpaced the Consumer Price Index and the (American) Higher Education Price Index. With 1967-68 as a base of 100, salaries reached 217 in 1976-77, whereas the Consumer Price Index was 174 and the Higher Education Price Index 177. One result of the growth of salaries has been a rise in the unit cost of instruction.

The citizenship composition of full-time faculty has been a contentious issue. In 1976-77, 72.6% were Canadian citizens, 13.6% were American citizens, and 6.0% were from the United Kingdom (Table 39). Most of the non-Canadians are landed immigrants who are eligible for citizenship after three years of Canadian residence.

Table 38

Median Salary of Full-time University Teachers by Academic Rank, 1967-68 to 1977-78

Academic Rank	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78*
Full Professor	$17,081	$18,516	$19,870	$21,504	$22,579	$23,950	$25,200	$27,400	$31,500	$34,050	$36,700
Associate Professor	12,998	14,058	15,012	16,057	16,848	17,550	18,500	20,000	23,100	25,450	26,950
Assistant Professor	10,228	11,030	11,837	12,701	13,321	13,900	14,700	16,000	18,550	20,350	21,350
Rank below Assistant Professor	7,990	8,649	9,441	10,002	10,521	11,050	11,800	12,850	14,850	16,200	17,000
Other	10,425	11,581	14,050	12,545	13,017	11,900	13,000	15,450	17,550	19,575	22,350
Total	11,403	12,224	13,265	14,248	15,084	16,000	17,150	18,950	22,350	24,750	26,700
Salary Index (Total)	100.0	107.1	116.3	124.9	132.3	140.3	150.4	166.2	196.0	217.0	234.1
Comsumer Price Index (Calendar Year)	100.0	104.0	108.8	112.4	115.6	121.2	130.2	144.5	161.6	173.9	N/A
Higher Education Price Index for the United States (Kent Halstead, U.S. Government)	100.0	106.0	113.2	121.0	128.6	135.8	143.0	153.1	166.0	177.2	N/A

* Based on 40 universities.

Table 39

Country of Citizenship of Full-time University Teachers by Teaching Field, 1976-77

Teaching Field	Canada	United States	United Kingdom	Other Commonwealth	France Belgium	Other Europe	Other	Sub-total	Not Reported	Total
Education	2,547 (79.7)	380 (11.9)	116 (3.6)	52 (1.6)	43 (1.3)	29 (0.9)	28 (0.9)	3,195 (100.0)	31	3,226
Fine and Applied Arts	768 (61.6)	316 (25.4)	89 (7.1)	16 (1.3)	11 (0.9)	35 (2.8)	11 (0.9)	1,246 (100.0)	11	1,257
Humanities	3,989 (69.6)	974 (17.0)	373 (6.5)	68 (1.2)	128 (2.2)	142 (2.5)	60 (1.0)	5,734 (100.0)	27	5,761
Social Sciences	5,259 (68.3)	1,399 (18.2)	369 (4.8)	189 (2.5)	159 (2.1)	143 (1.9)	178 (2.3)	7,696 (100.0)	54	7,750
Agriculture and Biological Sciences	1,751 (73.5)	335 (14.1)	146 (6.1)	61 (2.6)	21 (0.9)	34 (1.4)	34 (1.4)	2,382 (100.0)	10	2,392
Engineering and Applied Sciences	1,816 (79.2)	123 (5.4)	121 (5.3)	72 (3.1)	41 (1.8)	66 (2.9)	53 (2.3)	2,292 (100.0)	67	2,359
Health Sciences	3,463 (79.5)	257 (5.9)	329 (7.6)	110 (2.5)	32 (0.7)	82 (1.9)	83 (1.9)	4,356 (100.0)	8	4,364
Mathematics and Physical Sciences	2,972 (70.5)	454 (10.8)	340 (8.1)	143 (3.4)	58 (1.4)	154 (3.6)	92 (2.2)	4,213 (100.0)	27	4,240
Sub-total	22,565 (72.5)	4,238 (13.6)	1,883 (6.0)	711 (2.3)	493 (1.6)	685 (2.2)	539 (1.8)	31,114 (100.0)	235	31,349
Not Reported	266 (85.0)	30 (9.6)	9 (2.9)	4 (1.3)	0 (0.0)	3 (1.0)	1 (0.3)	313 (100.0)	11	324
Total	22,831 (72.6)	4,268 (13.6)	1,892 (6.0)	715 (2.3)	493 (1.6)	688 (2.2)	540 (1.7)	31,427 (100.0)	246	31,673

Note: Percentage by country of citizenship in brackets.

Table 40, however, shows that a much larger percentage of full-time teachers obtained their first degree abroad: 17.4% in the United States and 10.6% in the United Kingdom, compared with 57.9% in Canada. Thus, in absolute numbers, well over 5,000 of the 21,673 full-time university teachers in 1976-77 were, in all likelihood, former Americans, and 3,278 originated in the United Kingdom. Other Commonwealth countries provided about 1,100 full-time faculty.

The proportion of teachers who had received their first degree in the United States was particularly large in some of the human sciences (36.4% in fine and applied arts, 23.2% in the social sciences and 21.9% in the humanities). The Commonwealth countries, including the United Kingdom, have provided 21.2% of the faculty in mathematics and the physical sciences, and 18.2% in engineering. Some professional fields had a much larger percentage of the faculty trained in Canada (70.2% in education and 66.3% in the health sciences).

Expansion of Canadian universities would have been handicapped without foreign teachers, but some disciplines like anthropology and sociology had a larger percentage of faculty of U.S. origin than Canadian-born citizens. "Foreignization" of Canadian universities has triggered lively debate, and the Symon's Commission on Canadian Studies has explored and will further explore the implications of this development.[1]

1. Commission on Canadian Studies, To Know Ourselves, (the Symons Report) Volume I and II, Association of Universities and Colleges of Canada, 1975. The forthcoming volume will devote some attention to the question of foreign faculty at Canadian universities.

Table 40

Country of First Degree of Full-time University Teachers by Teaching Field, 1976-77

Teaching Field	Canada	United States	United Kingdom	Other Commonwealth	France Belgium	Other Europe	Other	Sub-total	No first Degree	Not Reported	Total
Education	2,228 (70.2)	549 (17.3)	170 (5.4)	71 (2.2)	65 (2.0)	50 (1.6)	42 (1.3)	3,175 (100.0)	24	27	3,226
Fine and Applied Arts	489 (44.6)	399 (36.4)	106 (9.7)	12 (1.1)	21 (1.9)	51 (4.6)	19 (1.7)	1,097 (100.0)	125	35	1,257
Humanities	3,021 (53.1)	1,244 (21.9)	657 (11.6)	84 (1.5)	248 (4.4)	305 (5.4)	128 (2.2)	5,687 (100.0)	28	46	5,761
Social Sciences	4,243 (55.3)	1,780 (23.2)	619 (8.1)	272 (3.5)	234 (3.1)	248 (3.2)	275 (3.6)	7,671 (100.0)	22	57	7,750
Agriculture and Biological Sciences	1,452 (61.1)	377 (15.9)	265 (11.1)	94 (4.0)	34 (1.4)	82 (3.4)	73 (3.1)	2,377 (100.0)	5	10	2,392
Engineering and Applied Sciences	1,353 (58.0)	167 (7.2)	300 (12.8)	125 (5.4)	61 (2.6)	184 (7.9)	144 (6.2)	2,334 (100.0)	15	10	2,359
Health Sciences	2,855 (66.3)	316 (7.3)	533 (12.4)	154 (3.6)	50 (1.2)	212 (4.9)	188 (4.4)	4,308 (100.0)	10	46	4,364
Mathematics and Physical Sciences	2,203 (52.4)	541 (12.9)	616 (14.6)	279 (6.6)	86 (2.0)	276 (6.6)	207 (4.9)	4,208 (100.0)	9	23	4,240
Sub-total	17,844 (57.8)	5,373 (17.4)	3,266 (10.6)	1,091 (3.5)	799 (2.6)	1,408 (4.6)	1,076 (3.5)	30,857 (100.0)	238	254	31,349
Not Reported	134 (69.8)	26 (13.5)	12 (6.3)	7 (3.6)	1 (0.5)	9 (4.7)	3 (1.6)	192 (100.0)	9	123	324
Total	17,978 (57.9)	5,399 (17.4)	3,278 (10.6)	1,098 (3.5)	800 (2.6)	1,417 (4.6)	1,079 (3.5)	31,049 (100.0)	247	377	31,673

Note: Percentage by country of first degree in brackets.

The growth of full-time faculty has subsided, although in the last few years universities have created about 1,000 new positions per annum, primarily in "applied" disciplines like business administration and mass media studies. Numbers in other disciplines have levelled off, and in a few such as chemistry and English, have declined. In addition to the part-time faculty and teaching assistants, for the next few years, the numbers of full-time university teachers is likely to remain stable around 32,000.

CHAPTER 10

RESEARCH AND DEVELOPMENT

Science and technology have played an increasing part in Canada's growth and should assume an even greater role in the future.

Because of the importance of primary sectors such as agriculture, mining, forestry and fisheries, scientific endeavors in these areas first received federal government support. The next major stage in national scientific development came after World War II with the accelerated growth of universities.

The four reports of the Special Senate Committee on Science Policy under Senator Lamontagne were significant in linking science to the achievement of national goals[1]. As a result of these and other studies, the Ministry of State for Science and Technology was created in 1971 to advise on science policy, and to try to bring about a degree of planning and consultation among federal science departments and agencies.

In 1977 Canada spent about $2 billion on research and development (R&D). Total expenditures had increased in current dollars each year since 1963, but in constant (1971) dollars, spending has remained at about $1.1 billion since 1970 (Table 41). Almost half of the funds for R & D in Canada are provided by the federal and provincial governments, although the percentage

1. The Senate Committee on Science Policy. A Science Policy for Canada. Volumes 1 to 4 - Ottawa. (Volume 1: A Critical Review Past and Present, 1970; Volume 2. Targets and Strategies for the Seventies, 1972; Volume 3: A Government Organization for the Seventies, 1973; Volume 4: Progress and Unfinished Business, 1977).

Table 41

Funding of Research and Development in the Natural Sciences as Reported by Performing Institutions, 1963 to 1977

	All Govt's		Industry (Private & Public Enterprises)		University		Private Non-profit Organizations		Foreign		R&D Current Dollars		GNP Current	R&D as %	R&D 1971 Dollar
	Current Dollars $'000,000	Percentage	Current Dollars $'000,000	Percentage	Current Dollars $'000,000	Percentage	Current Dollars $'000,000	Percentage	Current Dollars $'000,000	Percentage	Current Dollars $'000,000	Percentage	Dollars $'000,000	of GNP	$'000,000
1963	243.6	52.3	145.3	31.2	62.4	13.4	6.5	1.4	8.2	1.8	466.0	100.0	45,978.	1.01	623.
1964	283.7	50.8	175.8	31.5	77.1	13.8	7.0	1.3	14.5	2.6	558.1	100.0	50,280.	1.11	728.
1965	335.9	50.3	211.0	31.6	85.7	12.8	8.1	1.2	27.1	4.1	667.8	100.0	55,364.	1.21	845.
1966	372.6	49.4	245.7	32.6	104.1	13.8	8.9	1.2	23.5	3.1	754.8	100.0	61,828.	1.22	914.
1967	431.4	50.6	273.1	32.0	120.4	14.1	9.4	1.1	18.3	2.1	852.6	100.0	66,409.	1.28	993.
1968	474.0	52.7	280.5	31.2	116.7	13.0	11.3	1.3	17.2	1.9	899.7	100.0	72,586.	1.24	1,015.
1969	499.3	50.7	325.3	33.0	131.9	13.4	11.1	1.1	17.5	1.8	985.1	100.0	79,815.	1.23	1,064.
1970	524.9	50.5	334.1	32.1	145.8	14.0	12.7	1.2	22.7	2.2	1,040.2	100.0	85,685.	1.21	1,073.
1971	572.9	50.7	366.7	32.4	140.1	12.4	19.6	1.7	30.8	2.7	1,130.1	100.0	94,450.	1.20	1,130.
1972	606.0	52.5	358.1	31.0	136.0	11.8	20.6	1.8	32.7	2.8	1,153.4	100.0	105,234.	1.10	1,098.
1973	665.9	53.3	390.1	31.2	135.3	10.8	19.2	1.5	38.9	3.1	1,249.4	100.0	123,560.	1.01	1,089.
1974	728.8	50.3	491.1	33.9	156.9	10.8	28.5	2.0	43.0	3.0	1,448.3	100.0	147,175.	0.98	1,099.
1975	758.6	47.3	570.1	35.6	193.1	12.0	28.7	1.8	52.6	3.3	1,603.1	100.0	165,445.	0.97	1,095.
1976	851.1	48.2	617.2	34.9	208.5	11.8	31.0	1.8	58.5	3.3	1,766.3	100.0	190,027.	0.93	1,101.
1977	925.4	48.3	668.2	34.9	225.2	11.8	33.5	1.7	63.9	3.3	1,916.2	100.0	209,400.	0.92	1,111.

has declined over the past 15 years. Statistical summaries by funding and performing sector are given in Tables 41 and 42.

Most industrialized countries devote substantially more resources to R & D than Canada. Gross Expenditures on Research and Development (GERD) as a percentage of Gross Domestic Product (GDP) are lower in Canada than in the other major OECD countries (Table 43). Germany and Japan have recorded substantial growth in this ratio, and although there has been a net decline in the United Kingdom and the United States, these two countries still allocate more than double Canada's proportion to R & D.

In other industrial nations, 40% to 50% of R & D monies come from the business sector which performs 50% to 65% of all R & D. By contrast, Canadian business provides about a third of expenditures and conducts about 40 percent of the activity, although this proportion has increased steadily over the last fifteen years.

The preponderance of Canadian R & D personnel are in the government or university sector. In 1975 for every R & D scientist or engineer in business (8,152), 1.6 were in government (6,824) or the universities (6,500 - assuming that university scientists and engineers are available half-time for research).

On the other hand, in the United States, Japan, Germany and Sweden, there are approximately five scientists and engineers in the business sector for

Table 42

Research and Development Expenditures in the Natural Sciences by Performing Sectors, 1963 to 1977

	All Govt's		Industry (Private & Public Enterprises)		Universities (Including Private, Non-profit Inst.)		Total	
	Current Dollars $'000,000	Percent	Current Dollars $'000,000	Percent	Current Dollars $'000,000	Percent	Current Dollars $'000,000	Percent
1963	194.1	41.7	180.4	38.7	91.5	19.6	466.0	100.00
1964	215.9	38.7	227.0	40.7	115.2	20.6	558.1	100.00
1965	245.2	36.7	287.4	43.0	135.2	20.2	667.8	100.00
1966	267.7	35.5	317.1	42.0	170.0	22.5	754.8	100.00
1967	310.4	36.4	335.5	39.4	206.7	24.2	852.6	100.00
1968	335.4	37.3	342.2	38.0	222.1	24.7	899.7	100.00
1969	339.4	34.5	394.7	40.1	251.0	25.5	985.1	100.00
1970	352.2	33.9	415.9	40.0	272.1	26.2	1,040.2	100.00
1971	379.6	33.6	467.5	41.4	283.0	25.0	1,130.1	100.00
1972	406.7	35.3	459.5	39.8	287.2	24.9	1,153.4	100.00
1973	444.3	35.6	504.0	40.3	301.1	24.1	1,249.4	100.00
1974	490.3	33.9	610.9	42.2	347.1	24.0	1,448.3	100.00
1975	509.8	31.8	692.2	43.2	401.1	25.0	1,603.1	100.00
1976	552.0	31.3	781.1	44.2	433.2	24.5	1,766.3	100.00
1977	602.0	31.4	846.4	44.2	467.8	24.4	1,916.2	100.00

every one in government or university. This international comparison with other industrialized countries reveals an imbalance in Canada, the significant deficiency being in the industrial sector as both a source of funds and performer.

The structure of Canada's federal granting councils was changed in the spring of 1978. Two new ones for university research, the Natural Sciences and Engineering Research Council and the Social Sciences and Humanities Research Council began operating in May.

New Federal Support Structure

National Research Council	Canada Council	Medical Research Council	Natural Sciences & Engineering Research Council	Social Sciences & Humanities Research Council
Federal Laboratories but no granting	Support of the Arts	Support of Research in Health Sciences	Support of Research in Natural Sciences & Engineering	Support of Research in Social Sciences & Humanities

The Canada Council existed for over 20 years as an autonomous institution whose endeavours were directed toward strengthening cultural activities and supporting the university community through research funding and fellowship programs in the humanities and social sciences. The latter function has been delegated to the Social Sciences and Humanities Research Council.

Table 43

Research and Development Expenditures

in ten OECD Countries,

Selected Years

	1963	1973	1974	1975
Australia	-	1.2	-	-
Canada	1.0	1.0	1.0	1.0
Denmark	-	1.0	-	1.2
France	1.6	1.8	1.8	1.9
Germany	1.5	2.1	2.2	2.2
Japan	1.3	1.9	2.0	-
Netherlands	2.3	1.9	2.0	2.1
Sweden	1.5	1.5	1.6	1.6
U.K.	2.6	1.9	-	-
U.S.A.	3.5	2.4	2.3	2.4

Note: Gross Expenditures on Research and Development (GERD) as a percentage of Gross Domestic Product (GDP)

Source: OECD: Science Resources Newsletter, No. 2 Spring 1977

The Natural Sciences and Engineering Research Council took over the granting functions of the National Research Council. Most of the budget is used to support research and training in Canadian universities. Nearly all the budget of the Medical Research Council (MRC) supports research in Canadian universities or funds stipends of a limited number of investigators and research trainees.

The presidents of the two new councils and the MRC are members of an Inter-Council Co-ordinating Committee which advises the Minister of State for Science and Technology on matters like resource allocation, the needs of interdisciplinary research, and the regional distribution of research capacity.

These three granting councils will spend about $200 million in 1978-79 for research, primarily in the university sector which is a substantial increase over 1977-78, after many years of limited growth.

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