

ABSTRACT

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Education

EDUCATION AND ECONOMIC GROWTH IN CANADA:

A REGIONAL ANALYSIS

The study examines the degree to which regional disparities in education expenditures and enrolments appear to have been related to differences in economic development.

The extent of educational disparities between the five main regions of Canada are examined for the period 1921 to 1968. Educational indicators are then compared with economic indicators, with cross-sectional correlations being made between the provinces for selected years.

A statistically significant relationship is found between education expenditures and personal income, net value of production and capital investment, respectively. No correlation is found between education expenditures and employment in primary industry and manufacturing, professional employment, urbanization, percentage of adult women employed or migration.

Enrolments in the secondary and tertiary levels of education, for males, females, and in total, are also correlated with the economic indicators. In general, the pattern of correlations is the same as for expenditures, but at a less significant level.

EDUCATION AND ECONOMIC GROWTH IN CANADA:

A REGIONAL ANALYSIS

by

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in partial fulfilment of the requirements for
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CHAPTER I

OUTLINING THE PROBLEM

A. Introduction

The purpose of this study is an examination of the inter-relationships which exist, and have existed, between educational development and economic growth and change in the five main regions of Canada. The examination is not only comparative but also historical. Current relationships are often more meaningful when examined in an historical perspective.

The method to be used in the study is basically one of statistical comparison. Statistical series showing educational expenditures, enrolments at different levels, education of women, productivity, personal income, capital investment, occupations of the labour force, urbanization, employment of women and migration have been traced back as far as possible. Usually this is to the early 1920's, but in some cases reliable figures are not available for the earlier years. The statistical series representing educational growth are first examined separately and then compared with those representing economic growth. Where it is possible, cross-sectional correlations have been made. Finally, there is discussion of the trends and relationships that emerge.

Among the reasons for this investigation is the need to take a close look at one of the factors that may underlie the considerable range in educational achievement in the various regions of Canada. The existence of this range, and the need to bring about a greater equality of educational opportunity across the country, are of prime concern to those in education. A clearer understanding of the factors that contribute to regional diversity in education should surely help to determine how the problem can best be approached. One cannot eliminate educational inequalities without a careful assessment of their basic relationship to the society and the economy that have produced them. Many countries have felt the impact of educational planning with a disregard for the economic milieu in which the individuals educated will later find themselves. In some parts of the world college graduates remain chronically unemployed; in others literacy has proved of limited use to those who, in adult life, will seldom see a printed word. Educational changes should not be made in isolation. No matter how primitive or advanced the society and the economy may be, such changes must be made with an understanding of their implications. For this reason the relationships between education and the Canadian economy should be a useful field of study.

As a preliminary step, and to provide a framework for the detailed statistical series that follow, a general analysis is first made of the topics that interest those concerned with the economics of education, in order to show clearly what is considered to be the concern of the educator. Exploration of the boundary zone between

education and economics has been left largely to the economists, and educators have failed to carve out for themselves a distinctive field of interest, or to approach the subject with a clearly defined viewpoint of their own. While the work of the economists is of great interest to the educator, the questions that they ask are not always the ones that are of first concern to education. Economists are seeking to trace the influence of education on the economy, while those in education are concerned with the influence of the economy on education.

Since this survey is primarily a statistical one, a word should perhaps be said about the limitations that are inherent in any work of this kind. Statistics have been attacked for their tendency to be inconsistent, misinterpreted, unrepresentative, distorted in presentation, or carefully selected so as only to substantiate the preconceived ideas and hypotheses that are desirable. Each of these possibilities has been recognised and guarded against, but it is not expected that all of these pitfalls have been avoided. They are, to some degree, an inevitable liability attached to any attempt at quantitative analysis, but they do not necessarily negate the findings and value of statistical work. Qualitative and quantitative approaches to any question are mutually supportive, and either one, without the other, has limitations. This survey is undertaken in the firm belief that statistical approaches to educational problems should not be neglected, nor left by educators to those in other fields.

B. The Economics of Education

The Viewpoint of the Educator

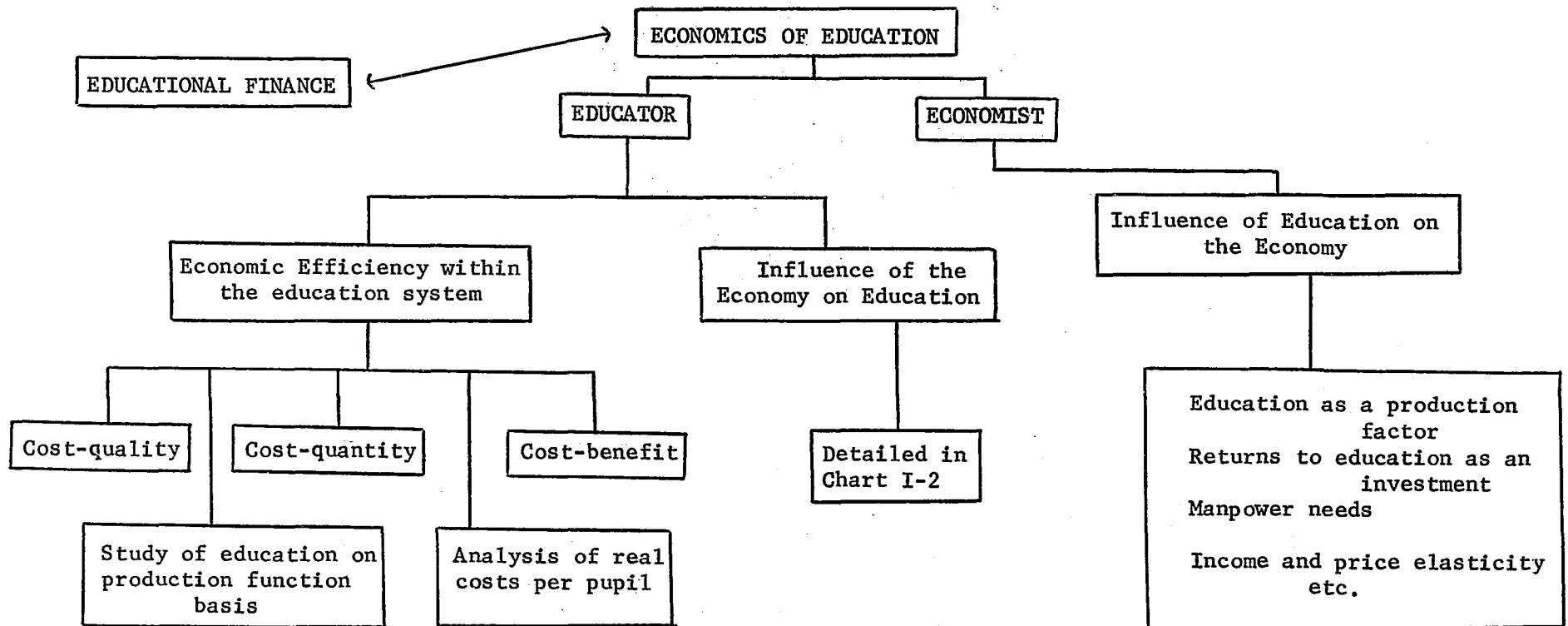
While educators are properly concerned, first and foremost, with problems that lie wholly within the field of education, it also behoves them to look beyond these boundaries and to consider the field of education as it relates to other activities of the society. Hence, it is necessary for the educator to give some consideration to the boundary zone between his discipline and that of the economist.

In the past the existence of such a boundary zone was long ignored. Although close ties must obviously exist between the economic activities of the society and the education system which evolves in that society, there was little recognition of the need to investigate the relationships between them. Recent student demands for a closer look at education in relation to future employment opportunities are one example of a growing awareness of the need for some degree of integration between education and the economic milieu.

A good deal of work has been done in the field of educational finance, which is mainly concerned with the income and expenditures of the education system, sources of funds, equable tax base, equalization payments and so on. However, this does not really fall within the sphere of the economics of education as the term is generally used. This relatively new field of study seems to cover two main areas from the educator's viewpoint, namely, the efficiency of the education system, and the influence of the economy on education. Chart I-1 shows this in tabular form.

CHART I-1

ECONOMICS OF EDUCATION: THE FIELD OF STUDY



The study of the economic efficiency of the education system lies outside the scope of the present enquiry, so review of those studies that have dealt with an analysis of educational inputs and outputs is not relevant here, although they have in some cases dealt with the question of regional inequalities in Canada.¹ There is a great need for a much closer look to be taken at ways in which educational output can be improved. Education expenditures are increasing at so fast a pace² that it becomes more and more important to see that they are put to the most effective use.

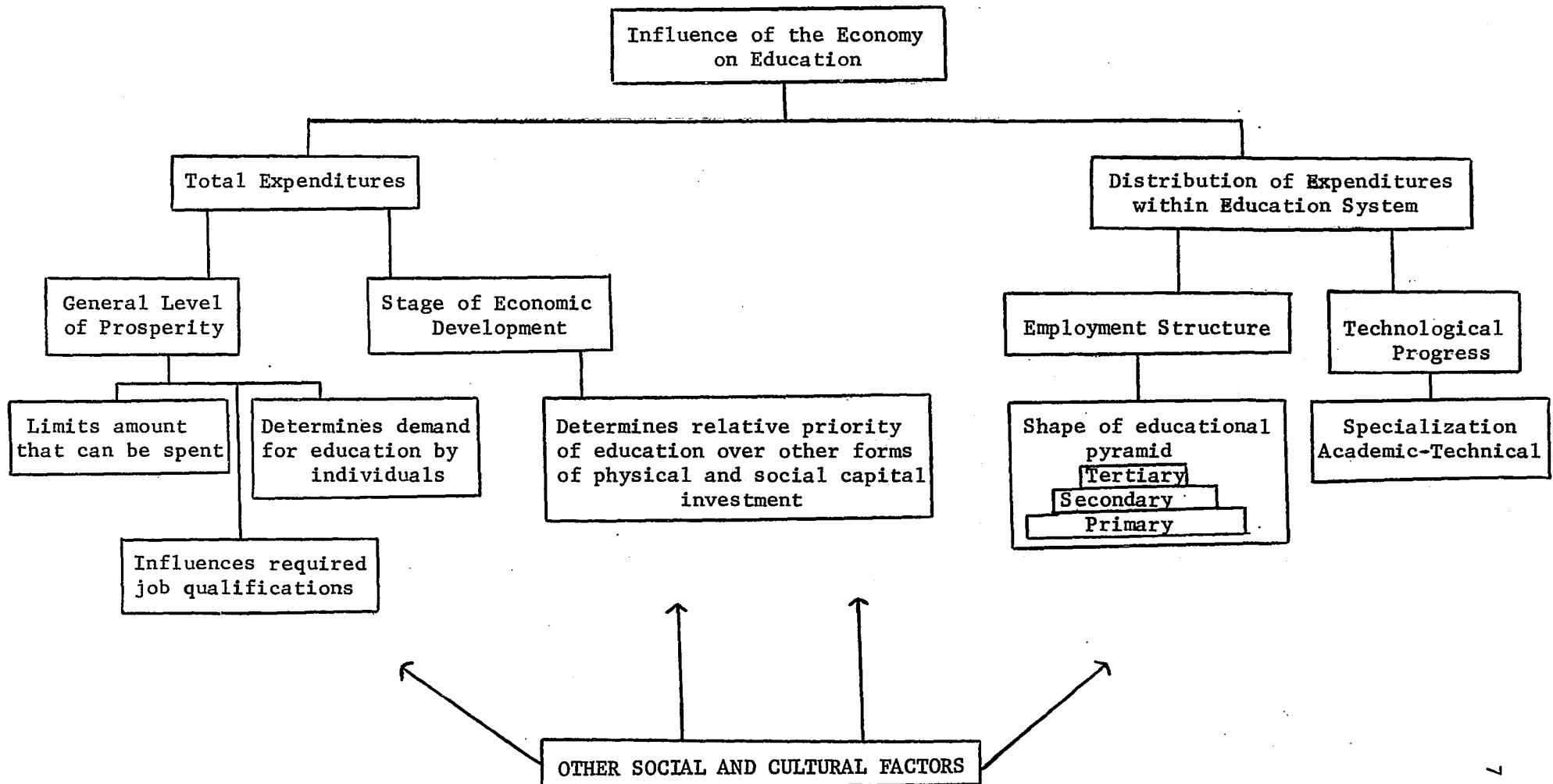
The other branch of the economics of education in which educators have a prime concern is the influence of the economy on the education system. Chart I-2 outlines the ways in which this influence can be expected to be felt. It also outlines the areas of investigation of the later chapters in this study. The educational and economic indicators used have been selected to illustrate the extent to which these expected economic influences on education have been felt in the different regions of Canada. It is appropriate, then, to review in some detail the various ways in which economic growth can be expected to influence education programmes.

¹See J.F. Cheal, Investment in Canadian Youth (Toronto: Macmillan, 1963). This book is primarily an input-output analysis of the provincial education systems of Canada. It also looks at education as it relates to socio-economic variables and this section will be reviewed on a later page.

²Total expenditure on Canadian education amounted to 10.4 per cent of personal income in 1967 compared to 4.1 per cent in 1955. In 1967 total expenditures were \$4.9 billion, while in 1955 they were \$0.8 billion.

CHART I-2

THE INFLUENCE OF THE ECONOMY ON EDUCATION



Education and the Economy

The influence of the economy on the education system is considered to be twofold. First, it will influence the amount that can be spent on education. Secondly, it will affect the distribution of expenditures within the education system.

To deal with the first point, economic prosperity must limit total expenditures on education, since it limits the resources that are available for this purpose. This does not imply that economic activities alone will determine educational expenditures. Many other influences of a social and cultural nature will be felt. The economy will, however, place an upper limit on such expenditures. It will determine what is possible, just as man's geographical environment, although it cannot determine the exact use that he will make of his resources, does put limiting boundaries on the possibilities of development. There are numerous examples of such economic limitations curtailing the fulfilment of man's desire for his cultural "right" to education, both in the past and the present. Early American settlers were quick to give legal recognition to the right of all children to be educated. A 1647 Massachusetts law required all towns of over fifty families to set up a school; but the Act ignored economic realities, and was more honoured in the breach than the observance until economic conditions improved. In the same way today, we constantly see educational goals awaiting improvement in economic conditions before their attainment is possible. So Britain, in 1968, was forced to postpone the long-planned raising of her school-leaving age to sixteen. In Canada the

only province that has attempted to implement free university education now finds that the desire has outrun the means.³

The general level of economic prosperity exerts its influence on education from another side, too, for the demand for education by individuals will increase with increased prosperity. This is observed in both publicly and privately financed education systems, for it is related less to direct educational cost than to the importance of foregone earnings as an indirect educational cost. A low level of per capita income will usually mean that families cannot afford to keep their children too long in school, but as income increases foregone earnings lessen in importance, particularly in societies such as our own, where social stratification is fluid and education becomes a prime factor in upward mobility. In such societies prolonged general prosperity usually brings an ever-rising level of educational attainment required to do the same job, and this, too, is a source of increasing educational demand. The result is an upward pressure on educational expenditures that sometimes seems insatiable no matter how great a share of national resources is allocated for this purpose.

Total expenditures on education are influenced not only by the general prosperity of a country, but also by the particular stage of economic development that has been reached. The stage of economic growth will determine the relative priority of education in

³The Province of Newfoundland had planned to give both free tuition and maintenance grants to all university students, but had only implemented the first stage of this plan when it was forced by economic difficulties to restrict it to those students who are in need.

relation to other expenditures, or, in other words, the proportion of national resources that it is desirable to devote to education. Galbraith has said that in countries in the early stage of economic development

. . . the most urgent forms of social investment are in the things which yield knowledge of its resources, in the facilities which make the country habitable, and in communications.⁴

He adds that time and economic growth make returns to these types of investment less dramatic, while other types, notably education, gain in urgency.

Beyond a certain point in its development, a country's policy on its trained manpower is almost certainly central to its economic growth. A sufficient investment in such training is vital.⁵

Thus, investment in Canada's railways a hundred years ago brought a far greater return than a like amount of investment in education would have done. Today the educational investment would have the higher marginal rate of return. But this is not necessarily the case today in the Yukon territories. Nor is it the case in some of the under-developed countries of Africa and South America, in whose education we have sometimes been called upon to invest in recent years.

Economic analysis supports this view of the increasing importance of education as a factor of economic growth in the more

⁴J.K. Galbraith, "The Causes of Economic Growth: The Canadian Case," Economics: Canada, ed. M.H. Watkins and D. Forster (Toronto: McGraw Hill of Canada, 1963), p. 289.

⁵Ibid., p. 290.

developed economies. Denison⁶ found that in the United States the contribution of physical capital to economic growth was twice that of education between 1909 and 1929, but the contributions of education exceeded those of physical capital from 1929-1957. He estimates, however, that the contributions of education to economic growth will be somewhat less from 1960-1980 than they were from 1929-1957.

Analysis has shown that the proportion of national income devoted to education does indeed rise as countries develop economically. Edding⁷ puts the proportion for undeveloped countries at one or two per cent, and for rich countries at four or five per cent, with some notable exceptions, such as the United States, Russia and Japan. These have all tended to spend more. Canada has recently joined their ranks. Canadian education expenditures fluctuated between two and three per cent of the gross national product from 1926 to 1956, but by 1961 they had risen to five per cent and increased steadily to 7.9 per cent in 1967.⁸ Harbison and Myers,⁹ who studied the educational development of countries at four levels of economic development, found similar percentages to those of Edding, although there is considerable fluctuation within the broad

⁶E.F. Denison, The Sources of Economic Growth in the United States and the Alternatives Before Us (New York: Committee for Economic Development, 1962).

⁷See J. Vaizey, The Economics of Education (London: Faber and Faber, 1962), pp. 55-56.

⁸Dominion Bureau of Statistics figures. See Table IV-2.

⁹T. Harbison and C. Myers, Education, Manpower and Economic Growth (New York: McGraw Hill Book Co., 1964), pp. 45-48.

categories that they studied. They attribute this increasing emphasis on educational investment to the ever-increasing qualifications that an advanced country demands of its job-seekers, rather than to a shift in the marginal returns to the different types of investment capital. "The qualifications required in most occupations . . . are a function of the country's general level of resource development."¹⁰ Schultz¹¹ has drawn attention to the expense that a developed country faces in merely maintaining its stock of education at a constant level. Moreover, the mere maintenance of current educational levels, in a static labour force, will not add to economic growth at all. To do this there must be an increased amount of education given. For developed countries it seems to be a case of constantly running faster in order to stand still. In addition these countries have the expense of contributing to the advance of knowledge through research.

Despite the foregoing, the higher proportion of resources diverted to education by the more advanced countries does not represent a greater effort on their part than that of the less advanced countries. Harbison and Myers¹² found the effort to be greatest at the lower levels of development, which is due to the fact that other essential expenditures take a far greater share of the income of the poor countries than they do of the richer ones.

¹⁰Ibid., p. 186.

¹¹T. Schultz, The Economic Value of Education (New York: Columbia University Press, 1963), p. 43.

¹²T. Harbison and C. Myers, op. cit., p. 37.

The whole question of what proportion of resources should be devoted to education in any country, or region, has been little investigated. It is a crucial question for education, and a crucial question for the economy, since under-investment will handicap economic growth, and over-investment will result in either intellectual unemployment, or emigration, or both. India, Pakistan and Russia have all experienced intellectual unemployment, as has Egypt, which is said to have more graduates per capita than England.¹³

In the statistical section of this study a look will be taken at educational expenditures in relation to both the general level of prosperity and the stage of economic development in the regions of Canada.

The foregoing deals with total expenditures. The other feature of the education system that is influenced by economic conditions is the internal distribution of expenditures. One would expect both the number of students at primary, secondary and tertiary levels of education, and the number in technical, as opposed to academic, courses to be related to economic development. Again, the economy influences, but does not determine, these things. Social, political and cultural factors can, and do, outweigh economic factors, on occasion. Who can doubt that the provision of free university training and maintenance grants in the province of Newfoundland, if it is achieved, will cause a leap in university enrolment that will far outstrip that justified by present economic

¹³J. Vaizey, op. cit., p. 126.

growth? This is an example of social and political factors initiating changes in education, but it is also an example of the education system being used to catalyze economic growth and change. Both Japan and Russia have consciously used education in this way, to put their countries ahead of others economically.

In other cases social and cultural factors cause educational change to lag behind the needs of the economy. The emphasis on academic education in Canada, and comparative lack of technical and vocational training was an instance of this, until recent efforts by the Federal Government brought an improvement in the situation. In this case the immigration of skilled labour to Canada prevented economic factors from exerting the influence on the education system that they might otherwise have done.

Later chapters will concern themselves in detail with the number and percentage of students enrolled in secondary and higher education in Canada. The question of academic versus vocational education will not be examined, mainly because of the lack of statistics available for earlier years.

A Review of Relevant Viewpoints and Studies

Interest in the economics of education has developed strongly in the past ten years, and much work has been done in this period, by economists, on the significance of human capital as a form of investment, and as a factor of production. Most of this work is summarized and reviewed by Schultz in The Economic Value of

Education¹⁴ and by Vaizey in The Economics of Education.¹⁵ Both deal with the relationship between education and the economy, but are primarily concerned, especially Schultz, with costs and returns, both to the society and individuals.

Calculations of educational expenditures as a percentage of national income, or gross national product, have been made for many countries. They give a broad indication of the comparative priority given to education within a nation. Edding has made calculations for a number of countries over the years.¹⁶ He found, as mentioned above, that it ranges from one or two per cent in underdeveloped countries, to three or four per cent in more advanced countries, and five or six per cent in certain cases. The relationship between educational and national expenditures is also examined by Benson¹⁷ and by Harbison and Myers.¹⁸

Garms¹⁹ made a multivariate analysis of the relationship between the percentage of national income spent on education, which he defined as effort, and a number of socio-economic factors. He used figures published by UNESCO, for 1962-64, for seventy-eight

¹⁴T. Schultz, op. cit.

¹⁵J. Vaizey, op. cit.

¹⁶See J. Vaizey, op cit., pp. 55-56.

¹⁷C.S. Benson, The Economics of Public Education (Boston: Houghton, Mifflin, 1963), Chap. 2.

¹⁸F. Harbison and C. Myers, op. cit., pp. 45-48.

¹⁹Walter I. Garms, "The Correlates of Educational Effort: A Multivariate Analysis," Comparative Education Review, Vol. XII, No. 3 (October, 1968), pp. 281-299.

countries, for educational effort. He compared this with ten variables representing the ability of the people to support education, educational expectations, and type of government. He found that his hypothesis that the ability to support education would positively affect educational effort was strongly supported for rich countries, but not for poor countries. The percentage of eligible population enrolled in school was found to have a high positive effect on educational effort, but there was no significant relationship with the relative number of children in the population, the education level of the adult population or with urbanization.

Edding²⁰ compared per capita education expenses and per capita income for eighteen countries in 1954 and found a correlation coefficient of .992. Garms, however, queried the value of this finding, commenting that "the extremely wide spread of per capita incomes among nations, and the fact that per capita education expenses cannot exceed per capita income, guarantee a high correlation."²¹ Edding also showed that enrolment ratios increase with gross national product, with the correlation for higher age groups being particularly striking.

Curle²² examined a number of economic and social indicators for fifty-five countries, making rank correlations between each pair

²⁰I. Svernilson, F. Edding and L. Elvin, Targets for Education in Europe in 1970, Policy Conference on Economic Growth and Investment in Education (Paris: OECD, 1962), pp. 71-73.

²¹Garms, op. cit., p. 282.

²²Adam Curle, "Education, Politics and Development," Comparative Education Review, Vol. 7 (February, 1964), pp. 226-245.

of indicators. Included in his comparisons were educational investment as a percentage of national income, primary and post-primary enrolment ratios, savings as a percentage of gross national product, the rate of economic growth, infant mortality and gross national product. He found high correlations between per capita income and the percentage invested in education, savings and post-primary enrolment and per capita income and post-primary enrolment. A less significant correlation was found between savings and investment in education.

Bennett²³ has also sought to relate the level of economic development in nations to their educational development. He was mainly concerned, however, with the relationship of vocational education to development, with which this present survey is not directly concerned.

A comprehensive study of the relationship between education and economic growth, on an international basis, was made by Harbison and Myers.²⁴ They examined educational, economic and social indicators for seventy-two countries at different economic levels, including Canada. They divided these countries into four different levels of economic development and correlated average socio-economic indicators for the countries on each level with a composite educational indicator. They then discussed influences which seem to be at work determining educational policies at each level.

²³William S. Bennett, "Educational Change and Economic Development," Sociology of Education, Vol. 40 (Spring, 1967), pp. 101-114.

²⁴F. Harbison and C. Myers, op. cit.

On an historical basis, a study by Easterlin²⁵ compares school population from 1837 on with technological progress, for twenty-seven countries. His comparisons, of course, cannot be as precise as those made for the more statistically sophisticated periods of history, but they are mentioned here because a similar study for the different regions of Canada would be a logical extension of the present survey.

The Organization for Economic Co-operation and Development has twice organized a "Conference on Economic Growth and Investment in Education." The first was held in Washington in 1961, and the second in Paris in 1962. Both were concerned with the achievement of improvements in educational planning so far as it affects economic growth. Of course, the role of education is not restricted to that of a production factor, as will be discussed below.

Comparatively little has been written about the economics of education in Canada. Foremost among the Canadian studies is, perhaps, Cheal's Investment in Canadian Youth.²⁶ This study is basically an inter-provincial comparison of the inputs and outputs of the educational system. At the same time it goes on to examine the relationship between educational inputs and a number of external factors. These include personal income, productivity, adult education level, percentage of children in the population, and

²⁵Easterlin, "A Note on the Evidence of History," Education and Economic Development, ed. Anderson and Bowman (Chicago: Aldine Publishing Co., 1965).

²⁶J.E. Cheal, op. cit.

urbanization. Cheal's method is cross-sectional, examining the ten provinces in 1958-60. Many of these same factors will be examined in this study on a regional and historical basis.

The Canadian Teachers Federation²⁷ followed Cheal's work by extending several of his statistical series, and others, back to 1946. A second edition in January 1967 brings the series up to 1965. The C.T.F. study, Financing Education in Canada, is largely statistical, with very brief discussion and interpretation. It examines educational expenditures and costs, as well as sources of revenue, on a provincial basis. It also estimates educational burden, effort and ability by province.

In 1966 Bertram²⁸ considered the question of education as a production factor in the Canadian economy. Closely following the method used by Denison for the United States in his book, The Sources of Economic Growth in the United States and the Alternatives Before Us,²⁹ Bertram estimated that educational improvements accounted for almost one-quarter of the rise in productivity per employed person from 1911-1961 and 20 per cent of the rise from 1929-1957. Denison's estimate was 42 per cent for the United States from 1929-57. The estimated contributions of education to growth in

²⁷Canadian Teachers Federation, Financing Education in Canada (Ottawa, 1965). Also second edition, 1967.

²⁸G.D. Bertram, The Contribution of Education to Economic Growth, Staff Study No. 12, Economic Council of Canada (Ottawa: Queen's Printer, 1966).

²⁹E.F. Denison, The Sources of Economic Growth in the United States and the Alternatives Before Us (New York: Committee for Economic Development, 1962).

national income from 1929-1957 are 11 per cent and 23 per cent for Canada and the United States, respectively. Bertram's calculations include the stock of education in the labour force, retention rates, migration by age and education, and the relationship between education and earnings. Most are on a national basis and are compared with similar series for the United States.

Bertram's study was prepared as a background report for the Second Annual Review of the Economic Council of Canada,³⁰ and is the basis of a chapter in that publication. The Council concludes that great emphasis should be placed on the development of human resources in this country if Canada is to maintain a satisfactory rate of economic growth. Education is seen as a significant factor in Canada's lower rates of productivity and earnings as compared with the United States. A further chapter in the Council's 1965 report goes on to study regional diversification in Canada and its effect on the economy. Economic factors are the main consideration, but educational factors are touched upon. Regional economic disparities are found to be greater than they are in the United States. It is also found that they have not decreased significantly over the past forty years, while those in the United States have done.

The Council's report also makes use of material from a Dominion Bureau of Statistics publication by Poduluk³¹ on the relationship between earnings and education in Canada.

³⁰Economic Council of Canada, Second Annual Review (Ottawa: Queen's Printer, 1965).

³¹J.R. Poduluk, Earnings and Education (Ottawa: Dominion Bureau of Statistics, 1963).

The Role of Education: Producer
or Consumer Good

A challenging point which arises when relating education to economic development is the question of the extent to which education can, and should, be regarded as a factor of production, or producer good, and the extent to which it is purely of value as a consumer good. This question complicates the measurement of educational output and returns, and is of particular concern to those in education, who feel that the greater part of the research carried out in the economics of education does ignore this dual function. None would deny that education has a dual function. It is, to quote Platt, "one of those delightful economic commodities in which we can be investing while we consume."³²

It is not possible to quantify the value of education as a consumer good. The extent to which an individual receives satisfaction, present and future, through the cultural aspects of his education defy measurement, or even estimation. Moreover, it is not only the individual, but society as a whole, that benefits from these non-monetary outcomes of education.

For society these non-monetary outcomes include the educated citizenry upon which democracy depends, the collective intelligence to cope with each generation's problems, the dedication to the values which give primacy to the worth of each being.³³

³²William J. Platt, Economics and Comparative Education, Paper presented to the Second Annual Regional Conference on Comparative Education (Los Angeles: University of California, February, 1962).

³³H.R. Jones, Financing Public Elementary and Secondary Education (Centre for Applied Research in Education Inc., 1966), p. 11.

Education as a producer good is more capable of measurement, although there are many difficulties. The "costs" of education, for example, have no agreed definition, making returns, in their turn, difficult to assess. Denison and Bertram have made careful estimates of the contribution of education to economic growth in the United States and Canada, but their figures rest on assumptions that some find unacceptable.³⁴ Nevertheless, attempts to measure the value of education as a producer good have made progress, and presumably far more research of this kind will be undertaken.

In practice, of course, no division can be made between the two functions of education. Even technical training contributes simultaneously to both the economic potential of the learner and his personal potential as an individual. In reading the later chapters of this survey it is important to bear in mind that economic forces have their main influence on education as a producer good. This is why they are only one factor in educational development. Social and cultural factors, which influence the value placed on education as a consumer good, will always vie with economic factors in determining the direction of the education system. Which set of factors predominates varies from place to place and from time to time. Since the purpose of this survey is to trace the weight placed on economic determinants by Canadian education, it is, in one sense, examining the emphasis that has been given to education as a producer rather than a consumer good. There is no intention of suggesting that one

³⁴Both Bertram and Denison assumed that three-fifths of the differences in an individual's income were due to differences of education.

function is preferable to the other, but rather that the two are interdependent and that the education system does not operate at its maximum efficiency if either is ignored at the expense of the other. Harbison and Myers uphold this view.

But in reality there need be no conflict between the economists and the humanists. If one of the major goals of all societies today is rapid economic growth, then programmes of human resource development must be designed to provide the knowledge, the skills, and the incentives required by a productive economy. If one rejects the notion that investments in education must be productive, then he should be prepared also to reject the goal of rapid economic progress. But if he accepts the role of rapid economic growth and the idea that education must be orientated in significant respects to promote it, he need not thereby reject a humanitarian concept of the role of education. The development of man for himself may still be considered the ultimate end, but economic progress can also be one of the principal means of attaining it. And human resource development systems can be designed which intentionally help to increase production of essential goods and services and at the same time preserve and enhance the freedom, dignity and worth of the individual.³⁵

Recent student revolts in Quebec have shown that students themselves are becoming more and more aware of the inefficiency of an education system that is not integrated with economic opportunity. Educators are becoming more and more aware that curricula have at times been out of touch with reality. But it is unlikely that a clear sense of direction will emerge in educational planning until a clearer definition is found of the role of education in modern society and ways are sought for it to fulfill its functions more effectively as both producer and consumer good.

³⁵F. Harbison and C. Myers, op. cit., p. 13.

C. Delineation of the Area of Research

Specific Questions to Be Asked

This study does not seek to prove, or disprove, a set of pre-determined hypotheses. It is essentially an historical study and, as such, sets out to analyze the available material--in this case educational and economic statistics--and to see whether patterns and trends can be identified that contribute to an understanding of the relationships between them.

The statistics used have been selected on the basis of the analysis made in the earlier part of this chapter (see Chart I-2). Specifically, the survey seeks to discover to what extent the educational development of each region has been linked to (1) the general level of economic development, (2) the stage of economic development, (3) the employment structure, and (4) other miscellaneous economic factors. As mentioned before, the degree of technological development will not be directly considered, although it is indirectly reflected in other statistical series, such as those showing employment structure.

Some of the questions on which it is hoped that this survey might shed light are listed below.

(1) How wide a disparity in educational development has actually existed between the main regions of Canada in this century.

(2) How closely do these educational inequalities seem to be related to the different stages of economic development that they have achieved (a) in the past and (b) in the present.

(3) Is educational development less dependent now on economic conditions than it appears to have been in the past? Does an emphasis on the value of education as a consumer good today seem to cause the poorer regions to devote a higher proportion of their resources to education than might otherwise be the case?

(4) Are regional differences in educational development increasing or decreasing? Certain changes such as improved technology, subsidies, increased tax transfers and a greater degree of social and cultural conformity between regions might be expected to lead to a decrease in educational inequalities. On the other hand, there is an economic theory that holds that where areas have a relative freedom of movement of capital and labour, the "rich get richer and the poor get poorer." Studies by the Economic Council of Canada have shown that regional disparities in income in Canada have not decreased in recent years.³⁶

Pattern of Research

Education statistics in Canada are generally published on a provincial basis, but for a study of economic influences it is more desirable to divide the country into regional economic units than to examine the existing administrative units. Canada has always been a collection of regional economies rather than one unified economic whole. She has often been said to be an accident of history formed in defiance of geography. Despite a hundred years of political unity, she still retains distinct regional economies, which are

³⁶Economic Council of Canada, op. cit., p. 103.

sometimes more dependent on outside markets and investment than on markets in and investment from the other regions of Canada.

The five regions to be considered in this survey are the Atlantic Provinces, Quebec, Ontario, the Prairie Provinces and British Columbia. These five regions are better balanced in size for comparative purposes than are the ten provinces.

There are some arguments against this grouping together of provinces into larger regional units. It may mask inherent and interesting differences. Nova Scotia, for example, stands out from other Atlantic provinces in its educational development, and this may have been particularly so in earlier years. In recent years education in Alberta has shown considerable difference from that in Manitoba, nor is there the similarity in their economic development that was once the case. Hence, the grouping of provinces undoubtedly masks some wide variations in both educational and economic factors. However, the differences within the Atlantic Provinces are probably no greater than those which exist within the borders of Quebec and Ontario. The areas selected do possess a general homogeneity of social, economic and educational factors.

For purposes of cross-sectional correlation provincial figures must be used to provide sufficient data. Thence, although discussion in this survey is mostly on a regional basis, the scattergrams in Chapter IV show provincial rankings.

The indicators chosen are summarized below. A detailed discussion of the reasons for the choice of these indicators, and also their limitations, will be found in Chapter II.

Educational Indicators

1. Expenditures - Expenditures per capita of school boards and universities in constant dollars.
2. Total enrolments - (a) Percentage of 5-24 year age group enrolled in public and private schools and universities.
(b) Percentage of 5-24 year age group at school (census figure).
3. Enrolments from Grade 9 up - (a) Percentage of 15-24 year age group enrolled in schools and universities.
(b) Percentage of 15-24 year age group at school (census figure).
4. Enrolment of women - (a) Percentage of women in 15-24 year age group enrolled in publicly controlled schools and universities.
(b) Percentage of women in 15-24 year age group at school (census figure).

Economic Indicators

General level of prosperity

5. Production - Net value of production in commodity-producing industries, per capita, in constant dollars.
6. Income - Personal income, per capita, in constant dollars.

Stage of economic development

7. Capital investment - Capital investment, per capita, in constant dollars.
8. Type of economy - (a) Percentage of labour force in primary industry.
(b) Percentage of labour force in manufacturing.

Employment structure

9. Percentage of professional, managerial and proprietary personnel to total labour force.

Miscellaneous factors

- 10. Urbanization - Percentage of population living in cities and towns.
- 11. Women employed - Women in labour force as a percentage of women aged 15-64, not at school.
- 12. Migration - Average annual net migration as percentage of total population.

Most of the indicators have been prepared for every fifth year (census and mid-censal years). However, some series are available for census years only. In addition, national figures have been prepared on an annual basis for some indicators where it seems desirable to look at these.

CHAPTER II

CHOICE AND LIMITATIONS OF STATISTICS USED

This chapter reviews the reasons for the choice, and the limitations, of the statistical series used in later chapters.

A. Educational Indicators

Reference to Chart I-2 (page 7) will suggest that the features of the education system that should ideally be represented by the educational indicators are:

1. The total amount spent on education.
2. The total demand, as indicated by student enrolments.
3. The shape of the educational pyramid.
4. The relative importance of technical and vocational, as opposed to academic, education.

Scarcity of historical information on technical and vocational education has forced the omission of the latter point. Adequate information is available for the past ten or fifteen years on several aspects of technical education, such as expenditures, enrolments in technical and vocational schools, and students specializing in technological courses at university level. But these series are generally not available prior to the 1950's. Of course, this type of training has been of minor significance until recent years. In 1967 expenditures on technical and vocational

education were estimated to be \$409 million¹ (9 per cent of total education expenditures), compared with \$18 million in 1954 (2.5 per cent of the total). This does not include expenditures for those taking vocational high school courses. Enrolment figures show a total of 506,000 in 1967 for all vocational courses, including high schools and technological institutes, compared with 5,025,000 for those taking academic work in high school or university.

Indicator 1: Expenditures

Education expenditures are of central interest in any comparison of education and economic growth, and were selected as the first educational indicator. To compile a series that is both consistent and comprehensive presents several difficulties. In general, school board expenditures, or revenues, are available on a provincial basis back to the 1870's; university expenditures are on record (regionally) back to 1921; and private school expenditures were available from 1946 onward, although reservations are necessary even then with regard to estimates from Quebec. Suitable figures for vocational training and teacher training outside the universities are available from 1954 onwards. Hence it is only possible to prepare a consistent historical series of regional educational expenditures if certain sectors are omitted. Private school expenditures² and expenditures on vocational and technical education are,

¹Dominion Bureau of Statistics, Preliminary Statistics of Education (Ottawa: Queen's Printer, 1968).

²These are highest in Quebec, totalling \$27.8 million in 1961 (9 per cent of public school expenditure), and in Ontario, where they total \$13.0 million (2.5 per cent of school board expenditures).

therefore, omitted from Indicator 1. This leaves school board expenditures and university expenditures combined for this indicator. The totals used represent over the years from 70 to 90 per cent of the total Canadian expenditures. In addition to the exclusions already mentioned, the figure used does not include direct expenditures on education by the provinces and Federal government, such as on schools for the blind, deaf, Indians and Armed Forces.

Capital expenditures are another source of difficulty. Capital expenditures from current revenue have been included, and this covers provincial grants to school boards for capital purposes. It also includes sinking fund expenditures. Not included are capital expenditures made directly by the provinces, and as these vary greatly from year to year, they account for much of the variation (from 70 to 90 per cent) in the coverage of Indicator 1. Also excluded are those expenditures represented by increases in funded debt, and plant fund receipts of universities. The latter only amounted to \$20 million when first reported in 1956, but were shown in 1965 at \$255 million, so are fast becoming significant.

The combined expenditures of school boards and universities are shown in Indicator 1 on a per capita basis and in constant dollars. The price index used for conversion to constant dollars is the implicit price index for the gross national product. None of the price indices prepared can be considered ideal as a deflator for educational expenditures, for the high labour content in the education industry leads to a more rapid price increase over a given period of time than would be felt in most other industries.

Certainly neither commodity nor consumer price indices seem appropriate. The index used was selected because it is the most broadly based.

Indicator 2: Total enrolments

Figures obtained for total enrolments are more comprehensive than those obtained for education expenditures. For census years from 1911 to 1961 a record exists of all those who attended school for any length of time during the preceding school year. This figure is a very useful one, despite occasional inconsistencies with regard to the inclusion of kindergarten children. It does, however, exclude those engaged in professional training. It also exaggerates slightly by taking those who attended at any time during the year, rather than those in attendance on a certain date. Its main drawback, of course, is its limitation to census years only. Apart from the ten year interval, a disadvantage in itself, it is also a fact that census years in Canada have rarely occurred in comparatively "normal" years. A better picture is obtained by using data available on a yearly basis. Hence the census figure is used as Indicator 2b, and supplements Indicator 2a, prepared from school enrolment figures.

School enrolment figures are available back to 1921 for public and private schools, universities and colleges. The inclusion of private school enrolments is very desirable, for although they are minor in number (189,000 in 1967, compared to 5,059,000 for public schools), half of them are in the province of Quebec. Not included

are Indian schools, schools for the blind and deaf, and vocational training, outside of the high school. These excluded categories totalled 263,000 in 1967, so that Indicator 2b represented 95 per cent of total enrolments. Rather surprisingly, the enrolment figures give a consistently higher number of students attending educational institutions than do the census figures, in all regions except British Columbia.

Total enrolment figures are shown in Indicator 2 as a percentage of the 5-24 year age group, although some five year olds do not attend school and a small number of those over 24 years do.

Indicator 3: Enrolments in Grade 9 and higher

The shape of the educational pyramid should, if possible, be indicated by enrolment figures for the primary, secondary and tertiary stages of education. These are available for the regions of Canada, but do not have comparative value on a cross-sectional basis unless they are expressed as a percentage of the age group covered by that stage of education. Age statistics, while published for age groups of one year in census years, are published for five year age groups only in the inter-censal years. Since the five year age groups used are 15-19 and 20-24, it becomes impossible to show high school and university enrolments as a percentage of their respective age groups in the inter-censal years. Complicating the whole problem is the fact that there is a wide variation between provinces with regard to the age of entry to secondary and tertiary levels of education. Hence, it is necessary to combine these two

stages of education in Indicator 3, and show enrolments from Grade 9 up. However, from 1964 on, university enrolments above the senior matriculation level, as a percentage of the 18-24 year age group, have been compiled by the Dominion Bureau of Statistics. These figures are shown where appropriate, but no historical comparisons can be made.

Indicator 3b uses census data on those who attended school, and covers census years only. The intention of the census, however, was to include only those obtaining a general education, so they accordingly excluded all strictly vocational schools such as teachers colleges, nursing schools, private business colleges, and trade and vocational schools, other than technical high schools and schools of technology.

Indicator 3a is based on enrolments from Grade 9 and higher. A breakdown by grades is not available for private schools on an historical basis, although current figures show this. Hence, only public school and university enrolment can be used. Unfortunately, no breakdown, even of public school enrolments, is available for Quebec before the 1950's, so Indicator 3a has been prepared in two parts. Figures for 1921-1951 are for four regions and exclude private schools. Figures from 1956-1966 show total enrolments for Grade 9 and above, for all regions.

Enrolments for Grade 9 and above are shown in Indicator 3 as a percentage of the 15-24 year age group. This assumes an average age of 15 years for those in Grade 9, which is, of course, a very broad assumption.

Indicator 4: Percentage of women in
15-24 year age group attending school

The education of women has been chosen as a fourth education indicator because it can be of significance in explaining fluctuations in the indicators showing total figures. If total enrolments for an area are low, it is important to know whether this reflects a lower level of education in general, or whether it is a reflection of less emphasis being placed on the education of women, particularly in the higher grades.

In choosing this indicator a choice lies between the total enrolment of girls and women and enrolment in the higher stages only. The latter has been selected as the more sensitive of the two in reflecting the real emphasis placed on the importance of education to women. Enrolments at the lower levels far outweigh those at the higher levels in a combined series, so that weighting of such an indicator might be necessary. Moreover, enrolment of girls at the elementary level very closely parallels the figures shown for total enrolments. These children are too young for the labour force or marriage and all areas of Canada accept that they should be in school. It is when these two alternatives are open to them that the choice between these and continued education becomes significant.

Indicator 4b is based on census figures and Indicator 4a on enrolments. All of the comments made above for Indicator 3 apply to Indicator 4, including the problem with regard to figures for Quebec. Unfortunately the enrolment of women by grades is only available up to 1963.

B. Economic Indicators

Chart I-2 indicates that the aspects of the economy which it would be desirable to examine are:

1. The general level of prosperity.
2. The stage of economic development.
3. The employment structure.
4. Technological progress.

Technological progress will not be examined separately, though it is reflected to some extent in the indicators that will be used.

The General Level of Prosperity Indicators 5 and 6

The best overall indicator of economic prosperity is the gross national product, since it indicates the level of production of all goods and services in the country. Unfortunately it is only available on a national basis. For provinces or regions the figure for personal income must be used. Alternatively, one can look at production in certain sectors of the economy only, and such a figure is the net value of production.

Indicator 5: Net value of production

Figures for the net value of production in the commodity-producing industries were published from 1921 to 1965, on a provincial basis. These figures do not measure activity in the service side of the economy such as transportation, storage, communications, wholesale and retail trade, finance and insurance.

Nevertheless, the value of commodity production is a reliable indicator of relative prosperity, since it is activity in this sector that generates all other economic activity. It is, therefore, felt to be the best series available for the measurement of prosperity from the production, rather than the income, side of the picture. One disadvantage is its relative sensitivity to economic swings. For example, a bad year for wheat on the prairies would cause a drop in this indicator which would over-represent the drop in total economic activity for that year.

Indicator 6: Personal income

The national accounts measure productivity in two ways. They do so by calculating the market value of the total output of goods and services in the nation, and this figure is gross national product. They also measure output in terms of factor cost (i.e., income to all the factors of production), and this figure gives us national income. Adjustments to the national income figure give us the figure for personal income. It represents the prosperity of the mass of individuals who comprise the nation. It is particularly significant to compare this figure with educational developments, since it represents the pool from which taxes are drawn to finance education and since it also represents the affluence of the individuals who must decide whether or not they can afford to keep their children in school.

Personal income is shown per capita, in constant dollars, for Indicator 6.

The Stage of Economic Development
Indicators 7 and 8

It is not possible to indicate the stage of economic development that a country, or region, has reached by any one set of figures. The two aspects of development selected for examination are capital investment and the relative emphasis on primary, secondary and tertiary economic activities.

Indicator 7: Capital investment

Official estimates of capital expenditures in Canada have been published on a provincial basis since 1951. Prior to that, the only figures available are on a national basis. So this indicator can only be examined for a limited period. It seems worth while to include it since the relative emphasis placed on investment in physical capital reflects the stage of development that the economy has reached. Expenditures on construction, machinery and equipment are included, but not repair expenditures.

Indicator 8: Type of economy

Estimates of the labour force, by industry, are available for census years back to 1901. Inter-censal estimates are only available in recent years, but this does enable the figures to be obtained up to 1967. From 1951 onwards the labour force figure has been used by the census, rather than the gainfully occupied figure used in previous years. The differences are not great enough to make any statistical difference. In 1961 the definition of labour force was further changed, from 14 years and over to 15 years and

over. The fact that the figures used in the indicator are percentages of the total makes it possible to ignore this change in definition.

Indicator 8a shows the percentage of the labour force engaged in primary industry, and Indicator 8b shows the percentage in manufacturing industries.

Indicator 9: The employment structure

Employment structure is concerned with the occupations of the members of the labour force, rather than the industries in which they are employed. The percentage of the labour force employed in a proprietary, managerial or professional capacity is available from the census, from 1911 to 1961. This figure is of interest in that it reflects job opportunities open to those with a higher education.

Miscellaneous Aspects of the Labour Force and the Economy

There are some aspects of the economy and characteristics of the labour force that seem worthy of investigation, although they do not fit neatly into the categories used above. Included are urbanization, the percentage of women in the labour force, and migration.

Indicator 10: Urbanization

Urbanization is a characteristic of the modern industrial society and the degree of urbanization and degree of industrialization are very closely tied. It seems appropriate, therefore, to look at the relationship between urbanization and education. Urban and rural population figures are available for census years for this

century, and also for 1956 and 1966. The definition of urban and rural has not, however, been consistent from year to year or from province to province; four different definitions of "urban" have been used in census compilations.³ Urban communities are now considered to be those with a population of over one thousand, irrespective of whether they are incorporated as cities or towns. The figures used are based on this criterion, first adopted by the census in 1951.

Indicator 11: Utilization of women
in the labour force

Social and cultural considerations probably dictate the extent to which women participate in the labour force. Nevertheless it is decidedly an aspect of the economy, and one very relevant to education. In societies that lay stress on the value of education as a producer good (and poorer societies have to) the education of women is likely to depend largely on their role in the labour force. Where employment opportunities are low, the education of women is regarded as of secondary importance, but where there is economic need for the utilization of their services in the labour force, as in Russia, then stress is laid on their education. Other societies, laying stress on the value of education as a consumer good, regard unlimited education as every woman's inherent right.

In compiling this indicator consideration was given to using

³For a discussion of the difficulties of obtaining a consistent definition of urban populations in Canada, see Isobel Anderson, Internal Migration in Canada 1921-61, Staff Study No. 13, Economic Council of Canada (Ottawa: Queen's Printer, 1966).

the percentage of women employed to the total labour force, but this figure would ignore the size of the pool of unemployed women. In other words, it would not take into account the proportion of women to men in the employable age group. Hence, the number of women in the labour force is compared with the number of women aged 15-64 years, after deduction from this category those who are attending school.

There are some small discrepancies in the figure used. Some women over 64 years of age will be working, but the number will be small. Then, the women in the labour force are recorded as of the first week of June, whereas those attending school were recorded if they had attended at any time during the year. Hence, some people would certainly be put down in both categories. However, taken as a portion of the total, they are not significant.

Indicator 12: Migration

If the accumulated education of the populace is to be regarded as human capital, then the net migration into or out of a region is, in fact, a gain or loss of capital investment. Any nation, state, region or province which is poor in economic opportunities, and which allows freedom of individual movement, will be faced with this loss of capital. Migration will not affect educational development, but it might reflect, among other things, a lack of integration between education and economy. Of course, total migration figures give a very incomplete picture since they do not tell whether the people leaving are predominantly the highly

educated, representing a brain drain, or whether they are the less skilled workers. In either case, the average adult has had eight or nine years of schooling, which represents a financial investment on the part of the region he is leaving.

For Indicator 12 the average annual net migration for each region is shown as a percentage of the total population.

Summary

This chapter has discussed in detail the reasons for the choice of each indicator, and also the inconsistencies and limitations of the figures that were chosen for presentation. It is hoped that the reader of later chapters will bear these limitations in mind.

CHAPTER III

REGIONAL DISPARITIES IN EDUCATION

This chapter will examine the extent of regional disparity in education in Canada. It seems desirable to have a clear idea of the degree of difference that exists in education, before going on to compare these regional differences with regional economic differences. Hence the first four indicators, the educational ones, will be examined in order to evaluate differences in expenditures and enrolments, and to trace their development over the years. Differences in the level of education attainment, and net gains and losses of population by level of education will also be examined.

A. Educational Expenditures

Table III-1 shows educational expenditures per capita and in constant dollars (Indicator 1). As explained in the previous chapter, these expenditures exclude private school expenditures and expenditures on technical and vocational education, outside of the high schools. Also, since university expenditures for British Columbia are not separately available for earlier years, only four regions are shown in this table.

It is apparent that only one area of Canada is currently lagging behind in its rate of education expenditure, namely the Atlantic Provinces. At \$53 per capita, this stands at only 60 per

TABLE III-1

EXPENDITURES PER CAPITA OF SCHOOL BOARDS AND UNIVERSITIES
(Constant Dollars)
Indicator 1

Year	Atlantic Provinces	Quebec	Ontario	Western Provinces
1921	7	7	12	17
1926	11	11	19	22
1931	13	16	26	22
1936	13	14	23	19
1941	12	14	23	20
1946	15	17	24	25
1951	19	17	29	31
1956	26	29	41	41
1961	40	51	62	65
1964	49	72	80	76
1965	53	82	87	82

Source: See Appendix Tables A 2, A 3 and A 4.

cent of Ontario's rate of \$88 per capita, which is the highest. Not too far behind Ontario, the western provinces and Quebec are on an equal footing. Most surprising of the figures in this table are those for Quebec, which is usually thought of as lagging far behind all provinces to the west of it. This may have been so in the past, but Quebec, since 1956, has taken a great leap forward, and within ten years has brought its educational expenditures up to a level

comparable with those of most of Canada. The Quebec figure is particularly impressive in view of the fact that private school expenditures are excluded here, for Quebec has by far the highest rate of private school expenditure in Canada. (Inclusion of private school expenditure in 1964 would have increased Quebec's expenditure by 5 per cent and Ontario's by 2 per cent.) With the inclusion of private school expenditures, then, it seems clear that Quebec's educational outlay per capita is now one of Canada's highest.

Historically, of course, it has been otherwise. From 1921 to 1956 a sharp division of the country between east and west was evident, with expenditures in Ontario and the west sometimes double those of Quebec and the eastern provinces. Throughout these forty years there was less than \$3 per capita variation between Quebec and the Maritimes and \$5 per capita variation between Ontario and the west. By 1961 Quebec had broken this pattern and had begun her advance to a higher plateau.

The Atlantic provinces remained behind, however, and their present position is such that total regional diversities have shown little sign of decreasing in the past twenty years. Table III-2 illustrates this, showing regional education expenditures per capita as a percentage of the national average.

The figures in Table III-2 are visually illustrated in Chart III-1. In the decade from 1921 to 1931 the outstanding feature was the high level of expenditure in the western provinces. This region was predominantly rural at that date, so this does not support the prevailing idea that rural areas tend to devote less to

TABLE III-2

REGIONAL EDUCATION EXPENDITURES PER CAPITA AS INDEX
OF NATIONAL EDUCATION EXPENDITURES PER CAPITA
(Per Cent)

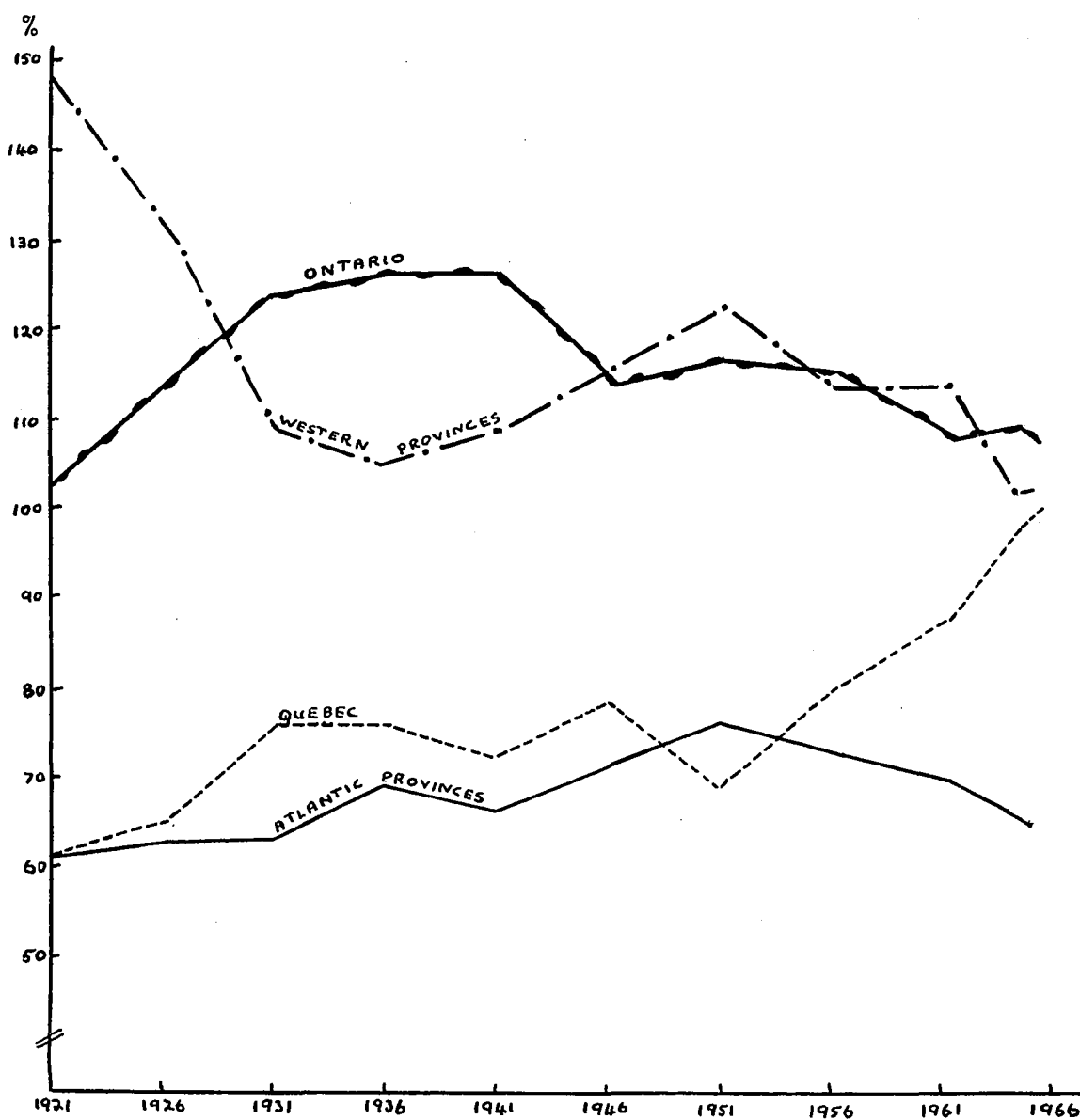
Year	Atlantic Provinces	Quebec	Ontario	Western Provinces
1921	62	62	103	148
1926	63	65	114	131
1931	63	76	124	109
1936	69	76	126	105
1941	66	73	126	109
1946	72	79	114	116
1951	77	69	117	123
1956	73	80	115	114
1961	70	88	108	114
1964	67	98	109	103
1965	65	101	107	102

Source: Calculated from Appendix Tables A 2 and A 4.

education than do more highly developed areas. In this decade regional spreads in expenditure were higher than they are today. Very little progress was made in reducing inequalities from 1931 to 1941, but the war-time period did see a marked improvement. Since 1951 the two notable features have been Quebec's surge to equality, as already discussed, and the failure of the Atlantic provinces to keep pace with the expansion of expenditures in other regions. It

CHART III-1

REGIONAL EDUCATION EXPENDITURES PER CAPITA AS INDEX
OF NATIONAL EDUCATION EXPENDITURES PER CAPITA



should be stressed that the drop in Atlantic province expenditures from 77 per cent of the national average in 1951 to 65 per cent in 1965 does not represent a decline in actual expenditures per capita. On the contrary, these increased from \$19 (constant) per capita in 1951 to \$53 in 1965 (see Table III-1). It simply means that the gains made in the eastern provinces, though notable, have not been as great as those made in other provinces in this period, so that regional disparities in educational expenditure per capita are, in fact, no less now than they were in 1946.

Comparisons with the United States help to put these Canadian figures in perspective. The United States, like Canada, is a federal state in which the control of education rests in state hands, thereby limiting the extent to which the central government is able to equalize education expenditures across the nation, although, in practice, the limitations have not proved as great in the United States as they have done in Canada. Table III-3 shows regional disparity in education expenditures in the United States in 1920 and 1966.

The figures in Table III-3 do not include university expenditures, but this does not negate the comparison between the two countries. It is apparent that the United States suffered from far greater regional disparities than did Canada in the early 1920's. Progress was accordingly more rapid. The figures for 1966 are roughly similar to those for Canada. In fact, the spread in the United States would seem to be a little greater.

TABLE III-3

CURRENT EXPENDITURES PER CAPITA ON PUBLIC ELEMENTARY
AND SECONDARY EDUCATION IN THE UNITED STATES
(Current Dollars)

	1920			1966		
	U.S.	Highest Region	Lowest Region	U.S.	Highest Region	Lowest Region
Expenditures per capita (\$)	9.8	14.3	3.7	159	203	111
Regional expend- itures as % national average	100	146	38	100	128	70

Source: U.S. Bureau of the Census, Statistical Abstract of the United States 1968 (89th ed.; Washington, D.C., 1968).

The relationship between regional disparities in education expenditures and those in economic factors, such as income, will be examined in detail in a later chapter. It might be mentioned here, however, that there is a sharp contrast between the Canadian experience and that of the United States with regard to fluctuations in personal income. The United States has seen a steady reduction in regional income differences since 1929. Regional disparities in income in Canada have, on the other hand, remained persistently stable.

It should not be supposed that the regional variations shown in Chart III-1 represent total variations within the country. There is, of course, a great deal of intra-regional variation too. For example, the Atlantic provinces figures obscure the fact that

Newfoundland falls lower than any other province in its per capita education expenses. Also obscured are wide variations within the larger provinces. Quebec figures balance expenditures in Montreal against those in, say, the Gaspé peninsula. Throughout the country it can be expected that pockets exist within which there is far greater inequality than average figures can suggest. Intra-provincial figures for education expenditures would require considerable research, but those for provinces within the Atlantic and Western regions are shown separately in Table III-4, to give some indication of the degree of variation that exists within the regions used. These figures do not include university expenditures.

TABLE III-4

EXPENDITURES ON EDUCATION (PUBLIC ELEMENTARY AND SECONDARY) PER
CAPITA BY PROVINCES IN THE ATLANTIC AND WESTERN REGIONS, 1965
(Constant Dollars)

Nfld.	P.E.I.	N.S.	N.B.	Man.	Sask.	Alta.	B.C.
35	40	47	43	54	68	74	67

Source: Dominion Bureau of Statistics, Daily Bulletin (March 15, 1968).

It is appropriate now to look further into the implications of the figures that have been presented. Figures alone can be misleading without further examination of what they imply. For example, the low expenditure figures shown for the Atlantic provinces might represent the education of fewer children, or the provision of

a lower standard of education, or a lower educational effort, or possibly none of these. All of these factors can be present, and often are, but not necessarily so.

First, the figures are influenced by the variation of costs in different regions. Comparative costs certainly vary from coast to coast, but there is, unfortunately, no regional price index available that compares actual cost levels in different Canadian cities.¹ Hence, no comparison of living costs, let alone educational costs, can be made between the regions. It is probable that the low showing of the Atlantic provinces is at least partly offset by lower educational costs in that region. Cheal² showed the median salaries of teachers in the Atlantic provinces to be only about half of the median salaries of teachers in British Columbia, during the post-war years. In 1941 the spread was even greater.

Secondly, there are considerable variations between the regions in the actual cost structure of education. Thus, in Quebec the proportion of teachers' salaries in educational costs was substantially reduced by the extensive use of lowly paid clerical teaching staff in the Roman Catholic schools. This has been particularly so in the past, and should certainly be borne in mind when looking at Quebec's relatively low expenditures in past years. The present trend is for a reduction in the proportion of clerical

¹The Dominion Bureau of Statistics price indices for Canadian cities indicate only the price increases from a base year, and are not comparative cross-sectionally.

²J.E. Cheal, Investment in Canadian Youth (Toronto: Macmillan Co. of Canada, 1963), p. 53.

teaching staff, and for a higher level of remuneration for them, so that this is a factor that can be expected to diminish in importance. Also, the cost structure of rural schools differs from that of urban schools. Rural schools tend to have low pupil-teacher ratios, and transportation costs are high.

Exclusions from the expenditure figure used, as already mentioned, distort the picture to some extent. The most important exclusions are expenditures on private schools and on vocational education. Quebec is the leading region in both these categories of expenditure, and if these were included, she would move up somewhat, but not really significantly. To illustrate this, taking the most recent year for which figures are available, which is 1964, expenditures in constant dollars per capita would move up as follows:

Atlantic Provinces	\$49 to \$55
Quebec	\$72 to \$83
Ontario	\$81 to \$86
Western Provinces	\$75 to \$82.

Detailed calculation of this figure is shown in Appendix Table A 5.

So far in this chapter expenditures per capita have been discussed, for this is the figure that will be used for comparison with economic factors, representing as it does, the educational effort of the community as a whole. To the educator, however, a more significant figure to look at is the expenditure figure per pupil, since this has more significance in terms of probable educational achievement. These figures will not be looked at in historical detail, since they are really aside from the main purpose

of the survey, but, nevertheless, they are of considerable interest. Table III-5 gives expenditures per pupil in both current and constant dollars.

TABLE III-5

EXPENDITURES PER PUPIL OF PUBLIC SCHOOL BOARDS AND UNIVERSITIES

Year	Atlantic Provinces	Quebec	Ontario	Western Provinces
<u>Current \$</u>				
1921	30	28	46	67
1946	57	74	110	105
1956	139	172	262	261
1965	289	485	512	504
<u>Constant \$</u>				
1921	35	32	53	78
1946	73	95	142	135
1956	108	134	204	203
1965	187	316	333	328

Source: See Appendix Tables A 1, A 6 and A 7.

Expenditures per pupil show a very similar picture to expenditures per capita. The regional spread is approximately the same. The main difference is in Quebec's showing. Her current per pupil expenditures are still below those of Ontario and the West, while per capita expenditures were seen to have caught up. This

reflects a higher proportion of school aged children in the population. Again, the Atlantic provinces are well below the rest of Canada, with per pupil expenditures less than 60 per cent of those of Ontario. Per pupil expenditures throughout Canada have advanced less rapidly in the past twenty years than have per capita expenses. For example, Quebec's per pupil expenditures in 1965 were 332 per cent of her 1946 expenditures. The per capita expenditures in 1965 stood at 480 per cent of the 1946 figure. This is a result of educating a far higher percentage of the school aged children. The figures are for constant dollar expenditures, so that the effect of price increases has been largely removed. Table III-6 compares the percentage increase in per capita and per pupil expenditures for the 1921-46 period, and for the 1946-65 period.

TABLE III-6
PERCENTAGE INCREASE IN EDUCATION EXPENDITURES
1921 TO 1946 AND 1946 TO 1965
(Constant Dollars)

	Atlantic Provinces	Quebec	Ontario	Western Provinces
<u>1946 expenditures</u> <u>as % of 1921</u>				
Per capita	214	243	200	141
Per pupil	209	296	268	173
<u>1965 expenditures</u> <u>as % of 1946</u>				
Per capita	353	482	363	328
Per pupil	256	332	235	242

Source: Calculated from Tables III-1 and III-5.

Again, the magnitude of Quebec's recent effort is apparent from this table. The high increases in expenditures per capita give an idea of why education expenditures have become a subject of increasing concern at all levels of government in recent years, and why there is a growing demand for more attention to be paid to the efficiency (economic) of the education system. Financial resources are limited, and when education takes such a rapidly increasing amount, it is bound to raise a call for closer scrutiny.

This chapter has, so far, been concerned with regional disparities in education, and historical changes in these. It is of interest also to note just what changes in the national average expenditures per pupil and per capita have taken place over the years, and Table III-7 illustrates this.

TABLE III-7

EDUCATION EXPENDITURES PER PUPIL AND PER CAPITA, NATIONAL AVERAGES

	1921	1946	1956	1965
<u>Current dollars</u>				
Expenditures per capita	10	17	46	125
Expenditures per pupil	45	92	220	480
<u>Constant dollars</u>				
Expenditures per capita	12	21	36	81
Expenditures per pupil	53	118	171	312

Source: Calculated from Appendix Tables A 1, A 2, A 4, A 6 and A 7.

While it is interesting to note the present level of current dollar expenditures, they are misleading when used for historical comparisons. The constant dollar figures show expenditures per capita almost doubling in the twenty-five year period from 1921 to 1946, but quadrupling in the twenty year period from 1946 to 1965. As for expenditures per pupil, they doubled also between 1921 and 1946 and then tripled in the post-war years. The increase in the per pupil figures is partly due to the expansion of the higher, and most expensive, levels of education. It also reflects the fact that educational costs tend to rise more rapidly than costs in general, since this is an enterprise with a high labour content, and one in which technological improvements have not been used to offset higher salaries.

Before leaving the question of regional disparities in educational spending, it is pertinent to ask whether any evidence exists that higher spending on education is indicative of higher standards, or whether it might be sometimes indicative of an inefficient use of investment. After all, concern over regional inequalities is only important if these can be shown to represent significant inequalities in educational opportunity. Some researchers have explored this question, though there is a lack of research into Canadian situations. Cheal³ compared the level of teacher's salaries with educational output and found a significant correlation at both the elementary and secondary levels. However,

³Ibid., p. 53.

this correlation was with quantitative, not qualitative, measures of output. The fact that high salary levels and high enrolment levels correlate could be attributable to the fact that both these variables reflect the prevailing attitude to education in the community, and the relationship may not be a causal one. Mort, Reuss and Polley have a good summary of cost-quality research studies in Public School Finance.⁴ Basing their conclusions on twenty-four studies made in the United States from 1920 to 1956, which will not be discussed in detail here, they made the following observations. First, they found that "regardless of the method of measuring quality, a relatively strong relationship holds through all levels of expenditure as yet experienced in public education . . ."⁵ Second, they found that even the highest expenditure schools do not approach the point at which the relationship appears to drop off. They do not explore this point further, but one would suppose that this relationship might be modified should the schools undergo any drastic change in their use of modern technology. Finally, they concluded that the relationship between cost and quality of education accelerates as expenditures increase.

There is, of course, a time lag between increased education expenditures and their observable effect on the society and community. A study by Furno⁶ showed that it takes seven years for a

⁴P.R. Mort, W.C. Reuss and J.W. Polley, Public School Finance (New York: McGraw Hill Book Co., 1960), see Chapter 2.

⁵Ibid., p. 81.

⁶O.F. Furno, The Projection of School Quality from Expenditure Level (unpublished dissertation, Teachers College, Columbia University, New York, 1956).

maximum effect to be felt and that "expenditure policy today may be expected to have ineradicable effects, good or bad, over a period of at least twenty-five years into the future."⁷

These observations strongly suggest that inequalities in education expenditures do indeed have a marked impact on the quality of educational achievement in a community. Canada's failure to make any significant progress in reducing disparities should be a matter for great concern, though it should be mentioned again that progress has recently been made in Quebec, and only the Atlantic provinces now lag seriously behind.

B. Total Enrolment Figures

Two figures are available for total enrolments, one from the Census of Canada, for ten year periods, and one derived from compilation of enrolments as reported by the provinces, at each level of education. The latter figure forms the main enrolment series in view of the fact that it is available yearly, and also for recent years. However, the census figure is given too, as it provides a useful check on the accuracy and consistency of the other series. These two sets of figures are referred to as Indicator 2a and 2b, and are shown in Table III-8. They are also illustrated in Chart III-2.

It is noticeable that the census figures indicate a lower degree of school attendance than do the enrolment figures for all regions, except British Columbia. Ontario figures from 1921 to 1931

⁷Mort, Reuss and Polley, op. cit., p. 83.

TABLE III-8

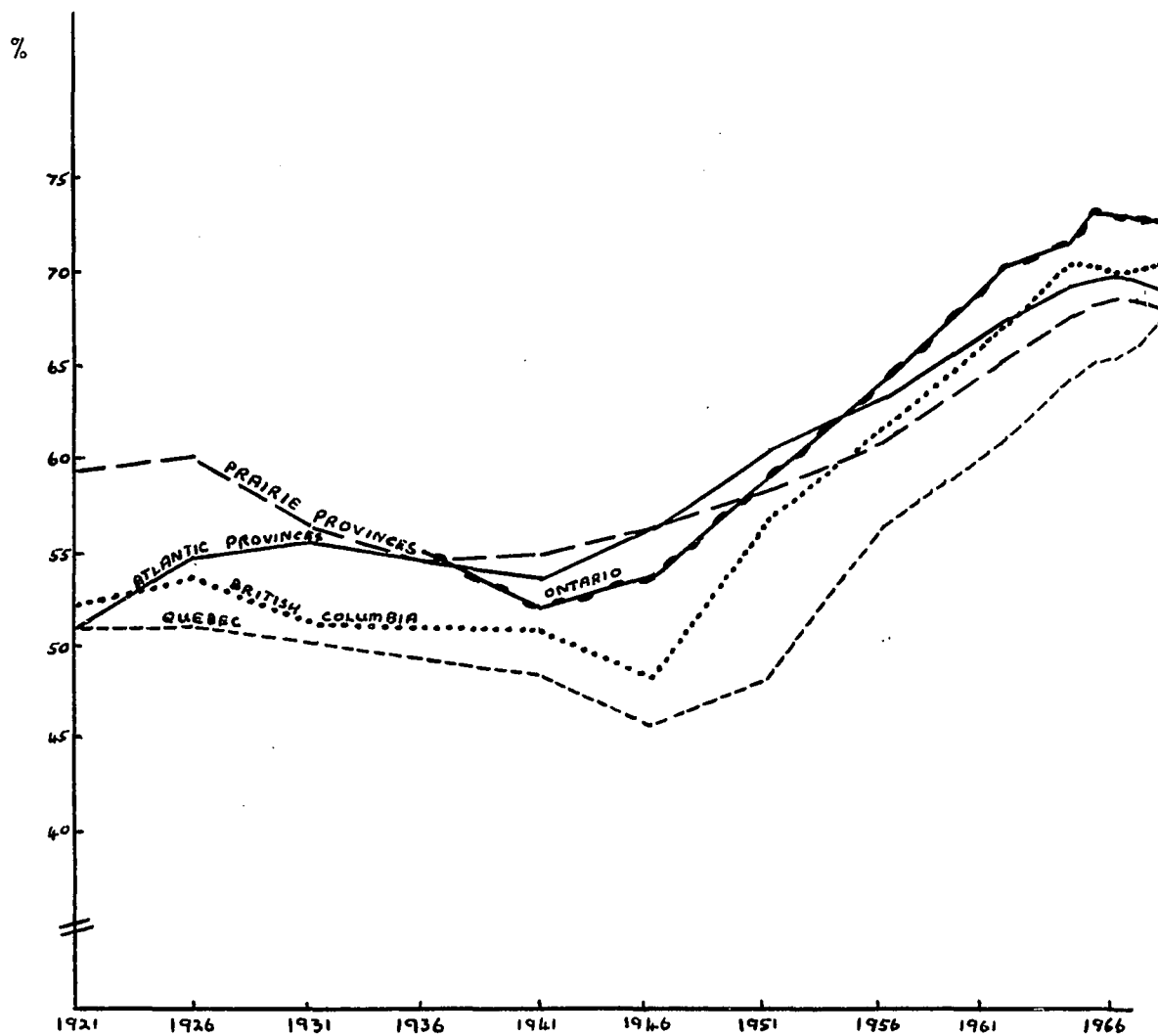
ENROLMENT IN PUBLIC AND PRIVATE SCHOOLS, UNIVERSITIES AND
COLLEGES AS PER CENT OF 5-24 YEAR AGE GROUP

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
(Per Cent)					
<u>Indicator 2a</u>					
1921	51.1	51.2	61.0	58.9	52.1
1926	54.7	51.6	62.8	59.8	53.5
1931	55.3	49.8	63.2	56.3	51.3
1936	54.2	48.7	54.6	54.2	51.2
1941	53.2	48.0	51.9	54.5	50.7
1946	56.0	45.9	53.8	56.0	47.9
1951	60.1	47.8	58.3	57.8	56.7
1956	62.9	56.3	63.5	60.7	61.9
1961	67.0	60.5	69.3	64.9	66.8
1964	68.6	63.5	71.8	67.0	69.6
1965	69.0	64.4	72.6	67.7	69.5
1966	69.4	64.8	72.5	67.9	68.8
1967	68.6	66.0	72.3	67.8	69.0
1968	68.0	67.0	72.4	67.5	69.8
<u>Indicator 2b</u>					
1921	47.7	47.7	50.3	50.3	51.6
1931	52.9	47.5	54.4	53.3	53.6
1941	50.8	47.5	52.3	52.1	51.7
1951	56.2	47.8	53.3	54.8	55.0
1961	66.0	61.3	68.9	66.2	67.9

Sources: Indicator 2a: See Appendix Tables A 6, A 7, A 8, and A 9.
Indicator 2b: Dominion Bureau of Statistics, Census of
Canada (Ottawa: Queen's Printer).

CHART III-2

ENROLMENT IN PUBLIC AND PRIVATE SCHOOLS, UNIVERSITIES AND
COLLEGES AS PER CENT OF 5-24 YEAR AGE GROUP



Note: Figures for Ontario in 1921, 1926 and 1931 are omitted because they are not considered reliable.

differ vastly, and here the enrolment figure should be taken as unreliable. It is probable that duplications in the statistics existed in those years.⁸

An entirely different picture of regional diversity emerges when one looks at enrolments instead of expenditures. In the first place, the spread in enrolments is not nearly so great as that in expenditures. In 1968 they varied from a low of 67 per cent in Quebec to a high of 72.4 per cent in Ontario. Historically, the prairie provinces were well ahead of the rest of Canada in the early 1920's, a fact that ties in with the high rate of expenditures in the west in that period. The years of depression brought a steady decline in the percentage of children attending school in all regions. This is rather surprising in view of the high unemployment rate at that time, for when work is unavailable, one would expect that children would tend to remain longer in school. The period from 1946 to the present has seen a steady increase in all regions in the proportion of children in school.

Looking at individual regions, two notable trends are evident. Quebec has consistently lagged behind other areas in the past forty years. More surprising is the high position of the Atlantic provinces, which have sometimes led the country in percentage of school enrolments. This is partly attributable to the high levels of enrolment that have been typical of Nova Scotia. In 1967 Nova Scotia was sending 71.5 per cent of her population aged

⁸Urquhart and Buckley, Historical Statistics of Canada (Toronto: Macmillan Co. of Canada, 1965), p. 582.

5-24 years to school. All of the individual Atlantic provinces showed a higher percentage than Quebec's 66 per cent in 1967.

The reasons for Quebec's poor showing lie partly in a low percentage in higher education and partly in a failure to educate her women. These points are both explored in more detail in the following sections of this chapter.

On the whole, it seems true to say that there seems little statistical evidence that children in one region of Canada have substantially less opportunity to attend school than children in any other region. But while there may be a rough regional parity, it is more than probable that pockets of inequality are still a problem. The inequality most likely lies within the regions, between rural and urban settlements across Canada.

Looking at enrolment figures and expenditure figures in conjunction with each other, we see Quebec with above average per capita expenditures, but with the lowest percentage of pupils enrolled, while the Atlantic provinces have a high enrolment figure combined with well below average expenditures. In the latter case the explanation probably lies in a combination of lower cost structures and provision of less extensive capital and operating equipment. In the case of Quebec a high proportion of the population falls in the school age group, thus raising per capita expenditures.

C. Enrolments in Secondary and Post-Secondary Education

Since Canada has compulsory school attendance to the age of fourteen or fifteen, it is to the higher levels of education that

one must look for a closer analysis of enrolment trends. Table III-9 shows Indicators 3a and 3b, which give numbers enrolled in Grade 9 and above, including university, as a percentage of those aged 15-24 years; and census figures for those aged 15-24 years still attending school as a percentage of the same age group. Chart III-3 illustrates these figures graphically.

The figures used prior to 1951 are enrolments in public schools and universities only, and this figure is not available for Quebec. A much more satisfactory series is available after 1951, for all provinces, and including private school enrolments, as well as enrolments in non-university, post-secondary education. Hence, Indicator 3a cannot be used for any comparison of the post-war years with the earlier historical period, since one is a much more comprehensive figure. The figures taken from the census do not correspond too well with those of reported enrolments, so the picture is sometimes a little confused. Nevertheless, some positive conclusions can be drawn from the statistics.

Most striking is the low position of Quebec, which, unfortunately, cannot be traced back before 1956, except for the census figures. These show her to have been several percentage points behind other regions up to 1951. From 1951 to 1961 a tremendous jump was evident in the percentage of this age group attending school in Quebec, but while the gap was narrowed, it was not eliminated. Indicator 3a tells the same story since 1961. Quebec is making progress but remains at least ten percentage points behind the leading region. Figures for the Atlantic provinces are

TABLE III-9

ENROLMENT IN SECONDARY SCHOOLS, GRADE 9 AND OVER AND IN
UNIVERSITIES AND COLLEGES, AS PERCENTAGE OF
15-24 YEAR AGE GROUP

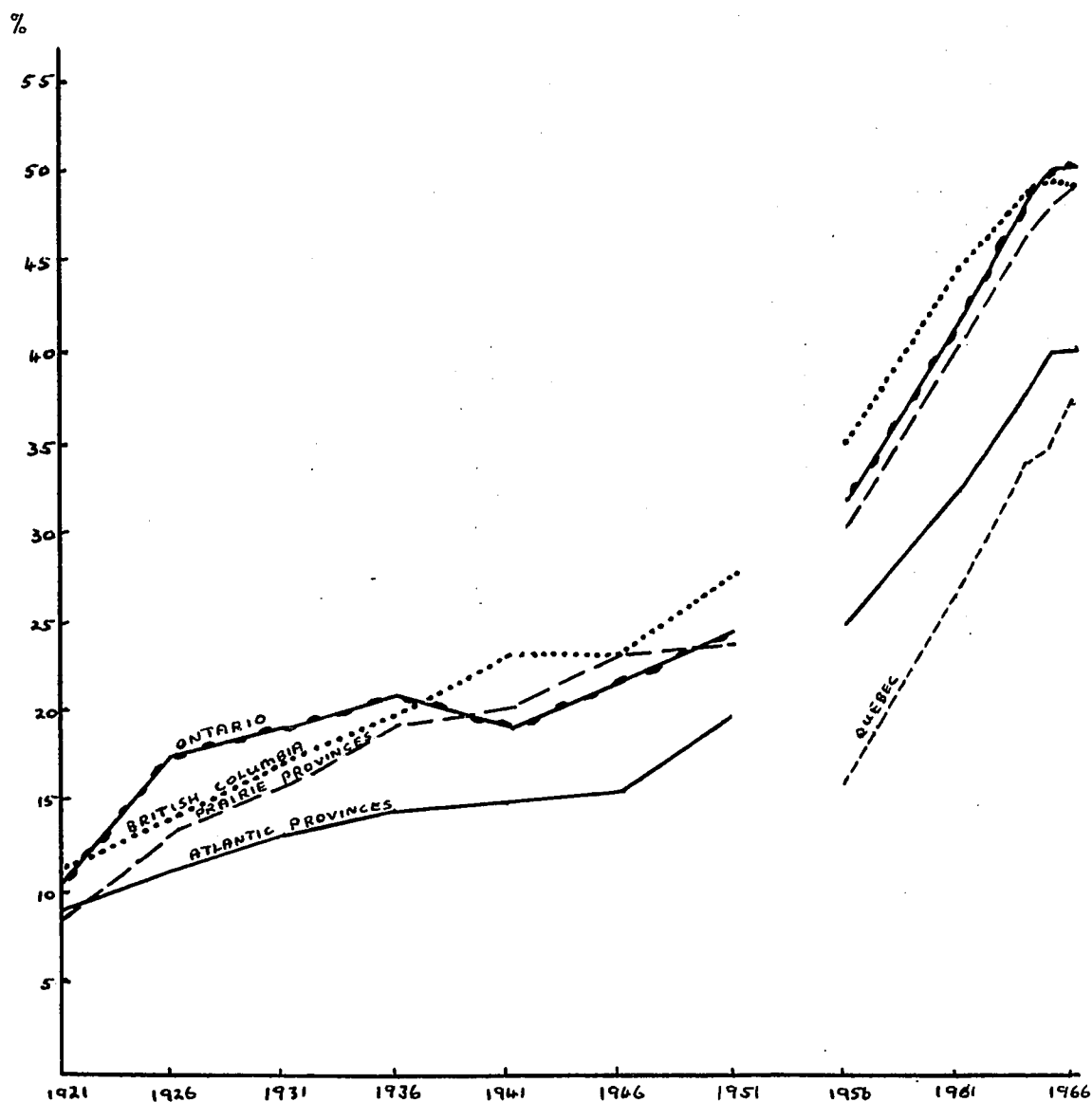
Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
(Per Cent)					
Indicator 3a					
1921	8.9	N.A.	10.5	8.0	11.3
1926	11.2	N.A.	17.9	13.8	14.2
1931	13.5	N.A.	18.9	16.3	17.4
1936	14.8	N.A.	21.5	18.7	19.9
1941	15.0	N.A.	19.4	20.3	23.3
1946	16.1	N.A.	22.0	23.1	23.1
1951	19.5	N.A.	24.5	23.8	27.9
1956 ^a	24.8	16.5	31.9	30.2	34.9
1961	32.3	26.7	41.6	40.1	44.2
1964	37.6	33.5	48.4	46.7	48.7
1965	39.3	34.5	49.6	47.9	49.2
1966	39.4	36.8	49.7	48.5	48.0
Indicator 3b					
1921	15.5	11.2	14.9	15.6	18.6
1931	19.7	13.5	21.9	21.5	24.1
1941	19.3	14.9	21.4	24.6	26.2
1951	24.0	17.1	23.5	26.7	27.4
1961	34.3	31.3	37.5	38.8	41.2

Sources: Indicator 3a: See Appendix Tables A 7, A 10, A 11 and A 12.
Indicator 3b: Dominion Bureau of Statistics, Census of
Canada (Ottawa: Queen's Printer), see Appendix Tables
A 13 and A 14.

^aFigures from 1956 on include private schools.

CHART III-3

ENROLMENTS IN GRADE 9 AND OVER, INCLUDING UNIVERSITY, AS
PER CENT OF 15-24 YEAR AGE GROUP



Note: Figures up to 1951 are for public schools only. From 1956 on figures include enrolments in private schools and in non-university, post-secondary education.

interesting in that they run counter to the figures for total enrolments. The latter figures for this region were well above the national average, but when higher enrolments are examined, the Atlantic provinces are second lowest and significantly behind Ontario and the West. This would seem to be a truer picture of their actual standing. Total enrolments in this area are influenced by a very high level of primary enrolment. When expressed as a percentage of the 5-13 age group, primary enrolment in both Newfoundland and Nova Scotia is well over 100 per cent, because these provinces have a high kindergarten enrolment and the age of children in school does not correspond exactly with the age groupings used. The relatively low proportion of children that the Atlantic provinces have in the upper school grades and the university also helps to explain why their expenditures are so much lower than those of other regions, since costs per pupil increase at each level of education.

Ontario and the West have stayed closely together in their percentage of enrolments at the secondary and tertiary levels.

Looking at the general trend over the past forty-five years, one is struck by the persistently steady increase from 1921 to 1941. Depression and war seem to have no effect, again in contrast to the total enrolment figures, which showed a decrease in the depression years. Only Ontario had any substantial drop in this period. Since 1951, the rise has been much more rapid than in earlier years, as seen graphically in Chart III-3.

University enrolments were not looked at separately in the

historical series because of the difficulty of obtaining comparable figures from region to region. The level of admission to university is not standard across the country, and it is difficult to arrive at meaningful figures as a percentage of any given age group. However, since 1964 the Dominion Bureau of Statistics has tried to arrive at a figure that can be compared from region to region, by taking university enrolments above the senior matriculation level and showing them as a percentage of the 18 to 24 year age group. These are given in Table III-10.

TABLE III-10

UNIVERSITY ENROLMENTS BEYOND EQUIVALENT OF SENIOR MATRICULATION
YEAR AS PERCENTAGE OF 18-24 AGE GROUP

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
(Per Cent)					
1964	5.4	7.0	7.4	8.5	8.6
1968	7.8	8.7	10.2	12.6	9.6

Source: See Appendix Table A 19.

Looking at the 1964 figures, it is surprising to see Quebec only slightly lower in its percentage than is Ontario. Given the low position of Quebec in the previous table, this suggests that her enrolments in the upper grades of the secondary school must indeed be very low. Later sections in this survey confirm this. Quebec seems to have an unusually high proportion of students who drop out

before completing high school. Of those who do complete it, more must continue to higher education than in some regions.

In both 1964 and 1968 the Atlantic provinces show the lowest percentage enrolment at this level. Figures for the individual provinces in this region show a particularly wide intra-regional spread. In 1968 Newfoundland had only 4.7 per cent, compared with Nova Scotia's 10.3 per cent. In fact, Nova Scotia was only exceeded by the three prairie provinces, all of which were over 12 per cent.

A tremendous increase in percentage enrolment at university during this four year period was evident in all regions except British Columbia, which led other regions in 1964 and now has fallen behind the prairies and Ontario.

D. Enrolment of Women in Secondary Education and at the University Level

The extent to which each region is providing education to women, especially at the higher levels, is of interest as it can help to explain the disparities in enrolments that have appeared in the previous tables. Enrolment of girls at the primary level is, of course, compulsory, so it is only enrolment in the secondary and tertiary stages of education that is looked at here. It might be supposed that women, since they are less in need of education to ensure their future economic status than are men, would show a higher drop-out rate from high school and university than the men do. This is true of the university level of education, but not of high school. As the figures in Table III-11 indicate, substantially more women than men have attended high school.

TABLE III-11

LEVEL OF EDUCATION OF POPULATION 25 YEARS AND OVER,
BY SEX, FEBRUARY 1967
(Per Cent)

	Male	Female
Some secondary school education	27.4	29.8
Completed secondary school education	15.2	21.1
Some university education	4.7	4.1
University degree	6.9	3.0

Source: Dominion Bureau of Statistics, Educational Attainment in Canada: Some Regional and Social Aspects, Special Labour Force Study No. 7 (Ottawa: Queen's Printer, 1968).

In February 1967, 42.6 per cent of the male population of Canada had attended high school, but no higher level of education, and 50.9 per cent of the women had done so. There was no significant difference in the number of men and women attending university and not graduating, but twice the percentage of men had obtained their degree.

Table III-12 shows the regional variation in the education of women at secondary and tertiary levels combined. Chart III-4 shows this graphically.

From 1921 to 1951 Quebec educated about half the percentage of her women aged 15 to 24 that British Columbia and the prairie provinces did. This evidently was the key reason for her low showing in all statistics pertaining to enrolments. The explanation of this is predominantly social and cultural, rather than economic.

TABLE III-12

INDICATOR 4a: WOMEN ATTENDING SCHOOL, GRADE 9 AND OVER, AND
UNIVERSITY, AS PERCENTAGE OF 15-24 YEAR AGE GROUP

Year	Atlantic Provinces	Quebec	Ontario	Western Provinces
(Per Cent)				
1931	15.9	N.A.	19.1	18.4
1936	16.8	N.A.	22.1	20.0
1941	17.4	N.A.	20.8	22.3
1946	16.4	N.A.	21.4	22.9
1951	19.7	N.A.	23.3	24.8
1956	24.3	N.A.	27.3	29.1
1961	30.3	18.0 ^a	34.5	36.4
1963	32.7	22.6 ^a	40.4	40.7

INDICATOR 4b: PERCENTAGE OF WOMEN IN THE 15-24 YEAR AGE
GROUP ATTENDING SCHOOL

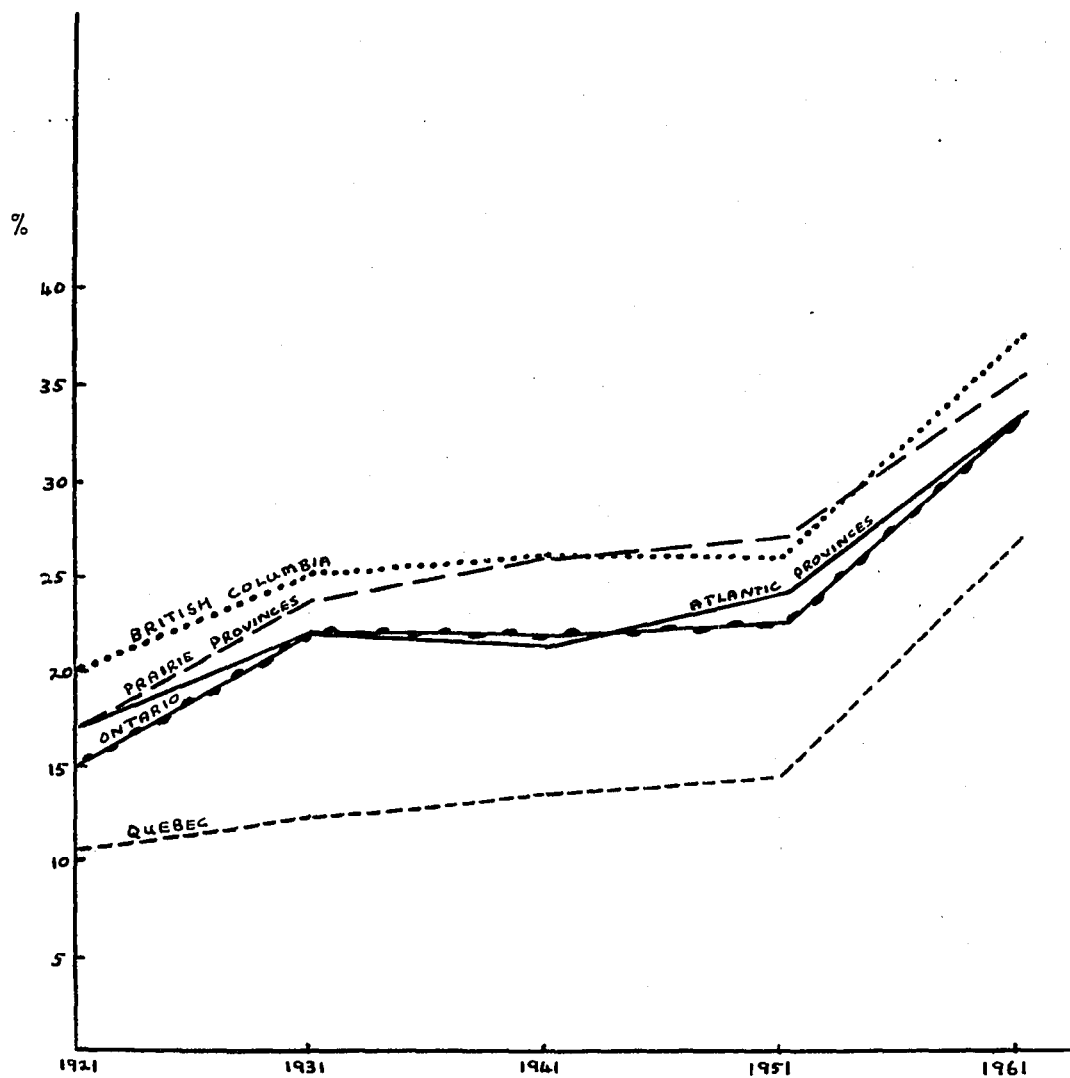
Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
(Per Cent)					
1921	17.0	10.6	15.2	16.9	19.9
1931	22.1	12.4	22.0	23.5	25.1
1941	21.6	13.5	22.0	26.2	26.5
1951	23.8	14.6	22.6	27.2	26.1
1961	33.5	27.1	33.7	36.1	37.8

Sources: Indicator 4a: See Appendix Tables A 15, A 16 and A 18.
Indicator 4b: Dominion Bureau of Statistics, Census of
Canada (Ottawa: Queen's Printer), see Appendix Tables
A 17 and A 18.

^aOn the low side because enrolment in private schools is
excluded.

CHART III-4

PERCENTAGE OF WOMEN IN THE 15-24 YEAR AGE GROUP
ATTENDING SCHOOL OR UNIVERSITY



The role of women in Quebec society has traditionally been a domestic one, and among the middle and upper classes artistic and cultural acquirements have tended to be stressed more than educational attainment. But traditions change, and during the 1950's a steep rise took place in the percentage of women in Quebec who extended their education to higher levels. Unfortunately, recent figures are not available, and it is certain that considerable change will have occurred in the last five years.

The Atlantic provinces and Ontario hold a middle position on Chart III-4, and it is perhaps surprising that Ontario does not have a more prominent position. Emphasis on the education of women increases as one moves westward, with British Columbia heading the list. Possibly this is one result of a greater impact of American educational influences in the West, compared with more dominant European influences in the East.

If the figures for the enrolment of women in university, above the senior matriculation level, are looked at, some interesting differences emerge. These figures, shown in Table III-13, do not overlap with those in Table III-11, but cover a more recent period. They are available only from 1964 onwards.

When university enrolment of women is considered separately from secondary enrolment, Quebec no longer trails the Atlantic provinces. In 1964 she was considerably above. The other surprising feature here is the strong showing of the prairie provinces and the relatively low figure in British Columbia, especially in 1968. While steadily increasing the percentage enrolment of her women in

university, British Columbia is doing so at a slower rate than any other region of Canada.

TABLE III-13

ENROLMENT OF WOMEN AT UNIVERSITY, BEYOND EQUIVALENT OF SENIOR MATRICULATION YEAR, AS PERCENTAGE OF 18-24 YEAR AGE GROUP
(Per Cent)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1964	2.6	3.3	4.1	5.4	5.1
1968	5.0	5.0	6.3	9.4	6.7

Source: See Appendix Table A 20.

Intra-regional variation is low in the prairies, but considerable in the Atlantic region. Newfoundland in 1968 had a percentage of 2.9, compared with 7.1 per cent for Nova Scotia.

In Quebec, in 1968, one of every three students enrolled at this level was female in the English system, and one in every four in the French system. This reflects the somewhat lesser emphasis that has been placed on the higher education of women in the French community in the past. However, only four years previously, in 1964, the ratio in the French system was only one in every five students.

E. Regional Disparity in Educational Attainment

Regional differences in educational attainment result from the differing degrees of school enrolment discussed above. These

differences are modified or increased by the net inflow and outflow of population that results from internal and external migration, and by the level of education of the populace who move. This section will examine the actual extent of the differences in educational attainment of the adult population, and the following section will look into migration between regions by educational level. Table III-14 shows the highest level of education reached, in each region, by the total adult population, and by two age groups within it. Chart III-5 gives a more comprehensive picture of educational attainment by age groups.

The 20-24 year and 45-64 year age groups were selected to illustrate the general rate of change in the past forty-five years, the former being the group which most recently emerged from the schools, and the latter group being those who were born in the first twenty years of this century, and educated in the 1920's, or just before.

Taking the total picture first, or all those aged twenty or over, a very marked differential in educational attainment appears. The proportion of people who have been university trained increases from east to west. Both the Atlantic provinces and Quebec are below the national average of 10.5 per cent, but the Atlantic region is lowest, with only 8.2 per cent. Highest of all is British Columbia with 13.6 per cent. At the secondary level, Quebec falls dramatically below the other regions, and the spread between regions is greater here than at the higher level. No doubt this figure is again much influenced by Quebec's failure to place emphasis on

TABLE III-14

POPULATION 20 YEARS OF AGE AND OVER, BY AGE AND HIGHEST LEVEL OF EDUCATION, JANUARY 1966^a

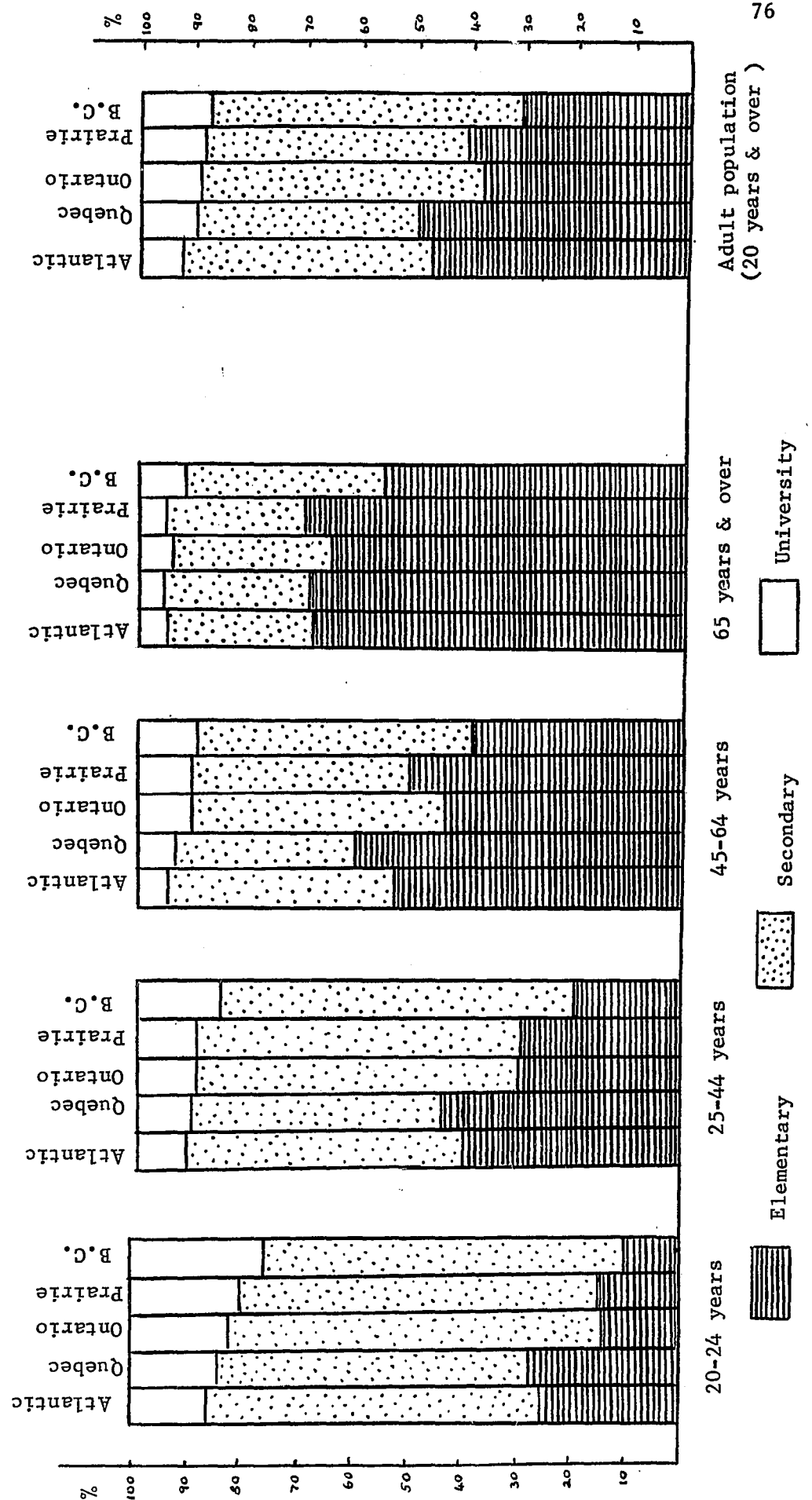
	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Canada
	(Per Cent)					
<u>20 years and over</u>						
Elementary	46.6	49.9	38.1	40.5	31.0	42.0
Secondary	45.2	40.4	51.3	48.5	55.4	47.5
University	8.2	9.7	10.6	11.0	13.6	10.5
<u>20-24 years</u>						
Elementary	26.1	27.6	13.9	14.8	10.7	19.6
Secondary	60.9	56.4	68.6	65.3	66.0	63.0
University	13.0	16.0	17.5	19.9	23.3	17.4
<u>45-64 years</u>						
Elementary	53.6	60.8	45.7	51.1	39.0	50.8
Secondary	39.9	32.0	45.2	39.8	49.6	40.6
University	6.5	7.2	9.1	9.1	11.4	8.6

Source: Dominion Bureau of Statistics, Educational Attainment in Canada: Some Regional and Social Aspects, Special Labour Force Study No. 7 (Ottawa: Queen's Printer, 1968).

^aAppendix Table A 21 shows all age groups.

CHART III-5

POPULATION BY AGE AND HIGHEST LEVEL OF EDUCATION, JANUARY 1966



secondary education for her women in the past. Indeed, exactly half of the Quebec population in 1966 had not gone beyond the elementary level. By comparison, only one third of British Columbia's population ceased their education at this stage.

But these figures reflect past disparities. What of more recent years? The 20-24 year age group shows exactly the same relative standings between the regions, but a considerable advance in all areas in the number of people with secondary and higher education. In this younger age group those with only an elementary education range from a low of 10.7 per cent in British Columbia to a high of 27.6 per cent in Quebec. The regional differences are still great, with Quebec and the Atlantic provinces having more than double the proportion with elementary education than does British Columbia. In fact, with compulsory schooling to the age of fifteen in most provinces, it is surprising that such a high percentage of people in this age group, none of whom have been out of school for more than ten years, should have failed to reach a higher level. The national average is 20 per cent.

At the secondary level Quebec still lags well behind other regions and Ontario leads. At the university level Quebec shows more strength, being three percentage points above the Atlantic provinces, who are lowest with 13 per cent. Again, this figure increases steadily from east to west across Canada, with British Columbia well ahead of other regions with 23.3 per cent of her 20-24 year old population having attended university.

When the poor showing of Quebec in this series of figures is compared with the strong upward surge in enrolments and expenditures there in recent years, we have a good demonstration of Furno's statement⁹ that it takes seven years for the effect of an expenditure policy to be felt, and that the policy of any period will have an ineradicable effect for at least twenty-five years.

Great as are the improvements in educational attainment between the younger and older age groups, the progress has been unimpressive alongside that made in the United States. Although it is not concerned with regional diversity, Table III-15 compares educational attainment in the two countries. It is presented to emphasize the fact that even Canada's most advanced region, in this case British Columbia, cannot match the national average figures for the United States.

If these United States figures are compared with those in Table III-14 for British Columbia, it will be noticed that no matter which age group is taken, British Columbia has a higher percentage of people who have not advanced beyond the elementary level and a lower percentage of those who have attended university. If the national averages in the table below are compared, Canada would seem to have room for a great expansion of education at the secondary and tertiary levels before she comes close to the United States attainment. Taking the adult population as a whole, Canada has only half the percentage who have attended university, 10.5 per cent as

⁹Mort, Reuss and Pulley, op. cit., p. 83.

TABLE III-15

PERCENTAGE DISTRIBUTION OF POPULATION BY AGE AND LEVEL OF EDUCATION
CANADA (JANUARY 1966) AND THE UNITED STATES (MARCH 1966)

Education Level Attained	20 and Over		20-24 Years		25-44 Years		45-64 Years		65 and Over	
	Can.	U.S.	Can.	U.S.	Can.	U.S.	Can.	U.S.	Can.	U.S.
	(Per Cent)									
Some elementary	21.1	15.4	8.5	3.7	15.8	8.3	25.8	18.2	39.8	35.5
Complete elementary	20.9	13.8	11.1	4.1	18.9	7.7	25.0	18.2	26.9	26.8
Total elementary	42.0	29.2	19.6	7.8	34.7	16.0	50.8	36.4	66.7	62.3
Some secondary	29.8	18.1	36.8	17.2	34.7	19.4	25.8	19.3	16.7	12.6
Complete secondary	17.7	32.6	26.2	43.9	19.3	41.1	14.8	27.6	11.1	14.2
Total secondary	47.5	50.7	63.0	61.1	54.0	60.5	40.6	46.9	27.8	26.8
Some university	5.7	10.5	13.1 ^a	23.1 ^a	5.4	10.7	4.3	8.3	2.8	5.6
University degree	4.8	9.6	4.3	8.1	5.9	12.8	4.3	8.4	2.7	5.3
Total university	10.5	20.1	17.4	31.2	11.3	23.5	8.6	16.7	5.5	10.9

Source: See Appendix Tables A 21 and A 22.

^aMany people included in this figure will go on to obtain a degree.

compared to 20.1 per cent. Moreover, this cannot be attributed to any lagging in the past, as the same relationship is seen in all age groups. Also, the United States has made much more progress than Canada in getting children beyond the elementary level. Of United States residents 65 and over, 62.3 per cent had only an elementary education, but this is down to 7.8 per cent for the 20-24 age group. The Canadian figures are 66.7 per cent and 19.6 per cent, respectively.

An interesting difference between the two countries at the secondary level is the fact that Canada has more people, at almost all age levels, that have dropped out of high school without completing the course than she has completing it. The United States, on the other hand, consistently shows more people with a complete secondary education than with an incomplete one. If the figures for those completing high school are added to those with university training, the United States again has twice the Canadian percentage. For the population as a whole, figures are 53 per cent and 28 per cent, respectively.

The implication of this great difference in the level of educational attainment between Canada and the United States is surely that Canada has only seen the beginning of the expansion of her university and secondary education. But these are the most expensive levels of education, and Canada's financial resources seem strained at every level of government. With education expenditures at 10.4 per cent of personal income and 7.9 per cent of gross national product in 1967, Canada's educational effort is at a very

high level already. Pressures can, therefore, be expected to mount, unless national wealth should increase more rapidly than the demand for increased education expenditures. Failing that, education must absorb a still larger slice of national resources, or economic efficiency in the education system must be improved, or, the demand for education must be curtailed.

F. Regional Gains and Losses in Population by Level of Education

The figures for educational attainment examined in the preceding section reflect only partially, as already mentioned, the product of each region's educational system. There is a substantial movement of population from one region to another, as well as a large amount of immigration from other countries. Each individual who moves his residence into or out of a region represents a gain or loss of investment in education for that region. This follows naturally from the concept of educational investment being an investment in human capital. But the fact that this human capital is essentially movable poses a unique problem for those who must determine what proportion of resources are to be allotted to education. Investment in factories, equipment, roads, and even health can all be counted upon to contribute to prosperity and well-being, providing they are wisely made. Investments in education can, and often do, contribute more to a neighboring region than to those who made the investment. More will be said about this in a later chapter, when comparisons are made between educational investment and economic growth.

Table III-16 looks at national figures of population movement by level of education attained.

TABLE III-16

POPULATION OF 20 YEARS AND OVER BY LEVEL OF EDUCATION, AND RESIDENCE IN JANUARY 1966 IN RELATION TO PROVINCE IN WHICH THAT EDUCATION WAS ATTAINED

Highest Level of Education	Same Province	Different Province	Different Country	Not Stated
(Per Cent)				
All levels	69.6	11.1	16.9	2.4
Elementary	69.7	8.9	20.7	0.7
Secondary	70.8	11.9	13.7	3.6
University	63.1	16.1	17.0	3.8

Source: Dominion Bureau of Statistics, Educational Attainment in Canada, Some Regional and Social Aspects, Special Labour Force Study No. 7 (Ottawa: Queen's Printer, 1968).

About 70 per cent of Canadians are still living in the province in which they received their highest level of education, about 11 per cent have moved to another province, and about 17 per cent were educated outside the country. If the pattern is examined at each level of educational attainment, it becomes apparent that increasing education brings increasing mobility. Hence, while an average 70 per cent of those with elementary and secondary education remained in the same province, only 63 per cent of those with a university education did so. The column for interprovincial

movement shows that only 9 per cent of those at the elementary level had moved, compared with 12 per cent with secondary education and 16 per cent with a university degree. The pattern is a little different for those educated outside Canada. Here the highest movement in was at the elementary level, 20.7 per cent, followed by the university level, 17 per cent of whom were immigrants. If this series is examined by age groups, it becomes clear that the impact of immigration is far greater on the 65 and over age group than on any other. This results from a large flow of immigrants after World War I, many of whom had only received an elementary level of education.

Table III-17 examines internal migration in Canada by level of education and by region.

Table III-17 is concerned with those who received their education in Canada, and takes no account of immigration or emigration. It shows, therefore, only internal gains and losses. A later table will examine gains and losses including immigration.

Ontario, Quebec and British Columbia all retained over 90 per cent of the people who had received their elementary education there. The losers in this category were the Atlantic and the prairie provinces. The Atlantic losses were mainly to Ontario, and the prairie losses to British Columbia. The same pattern was evident at the secondary level, though the outflows were a little greater. Almost a fourth of those educated to this level in the Atlantic provinces migrated to other parts of Canada.

Mobility was highest of all at the university level--the

TABLE III-17

POPULATION 20 YEARS OF AGE AND OVER, BY LEVEL OF EDUCATION, REGION
IN WHICH THAT LEVEL WAS ATTAINED, AND RESIDENCE JANUARY 1966

Region Highest Level of Educa- tion Attained	Residence in 1966				
	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
(Per Cent)					
<u>Elementary</u>					
Atlantic	80.5	4.5	11.7	1.6	1.7
Quebec	0.4	93.7	4.8	0.6	0.5
Ontario	0.4	3.2	92.4	2.4	1.6
Prairie	- ^a	1.0	6.6	77.3	14.8
B.C.	-	-	3.9	4.9	90.3
<u>Secondary</u>					
Atlantic	76.5	6.0	13.8	2.0	1.7
Quebec	-	92.7	5.4	-	0.8
Ontario	0.6	4.1	91.6	2.2	1.5
Prairie	-	1.4	6.9	78.2	13.2
B.C.	-	-	4.2	5.1	89.8
<u>University</u>					
Atlantic	71.9	-	14.5	-	-
Quebec	-	87.9	7.5	-	-
Ontario	-	6.7	85.7	3.7	3.0
Prairie	-	-	8.2	78.9	10.4
B.C.	-	-	-	-	83.3

Source: Dominion Bureau of Statistics, Educational Attainment in
Canada. Some Regional and Social Aspects, Special Labour
Force Study No. 7 (Ottawa: Queen's Printer).

^a(-) based on estimate of less than ten thousand.

level which is most expensive in terms of economic loss, both in loss of expenditure and loss of economic potential. Quebec had the highest retention rate at this level with 87.9 per cent, and the Atlantic provinces the lowest with 71.9 per cent. Showing most gains from the internal migration of those with university training were Ontario and British Columbia.

At all levels of education Quebec retains the highest percentage of those educated there, which is to be expected in view of the language barrier that exists.

In Table III-18 net gains and losses, rather than percentage changes, are shown, and in addition immigration is shown, by level of education.

It should be noted that the figures in Table III-18 are obtained from a survey of Canadian residents, and so there is still an omission of those who have emigrated from the country. Hence, the total loss of investment in education from any region is greater than the amount shown in this table by the amount of the "brain drain" to other countries.

At the elementary level only the Atlantic provinces show a net loss. The prairies had quite a substantial internal loss that was compensated for by immigration.

Immigration of those with a secondary level of education to the prairies was somewhat lower, so at this level they join the Atlantic provinces in showing a net loss. All other regions had a net gain.

The university level also showed a net loss for the Atlantic

TABLE III-18

INTERREGIONAL MIGRATION AND IMMIGRATION, FOR POPULATION 20 YEARS AND OVER, BY LEVEL OF EDUCATION AND REGION, JANUARY 1966

Region Highest Level of Educa- tion Attained	Number Educated in Region	Net Inflow and Outflow (Internal)	Immigra- tion	Net Change	Per- centage Change
		(Thousands)			(%)
<u>Elementary</u>					
Atlantic	1,127	-190	34	-156	-13.9
Quebec	2,767	- 15	298	283	10.2
Ontario	2,722	189	956	1,146	42.1
Prairie	1,723	-270	323	54	3.1
B.C.	480	285	295	581	121.0
<u>Secondary</u>					
Atlantic	622	-121	24	- 97	-15.7
Quebec	1,331	32	154	187	14.0
Ontario	1,859	94	445	538	29.0
Prairie	1,092	-157	134	- 23	- 2.1
B.C.	398	152	159	311	78.2
<u>University</u>					
Atlantic	89	- 16	7	- 9	-10.0
Quebec	244	6	45	51	20.8
Ontario	315	8	82	90	28.8
Prairie	187	- 17	30	13	7.1
B.C.	88	19	33	52	59.1

Source: See Appendix Tables A 21 and A 22.

region, and gains in all other regions. At all levels of education British Columbia stood out with the greatest percentage gain, although Ontario registered the greatest gain in numbers. Ontario gains very heavily from immigration. Quebec's gain is steady at all levels. Most disturbing, of course, is the persistent drain from the Atlantic provinces.

The significance of this loss from the Atlantic area is that it adds to the disparities already existing in educational output. With low expenditures, and a low level of enrolments in the higher levels of education, the Atlantic provinces are also faced with the eventual loss of a large number of those they do educate. Thus the disparity in the stock of education in the area, as compared to other regions, is magnified. This tends to increase economic depression, which in turn reduces educational investment. It is a spiral that, unless broken, will rapidly increase disparity at a time when much attention is being focussed on reducing it.

G. Summary of Regional Disparities in Education

In conclusion of this review of the extent of regional disparities in education, a summary will be made by regions.

Atlantic Provinces

The Atlantic provinces show the lowest per capita and the lowest per pupil expenditures of any region of Canada. In 1965 expenditures per capita were only 65 per cent of the national average. Moreover, this percentage has dropped since 1951, when it stood at 77 per cent. Lower educational costs partly account for

this in all probability, although it cannot be demonstrated statistically. A second explanation is the relatively high proportion of children that this region has at the elementary, and less costly, level of education.

Total enrolment figures show this region at about the national average, and from 1946 to 1956 it showed a higher percentage of enrolments than any other area. These enrolments, however, drop off at the secondary and higher levels, and enrolments in grade 9 and over stand at only about 40 per cent of the eligible age group, well below the national average. At the university level enrolments are low also, particularly in Newfoundland and Prince Edward Island. The enrolment of women is average, comparable to that of Ontario, and has been so over the years since 1921.

Generally speaking, the Atlantic region is, therefore, average in the opportunity that she offers her children to attend school. The lower costs for this region may reflect a lower quality of teachers, buildings and equipment though. The region, however, suffers from a persistent drain of manpower to other areas. Only 72 per cent of the people in this country who received university education in the Atlantic provinces still reside there. The figure is 76 per cent for secondary education, and 80 per cent for elementary. Inflow from other regions has been small, and so has immigration. In consequence, this region has suffered net decreases at all levels of education, ranging from 10 per cent at the university level to 16 per cent at the secondary.

The outlook is not encouraging. Greater expenditures and

improved enrolments at the higher levels will be of little avail if the educational investment in these people is constantly lost to the area during their productive years. Further discussion of this situation will be found in the following chapter, which examines the relationship between educational and economic factors.

Quebec

Quebec is the region which has shown most progress in her educational input and output in recent years; but there was, in earlier years, much room for progress. A dramatic rise in expenditures on education per capita has brought Quebec from the historically low position that she occupied to the national average level. Expenditures per pupil have shown a similar advance, although Quebec remains a little further behind Ontario and the west in this.

Enrolments are less satisfactory. Quebec has constantly trailed the other regions of Canada in her proportion of total enrolments and in the proportion above grade 9, although at university level she does better than the Atlantic provinces. However, differences have recently narrowed. The reason for her low enrolment figures has partly been a high drop out rate of girls from high school. From 1931 to 1951 Quebec had approximately half the percentage of women in grade 9 or over that the western provinces had. This, too, is changing, and by 1961 Quebec had 27 per cent of the women aged 15-24 at school, compared with British Columbia's 38 per cent.

Quebec fares considerably better than do the Atlantic provinces in retaining her educated populace after they leave

school, and in attracting migrants from other parts of Canada. At all levels of education she retains a higher percentage of those educated there than any other region. The range is from 88 per cent of the university-educated population to 94 per cent of those with elementary level. Most of those leaving the province go to Ontario, as do those leaving the Atlantic provinces. Regional movements in Canada give Quebec a small net gain in those with secondary and tertiary education, and a small net loss in those at the elementary level. However, immigration is considerable and outweighs this loss.

Despite her recent strides forward, the legacy of the past still remains with Quebec, so that the educational attainment of her population is relatively low. Half of Quebec's residents still have only an elementary education. At 40 per cent her proportion with secondary schooling is the lowest in the country, but the proportion with university training at 9.7 per cent is not far below the national average.

Ontario

Ontario is the province that currently leads the others in expenditures per capita and per pupil. Though occasionally exceeded by the western provinces, her expenditures have always been high and well above the national average.

She also leads in percentage of total enrolments and enrolments above grade 9, but in the percentage of population aged 18-24 years attending university she is below the prairie provinces, the figures being 10.2 per cent and 12.6 per cent, respectively.

Ontario does not stand out particularly in regard to the

education of women at grade 9 or above. In this respect she is level with the Atlantic provinces and exceeded by the provinces to the west. It would appear to be the increased enrolment of women that has caused Ontario's total enrolments above grade 9 to spurt ahead in the past two years.

Ontario is exceeded only by Quebec in her low rate of outflow of population to other regions of Canada. Hence, she retains over 90 per cent of those with a secondary education or less, and 86 per cent of those with some university education. Inflow from other provinces exceeds outflow at all levels of education, and immigration is high. Ontario has a 29 per cent gain of those with secondary and university training, and a 42 per cent gain at the elementary level. It should be remembered that these figures are exclusive of those who have migrated to other countries.

In view of her high percentage of secondary and higher enrolments, one might expect Ontario to be ahead of other areas in educational attainment. In fact, she is exceeded by British Columbia at all levels, and by the prairie provinces also at the university level. The proportion of her population with university training is at the national average of 10.5 per cent. Percentage with only elementary training stands at 38 per cent, below the national average of 42 per cent.

The Prairie Provinces

Expenditure figures were combined for the prairie provinces and British Columbia. While expenditures per capita showed a steady increase, except for the depression years of 1931 and 1936, they

fluctuated more as a percentage of the national average than did the expenditures in other regions. In the 1920's they were well above the other regions, but dipped below in the depression years. In 1951 the west again had the highest per capita expenditures in the country, but by 1966 her expenditures stood at about the national average, and level with Quebec's.

Total enrolments in the prairie provinces have historically been high, although the post-war years have seen them overtaken by all regions except Quebec. They maintain a high percentage of enrolment of the 15-24 year age group and a particularly high percentage of those at university. In the percentage of women enrolled they were exceeded earlier by British Columbia, but now have a much higher enrolment rate in the 18-24 age group. This high enrolment of women is unexpected in a predominantly agricultural area, but it has been evident since 1921.

The prairie provinces fare less well in retention of population. Of those receiving elementary education in the area, one out of four now live elsewhere in Canada, and one out of five of those with secondary or university training. Outflow to other provinces of Canada well exceeds the inflow from them, with the greatest proportion going west to British Columbia. Immigration to this region is substantial, however. It is only at the secondary level that it fails to compensate for the loss, and then only slightly.

The resulting picture of the educational attainment of the prairie provinces is encouraging. Those with university training

total 11 per cent, above the national average, and exceeded only by British Columbia. Almost half the population has been educated to the secondary level, and one in four remain at the elementary level. These figures are slightly better than the national average, but well below those of British Columbia and Ontario, so that room for improvement obviously remains.

British Columbia

British Columbia is the region that, on balance, seems the most progressive in its educational picture. However, the effort is not entirely indigenous. This area is, to an extent unparalleled elsewhere in Canada, the recipient of the fruits of the educational effort of others.

Expenditure figures were not shown separately for British Columbia but were combined with those of the prairie provinces. While high in the past, these at the moment stand at the national average. However, the influence of the prairie provinces outweighs that of British Columbia, since they are numerically larger.

Total enrolments in British Columbia were relatively low until the 1950's, when they spurted ahead. At the secondary and higher level they were, until recently, highest in the country, supported as they were by the enrolment of a high percentage of women. British Columbia has consistently been well above the eastern provinces and Ontario in retaining women in the higher levels of school and university, but in the past few years has been well outstripped by the prairie provinces at the university level.

While well above Ontario and Quebec in the percentage of her populace who migrate to other parts of Canada, British Columbia compensates for this by attracting a substantial inflow from Canada and other countries. They come mostly from the prairie provinces or from external areas. The net percentage change in population with elementary education stands at 121 per cent, with secondary education, 78 per cent, and with university education, 59 per cent. The high gain of those at the elementary level is probably due to the high percentage of those who are 65 and over moving to this region on retirement. This age group has a very high proportion with only elementary training.

Despite this high influx of people with a low level of education, British Columbia shows the highest level of educational attainment in Canada for the populace as a whole. Less than one in three have only reached the elementary level, compared with a national average of 42 per cent. With 13.6 per cent of her population having attended university, British Columbia easily surpasses other regions, which range from 8 per cent in the Atlantic region to 11 per cent in the prairies.

CHAPTER IV

REGIONAL DIFFERENCES IN EDUCATION AS RELATED TO ECONOMIC DEVELOPMENT

A. Education and the Level of Prosperity

The general level of prosperity is represented by two statistical series, personal income and the net value of production.¹ The taxes that support public education, and the fees that go to private education, are both drawn from personal income. In addition, the level of personal income clearly should have an influence on the demand for education, since larger incomes enable longer deferment of the time when the teen-ager must become self-supporting.

Net value of production measures prosperity in terms of the productive capacity and performance of the economy--the factor, of course, on which prosperity must ultimately depend.

The relationship between these two economic indicators and the educational indicators will be looked at nationally, on a longitudinal basis, before moving on to regional examinations. This will help to place the regional tables, especially the historical ones, in perspective.

¹For full discussion of these indicators, see Chapter II.

1. National Figures

Table IV-1 compares personal income and net value of production in Canada with figures for education expenditures and enrolments from 1926 to 1967. Charts IV-1, IV-2 and IV-3 depict the relationships between them visually, through the use of scattergrams.

No correlation of the figures in Table IV-1 has been made, since the regression was not expected to be, nor appears to be, linear. The use of the correlation ratio eta for non-linear situations is not practical for comparison of such a small number of cases.²

Education expenditures can clearly not be said to bear any consistent relationship to either personal income or net value of production over a long-term historical period. From 1926 to 1945 these expenditures fluctuated in the \$20 to \$30 range, while income ranged from \$400 to over \$1,000 and the value of production from \$300 to \$800. During the depression years education expenditures seemed to be relatively inelastic. In fact, they steadily increased until 1932, when retrenchment did set in. Prosperity had been diminishing since 1929. The total drop in education expenditures was 21 per cent, compared to 45 per cent for value of production and 31 per cent for personal income. During the war years education expenditures, as would be expected, failed to parallel the increase in productivity and income, which was being channelled to other purposes.

²G.U. Yule and M.G. Kendall, An Introduction to the Theory of Statistics (New York: Hafner Publishing Co., 1950), p. 258.

TABLE IV-1

ECONOMIC AND EDUCATIONAL INDICATORS ON A NATIONAL BASIS

Year	Net Value of Production Constant \$ Per Capita	Personal Income Constant \$ Per Capita	Education Expenditures Constant \$ Per Capita	Total En- rolments % 5-24 Age Group	Enrolments Above Grade 9 % 15-24
1926	551	619	21.5	58.8	N.A.
1927	589	649	22.3	58.6	N.A.
1928	614	687	23.3	58.2	N.A.
1929	572	675	23.1	57.8	N.A.
1930	490	641	24.2	57.5	N.A.
1931	393	564	27.4	57.5	N.A.
1932	355	517	27.7	57.5	N.A.
1933	336	478	24.7	56.9	N.A.
1934	392	519	22.9	54.7	N.A.
1935	381	547	22.1	54.0	N.A.
1936	402	557	21.8	53.7	N.A.
1937	450	606	21.9	53.4	N.A.
1938	441	610	22.5	53.7	N.A.
1939	472	643	22.9	53.9	N.A.
1940	527	700	22.2	53.3	N.A.
1941	596	769	20.4	52.5	N.A.
1942	745	922	20.4	51.7	N.A.
1943	764	979	26.1	51.2	N.A.
1944	800	1,032	19.8	51.1	N.A.
1945	689	961	21.3	51.4	N.A.
1946	707	1,023	30.4	52.9	N.A.
1947	755	966	32.7	52.8	N.A.
1948	770	978	30.5	53.1	N.A.
1949	722	949	30.3	54.2	N.A.
1950	779	954	33.0	55.2	N.A.
1951	822	982	32.2	56.0	N.A.
1952	811	998	33.9	56.6	21.0
1953	818	1,016	35.1	57.7	21.7
1954	749	978	37.9	58.8	22.6
1955	809	1,016	41.7	60.6	23.6
1956	853	1,060	44.0	61.6	25.4
1957	803	1,036	49.0	61.7	26.4
1958	774	1,048	53.1	62.3	28.3
1959	767	1,061	59.0	64.2	30.4
1960	757	1,094	64.7	65.1	32.0
1961	742	1,107	72.7	66.3	34.5
1962	793	1,164	85.5	67.5	37.4
1963	811	1,192	89.9	68.1	39.3
1964	835	1,217	97.6	68.2	40.9
1965	888	1,258	110.6	68.6	42.0
1966		1,335	130.0	68.8	42.8
1967		1,380	143.7	69.1	

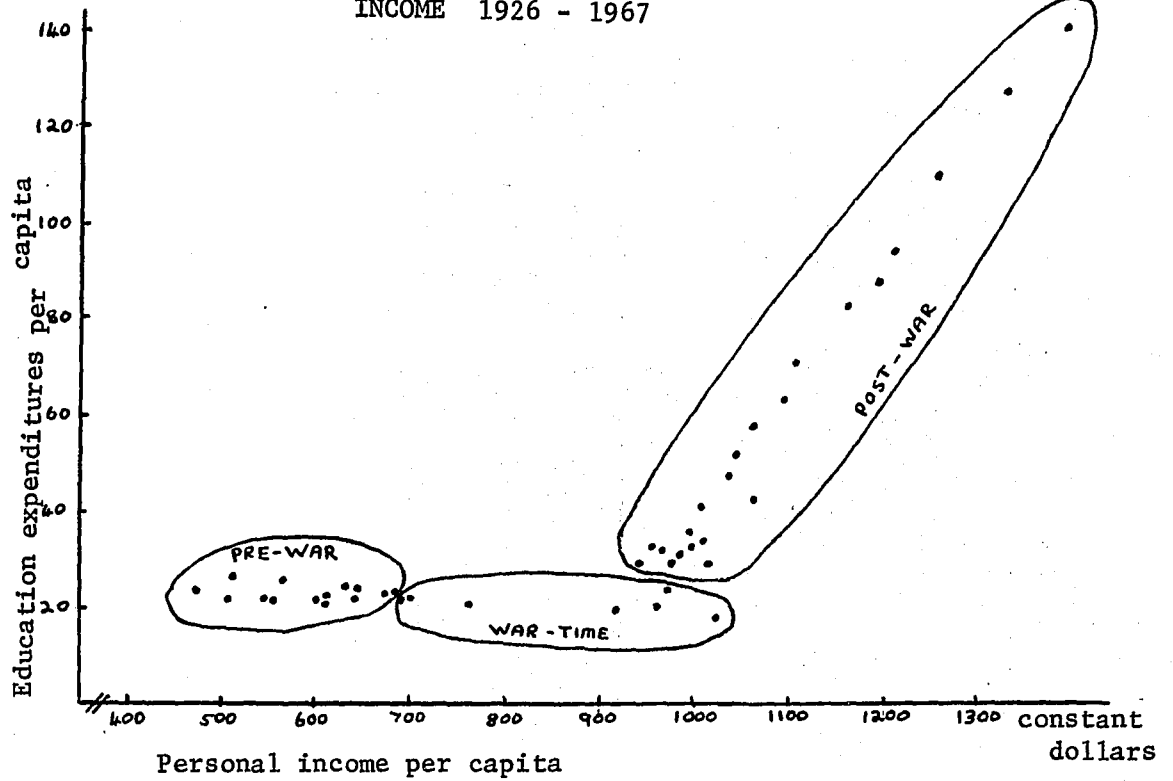
Source: See Appendix Tables A 23, A 25, A 27, A 28 and A 29.

N.A.: Not available.

ECONOMIC INDICATORS AND EXPENDITURES ON EDUCATION

constant
dollars

EDUCATION EXPENDITURES AND PERSONAL
INCOME 1926 - 1967



constant
dollars

EDUCATION EXPENDITURES AND NET VALUE
OF PRODUCTION 1926 - 1965

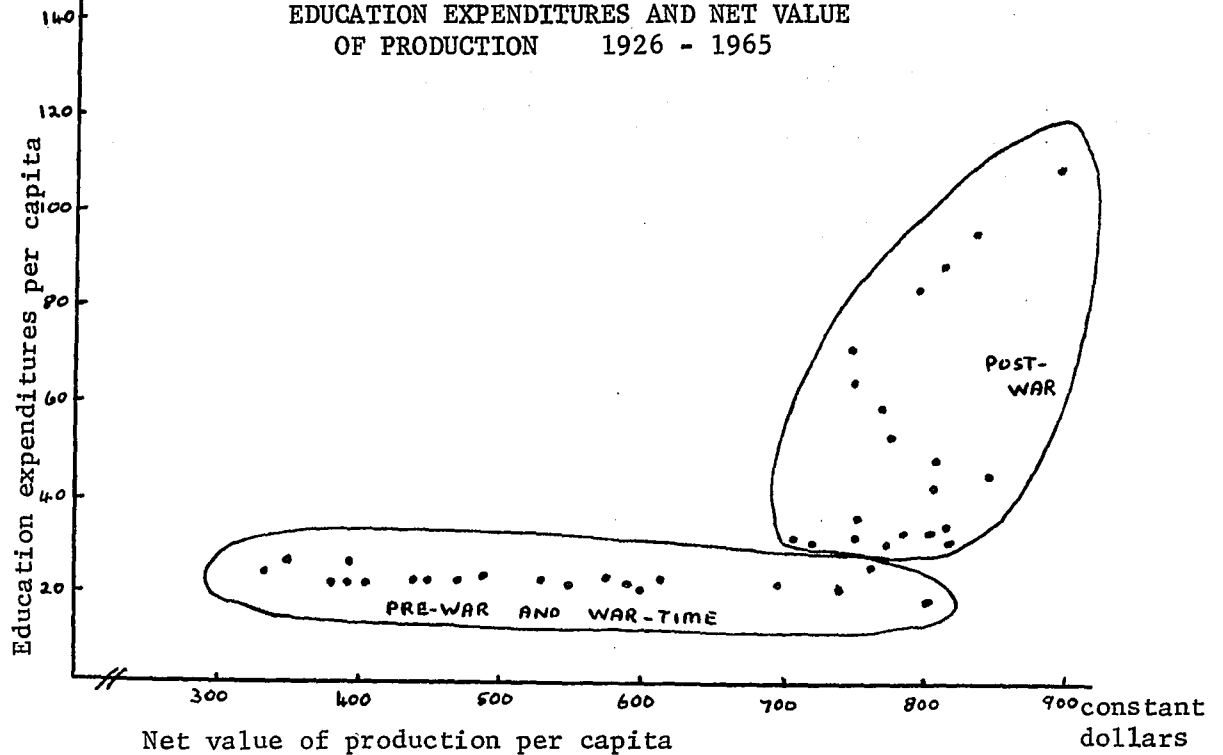


CHART IV-2

ECONOMIC INDICATORS AND TOTAL ENROLMENTS

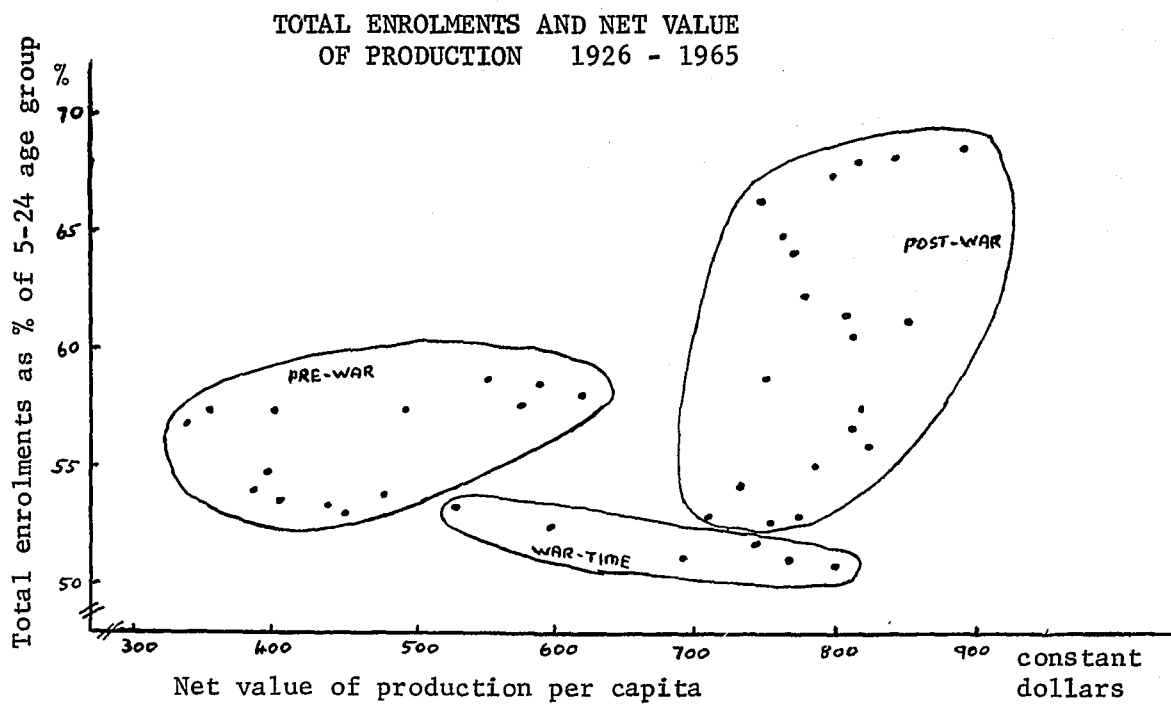
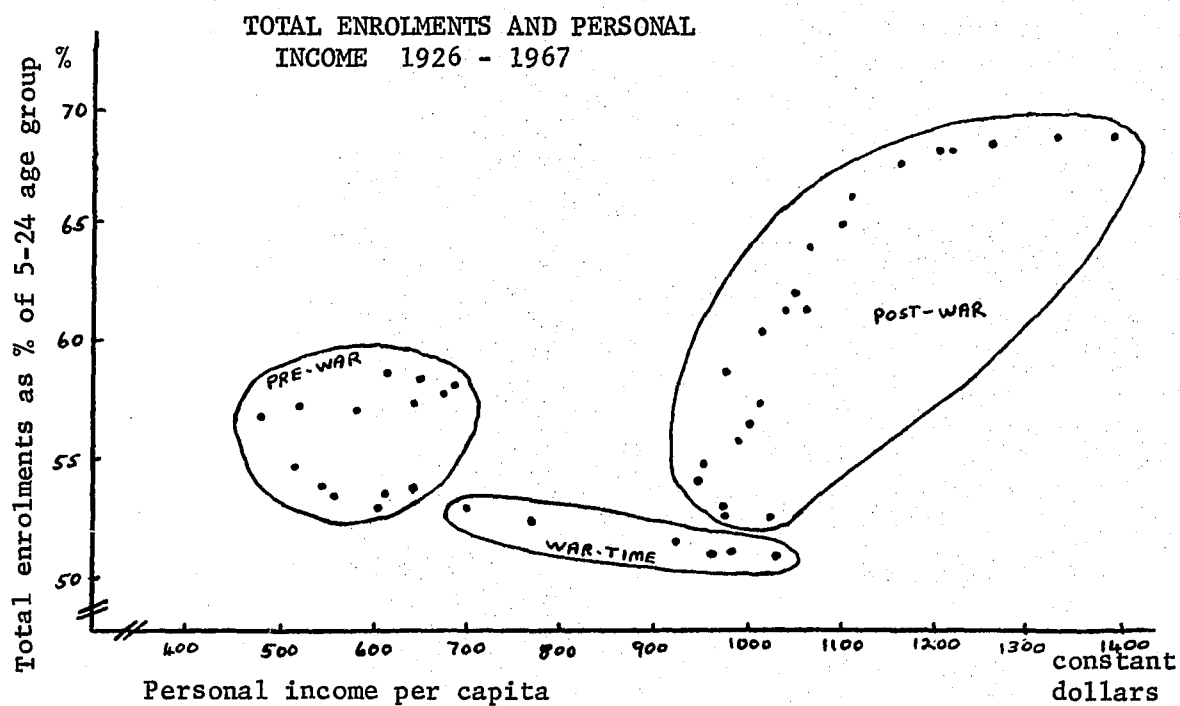
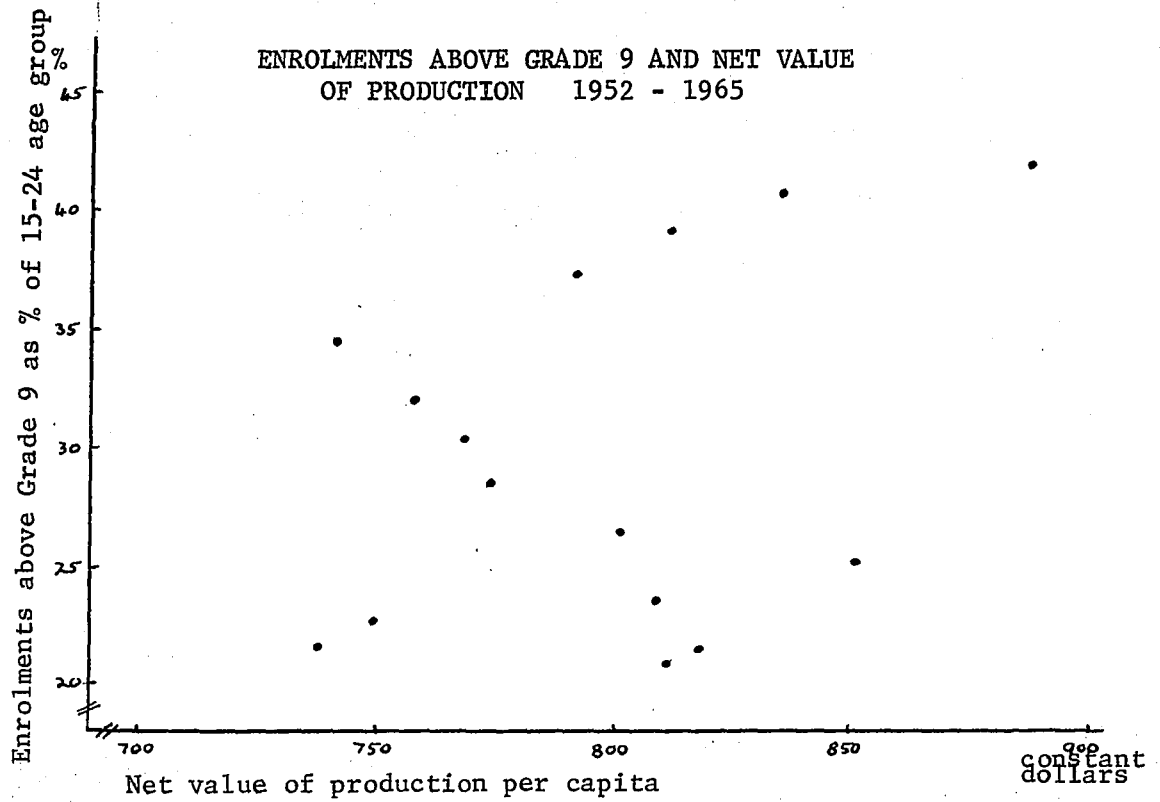
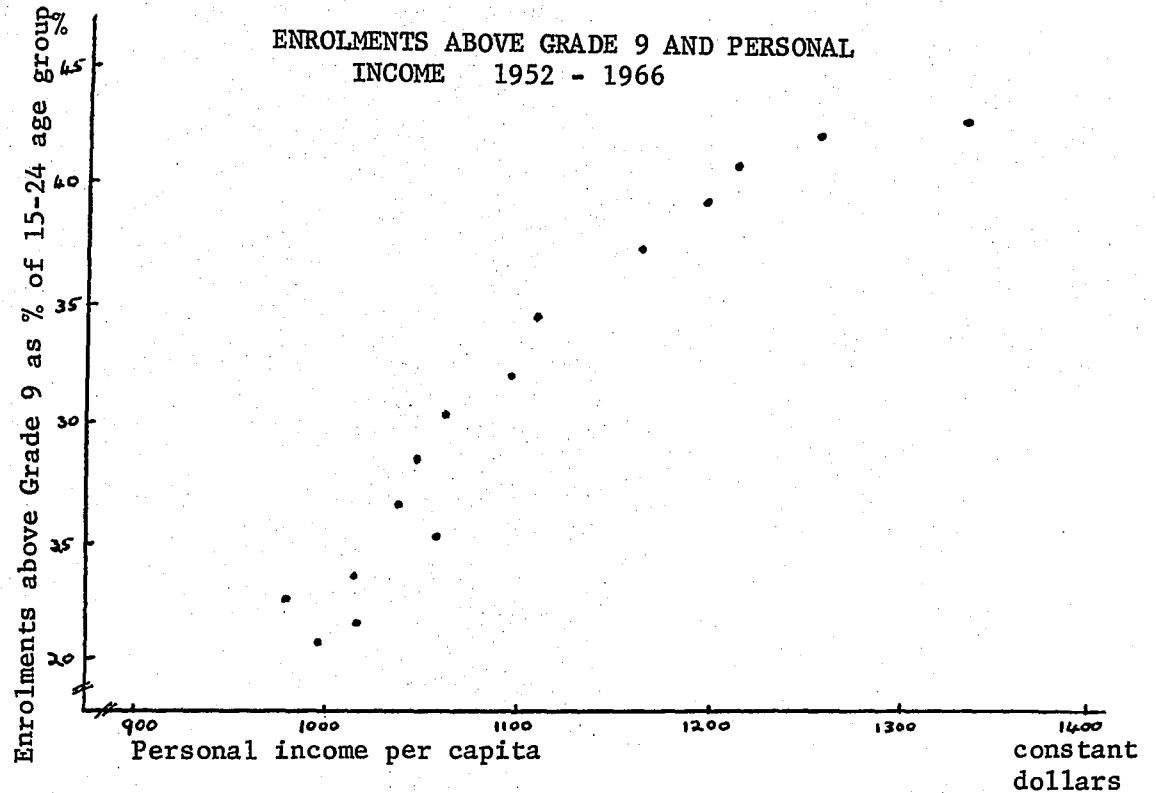


CHART IV-3

ECONOMIC INDICATORS AND ENROLMENTS ABOVE GRADE 9,
INCLUDING UNIVERSITY



In the post-war years education expenditures show a gradually accelerating increase, which reached startling proportions in the 1960's. It should be remembered that the figures shown here are per capita and in constant dollars, so that price and population increases are not influencing them. After thirty years of relative inactivity, education expenditures doubled from 1953 to 1961, and redoubled from 1961 to 1966. Productivity was barely increasing at all in this period, but personal income showed a steady expansion. The scattergram shows almost a straight line regression between income and expenditures in this period. In this post-war period education expenditures showed great elasticity, increasing much more rapidly than income. Table IV-1 only goes back to 1926, but reference to Table III-1, going back to 1921, shows a similar rapid increase in education expenditures in the period 1921 to 1926.

It seems, then, that education expenditures bear very little relation to productivity over the long-term period. In relation to income, they show a strong resistance to decreases that take place, but a very rapid expansion in times of increasing prosperity. In other words, society regards education as a very desirable activity; one on which cut-backs must be minimized in hard time, and to which an increased share of resources must be allocated as soon as economic circumstances make this possible.

Figures for school enrolments also show no significant relationship at all to productivity, on an historical basis. The percentage of the 5 to 24 year age group enrolled declined steadily from 1926 to 1944, and then rose steadily from that date until 1967.

One would expect that the demand for education would be tied to some extent to personal income, but many other factors are operative, notably the labour market and the unemployment rate. Shortage of labour and high wages can lure many teen-agers from school, and a touch of unemployment can keep them longer in school. On the other hand, the mass unemployment of the depression years was accompanied by a reduction in enrolment rates.

Enrolments above Grade 9 are only available from 1952, as Quebec figures are not obtainable earlier. They show a fairly close relationship with personal income, but none at all with the net value of production. Productivity and personal income do not seem as closely tied together as one might expect. Productivity has fluctuated back and forth around the \$800 per capita (constant) mark since the end of the war, but personal income, after some initial hesitation in the early post-war years, has maintained a steady increase. Personal income seems to be becoming less dependent on the swings of productivity. In only one year prior to 1946 did these two indicators move in different directions, but from 1957 to 1961 productivity per capita declined while income increased. If income is taken as a measure of the ability to support education, as it was by Cheal,³ then we can say that ability is becoming less dependent upon productivity swings.

³J.E. Cheal, Investment in Canadian Youth (Toronto: Macmillan Co. of Canada Ltd, 1963). Cheal used school board expenditures on a weighted-school-aged-child basis as a percentage of personal disposable income per weighted school-age-child as a measure of ability.

Another very significant relationship is the percentage of national resources invested in education, or education expenditures expressed as a percentage of personal income and gross national product. This is commonly used as a measure of the effort made by a community to support education. Garms⁴ made a multivariate analysis of the factors affecting the percentage of national income spent on education, which he equated with effort. He used seventy-eight countries for comparison, and investigated three determinants of educational effort: ability, expectations and type of government. He found that, other things being equal, countries with a higher income spend a greater percentage of it on education. He also found that the percentage of the eligible population enrolled in school, which was his measure of expectation, had a high positive effect on educational effort. Other factors, including urbanization, the relative number of children to be educated, and the education level of adults, showed no significant correlation.

Curle⁵ also found per capita income and the percentage of national income invested in education to be related. Examining fifty-five countries, he found a correlation at the .001 level of significance. On the other hand, Harbison and Myers⁶ found that the effort to support education was sometimes as high in the

⁴Walter I. Garms, "The Correlates of Educational Effort: A Multivariate Analysis," Comparative Education Review, Vol. XII, No. 3 (October, 1968), pp. 281-299.

⁵Adam Curle, "Education, Politics and Development," Comparative Education Review, Vol. VII (February, 1964), pp. 226-245.

⁶F. Harbison and C.A. Myers, Education, Manpower and Economic Growth (New York: McGraw Hill Book Co., 1964), pp. 45-48.

educationally underdeveloped countries as in the countries with a high level of development.

Table IV-2 shows education expenditures as a percentage of both personal income and gross national product in Canada.

At 10.4 per cent of personal income, education expenditures have reached a level that is unprecedented in this country. Over the past forty years they have averaged about 3 per cent, rising during the depression years, and falling during the war years, as would be expected. The expenditure figure of \$5.9 billion shown for 1968 is only an estimate, and might well be revised downwards, but it seems certain that, when the figures are finalized, education will be seen to have taken a still larger share of the national resources in 1968.

Figures published by UNESCO⁷ showed eleven countries whose education expenditures exceeded 7 per cent of national income in the years 1962-64. With the exception of the U.S.S.R. (7.5 per cent), these countries were all small or medium sized in population, and included highly developed countries such as Belgium, Norway and Denmark, and less-developed countries such as Albania, Bulgaria and Libya. East Germany had the highest percentage listed, at 9.2 per cent. The figure for Canada at that time was 7.4 per cent. Canada's educational effort is, therefore, second to few. More wealthy countries do not need to turn such a high percentage of their resources into education. In Canada educational expectations are high, but the country's developed wealth is not as vast as that of,

⁷See Garms, op. cit., pp. 286-288.

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⁷See Garms, op. cit., pp. 286-288.

TABLE IV-2

EXPENDITURE ON EDUCATION^a AS PERCENTAGE OF GROSS NATIONAL PRODUCT
AND PERSONAL INCOME, CANADA

Year	Education Expenditure			Year	Education Expenditure		
	Total \$ Millions	%GNP	% PI		Total \$ Millions	% GNP	% PI
1926	142	2.7	3.5	1948	372	2.5	3.1
1927	148	2.7	3.5	1949	408	2.5	3.2
1928	157	2.6	3.4	1950	464	2.6	3.5
1929	160	2.6	3.5	1951	516	2.4	3.3
1930	165	2.9	3.8	1952	584	2.4	3.1
1931	179	3.8	4.9	1953	627	2.5	3.4
1932	164	4.3	5.4	1954	713	2.9	3.9
1933	147	4.2	5.3	1955	808	3.0	4.1
1934	139	3.5	4.4	1956	909	3.0	4.2
1935	136	3.2	4.1	1957	1,089	3.5	4.7
1936	140	3.0	4.0	1958	1,235	3.8	5.0
1937	146	2.8	3.6	1959	1,427	4.1	5.5
1938	151	2.9	3.7	1960	1,622	4.5	5.9
1939	154	2.7	3.6	1961	1,873	5.0	6.6
1940	157	2.3	3.2	1962	2,281	5.6	7.4
1941	157	1.9	2.7	1963	2,485	5.7	7.6
1942	166	1.6	2.2	1964	2,818	5.8	8.0
1943	218	2.0	2.7	1965	3,345	6.4	8.8
1944	173	1.5	1.9	1966	4,195	7.2	9.5
1945	195	1.6	2.1	1967	4,915	7.9	10.4
1946	290	2.4	3.0	1968	5,931		
1947	352	2.7	3.4				

^aThis represents expenditures from all sources and on all types of education. It is higher than the figures used for regional comparisons, which exclude direct federal expenditures and a number of other items.

Sources: Dominion Bureau of Statistics, Survey of Educational Finance; Weekly Bulletin (Ottawa: Queen's Printer).

say, the United States, which devoted 5.8 per cent of its national income to education at that time. Canada's percentage has long been above that of the United States, and yet it was seen in Table III-15 that we have only half the number of university graduates in our adult population.

2. Regional Figures

(a) Regional disparities in personal income

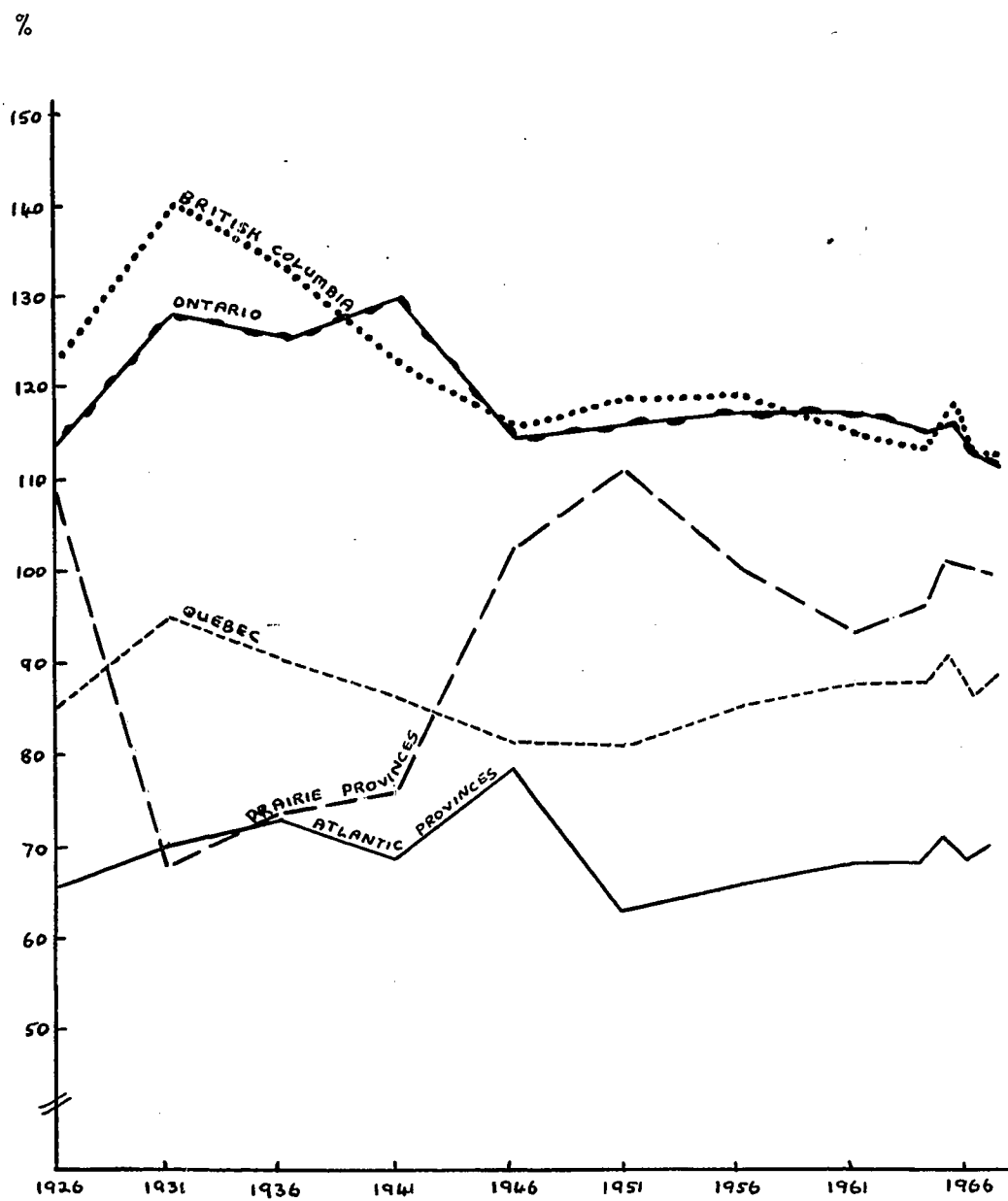
In the previous chapter it was noted that regional disparities in education expenditures per capita decreased somewhat between 1921 and 1946, but have not changed much since. Chart III-1 (page 47) illustrated these changes. A similar chart is now presented for personal income per capita, in order that the two might be compared.

It is evident from Chart IV-4 that very little progress has been made in the reduction of economic disparity between the main regions of Canada from 1926 to the present time. The spread in income increased briefly during the depression, then was reduced considerably during the war years, when the Atlantic Provinces increased their level of personal income per capita from 70 per cent of the national average to 80 per cent. However, it had fallen back to 63 per cent by 1961.

Throughout the forty years shown, Ontario and British Columbia have been the wealthiest regions, with little spread between them, except in the depression years when British Columbia fared relatively better than Ontario. The western provinces have

CHART IV-4

PERSONAL INCOME PER CAPITA, BY REGIONS, AS INDEX OF
NATIONAL AVERAGE



experienced the widest fluctuations in income, largely because they were hit so hard during the years of depression and drought, suffering a drop in income far more severe than that in any other region of Canada. As for Quebec, it is sometimes thought of as one of the wealthy provinces, but has actually had a personal income per capita figure of about ten to twenty per cent below the national average throughout this period.

Comparison of Charts III-1 and IV-4 shows considerable similarity between them. It should be noted that Chart IV-4 begins in 1926 and Chart III-1 in 1921.

Canada's experience with regard to the reduction of economic disparities has differed from that of the United States. Canada has made less progress in the past forty years, but her initial range of income between regions was also less. The Economic Council of Canada reviewed the relative position of the two countries in its Second Annual Review.⁸ It pointed out that reduction of regional economic disparity has been a long-standing feature of United States development which has "been associated with the regional dispersion of growth capacity so as to embrace the southern areas which traditionally had been outside the mainstream of economic advance."⁸ This is a similar approach to that recently proposed by Canada's Minister of Regional Development, who looks to the stimulation of natural growth centres in the less wealthy regions as a means of lessening regional disparity. In 1967 the level of personal income

⁸Economic Council of Canada, Towards Sustained and Balanced Economic Growth. Second Annual Review (Ottawa: Queen's Printer, 1965), p. 103.

in Canada's main regions ranged from 71 per cent of the national average to 113 per cent. The range in the United States, in 1963, was from 74 per cent to 118 per cent, so the position of the two countries is quite similar.

(b) Expenditures as a percentage of national income

Chart IV-5 shows the variation between the regions of Canada in the percentage of personal income that they spend on education, and Appendix Table A 30 gives the figures plotted. On the international level, it has been seen that richer countries tend to devote a larger percentage of their income to education than do poorer ones. However, this is not always the case at the regional level within any country. Garms⁹ observed that it is not so within the United States, where the expectation of the people for a reasonable level of education for their children has given rise to a greater effort in the poorer states. Harbison and Myers¹⁰ found no correlation between gross national product and education expenditures as a percentage of national income in the countries that they examined. The only measure of effort for Canadian provinces is that made by Cheal,¹¹ who found no relation between effort and personal income. Previous research would, therefore, indicate that this relationship is one of unpredictability. Sometimes richer nations,

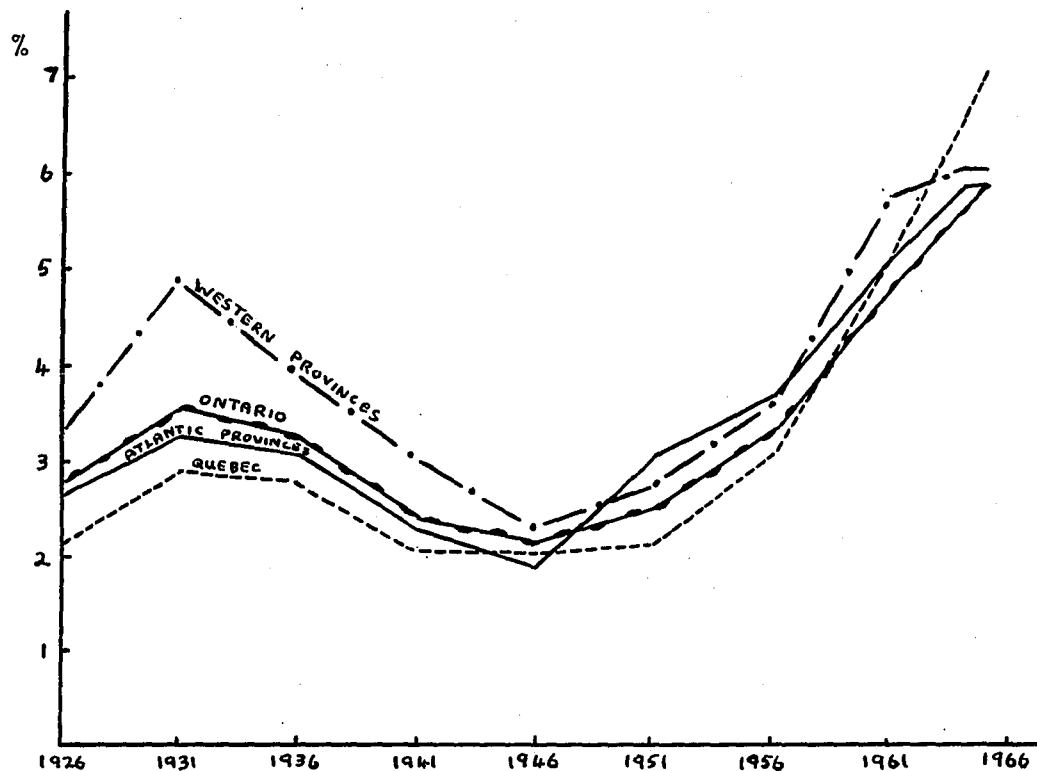
⁹W.I. Garms, op. cit., p. 283.

¹⁰F. Harbison and C.A. Myers, op. cit., p. 39.

¹¹J.E. Cheal, op. cit., p. 81.

CHART IV-5

EDUCATION EXPENDITURES AS A PERCENTAGE OF PERSONAL
INCOME, BY REGIONS



Correlation Coefficients

Personal income and percentage of it spent on
education (figures for ten provinces).

	r
1926	.222
1936	-.167
1946	.167
1956	-.022
1965	.333

or regions, devote a higher percentage of their income to education, sometimes poorer ones do, and sometimes there is no evident relationship.

Chart IV-5 illustrates that Cheal's findings for the Canadian provinces, for 1958, have been applicable throughout the period 1926 to 1967. No relationship has existed between the level of income and the percentage of it spent on education. Rank correlation¹² for the provinces for 1926, 1936, 1946, 1956 and 1965 shows no statistical significance, and no definite direction of variation, positive or negative.

Historically, the western provinces seem to have made the greatest effort to support education, and Quebec the smallest. For a ten year period after 1946 the Atlantic provinces, the lowest income region, were spending the highest percentage on education, but the pattern changed again, and now we have the Atlantic provinces and Ontario at the same level, and Quebec well ahead of the other regions. Quebec's high percentage expenditure in recent years has not been due to any relative improvement in her income, which has stood at ten to twenty per cent below the national average throughout the period under review. In 1965, the most recent year available, the percentages spent by each region were as follows:

¹²Kendall's tau correlation has been used in preference to Spearman's rho because there were only nine provinces prior to 1949. Rho is not considered desirable for use if n is less than ten. The value of tau is approximately two-thirds that obtained from a rho, or product moment, correlation.

	Educational Expendi- tures as Per Cent of Personal Income	Personal Income as Per Cent of National Average
Atlantic Provinces	5.9	71
Quebec	7.2	91
Ontario	5.9	119
Western Provinces	6.1	108

(c) Expenditures, income and productivity

Table IV-3 compares education expenditures with net value of production, and with personal income, on a regional basis.

Examination of the national figures revealed the lack of a relationship between these three factors on a longitudinal, or historical basis. The question remains as to whether the cross-sectional differences in education expenditures apparent in any one year are related to the level of productivity or income. To help determine this, Table IV-4 shows cross-sectional rankings for education expenditures, personal income and net value of production. However, the last two have been combined as they are almost invariably the same.

The figures indicate that the low expenditure of the Atlantic region has consistently tied in with her position as the lowest income region of Canada. Quebec also shows a fairly consistent relationship, although before the war her educational spending was often lower than her economic ranking would seem to have justified. Ontario has never relinquished its position as the wealthiest region, but has not always been the highest educational spender. In

TABLE IV-3

EXPENDITURES,^a INCOME AND NET VALUE OF PRODUCTION
(Constant Dollars Per Capita)

Year	Atlantic Provinces			Quebec			Ontario			Western Provinces		
	(1) ^b	(5) ^c	(6) ^d	(1)	(5)	(6)	(1)	(5)	(6)	(1)	(5)	(6)
1921	7	273	N.A.	7	362	N.A.	12	442	N.A.	17	340	N.A.
1926	11	343	396	11	473	515	19	621	695	22	608	675
1931	13	268	385	16	379	525	26	501	708	22	288	470
1936	13	279	400	14	359	509	23	533	694	19	336	486
1941	12	331	530	14	573	662	23	795	989	20	479	671
1946	15	425	807	17	632	831	24	798	1,177	25	778	1,089
1951	19	413	621	17	725	813	29	1,005	1,161	31	887	1,129
1956	26	420	700	29	761	913	41	1,012	1,254	41	942	1,132
1961	40	387	764	51	669	979	62	906	1,304	65	752	1,119
1964	49	435	837	72	738	1,079	80	1,018	1,426	76	864	1,242
1965	53	472	896	82	771	1,145	87	1,075	1,490	82	944	1,354

Source: See Appendix Tables A 24, A 26 and Table III-1.

^aThese figures exclude expenditures on private schools and technical education, so cannot be compared with figures in Table IV-2.

^bIndicator 1: Expenditures of school boards and university expenditures per capita.

^cIndicator 5: Net value of production per capita.

^dIndicator 6: Personal income per capita.

TABLE IV-4

EXPENDITURES, INCOME AND NET VALUE OF PRODUCTION
CROSS-SECTIONAL RANKINGS

Year	Atlantic Provinces		Quebec		Ontario		Western Provinces	
	Indicator 1	Indicators 5 and 6	Indicator 1	Indicators 5 and 6	Indicator 1	Indicators 5 and 6	Indicator 1	Indicators 5 and 6
1921	3	4	3	2	2	1	1	3
1926	3	4	3	3	2	1	1	2
1931	4	4	3	2	1	1	2	3
1936	4	4	3	2	1	1	2	3
1941	4	4	3	2 and 3	1	1	2	2 and 3
1946	4	4	3	3	2	1	1	2
1951	3	4	4	3	2	1	1	2
1956	4	4	3	3	1	1	1	2
1961	4	4	3	3	2	1	1	2
1964	4	4	3	3	1	1	2	2
1965	4	4	2	3	1	1	2	2

Source: Table IV-3.

the west the educational ranking has almost always been higher than the economic ranking.

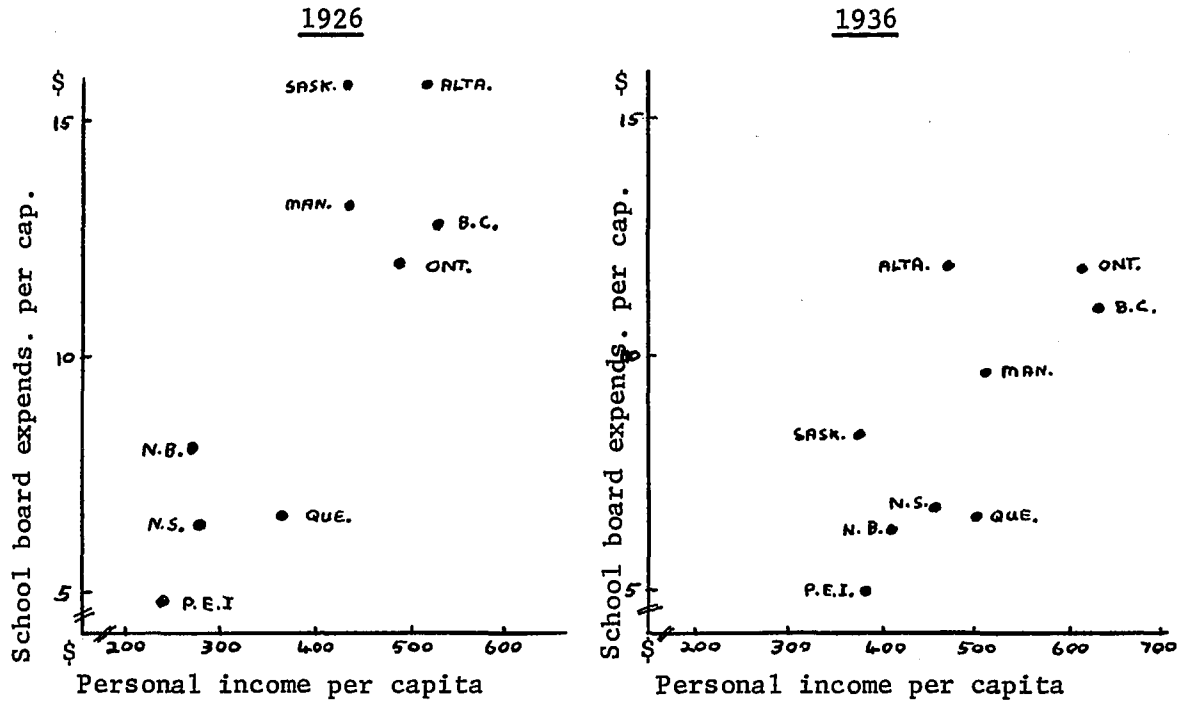
Table IV-4 would be of more value if the western provinces were separated, as the prairie region has generally had a much lower level of income and production than has British Columbia. In order to get a much more accurate and definitive look at the relationship between education expenditures, income and productivity, charts and correlations have been prepared showing these factors by provinces. The provincial breakdown into ten provinces enables a rank correlation to be made. In addition, university expenditures have been excluded from the expenditure figure, and school board expenditures alone are used. While not giving as complete a picture of expenditure, this enables figures on a provincial basis to be used. Chart IV-6 compares school board expenditures with net value of production and with personal income, respectively. The years 1926, 1936, 1946, 1956 and 1966 are shown for personal income, and 1964 for the net value of production. In view of the fluctuation that sometimes takes place from year to year, the figures shown are a three-year average, centred on the year shown. Values are also given for the rank order correlation (Kendall's tau) made for each year.

It will be seen that there has been, throughout this period, a high correlation between educational spending and personal income, from province to province, except for 1936, a depression year. The tau correlation of .689 in 1956 reaches a .005 level of significance,

CHART IV-6

SCHOOL BOARD EXPENDITURES, PERSONAL INCOME AND NET VALUE
OF PRODUCTION

Income and Expenditures



Income and Expenditures

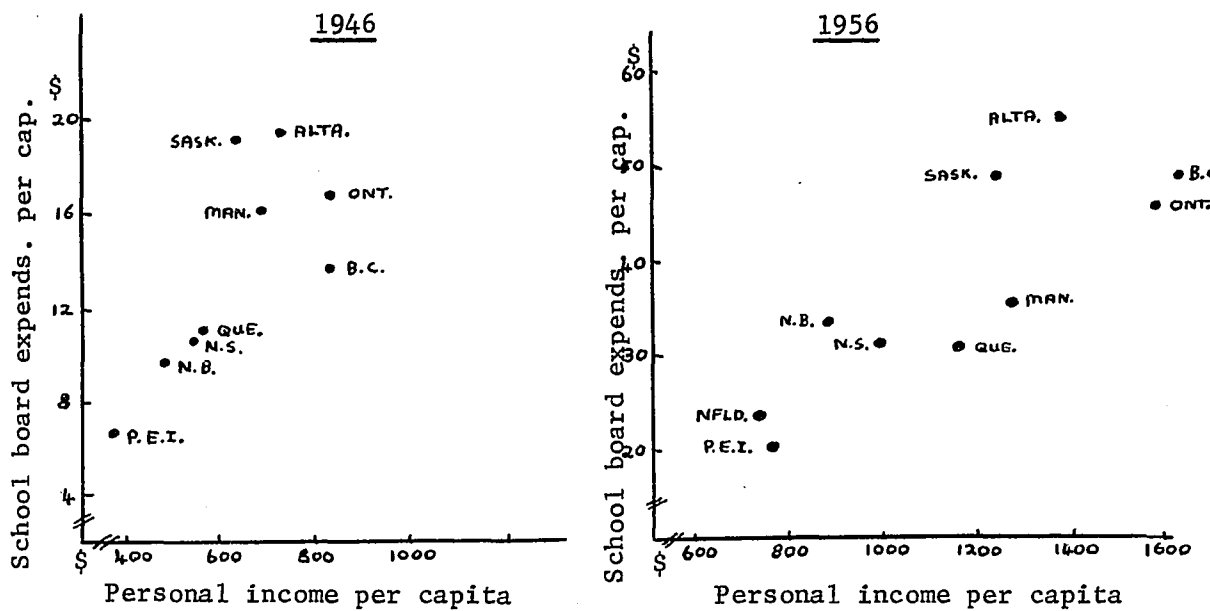
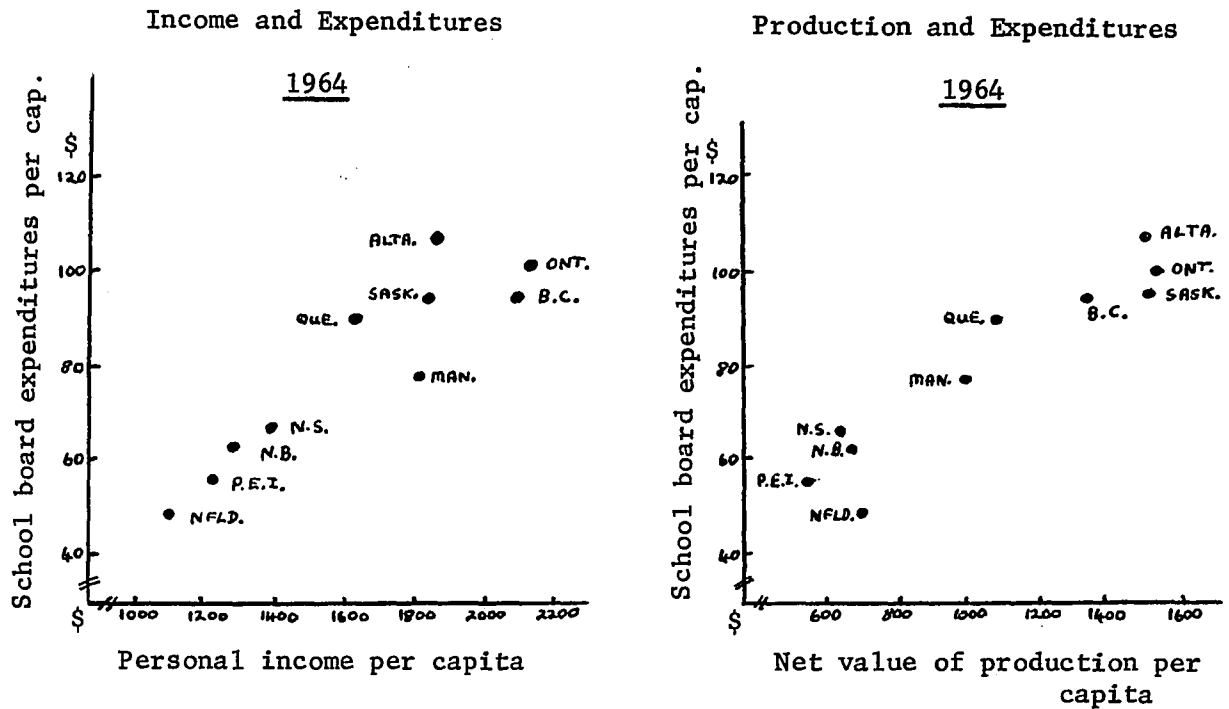


CHART IV-6 (continued)

SCHOOL BOARD EXPENDITURES, PERSONAL INCOME AND NET VALUE
OF PRODUCTIONCorrelation Coefficients

Personal income and school board expenditures

	<u>r</u>	<u>Significance level(a)</u>
1926	.556	.044
1936	.444	-
1946	.667	.013
1956	.689	.005
1964	.822	.0004

Net value of production and school board expenditures

1964	.733	.002
------	------	------

(a) Significance levels of .1 or over are not specified in this, or the following, charts. Figures are only statistically significant if their value is .05 or less.

and the 1964 figure of .822 the .0004 level.¹³ The correlation of school board expenditures with net value of production is also significant, at the .002 level, but it is less than the correlation with income.

Previous research has shown that a high correlation between income and school expenditures can be expected. Comparing national income¹⁴ per capita and expenditures for eighteen countries, Edding¹⁵ found a correlation of .992 in 1954, though Garms points out that this high figure was partially due to the wide spread in per capita income among the countries Edding examined. Benson¹⁶ examined the relationship between state income and education expenditures in the United States, finding a correlation of .79 in 1929-30 and .84 in 1959-60. Cheal also found a highly significant relationship between income and school expenditure, although he used slightly different measures.¹⁷

It should be noted that the correlation coefficients at the bottom of Chart IV-6 show that school expenditures in Canada seem to be becoming more closely related to personal income than they were

¹³ A rho correlation of the 1964 figures gives a coefficient of .927.

¹⁴ The difference between personal income and national income is slight.

¹⁵ See W.I. Garms, op. cit., p. 282.

¹⁶ C.S. Benson, The Economics of Public Education (Boston: Houghton, Mifflin Co., 1961), p. 62.

¹⁷ J.E. Cheal, op. cit., p. 80. Cheal was comparing net personal income per weighted child with provincial and local school expenditures per capita.

in the past. The reverse might be expected, or hoped for, in view of the present preoccupation, at both federal and provincial levels, with the reduction of regional inequalities. It might be hoped that increased subsidies, equalization grants and federal assistance to education would enable education expenditures to become more independent of the regional inequalities that exist in income.

It may appear strange that the cross-sectional comparisons show a close relationship between productivity and education expenditures, when the longitudinal, national figures seemed to indicate no relationship between them. The overall economic, political and social scene seems to impose a varying relationship between these two factors as depression, war and expansion take their course. But within these swings, in any one year, regional variations are, nevertheless, associated with regional levels of productivity and prosperity.

From the individual provincial performance on Chart IV-6, the three prairie provinces are seen to be consistently above average during the pre-war and war-time years, while Quebec was relatively low for most of this period. Since the war, Alberta has retained its above average position, where it has now been joined by Quebec. In 1964, only Manitoba fell noticeably below the line of the other provinces.

(d) Enrolments, income and productivity

Enrolment in the lower school grades is compulsory in all provinces of Canada. It cannot, therefore, be expected to be sensitive to economic and social factors to any great extent.

Enrolment in the secondary grades and at university level, being optional, is presumably the outcome of a variety of economic, social, political and other factors. The term secondary is used here for Grade 9 and above. In those provinces that include Grade 8 at the secondary level an adjustment has been made.

Previous research has regarded secondary enrolments as indicative of the educational expectations of the populace (Garms), and also as a measure of the output of the education system (Cheal). In reality, they have a composite role. They can, perhaps, be more accurately described as reflecting both the educational expectations and the financial ability of the populace. In any case, it might be expected that they would show some dependence upon levels of income and prosperity because it is the higher grades of education that are the most expensive, and, therefore, can only be extended to a majority of children by wealthier communities. In addition, it requires wealthier individuals and families to withhold their children from the labour force while they acquire an extended education.

Previous research has found a relationship between income and enrolments. Neither Garms nor Cheal compared secondary enrolments directly with income or productivity. Curle¹⁸ compared per capita income with post-primary enrolments (for seventy-eight countries), and found it to be significant at the .001 level. Harbison and Myers¹⁹

¹⁸Adam Curle, op. cit., p. 229.

¹⁹F. Harbison and C.A. Myers, op. cit., p. 39.

found a correlation of .817 between secondary level enrolments and gross national product, and .735 for third level enrolments.

Chart IV-7 compares enrolments in Grade 9 and above, including university, with personal income and net value of production. Three-year averages have again been used. The figures used for 1946 and earlier do not include Quebec, so these rank correlations are for eight provinces only.

The relationship between income and enrolments was positive from 1926 to 1946, but not significantly so. As was the case with expenditures, 1936 showed a much lower degree of relationship than did other years. The correlations for 1956 and 1965 do reach statistical significance, at the .05 level. The correlation between enrolments and net value of production fails to reach significance in any year examined.

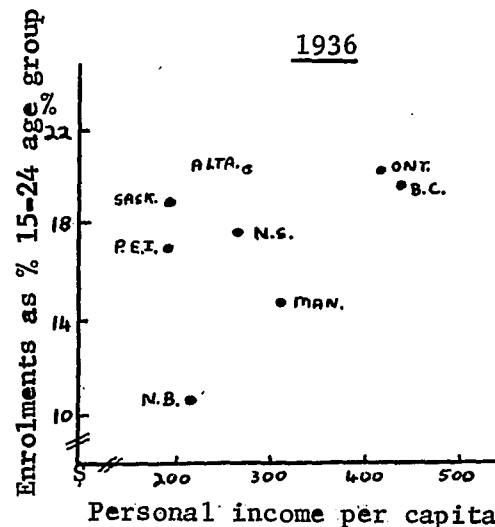
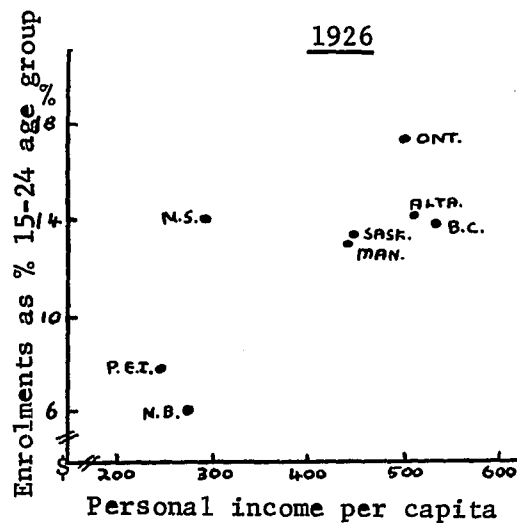
Provincial variations from year to year are not as consistent as they were for expenditures. Prince Edward Island is about the only province to be above the average line in each year shown, though this is also true of Saskatchewan for most years. Nova Scotia and Ontario placed high in 1926 but have since been at an average level. Quebec is shown only in 1956 and 1965, well below other provinces in both years, but particularly so in 1956.

A further insight into the variations shown in Chart IV-7 is obtained by looking at male and female enrolments separately. It has already been shown in the previous chapter that there is a wide variation in female enrolments, with Quebec being particularly low in this respect. Charts IV-8 and IV-9 show male and female

CHART IV-7

ENROLMENTS ABOVE GRADE 9, INCLUDING UNIVERSITY,
AS PER CENT OF 15-24 YEAR AGE GROUP, COMPARED
WITH PERSONAL INCOME AND NET VALUE OF PRODUCTION

Income and enrolments



Income and enrolments

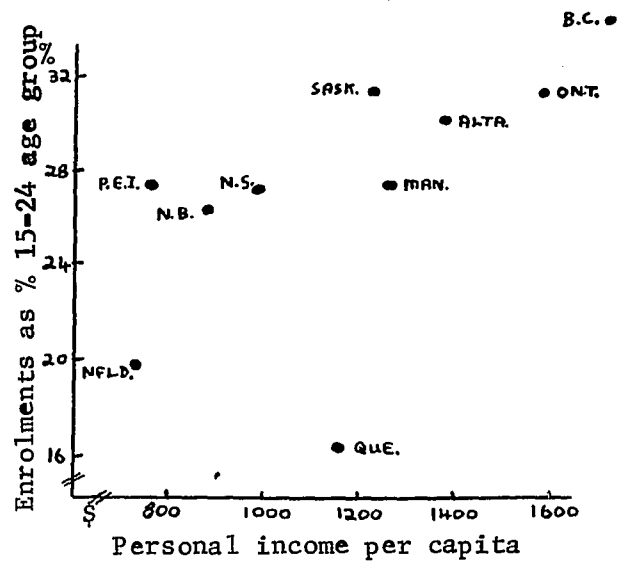
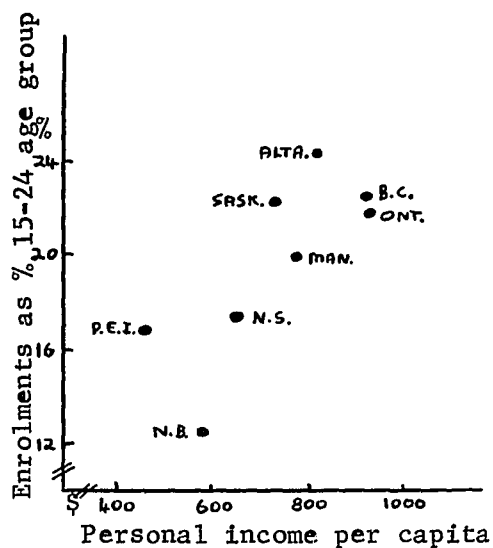
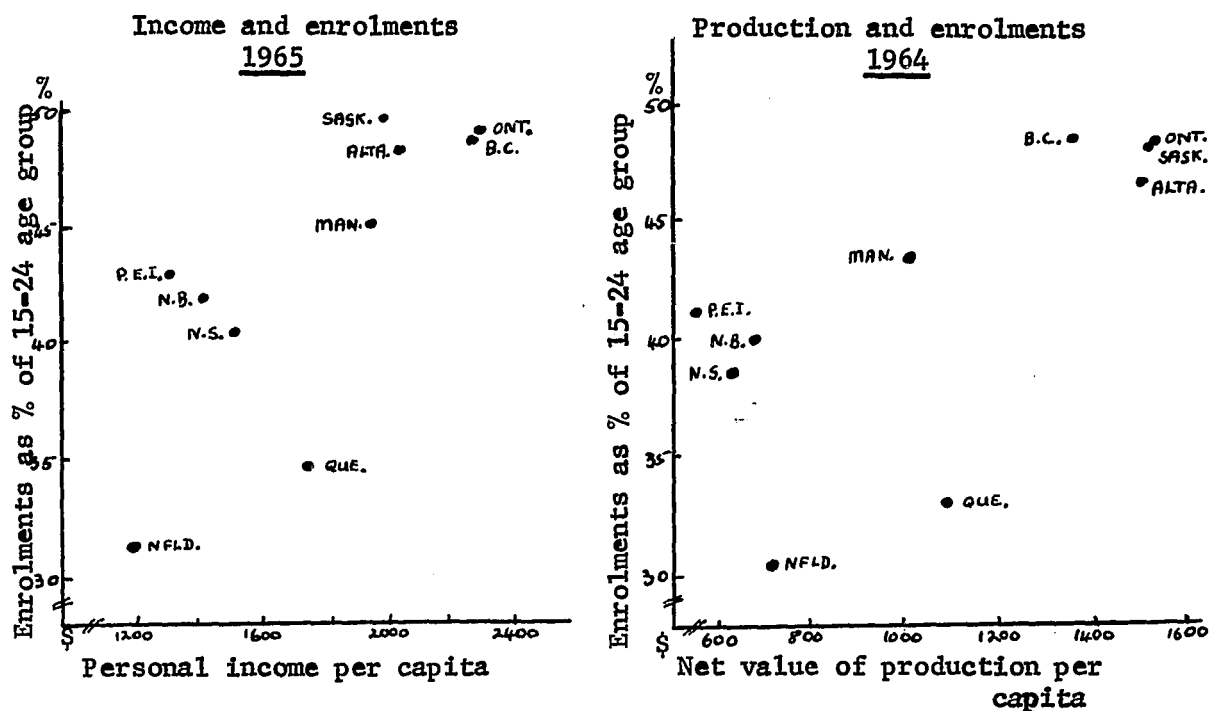


CHART IV-7 (continued)

ENROLMENTS ABOVE GRADE 9, INCLUDING UNIVERSITY,
AS PER CENT OF 15-24 YEAR AGE GROUP, COMPARED
WITH PERSONAL INCOME AND NET VALUE OF PRODUCTION

Correlation Coefficients

Personal income and enrolments in Grade 9 and above

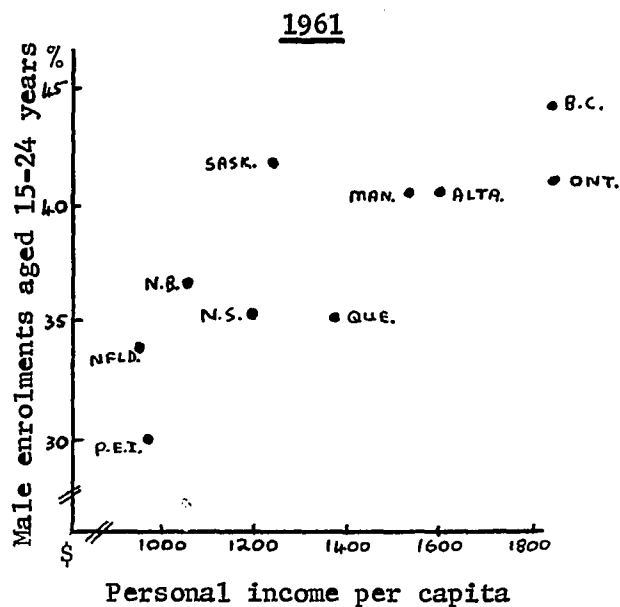
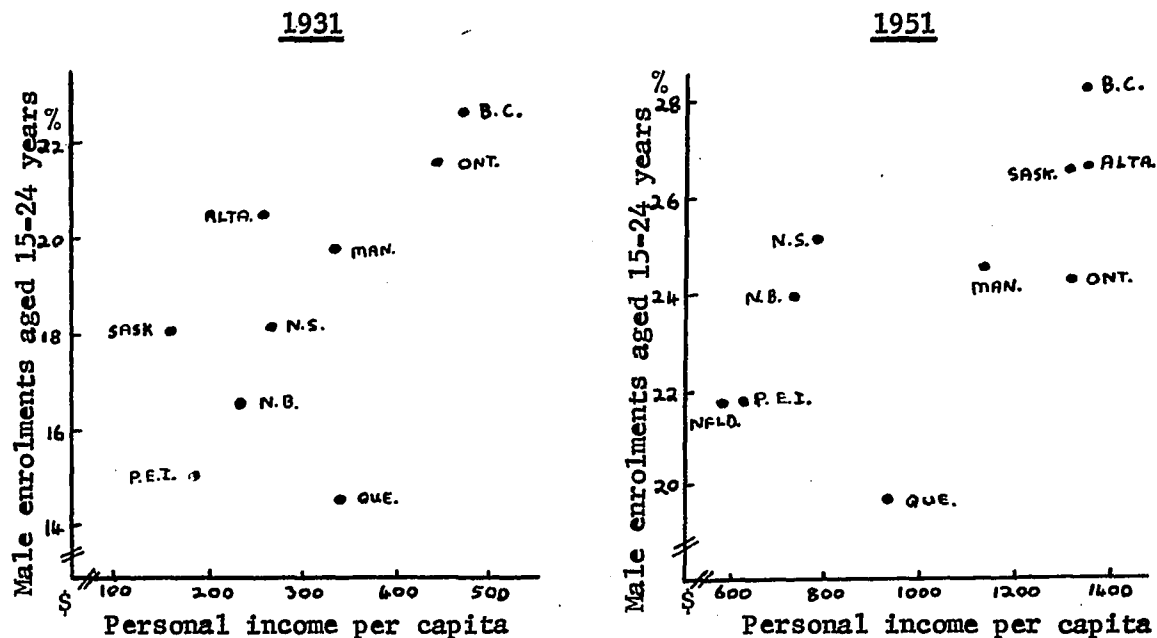
	<u>r</u>	<u>Significance level</u>
1926	.500	-
1936	.286	-
1946	.571	.062
1956	.511	.046
1965	.600	.017

Net value of production and enrolments in Grade 9 and above

1964	.467	.072
------	------	------

CHART IV-8

PERCENTAGE OF MEN AGED 15-24 YEARS ATTENDING SCHOOL
AND PERSONAL INCOME



Correlation Coefficients

Personal income and male enrolments (15-24)

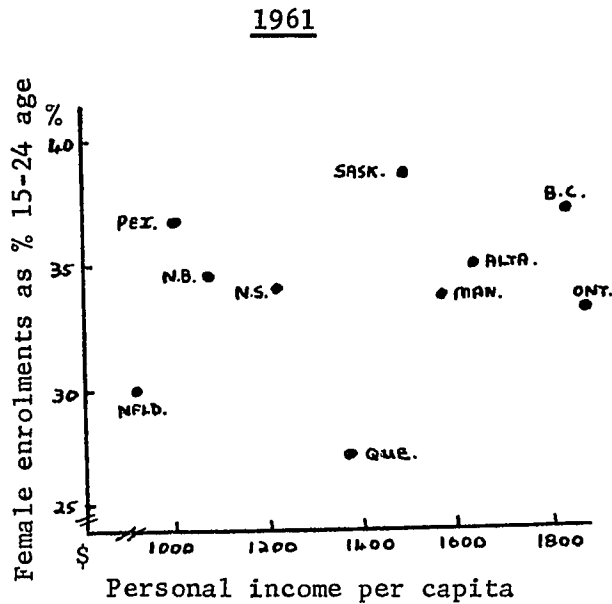
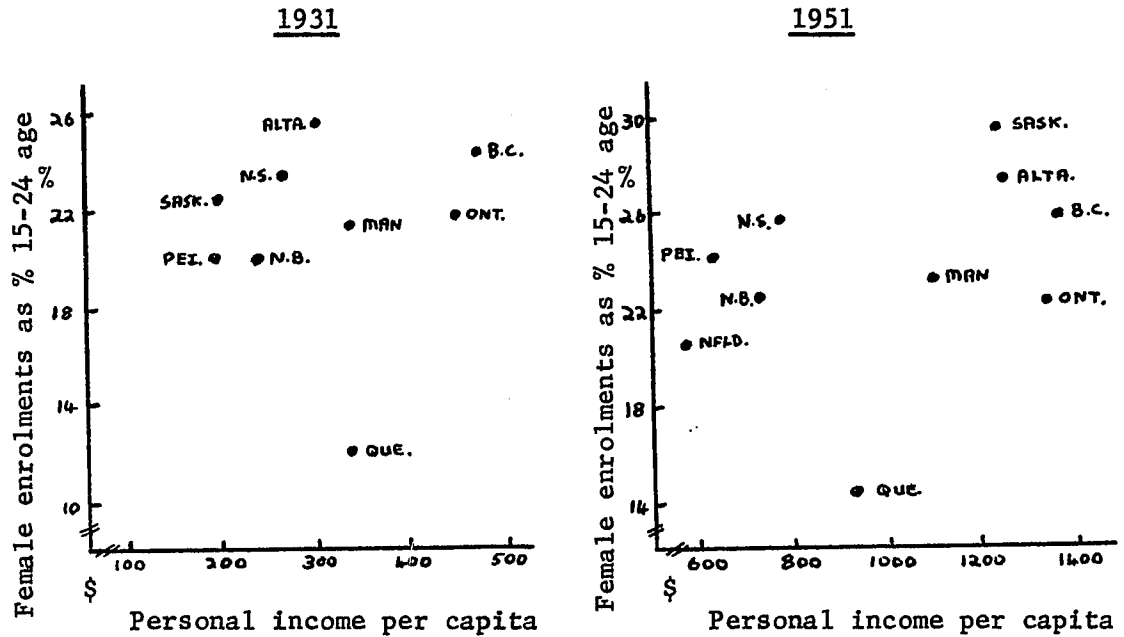
	<u>r</u>	<u>Sig. level</u>
1931	.667	.013
1941	.556	.044
1951	.600	.017
1961	.644	.009

Net value of production and male enrolments (15-24)

1961	.467	.072
------	------	------

CHART IV-9

PERCENTAGE OF WOMEN AGED 15-24 YEARS ATTENDING SCHOOL
AND PERSONAL INCOME

Correlation Coefficients

Personal income and female enrolments (15-24 years)

	<u>r</u>	<u>Sig. level</u>
1931	.333	-
1941	.333	-
1951	.289	-
1961	.067	-

enrolments, respectively. These figures are for census years, and are census figures for the percentage of the 15-24 year age group attending school or university.

The percentage of women enrolled in secondary and higher education bears no statistical relation to personal income. It is also difficult to discern any pattern from year to year between the provinces which place a high emphasis on the education of women and those that do not. Quebec stands apart from all other provinces in that she is a middle-income province, but has historically had a very low percentage of women enrolled. Ontario also has a low enrolment, for a high income province. Above average are Saskatchewan, Prince Edward Island and, frequently, Nova Scotia and Alberta.

With the unpredictable and variable element of female enrolments removed from the picture, the chart for male enrolments at this level does show a strong relationship with income. In fact, the correlation coefficients are higher than the scattergrams would suggest, from a visual appraisal. The correlation shows a level at, or near, .01 significance for all years except 1941, and World War II no doubt affected the relationship that year. Even in 1941 the correlation reached a .05 level of significance. The 1961 scattergram shows that Quebec had at last attained a percentage of male enrolments more or less consistent with her position on the income scale. She was ranked fifth in income and tied for sixth in enrolments.

Comparison of net value of production with male enrolments (aged 15-24) in 1961 shows a correlation coefficient of .467, not

statistically significant, reaching only a .072 level. This is not illustrated in a scattergram.

The next two charts look separately at enrolments at the tertiary, or university level of education. This is done partly because a different provincial pattern emerges when the university level is considered apart from the secondary level, and partly because male and female figures can be separated up to 1966, compared with 1961 in the previous chart.

Charts IV-10 and IV-11 show university enrolments above the senior matriculation level, which eliminates provincial differences in the level of admission to university studies.

The correlation between enrolments and income is not as strong at the university level as at the university and secondary levels combined. The former reached the .05 level of significance in 1966, but the latter reached a .01 level. This applies both to total enrolments and to male enrolments only. Harbison and Myers²⁰ obtained a correlation of .817 between second level enrolments and gross national product per capita, and of .735 for third level enrolments. The reverse might be expected to be true.

The correlation between female enrolment at universities and income fails to reach significance, at .072 level, but this compares to a correlation of practically zero for secondary level female enrolments and income.

A different provincial ranking is evident in enrolments at

²⁰F. Harbison and C.A. Myers, op. cit., p. 39.

CHART IV-10

UNIVERSITY ENROLMENTS ABOVE SENIOR MATRICULATION LEVEL
AS PER CENT OF 18-24 AGE GROUP, COMPARED WITH PERSONAL
INCOME AND NET VALUE OF PRODUCTION

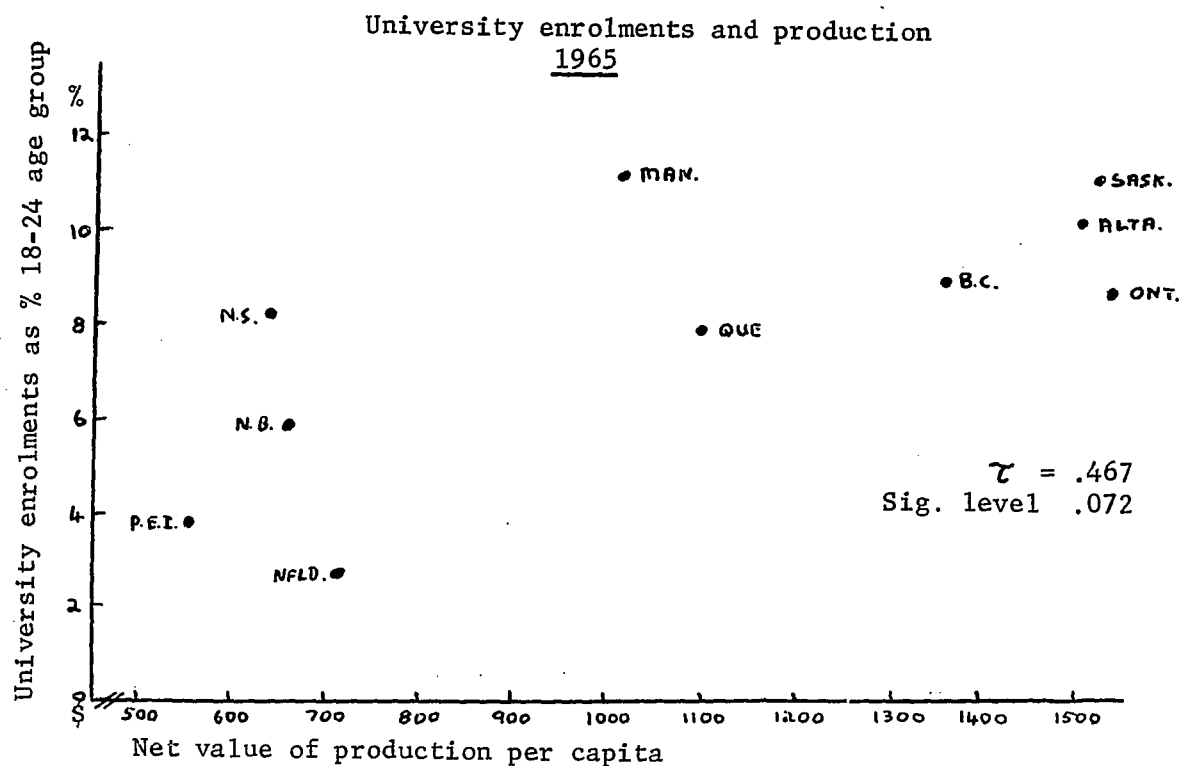
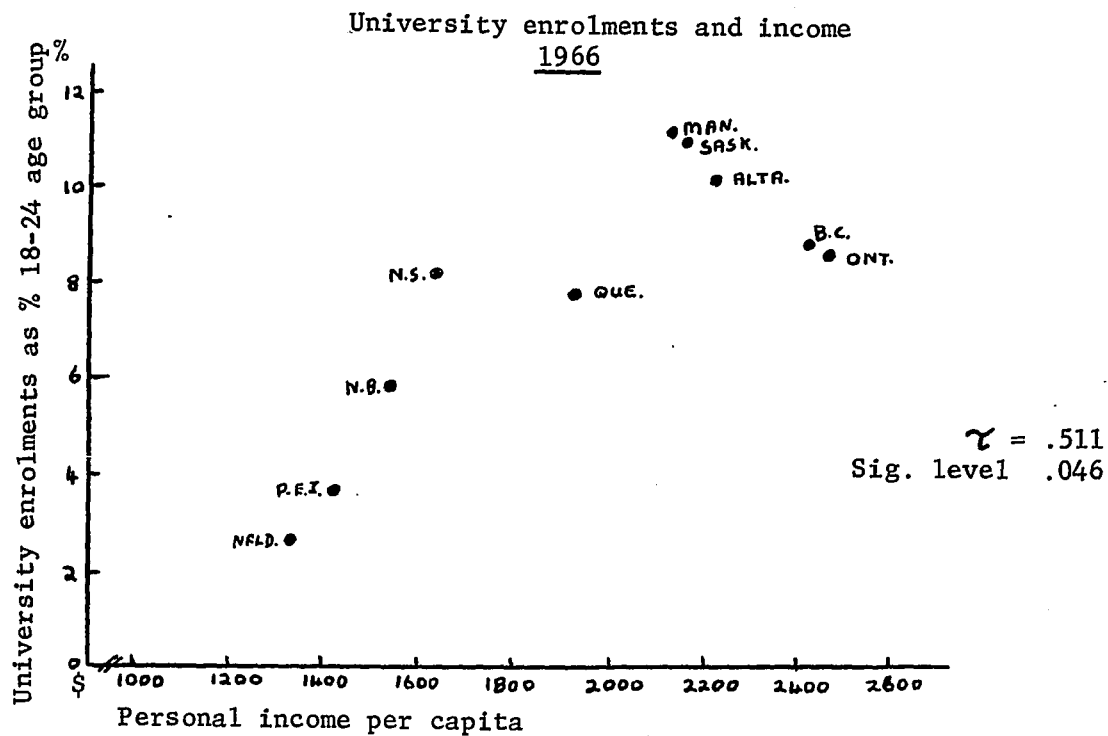
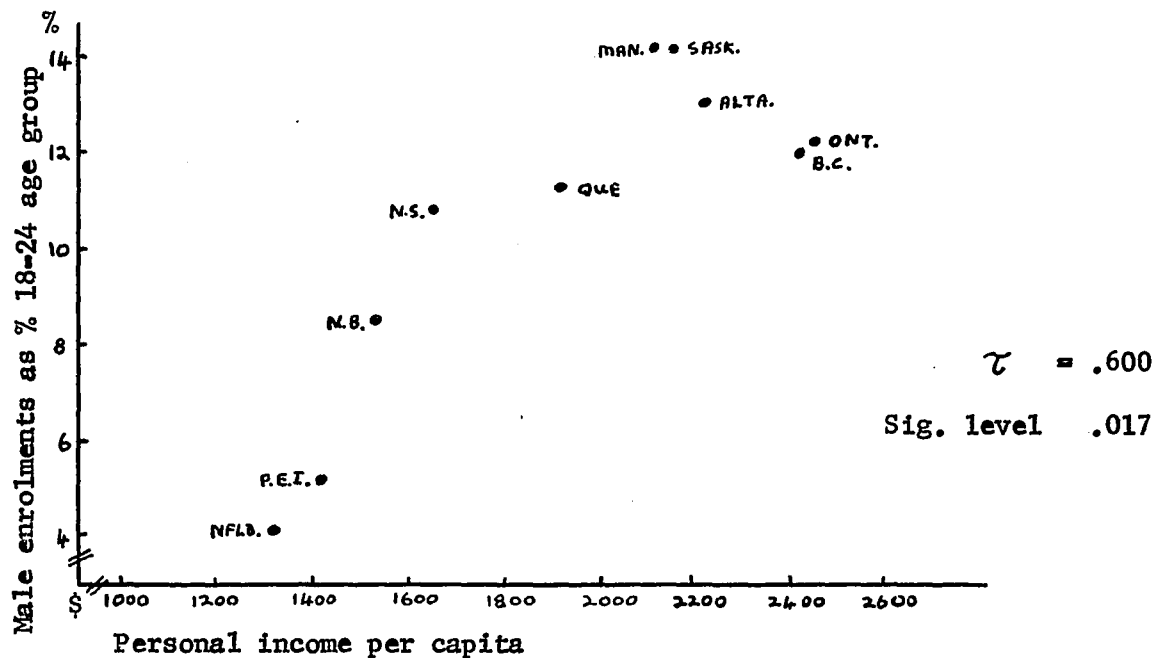


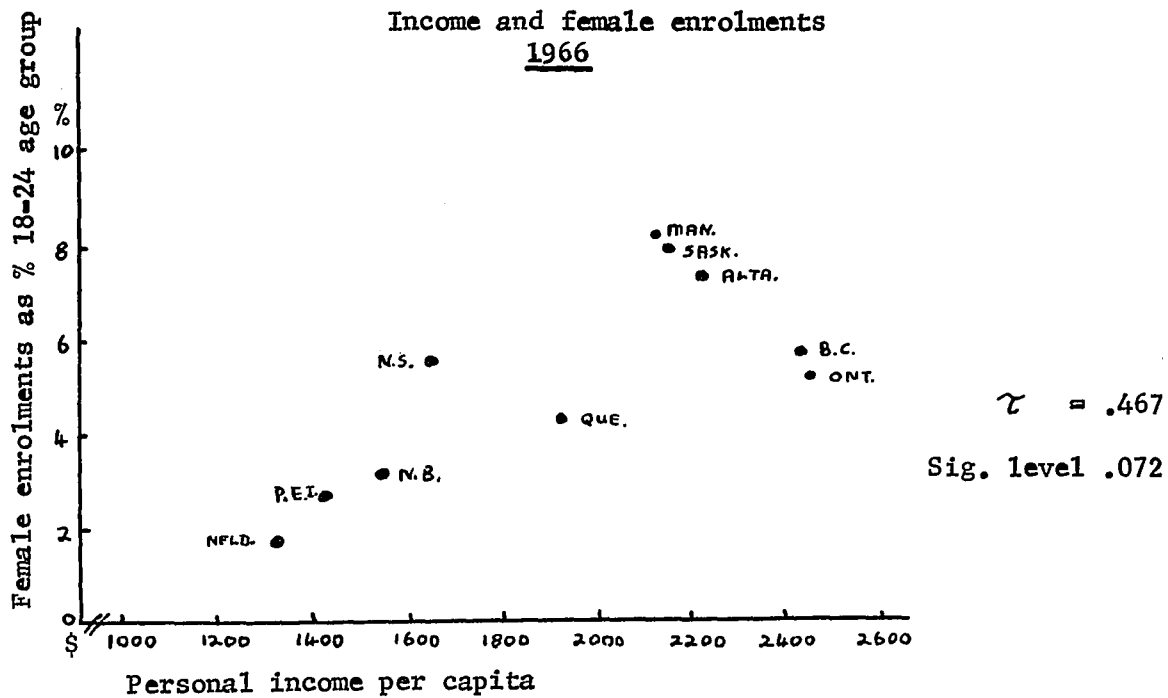
CHART IV-11

UNIVERSITY ENROLMENTS, ABOVE SENIOR MATRICULATION LEVEL,
MALE AND FEMALE, COMPARED WITH PERSONAL INCOME

Income and male enrolments
1966



Income and female enrolments
1966



the university level. Ontario and British Columbia have low percentages of total, male and female enrolment, compared to their income levels. The prairie provinces have high percentage levels. In fact, the provinces from Ontario west are virtually ranked in negative regression on the scattergrams. Finally, Quebec does not trail in enrolments at this level, either male or female, as she does in any set of figures that includes high school enrolments.

B. Education and the Stage of Economic Development

The two economic indicators chosen to represent the stage of economic development are capital investment, and the percentage of the labour force employed in primary industry and in manufacturing.

(a) Capital investment

The annual rate of capital investment is not really representative of the stage of economic development reached. It is rather the stock of capital, industrial and social, that indicates development, inasmuch as it represents productive capacity and technological progress. However, the annual rate of capital investment per capita does tend to be greater in more developed than in less developed areas. This is not so if capital investment is measured as a percentage of gross national product. Curle²¹ regards domestic fixed capital formation, which he describes as savings, as a percentage of gross national product, as the most reliable single indicator of purposefulness in development. Since the rate of

²¹Adam Curle, op. cit., p. 228.

investment in education can also be an indication of the intention of achieving economic growth, it is likely that a positive relationship will exist between the two, though not necessarily a causal one. Curle found the relationship between savings and investment in education (for fifty-five countries) to be significant at the .05 level. It is not possible to make a similar comparison for the regions within Canada, since gross national product is only available on a national basis. In any case, it is doubtful whether the rate of capital formation in any region of Canada is really indicative of the desire for development. Too many decisions with regard to capital investment are made by external powers.

The figures in Table IV-5, showing capital expenditure per capita by regions, are in constant dollars. Actual expenditures have increased more sharply. Capital expenditures are only available on a regional basis back to 1951.

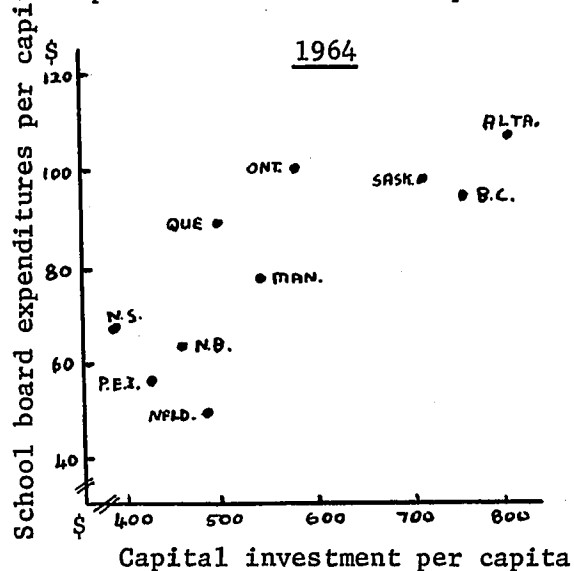
It is apparent that capital investment rates are not necessarily highest in those regions with the highest income. Ontario has, on the whole, a lower capital formation rate than do the prairie provinces and British Columbia. Quebec has usually been a little ahead of the Atlantic provinces, but this was not the case in 1966 and 1967 when Quebec had the lowest rate of the five regions. If capital investment represents current development and future economic growth, then the western provinces are clearly the region of greatest potential at the moment.

Chart IV-12 compares capital investment with education expenditures, and with enrolments at the secondary level and above.

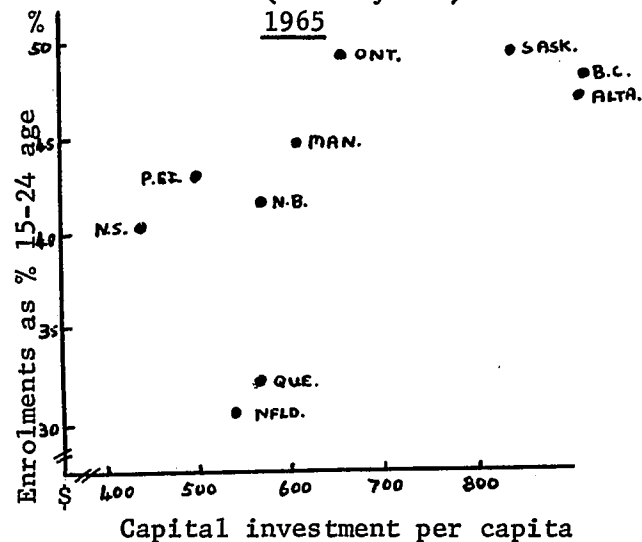
CHART IV-12

CAPITAL INVESTMENT, SCHOOL BOARD EXPENDITURES AND ENROLMENTS

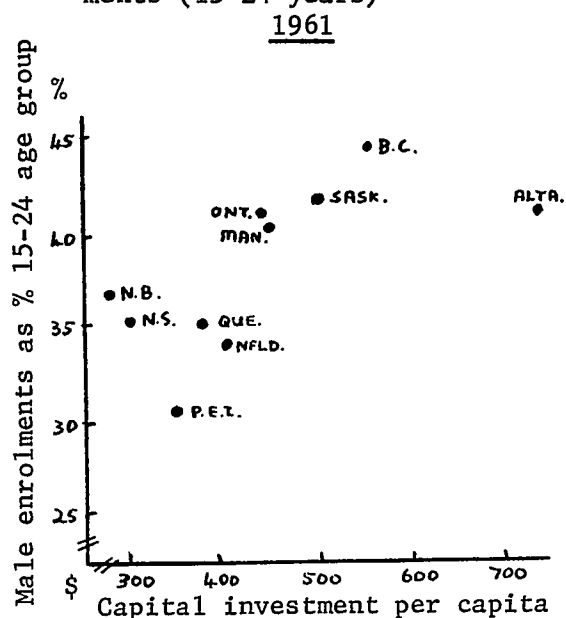
Capital investment and expenditures



Capital investment and enrolments (15-24 years)

Correlation Coefficients

Capital investment and male enrolments (15-24 years)



Capital investment and school board expenditures

	<u>r</u>	<u>Sig. level</u>
1951	.733	.002
1956	.867	.0001
1961	.644	.009
1964	.600	.017

Capital investment and enrolments (15-24 years)

1965	.555	.028
------	------	------

Capital investment and male enrolments (15-24 years)

1951	.511	.046
1961	.467	.072

Capital investment and university enrolments

1967	.511	.046
------	------	------

TABLE IV-5

INDICATOR 7: CAPITAL EXPENDITURE PER CAPITA BY REGIONS
(Constant Dollars)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1951	170	240	333	329	339
1956	215	312	410	477	607
1961	230	270	317	412	391
1964	270	339	380	456	486
1965	310	371	419	510	590
1966	386	375	456	752	670
1967	378	326	439	585	646

Source: See Appendix Table A 31.

Three-year averages have again been used in Chart IV-12, in order to avoid placing too much dependence on any one year, since the figures fluctuate considerably. Only the most recent years are plotted on a scattergram, so that the placing of individual provinces may be seen, but too much repetition avoided.

The correlations between capital expenditures and school board expenditures are highly significant in all the years shown, except for 1964 when they attained a .017 level of significance. This is a higher level of significance than that found by Curle.²²

²²Adam Curle, *op. cit.*, p. 229. Curle was comparing capital expenditures as a percentage of gross national product with school expenditures and found correlations significant at the .05 level.

Enrolments are generally at the .05 level of significance, or close to it. There is no pattern of higher correlations for male enrolments, as was found in the correlations with personal income.

As suggested above, it is possible that the relationship between capital expenditures and school expenditures and enrolments arises mainly from the fact that both reflect a similar state of mind in the community. Both represent an investment in the future, and both tend to rise most quickly when development and growth are actively pursued by government and people. High levels of capital investment can be expected to increase the number and diversity of job opportunities, which will lead in turn to a higher level of education demand, although a time lag will be evident.

(b) Employment in primary industry
and manufacturing

As national economies pass through successive stages of development, the percentage employed in the primary industries of farming, mining, forestry and fishing gradually decreases. The phase of dependence upon these industries is replaced by a move to integrated manufacturing industries. Employment in these industries increases, but the increase slows as technological progress reduces the labour content in manufacturing processes. In highly developed countries service industries have come to the fore as the largest employer of labour, usually accounting for more than half the labour force. Canada has reached this stage. Employment in manufacturing now varies from ten to thirty per cent of the labour force in the five main regions, and employment in primary industry from seven to

twenty-three per cent. Table IV-6 shows the percentage of the labour force in primary industry and manufacturing from 1921 to 1967.

TABLE IV-6

INDICATOR 8: PERCENTAGE OF THE LABOUR FORCE IN PRIMARY INDUSTRY
AND IN MANUFACTURING
(Per Cent)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
<u>Primary Industry</u>					
1921	44	30	28	55	29
1931	42	25	25	52	25
1941	40	26	22	51	24
1951	21	17	13	37	14
1961	17	12	10	27	10
1966	12	8	7	22	8
1967	10	8	7	23	7
<u>Manufacturing</u>					
1921	9	16	17	5	11
1931	8	15	17	6	11
1941	10	20	22	7	15
1951	10	22	23	9	17
1961	14	26	27	9	20
1966	14	25	31	9	20
1967	13	24	30	10	18

Source: See Appendix Tables A 32 and A 33.

Research on the educational development among nations has indicated that school enrolments can be expected to vary inversely with the percentage of population employed in agriculture. Harbison and Myers²³ found a correlation of $-.814$ between agricultural employment and a composite education index compiled from enrolments. Charts IV-13 and IV-14 examine the relationship that has existed in Canada between primary employment, school expenditures and enrolments.

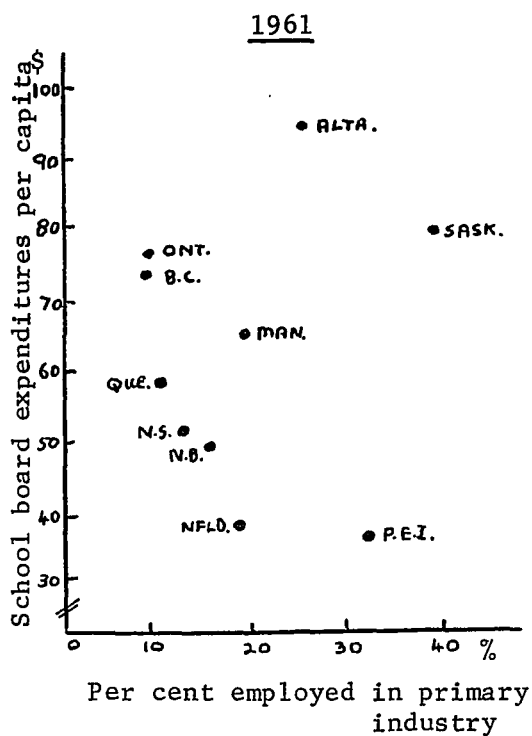
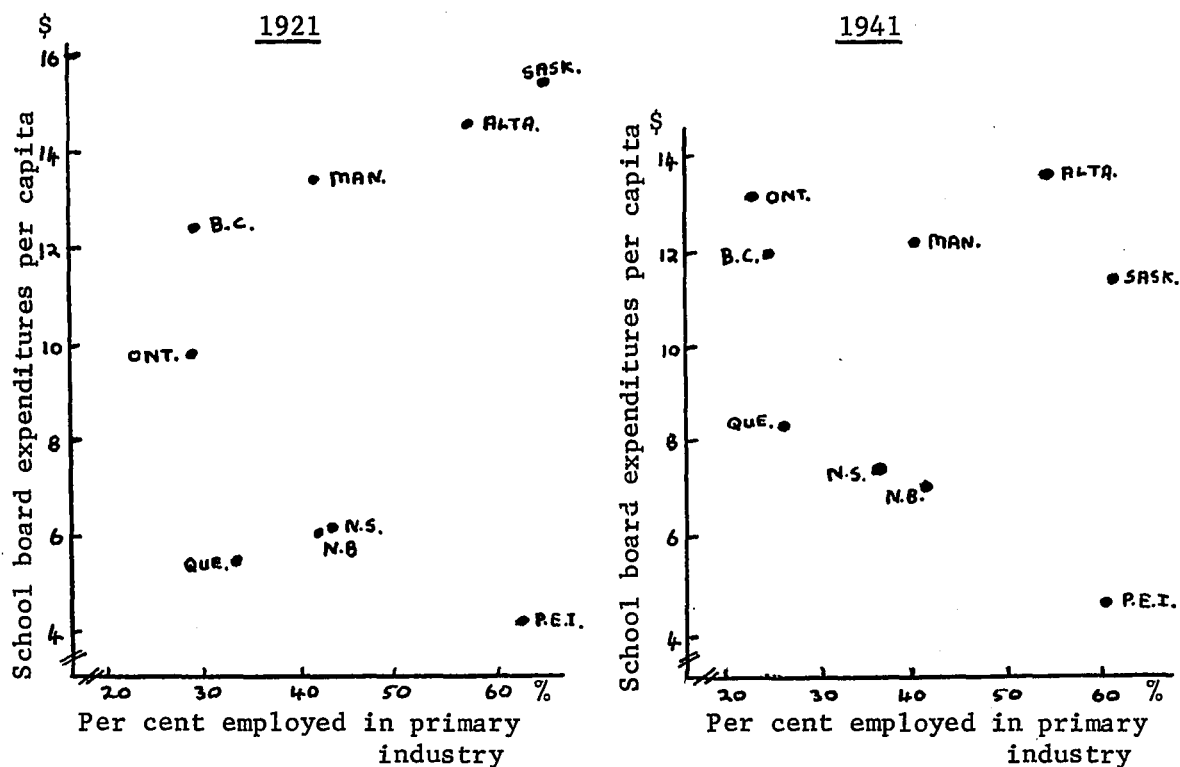
None of the years examined showed any significant relationship between primary employment and school board expenditures. The relationship was negative in all years, except 1921, which is the expected direction for it to take. However, the relatively high school expenditures in the prairie provinces, particularly Alberta and Saskatchewan, completely upset the development of a significant negative pattern.

There is also virtually no correlation between enrolments and primary employment. In many cases the correlation coefficients obtained are almost zero. It is interesting to note, however, that a slightly negative correlation was found for all years for male enrolments, a direction that would be suggested by the traditional need for teen-aged boys to work on the farms. Enrolment of women showed a zero correlation in 1921 and 1931, but has since been positive, though not statistically significant. Saskatchewan had the highest percentage of enrolments for women in this age group in

²³F. Harbison and C.A. Myers, op. cit., p. 39.

CHART IV-13

PER CENT EMPLOYMENT IN PRIMARY INDUSTRY AND SCHOOL
BOARD EXPENDITURES



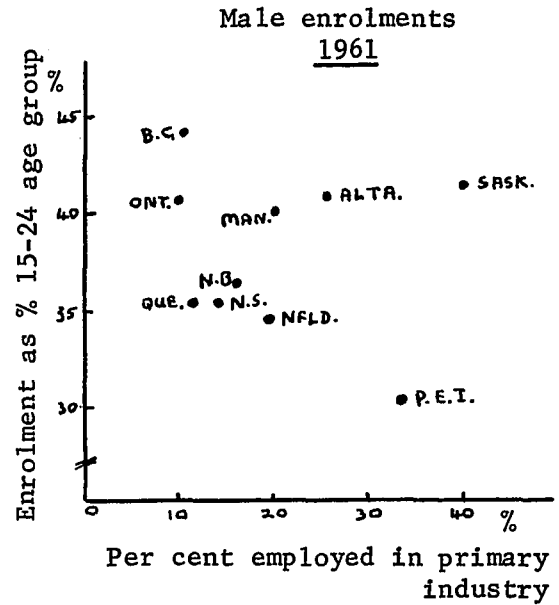
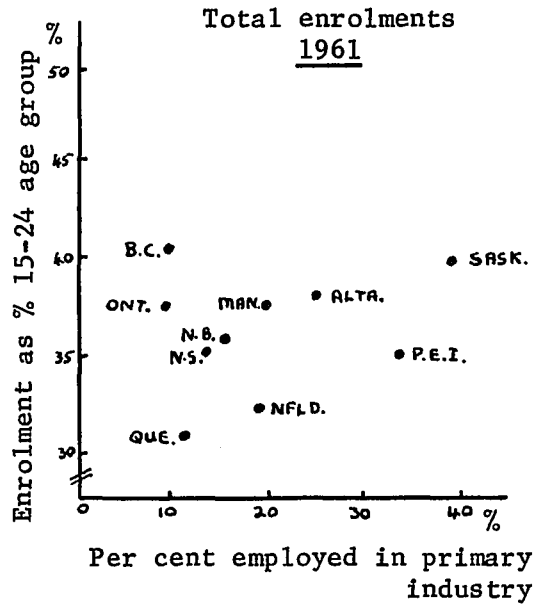
Correlation Coefficients

Per cent employed in primary
industry and school board
expenditures

	<u>r</u>	<u>Sig. level</u>
1921	.167	-
1931	-.278	-
1941	-.278	-
1951	-.156	-
1961	-.156	-

CHART IV-14

PER CENT EMPLOYMENT IN PRIMARY INDUSTRY AND PER CENT
OF 15-24 YEAR AGE GROUP IN SCHOOL



Correlation Coefficients

Per cent in primary industry and
total enrolments (15-24 years)

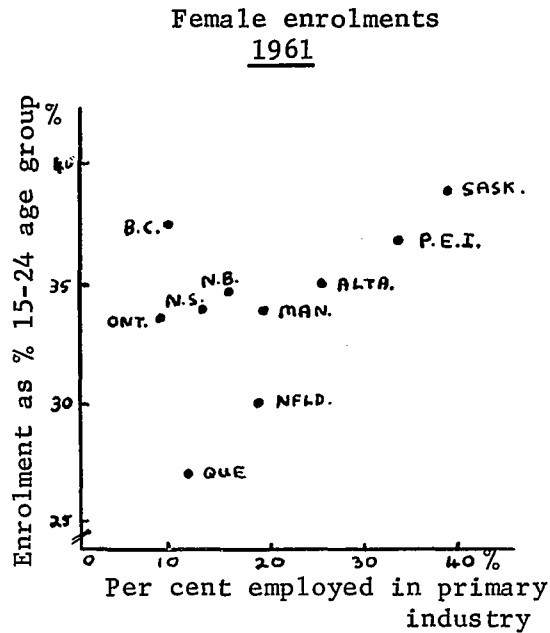
	<u>r</u>	<u>Sig. level</u>
1921	.056	-
1931	-.278	-
1941	.056	-
1951	.156	-
1961	.200	-

Per cent in primary industry and
male enrolments (15-24 years)

1921	-.056	-
1931	-.333	-
1941	-.056	-
1951	-.022	-
1961	-.067	-

Per cent in primary industry and
female enrolments (15-24 years)

1921	.000	-
1931	.000	-
1941	.167	-
1951	.289	-
1961	.422	-



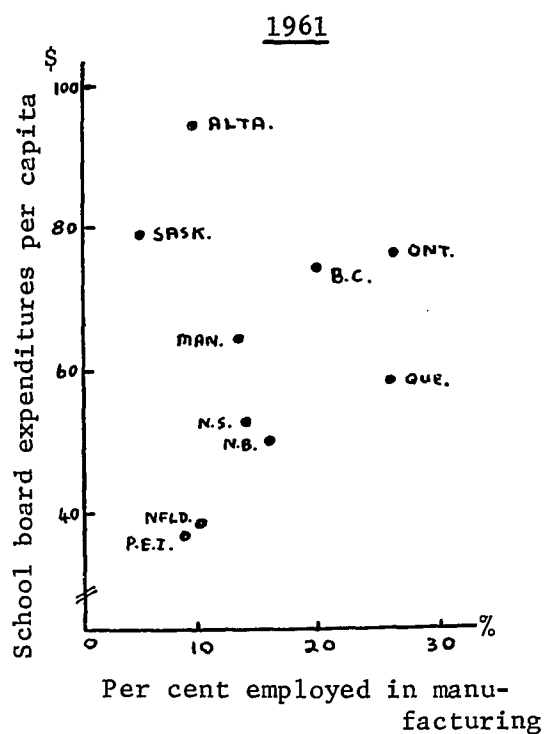
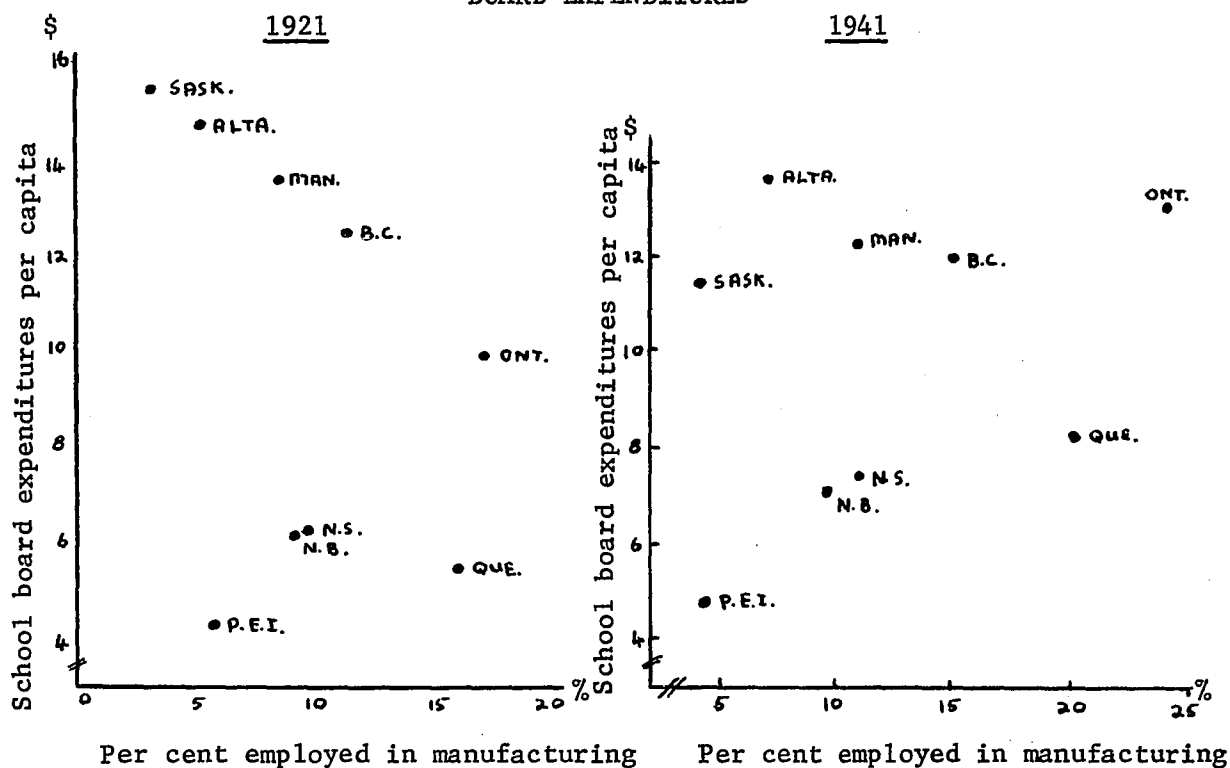
1961, and Prince Edward Island was the only province whose percentage of female enrolments exceeded that of male enrolments, so there seems to be a tendency for agricultural provinces to give more education to women than might be expected.

The explanation of the failure to find the negative correlation between primary employment and educational indicators that has been found in studies on the international level lies in the profound differences that exist between agricultural economies. The capital-intensive, highly mechanized type of farming found in the Canadian west, and increasingly in the east, does not require the large quantities of unskilled labour that other types of farming do. The labour content is not only smaller, but much more highly skilled. The same applies to the other primary industries, forestry and mining, and, to a much lesser extent, fishing. Reinforcing the changing economic conditions in these areas are changing social conditions. Ease of communications and mobility of labour contribute to the eradication of the differences in educational expectations between the farmer and the factory worker, the miner and the manufacturer.

Charts IV-15 and IV-16 summarize the position with regard to the percentage of the labour force employed in manufacturing, school expenditures and school enrolments. There are no significant correlations found. Again the prairie provinces emerge as relatively high-expenditure provinces. The manufacturing provinces of Canada are not necessarily the wealthiest provinces, and school expenditures are obviously tied to wealth rather than to type of industry. All

CHART IV-15

PER CENT EMPLOYMENT IN MANUFACTURING AND SCHOOL
BOARD EXPENDITURES



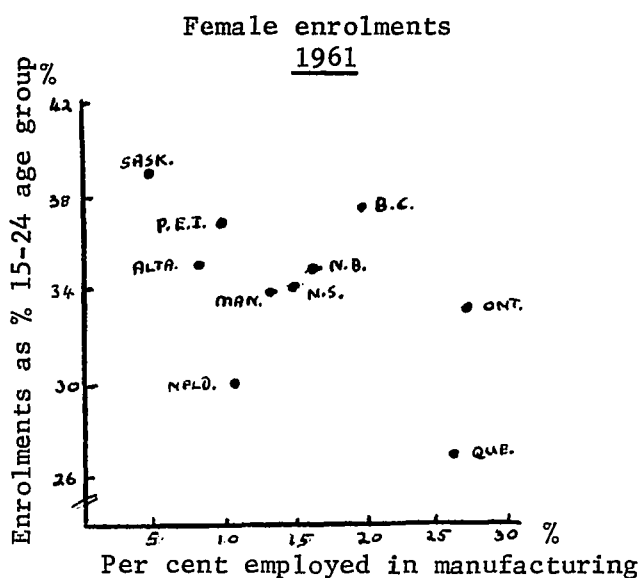
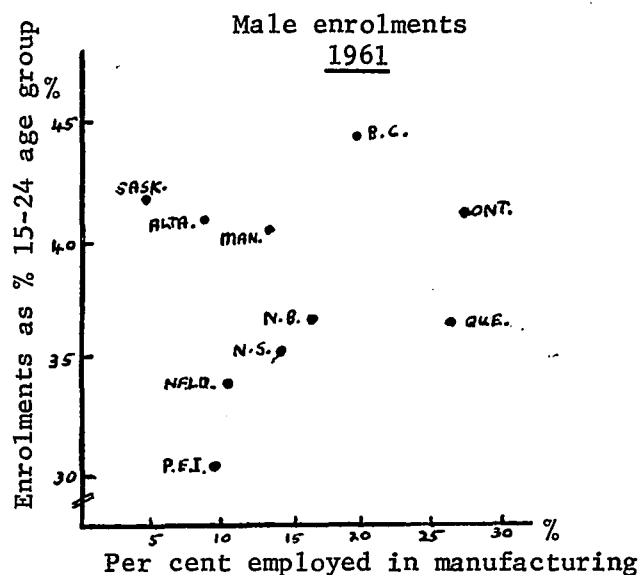
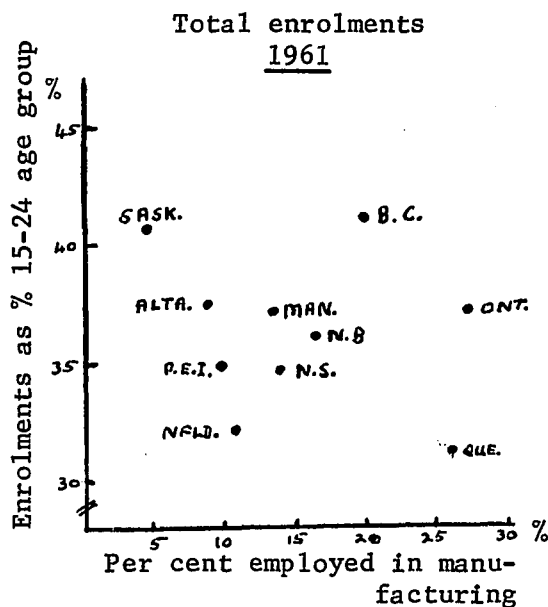
Correlation Coefficients

Per cent in manufacturing and school
board expenditures per capita

	<u>r</u>	<u>Sig. level</u>
1921	-.333	-
1931	.056	-
1941	.222	-
1951	.155	-
1961	.067	-

CHART IV-16

PER CENT EMPLOYMENT IN MANUFACTURING AND PER CENT OF 15-24
YEAR AGE GROUP ATTENDING SCHOOL



Correlation Coefficients

Per cent in manufacturing and total enrolments (15-24 years)

	<u>r</u>	<u>Sig. level</u>
1921	-.111	-
1931	.167	-
1941	-.111	-
1951	-.244	-
1961	-.200	-

Per cent in manufacturing and male enrolments (15-24 years)

1921	-.111	-
1931	.222	-
1941	.000	-
1951	-.067	-
1961	.067	-

Per cent in manufacturing and female enrolments (15-24 years)

1921	-.056	-
1931	.000	-
1941	-.222	-
1951	-.378	-
1961	-.333	-

the enrolment series show a very low correlation figure, and in most cases the direction is negative, which is the opposite from what one would expect. Cheal²⁴ also found the correlation between the percentage employed in manufacturing industries and educational output too low to be significant.

C. Job Structure and Educational Development

In this section education indicators will be compared with the percentage of the labour force employed in the proprietary, managerial and professional groups. Enrolments at the higher level of education should be particularly affected by the size of employment in this group, since those completing university, and even secondary, education would for the most part be looking for this type of job opportunity. If job opportunities for the highly educated adult are plentiful, it will presumably offer an incentive to prolong schooling. On the other hand, a stream of people whose level of education is generally above that for which economic opportunities exist will lead to migration, providing that freedom of movement exists.

Table IV-7 shows the percentage employed in the five main regions of Canada in the proprietary, managerial and professional groups, from 1921 to 1961.

The growth of this type of employment has not been rapid in the past forty years, partly because of the reduction of jobs of this type during the depression and war-time years. Certainly the

²⁴J.E. Cheal, op. cit., p. 96.

TABLE IV-7

INDICATOR 9: PERCENTAGE EMPLOYED IN PROPRIETARY, MANAGERIAL
AND PROFESSIONAL GROUPS
(Per Cent)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	11.0	14.0	13.1	10.8	15.1
1931	10.0	12.7	12.4	10.0	12.6
1941	10.4	12.9	12.7	10.6	13.2
1951	12.8	14.9	15.5	13.4	16.3
1961	16.2	17.6	18.1	16.4	19.1

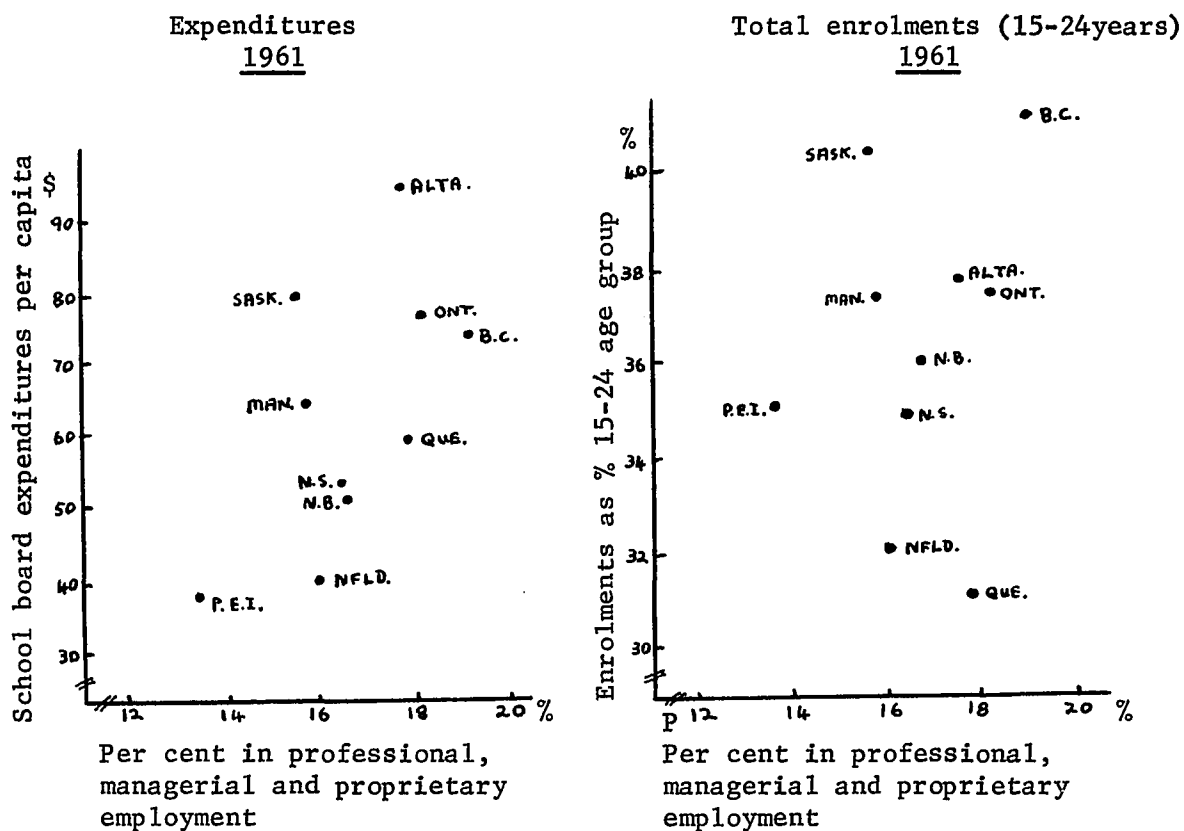
Source: See Appendix Table A 34.

expansion would not seem to have kept pace with, say, the expansion in output of university graduates. However, a university degree is now expected of a much larger percentage of those who fill these positions than was the case in 1921. The demand for higher qualifications to fill each level of employment is typical of the advanced modern state. It creates a strong demand for education, and, for a considerable time, will absorb qualified personnel as rapidly as the schools can produce them. Sooner or later, the process will cease, but judging from the experience of the United States, Canada has some way to go before this point is reached.

British Columbia has the highest percentage of professional and managerial jobs available, and the Atlantic provinces and prairie provinces the smallest percentage. Charts IV-17 and IV-18

CHART IV-17

PER CENT EMPLOYMENT IN PROFESSIONAL, MANAGERIAL AND PROPRIETARY
GROUP, SCHOOL BOARD EXPENDITURES AND ENROLMENTS



Correlation Coefficients

Per cent in employment group and
school board expenditures

	<u>r</u>	<u>Sig. level</u>
1921	.000	-
1931	.111	-
1941	.333	-
1951	.511	-
1961	.289	-

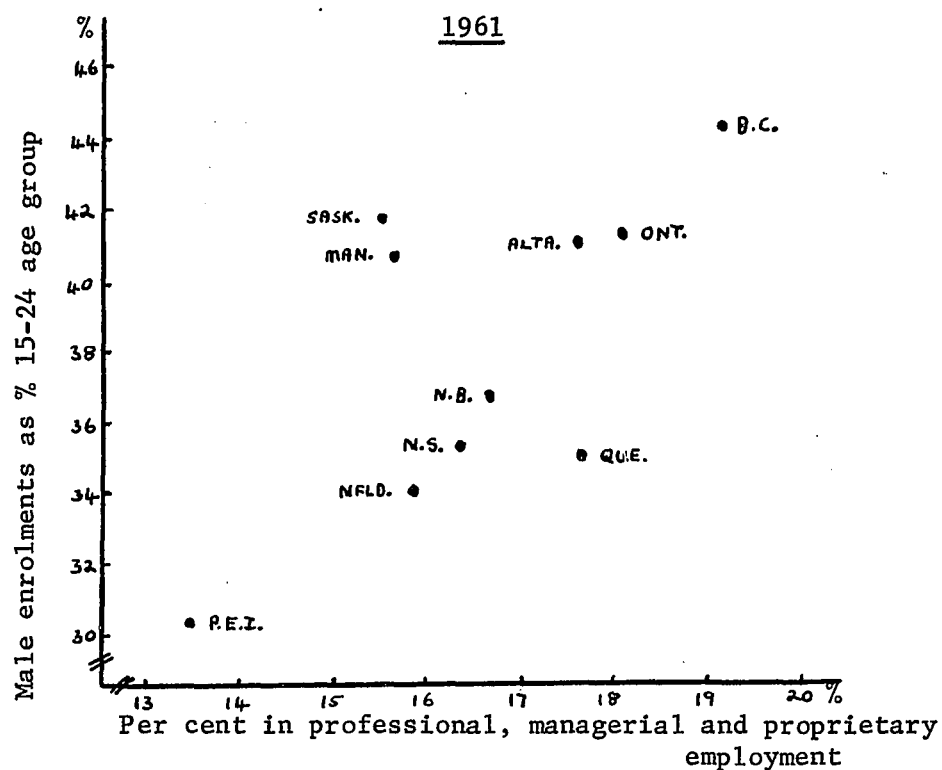
Correlation Coefficients

Per cent in employment group
and total enrolments (15-24 age)

	<u>r</u>	<u>Sig. level</u>
1921	.000	-
1931	.333	-
1941	.111	-
1951	.111	-
1961	.111	-

CHART IV-18

PER CENT EMPLOYMENT IN PROFESSIONAL, MANAGERIAL AND PROPRIETARY
GROUP AND MALE ENROLMENTS AS PER CENT OF 15-24 AGE GROUP



Correlation Coefficients

Per cent in employment group and male enrolments (15-24 age group)

	<u>r</u>	<u>Sig. level</u>
1921	.111	-
1931	.389	-
1941	.222	-
1951	.289	-
1961	.378	-

relate this factor to school expenditures and enrolments. Only the most recent years are shown on the scattergrams.

The only correlation of statistical significance is that with school board expenditures for 1951. However, the low correlation for the other years shown suggests that the association in this one year most likely arose by chance. All correlations with enrolment figures are very low also, although it would be expected that some association would exist. Among the individual provinces, the division between western and eastern provinces is again evident. The former tend to have enrolment percentages that are high in relation to the job opportunities available, and the latter tend to be average or below.

Lack of job opportunities for those with high education levels can be expected to lead to migration to more favourable areas. Figures on the movement of population by level of education are only available on a regional, not a provincial, basis (see Table III-18). However, net migration figures have been correlated with the percentage of professional, managerial and proprietary jobs in the labour force and yield very high correlation coefficients in the post-war years. They reach a significance level of .0002 and .002 in 1951 and 1961, respectively. However, the correlation was not significant in 1931 or 1941.

Hence, there is no apparent connection between educational investment or enrolment, and jobs in the professional, managerial and proprietary category. There does, however, seem to be a

connection between the percentage of these jobs available and the net inflow and outflow of population to a region.

D. Miscellaneous Economic Factors

1. Urbanization

Since a high degree of urbanization characterizes the more developed economic areas of the world, it might be assumed that an association will also be found between educational development and urbanization. However, if such an association were found, it could be the result of the relation of both variables to a third variable, income, and would not necessarily demonstrate an association between education and urbanization, per se. Urban areas tend to be more wealthy areas, and it has already been shown that there is a strong relationship between income and education. Whether those who live in an urban environment are likely to demand a higher education level for themselves and their children than do those who live in a rural environment, purely because of their urban outlook, is another question.

Table IV-8 shows the percentage of urban population in the main regions of Canada from 1921 to 1966.

In Canada urbanization and high income levels do not necessarily go hand in hand. For example, Saskatchewan, with an urban population of only 49 per cent, ranks fourth in income level, and Quebec, with 78 per cent of its population living in cities, ranks sixth in income. Hence, it is possible to look at the relation between education indicators and urbanization without the

TABLE IV-8

INDICATOR 10: URBAN POPULATION AS PERCENTAGE OF TOTAL
POPULATION, BY REGIONS
(Per Cent)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	35.6	51.0	55.6	27.8	46.1
1931	36.4	58.6	58.7	30.1	55.5
1941	37.6	59.6	59.9	30.6	52.7
1951	36.2	64.2	58.5	40.8	51.0
1956	49.3	70.0	76.0	51.5	73.4
1961	49.7	74.3	77.3	57.6	72.6
1966	53.5	78.3	80.4	62.7	75.3

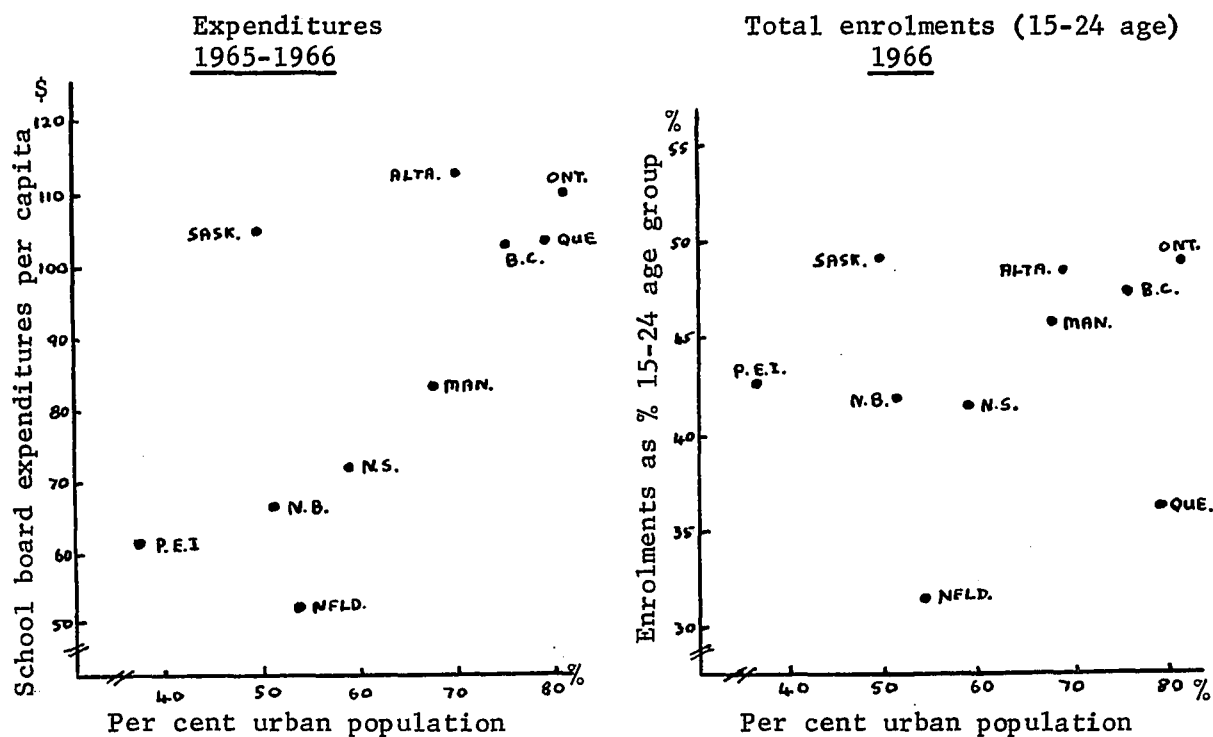
Source: See Appendix Table A 36.

fear that the outside factor of income will give a falsely high correlation. The results are shown in Charts IV-19 and IV-20.

School board expenditures had a negative, but not significant, relationship with urbanization in 1921. At this time, the western provinces led the rest of Canada in school expenditures (see Table III-1). Since that date, the relationship has been positive, and increasingly larger, reaching the .05 level of significance in 1966. The results, therefore, are inconclusive. In the case of enrolments, no association with urbanization was found, either at the secondary and tertiary level combined, or at the tertiary level only. Female enrolments, in 1951 and 1961, varied

CHART IV-19

PER CENT URBAN POPULATION, SCHOOL BOARD EXPENDITURES AND PER
CENT OF 15-24 YEAR AGE GROUP ATTENDING SCHOOL

Correlation Coefficients

Per cent urban population and school
board expenditures per capita

	<u>r</u>	<u>Sig. level</u>
1921	-.222	-
1931	.167	-
1941	.278	-
1951	.200	-
1961	.511	.046

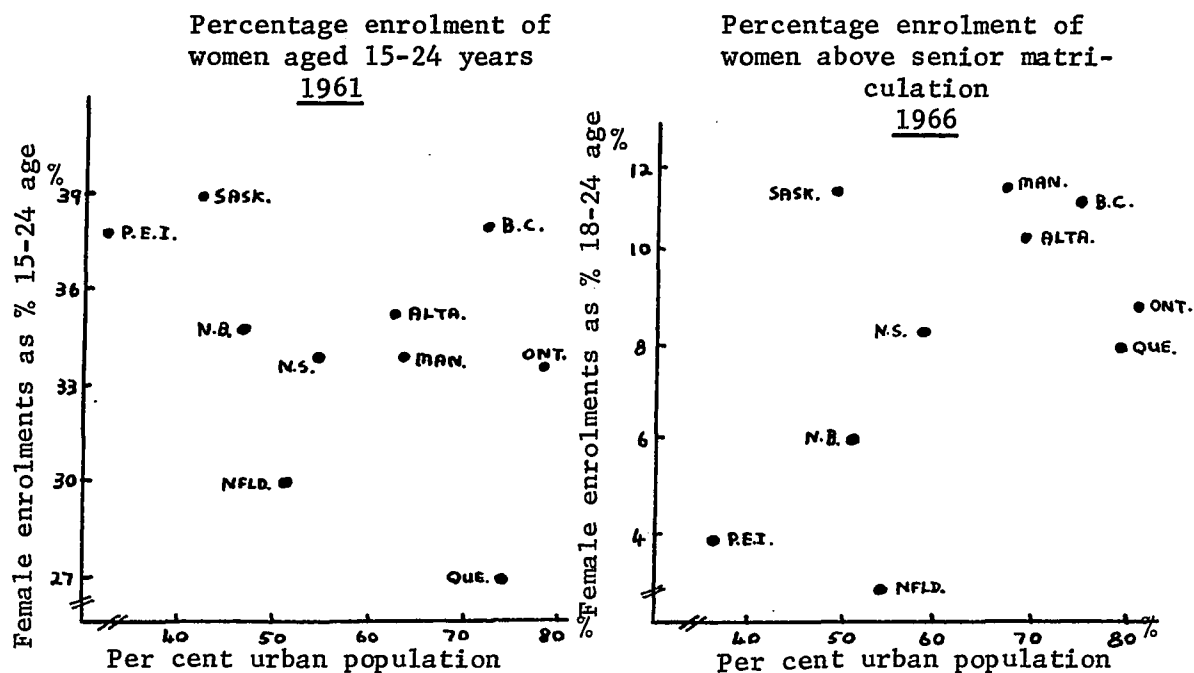
Correlation Coefficients

Per cent urban population and
total enrolments (15-24 age)

	<u>r</u>	<u>Sig. level</u>
1921	.000	-
1931	.278	-
1941	.056	-
1951	-.200	-
1961	-.111	-
1966	.156	-

CHART IV-20

PER CENT URBAN POPULATION, UNIVERSITY ENROLMENTS ABOVE SENIOR
MATRICULATION AND PER CENT OF WOMEN AGED 15-24 YEARS ATTENDING
SCHOOL

Correlation Coefficients

Per cent urban population and
female enrolments (15-24 age)

	<u>r</u>	<u>Sig. level</u>
1921	.000	-
1931	.111	-
1941	-.167	-
1951	-.333	-
1961	-.378	-

Correlation Coefficients

Per cent urban population and
female university enrolments

	<u>r</u>	<u>Sig. level</u>
1966	.156	-

negatively with urbanization. This fits in with the slight positive variation of female enrolments and primary industry. It indicates that there is a tendency in Canada for the education of women to be stressed more in the agricultural, rural areas than it is in the cities--the reverse of the finding that might be expected. It should be borne in mind that we are talking here only about the direction of variation, and not of relationships with statistical significance.

Garms²⁵ made a comparison of educational effort, or percentage of national income spent on education, and urbanization. He hypothesized that he would find a strong relationship, but the hypothesis was not significantly supported. He suggested, in explanation, that increasing urbanization may bring a need for many other expenditures (on fire protection, police, roads, etc.), so that education expenditures are kept down by the competition of other demands. Comparison of the percentage of personal income spent on education in each province with its level of urbanization gives a correlation of .244 for 1965-66. Hence, in Canada, neither educational effort, nor demand, as expressed through enrolments, appears to be related to the degree of urbanization. There may be a connection with educational expenditures, but only in recent years, not in the past, and more evidence would be needed for any conclusions to be drawn from this.

²⁵W.I. Garms, op. cit., p. 283.

2. Utilization of Women in the Labour Force

Education, as discussed already, has a dual function as producer and consumer good. For many individuals in the society, namely those who are not part of the labour force, education is utilized only as a consumer good. In this case it is valued for its ability to enhance the capacity of the individuals in the community, but plays no part in economic growth. One-half of the investment in education represents investment in women, many of whom never join the labour force. It is possible that the degree to which the women of a community utilize their education as a producer good, that is, take employment, has some effect on the educational decisions taken in that community. A high percentage of women in the work force maximizes the returns on educational investment, and could possibly be associated with higher educational expenditures, effort, or enrolments.

Table IV-9 shows the variation between the regions of Canada in the percentage of women employed.

Ontario employs the highest percentage of adult women, and the Atlantic provinces the lowest. Historically, the prairie provinces have made the least use of women in the work force, but the percentage for these provinces increased sharply during the fifties and sixties. Quebec, in the past, has had a high rate of female employment, sometimes the highest, but has now fallen behind all but the Atlantic provinces. It is evident that the percentage of women employed cannot have much effect on education expenditures

TABLE IV-9

INDICATOR 11: PERCENTAGE OF WOMEN AGED 15-24, NOT AT SCHOOL,
WHO ARE IN THE LABOUR FORCE
(Per Cent)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	19.3	21.0	21.7	15.9	17.9
1931	20.3	24.7	24.3	19.0	22.5
1941	22.1	26.0	26.6	19.4	22.1
1951	23.3	28.5	31.8	25.0	28.4
1961	29.0	33.2	40.5	37.1	36.2

Source: See Appendix Table A 35.

and enrolments from the relative positions of the regions, especially in the pre-war years. Correlations made with expenditures, female enrolments, university enrolments and educational effort, bear this out. None are significant except that for expenditures in 1961, which reached a .05 level of significance. Expenditures in other years showed no correlation.

3. Net Migration

The extent to which each region of Canada suffers a loss of its educated populace was discussed in Chapter III (see Table III-18). Education represents an investment in human capital, so that any net loss of adult population is a net loss of capital, and the higher the level of education of those who leave, the greater the loss. With seven or eight per cent of personal income going into education,

it is clearly a matter of great concern if there is a net loss of ten per cent of the university graduates and fifteen per cent of the secondary school graduates from the region to other parts of Canada, as is the case of the Atlantic provinces. This figure does not include those who have emigrated outside the country, so that the actual loss is larger.

The question of what can be done to change this situation is for the economists to consider, and outside the scope of this survey. A delicate balance exists, that is little understood, between investment in education and economic opportunities and growth. It has been demonstrated that education does contribute to economic growth,²⁶ but the question of whether economic growth can be spurred by educational policy, or whether educational policy must be molded by the economic conditions of an area remains an open one. Social and political conditions will have an influence. It is, for example, much easier for a politically authoritarian regime to use education as a lever for economic growth than for a democratic regime to do so. Russia and Japan have done this, but it is not clear whether Newfoundland or New Brunswick can reduce its economic disparities in this way unless the "brain" drain from the area can be reduced.

Information on internal migration in Canada by education level is only published on a regional basis. Since provincial statistics are necessary for correlations to be made, a net migration

²⁶See E.F. Denison, The Sources of Economic Growth in the United States and the Alternatives Before Us (New York: Committee for Economic Growth, 1962); also Gordon W. Bertram, The Contribution of Education to Economic Growth (Ottawa: Queen's Printer, 1966).

figure has been used for comparison with economic indicators. This figure will include some children, and people at all levels of education, but movement from an area of anyone who has attended school actually represents some loss in educational investment. Table IV-10 shows the average annual net migration as a percentage of total population.

TABLE IV-10

AVERAGE ANNUAL NET MIGRATION AS A PERCENTAGE OF TOTAL POPULATION

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
(Per Cent)					
1921-31	-2.4	-0.1	0.8	0.1	3.3
1931-41	-0.1	0.0	0.4	-2.0	2.2
1941-51	-1.4	-0.1	1.5	-2.2	4.5
1951-56	-0.4	0.4	1.5	0.2	2.1
1956-61	-0.6	0.4	1.1	0.1	1.4

Source: See Appendix Table A 37.

The only region that has suffered a constant population drain throughout this period is the Atlantic Provinces. The slight gain shown by the Prairie Provinces since 1951 is a combination of losses from Manitoba and Saskatchewan and a gain in Alberta. Over the years Quebec has been the least affected by population gains or losses. Additions to her population have mostly been by natural increase.

Table IV-11 relates population movement to various economic factors. Migration rates were ranked from one for the highest gain to ten for the greatest loss, and were correlated with the factors shown.

TABLE IV-11
SIGNIFICANCE LEVELS OF CORRELATION

	Net Migration				
	1931	1941	1951	1956	1961
Personal income	.044	-	.044	.017	.009
Urbanization	-	.044	.024	.004	.009
Employment primary industry	-	-.013	-.002	N.A.	-.046
Employment manufacturing	-	.024	.012	N.A.	.046
Professional employment	-	.076	.0002	N.A.	.002

N.A.: Not available.

- Significance level of .100 or above.

The correlations show that the provinces making the highest population gains are those which have high income levels and are highly urbanized. There is a less significant relationship with areas having a high employment in manufacturing, while those with a high proportion of primary industry show a significantly negative relationship. In 1941 and 1951 the importance of the factors was reversed, with primary industry and manufacturing showing a closer association with migration than did income and urbanization. The

correlation between migration and the percentage of professional and managerial employment available was highly significant in the post-war years, but not in 1931 or 1941.

The drift to the towns and cities has, perhaps, passed its point of greatest impetus in some areas. Ontario now has an urban population of eighty per cent, and some of the other provinces may catch up in this respect.

It would certainly be suggested by Table IV-10 that the problem of loss of investment in human capital through migration in Canada will have to be approached through the economic factors that have so strong an influence upon it. Of course, social and cultural factors play a part here also. Quebec, for example, has language and cultural factors that will often outweigh economic considerations in deciding migration levels in the province.

Summary

This chapter has reviewed the connection between regional disparities in educational spending and enrolments, which were looked at in detail in Chapter III, and a series of economic factors that might be expected to have some influence on educational development.

It is found that no relationship has existed between the educational and economic indicators examined if they are looked at on a long-term, national basis. Education expenditure and enrolments varied quite independently of personal income and net value of production from 1926 to 1967. Generally speaking, education

expenditures are slow to contract in a time of falling income, and rapidly expand in times of expanding income.

Despite the lack of a long-term, historical relationship between income and school expenditures, there has been, at any one time, a pattern of association between them when looked at on a regional basis. Correlations between the two on a cross-sectional basis are highly significant, especially in recent years. The association was less significant in the depression years. Enrolments have also been significantly related to income.

Two aspects of the stage of economic development have been looked at in relation to educational development. Capital investment is found to be significantly related, but the percentage of the labour force in primary industry, or in manufacturing, is not.

Other factors examined are the percentage of managerial, professional and proprietary jobs available, urbanization, and the percentage of adult women in the labour force. None is significantly associated with education expenditures or enrolments.

However, a close correlation is found between net migration levels in Canada and a number of economic indicators, including urbanization, income, percentage employed in manufacturing and in primary industry, and professional job opportunities available. Since a net loss of population represents a net loss of educational investment, this association is significant for those who must decide what proportion of the resources of the community should be allocated to education.

CHAPTER V

SUMMARY AND CONCLUSIONS

A. Summary of Relationships Found Between Educational and Economic Indicators

Education and the Level of Prosperity

Cross-Sectional Correlations

1. A strong positive association is found between personal income and school expenditures. Historically, it has applied to all the years examined, except 1931, a depression year. This finding is similar to that of researchers who have made both international and inter-state, or provincial, comparisons. The association of expenditures with net value of production is also significant.
2. The correlation coefficient for expenditures and income is greater in recent years than in earlier years, suggesting that the link between the two is closer today than in the past, despite increased inter-governmental equalization payments.
3. Provinces whose education expenditures have been high in relation to income are Alberta, Saskatchewan and, in 1964, Quebec. In earlier years, Quebec expenditures were below average in relation to income.
4. The percentage of personal income spent on education has had no

significant correlation with income or productivity in any year. Cheal¹ also found this in his cross-sectional study for 1958 to 1960. Historically, there has been great variation between the provincial rankings on this variable. No one province or region has been consistently high or consistently low in its effort to support education. Comparisons of developed and under-developed countries have generally shown that the percentage of income spent on education increases as income rises. Within developed countries, however, it has generally been assumed that similarity of educational expectations would cause the poorer regions to make greater effort.

5. Enrolments at the secondary and tertiary levels combined show a significant correlation with income in the post-war period, but not in pre-war years. When the two levels are separated, both remain significantly associated with income, but the correlations with secondary enrolments are higher than those with the university level. Again, these findings are similar to those of other surveys.
6. Female enrolments at the secondary and tertiary levels show no correlation with income or productivity. They are, presumably, the product of social or cultural factors. When female enrolments are separated from male, the latter show a much higher correlation with income: below, or very close to, the .01 level of significance in all years examined, except 1941.

¹J.E. Cheal, Investment in Canadian Youth (Toronto: Macmillan Company of Canada Ltd., 1963), p. 80.

7. The individual provinces with high enrolment levels in relation to income, in most years, have been Saskatchewan, Prince Edward Island and Alberta. All have had high levels of female enrolment. No one province appeared to be consistently higher in male enrolments. At the university level, Manitoba, Saskatchewan and Nova Scotia have ranked high in relation to income.
8. Reduction of regional disparity of income in Canada, to which the reduction of educational disparity seems to be tied, made little progress between 1926 and 1966. The only time that the gap was narrowed significantly was during the war years. The present range in Canada is very similar to that of the United States.

National, Longitudinal, Comparisons

1. Neither education expenditures nor enrolments have shown any consistent relationship with personal income, or with value of production, when examined historically. The years reviewed have covered a period of expansion, of depression, of war time, and of recovery and renewed expansion. In all periods, except the latter, the education indicators moved independently of changes in income and production. Examination of those years since the early 1950's does, however, show an approximate straight line regression between personal income and expenditures, and also between income and university enrolments.

Education and the Stage of Economic
Development

1. Capital expenditures per capita are found to have a high positive relationship with school expenditures in the four years examined between 1951 and 1964.
2. The relationship between capital investment and enrolments is generally significant at the .05 level. This applies to enrolments at both the secondary and tertiary levels, male and female.
3. No significant correlation is found between the percentage of labour force employed in primary industry and school board expenditures. As would be expected, the small degree of association that does exist is negative in four of the five years examined. The division between east and west is very marked when plotted on a scattergram. The eastern provinces are at the bottom of the chart with a pronounced negative regression, while the western provinces are at the top of the chart, haphazardly arranged. Presumably, the capital-intensive, technologically advanced type of primary industry found in the west leads to a break with the expected negative pattern of association between the percentage employed in this sector and education expenditures.
4. A comparison of percentage enrolment in the 15-24 year age group and those employed in primary industry also results in no significant correlations. The percentage enrolment of males is found to have a negative variation, whereas the enrolment of females has a slightly positive association.

5. Employment in manufacturing is not significantly associated with either school expenditures or enrolments. There is a low negative relationship with the enrolment of women.

Job Structure and Educational Development

1. The percentage of the labour force in the proprietary, managerial and professional employment groups show no correlation with education expenditures or enrolments. British Columbia, Ontario, Alberta and Quebec have the highest percentage of jobs of this nature.
2. A highly significant correlation is found between the percentage of employment in this group and net migration. Hence, it is a highly important factor in the retention of human capital. The correlation was not significant in 1931 and 1941, but many unusual factors were operative in those years.

Miscellaneous Economic Factors

1. The level of urbanization does not show a statistically significant correlation with either school expenditures, enrolment of those aged 15-24 years, enrolment of women in this age group, enrolment at the university level, or effort to support education. It is usually expected that there will be a strong positive association between urbanization and education indicators. It is suggested that this association, where it exists, is a result of the fact that both urbanization and educational growth are usually highly correlated with income. Hence, a spurious correlation, related to a third variable can

easily arise. This is not found in Canadian comparisons because the most highly urbanized regions in this country are not always the wealthiest.

2. No correlation has been found between education indicators and the percentage of adult women employed in the labour force.
3. An examination has been made of the economic factors that appear to be related to high migration rates, since the latter represent a net gain or loss of educational investment to any area.

Personal income, urbanization and the percentage employed in professional and managerial jobs are all found to have a highly significant correlation with migration in 1961. The percentage employed in primary industry and manufacturing have negative and positive relationships, respectively, at a less significant level. Examination of other years shows some variation in significance levels, but it was only in 1931 that migration seemed to be unrelated to any of these factors.

B. The Extent of Regional Disparity in Education

A detailed summary of disparity in educational indicators, by regions, was made at the end of Chapter III (pages 87-94). A brief summary, by indicators, is given below.

1. Education expenditures per capita range from a low of 65 per cent of the national average in the Atlantic Provinces to 108 per cent in Ontario. A marked east-west divergence was apparent from 1921 to 1956 but Quebec's expenditures have now moved up to approximately the national average. There has been some

reduction in the spread between the regions since 1921, but progress has not been rapid. The spread is presently about the same as that between the main regions of the United States.

2. Total enrolment of the 5-24 year age group shows a much smaller range between regions than does expenditure. It ranged from 67 per cent of the age group in Quebec to 72.4 per cent in Ontario in 1968. Quebec has historically had a low enrolment rate, but the Atlantic provinces rate high on this variable.
3. Enrolment of the 15-24 year age group shows a spread from 31.3 per cent in Quebec to 41.2 per cent in British Columbia. The gap between regions is steadily narrowing as Quebec improves its performance in this area.
4. Enrolment at university as a percentage of the 18-24 year age group is only available since 1964. The Prairie Provinces are well ahead of other regions with 12.6 per cent and the Atlantic Provinces trail with 7.8 per cent.
5. The percentage enrolment of women in the 15-24 year age group in Quebec has been about half that of the highest region in most of the years since 1921. The spread has lessened recently, but reliable figures are not available since the census of 1961, and so the current situation cannot be assessed. Education of women at this level has been stressed more strongly in the west than in Ontario or in the east.
6. The disparity in the educational attainment of the adult population, between regions, is marked. Half of the population of Quebec, aged 20 years or over, did not go beyond the

elementary level of education, but less than a third of those in British Columbia stopped at this level. For those with some university education, the range is from 8.2 per cent in the Atlantic provinces to 13.6 per cent in British Columbia. That room exists for much improvement in this figures is dramatically illustrated by comparison with the United States. British Columbia, the region with the highest attainment levels in Canada, falls well below the national average figures for the United States at all levels of attainment, and for all age groups examined.

7. There is a marked regional imbalance in the net gains and losses of investment in education through migration. British Columbia has the highest population gain, followed by Ontario. The Atlantic Provinces suffer from a steady population drain. The Prairie Provinces gained population in the 1920's, lost steadily from 1931 to 1941, and currently show a slight gain because losses from Manitoba and Saskatchewan are offset by gains in Alberta. University educated people were shown to be more mobile than others. Of those whose highest level of education was secondary or elementary, about 70 per cent reported that they were still residing in the province in which they received their education. Only 63 per cent of those with university education did so.

C. Implications of the Findings

The links found between economic prosperity and educational development seem close enough to suggest that a lessening of economic disparities between the regions of Canada must probably precede any marked change in educational disparities. In addition, it is evident that effort on the part of any region to improve educational levels will not be fully beneficial to that region unless there is some assurance that it can offer employment opportunities and retain the people it has educated. Again, a lessening of economic disparities seems to be the key to the solution of this problem, since migration was shown to be closely associated with income, urbanization and job opportunities.

In other words, inter-governmental transfer of wealth is not, on its own, likely to lessen significantly educational disparity, whether the transfer of wealth takes the form of assistance to education, or equalization payments to general funds. Education is increasingly supported from provincial and federal government funds. Hence, it might be supposed that equalization of educational opportunity across the country could be achieved through fiscal means, and the equalization of the ability of the provincial governments to support education. This ignores the fact that provision of equal opportunity goes beyond the provision of equal funds. Educational decisions are taken by individual people, in relation to their individual needs, opportunities and aspirations. An unemployed miner theoretically has the same opportunity to send his son to school, at public expense, as does a prosperous

businessman. But the opportunities are not equal, since the former may be unable to forego his son's earnings. Also, he may know only too well that there are no jobs available that call for an extended education. And so, income and opportunities must be equalized, as well as the ability to support education, if educational opportunities are to become equally available to all. Education cannot be dealt with in isolation from economic, social or cultural factors.

Educational disparity is underlain by economic disparity, but, simultaneously, it contributes to it. The two must be overcome together to some extent, but the question of whether education can create economic progress, or whether economic progress must precede educational development is outside the scope of this survey.

The survey revealed that the development of education is closely tied to capital investment, but appears to be independent of whether an area is predominantly dependent upon primary industries or upon manufacturing. It is the technological development of an industry that is important as an educational determinant, and not the basic nature of the industry. This finding is of importance in Canada, with its dependence upon wheat, forests and minerals. Areas dependent upon these basic economic activities do not have to lag behind urbanized, industrial areas in their educational growth, and have not done so in the past in Canada. What is important is that the primary industries should be capital-intensive and economically efficient. Prince Edward Island's difficulty in developing a system of education comparable to that in Ontario, or the west, does not spring from the rural and agricultural nature of the province, but

from the relatively inefficient nature of the farming economy, and the low income levels that result. The proposed overhaul of the province's education system just announced from Ottawa is to be accompanied, fortunately, by the abandonment of traditional farming methods and forced amalgamation of land holdings.

The relationship between educational and economic factors in Canada is difficult to analyse because of the marked dichotomies that exist within the country. Strong cultural and social differences between one region and another can mask relationships that exist and are significant, perhaps, in one part of the country, but not in another. One is applying a uniform analysis to a country that lacks uniformity. The cultural dichotomy, between French and English, is the most apparent. This, for example, has given rise in the past to a different concept of the role of education in the training of women for their function in society. Hence, correlations of enrolment statistics are lessened by the marked "lag" in Quebec enrolments. Yet, viewed in a different cultural context, this may not be a lag at all, but merely an adaptation to different conditions. Canada also has a strong social dichotomy between her urban and rural areas, although she is not unique in this. A more subtle dichotomy, because it is not statistically measurable, is the dichotomy between east and west. This is based on heritage, tradition and outlook, and, intangible as it may be, its influence on education seems to be very significant. Time and again, Canada divides into east and west when her educational disparities are studied. This has been true of expenditures, female enrolments and

university enrolments, to name some examples. It has been evident also in other aspects of education, not studied here, such as methods of instruction and philosophical approach.

D. Suggestions for Future Enquiry

Any macroscopic enquiry raises, by its very nature, almost as many questions as it answers. This is because none of the relationships studied can be looked at in depth. Hence, explanations of the patterns of association, or non-association, that are found, tend to be superficial. Any one of the economic or educational indicators selected for comparison in this survey could be profitably studied in more detail.

The most important need in future research is, perhaps, the need for more frequent use of the multi-variate approach to the examination of educational determinants. Bi-variate comparisons, through simple correlation, can be misleading, and difficult to interpret correctly. Spurious associations can arise when both variables relate to a third variable. There is always the question of whether a relationship is causal or non-causal, and a causal relationship is difficult to establish.

In reality, any educational indicator, such as expenditures, is inter-related with a complexity of other factors in an extensive, and interacting system. A systems approach to the study of these factors is, therefore, suggested and a multi-variate analysis appears to be the best methodology to use. To extract individual elements in the system for separate comparison is not, of course, without value, but it does have inherent dangers.

Finally, the question might be asked as to whether the investigation of the relationship between education and the economy is really of any value to those concerned with education. First, it can be said that as long as regional disparities exist in education, educators will be concerned with their elimination. Understanding of how these disparities arise, and to what extent they relate to the economy, can only give rise to more knowledgeable action in dealing with them. Secondly, there is the wider question of the context of education in the broad spectrum of society's activities. There must be a sharper clarification of the role of education in the modern society. It is not necessarily the role that was played in the past. The role in an advanced society is not similar to the role in a primitive society. Philosophies of education must be re-examined in order to determine this role. Any re-examination of these broad educational questions will be helped by a clearer knowledge of the relationships which have developed between education and other sectors of activity, be they economic, social, political or cultural. Finally, though it is a prosaic note on which to end, efficiency cannot be neglected in an enterprise to which such a high proportion of the nation's resources are directed, as is the case in modern education. Efficiency can be internal, and in this area lies a tremendous field for future research. It can also be external, by which is meant the satisfactory integration of education with society's needs, including its economic needs. Education was once a training for leadership and leisure, but its function has become more diversified. Education will only be of maximum value to the

individual and to the community if those concerned with its development look at all aspects of its role, including its relation to the economy.

A P P E N D I X

TABLE A 1

EXPENDITURES^a OF PUBLIC SCHOOL BOARDS AND EXPENDITURES ON HIGHER EDUCATION
(Millions of dollars)

Year	Atlantic Provinces			Quebec ^b			Ontario			Western Provinces		
	School Boards	Univer- sity ^c	Total	School Boards	Univer- sity ^c	Total	School Boards	Univer- sity ^c	Total	School Boards	Univer- sity ^c	Total
1921	5.7	.5	6.2	12.6	2.0	14.6	26.1	4.0	30.1	34.2	2.6	36.8
1926	6.7	.7	7.4	17.3	2.8	20.1	37.6	4.8	42.4	38.4	3.0	41.4
1931	7.2	.9	8.1	24.5	3.6	28.1	48.9	6.3	55.2	39.3	3.6	42.9
1936	6.9	1.0	7.9	21.8	3.7	25.5	42.9	6.2	49.1	32.7	2.8	35.5
1941	7.9	1.3	9.2	26.4	3.7	30.1	51.4	7.4	58.8	39.9	3.7	43.6
1946	12.2	1.9	14.1	41.1	6.5	47.6	67.7	9.6	77.3	57.3	7.4	64.7
1951	32.6	2.9	35.5	69.0	10.6	79.6	136.4	16.1	152.5	118.8	11.2	130.0
1956	51.7	7.1	58.8	146.7	22.7	169.4	250.6	33.3	283.9	199.9	23.4	223.3
1961	91.1	16.3	107.4	307.6	68.1	375.7	478.8	69.0	547.8	385.8	57.9	443.7
1964	119.2	25.8	145.0	500.0	99.4	599.4	672.3	123.3	795.6	478.7	96.8	575.5
1965	128.4	32.6	161.0	592.0	123.7	715.7	756.4	152.3	908.7	530.8	123.8	654.6
1966	N.A.	43.4	N.A.	N.A.	154.3	N.A.	N.A.	214.8	N.A.	N.A.	166.6	N.A.

^aSchool Board revenue is used from 1921-1946.^bIn Quebec figures for subsidized, independent schools are excluded.^cExpenditures on plant account not included. They amounted to \$20 million when first reported in 1956 and to \$255 million in 1965.

Source: Taken from publications of the Dominion Bureau of Statistics.

Note: Figures for Newfoundland are included in all tables from 1949 onwards.

TABLE A 2

EXPENDITURES OF PUBLIC SCHOOL BOARDS AND EXPENDITURES ON HIGHER EDUCATION
(Millions of constant dollars)

Year	Atlantic Provinces			Quebec			Ontario			Western Provinces		
	School Boards	Univer- sity	Total	School Boards	Univer- sity	Total	School Boards	Univer- sity	Total	School Boards	Univer- sity	Total
1921	6.6	.6	7.2	14.7	2.3	17.0	30.3	4.7	35.0	39.8	3.0	42.8
1926	9.6	1.0	10.6	24.7	4.0	28.7	53.8	6.9	60.7	54.9	4.3	59.2
1931	11.4	1.4	12.8	38.8	5.7	44.5	77.5	10.0	87.5	62.3	5.7	68.0
1936	11.8	1.7	13.5	37.1	6.3	43.4	73.1	10.5	83.6	55.7	4.8	60.5
1941	11.9	1.9	13.8	39.6	5.6	45.2	77.2	11.1	88.3	59.9	5.6	65.5
1946	15.7	2.5	18.2	53.0	8.4	61.4	87.2	12.4	99.6	73.8	9.6	83.4
1951	28.6	2.5	31.1	60.5	9.3	69.8	119.5	14.2	133.7	104.1	9.8	113.9
1956	40.3	5.5	45.8	114.3	17.6	131.9	195.2	25.9	221.1	155.7	18.2	173.9
1961	64.5	11.5	76.0	217.7	48.2	265.9	338.9	48.8	387.7	273.0	41.0	314.0
1964	79.6	17.3	96.9	334.0	66.4	400.4	449.1	82.4	531.5	319.8	64.6	384.4
1965	83.4	21.1	104.5	384.4	80.3	464.7	491.2	98.8	590.0	344.7	80.4	425.1

Source: Calculated from Tables A 1 and A 3.

TABLE A 3

IMPLICIT PRICE INDEX OF GROSS NATIONAL EXPENDITURES AT MARKET PRICES
(1949 = 100)

Year	Index	Year	Index
1920	85.0	1946	77.6
		1947	85.7
1926	69.9	1948	95.2
1927	68.8	1949	100.0
1928	68.3	1950	102.5
1929	68.8	1951	114.1
1930	66.7	1952	119.3
1931	63.1	1953	120.2
1932	56.4	1954	123.2
1933	55.9	1955	123.8
1934	56.6	1956	128.4
1935	56.9	1957	133.8
1936	58.7	1958	136.2
1937	60.4	1959	138.3
1938	60.1	1960	140.4
1939	59.6	1961	141.3
1940	62.1	1962	143.5
1941	66.6	1963	146.0
1942	69.6	1964	149.7
1943	70.8	1965	154.0
1944	73.0	1966	161.2
1945	75.7	1967	167.6

Sources: Dominion Bureau of Statistics, National Accounts: Income and Expenditure (Ottawa: Queen's Printer).

O.J. Firestone, Canada's Economic Development 1867-1953, International Association for Research in Income and Wealth, Income and Wealth Series VII (London: Bowes and Bowes, 1958).

TABLE A 4

POPULATION
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	1,000	2,360	2,934	1,956	525
1926	1,998	2,603	3,164	2,068	606
1931	1,009	2,874	3,432	2,353	694
1936	1,069	3,099	3,606	2,415	745
1941	1,130	3,332	3,788	2,422	818
1946	1,180	3,629	4,093	2,363	1,003
1951	1,618	4,056	4,598	2,547	1,165
1956	1,763	4,628	5,405	2,854	1,398
1961	1,897	5,259	6,236	3,179	1,629
1964	1,958	5,584	6,631	3,331	1,745
1965	1,968	5,685	6,788	3,365	1,797
1966	1,974	5,781	6,960	3,382	1,873
1967	1,986	5,868	7,149	3,411	1,947
1968	2,003	5,930	7,321	3,462	2,010

Sources: Dominion Bureau of Statistics, Census of Canada; Canada Year Book; Estimated Population by Sex and Age Group (Ottawa: Queen's Printer).

TABLE A 5

EDUCATION EXPENDITURES IN 1964

	Atlantic Provinces	Quebec	Ontario	Western Provinces
(Millions of dollars)				
Expenditures of public school boards and on university education	145.0	599.4	795.6	575.5
Expenditures on vocational education	12.7	61.3	42.2	36.8
Expenditures on private schools	2.9	32.8	19.7	13.4
Total expenditures	160.6	693.5	857.5	625.7
(Per Capita)				
Expenditures (dollars)	82	124	129	123
Expenditures in constant dollars	55	83	86	82
Expenditures in constant dollars as per cent of national average	68%	103%	106%	101%

Source: Dominion Bureau of Statistics, Survey of Educational Finance 1964 (Ottawa: Queen's Printer).

TABLE A 6

ENROLMENT IN ELEMENTARY AND SECONDARY SCHOOLS^b
(Thousands)

Year	Atlantic Provinces			Quebec			Ontario			Prairie Provinces			British Columbia		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
1921	201	6	207	463	55	518	637 ^a	10	647	452	7	457	86	3	89
1926	211	7	218	504	55	559	704 ^a	10	714	510	9	519	102	5	107
1931	222	7	229	549	57	606	772 ^a	12	784	550	12	562	114	5	119
1936	228	6	234	587	56	643	675	12	687	527	10	537	117	4	121
1941	227	6	233	588	56	644	644	13	657	496	10	506	120	5	125
1946	234	7	241	557	68	625	666	16	682	450	11	461	131	6	137
1951	338	8	346	640	56	696	768	20	788	470	13	483	173	6	179
1956	408	8	416	886	73	959	1,037	20	1,057	565	15	580	242	13	255
1961	485	9	494	1,098	91	1,189	1,389	26	1,415	693	21	714	321	20	341
1964	521	9	530	1,261	98	1,359	1,597	43	1,640	776	22	798	378	23	401
1965	531	8	539	1,311	100	1,411	1,674	43	1,717	805	22	827	394	25	419
1966	539	8	547	1,361	96	1,457	1,739	45	1,784	821	19	840	414	26	440
1967	544	7	551	1,415	95	1,510	1,801	46	1,847	840	18	858	440	25	465
1968	550	6	556	1,458	95	1,553	1,861	46	1,907	856	17	873	467	23	490

^aFigures are probably overestimated. See Urquhart and Buckley, Historical Statistics of Canada (Toronto: Macmillan Co. of Canada, 1965), p. 582.

^bExcluding federally controlled schools for Indians, the blind and deaf.

Sources: Dominion Bureau of Statistics, Survey of Elementary and Secondary Education; Preliminary Statistics of Education; Advance Statistics of Education (Ottawa: Queen's Printer).

TABLE A 7

ENROLMENT IN UNIVERSITIES AND COLLEGES (FULL-TIME)
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	2	7	9	3	1
1926	2	8	9	4	2
1931	3	9	12	6	2
1936	3	11	13	6	2
1941	3	11	12	7	3
1946	6	17	22	13	7
1951	7	21	23	11	7
1956	8	24	23	12	7
1961	12	39	33	20	13
1964	16	57	46	29	17
1965	18	64	53	32	19
1966	20	67	59	37	23
1967	22	75	69	41	26
1968	24	83	79	46	29

Sources: Dominion Bureau of Statistics, Survey of Higher Education Pt II; Preliminary Statistics of Education; Advance Statistics of Education (Ottawa: Queen's Printer).

TABLE A 8
POPULATION AGED 5-24 YEARS ATTENDING SCHOOL
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1911	170	368	403	172	40
1921	195	490	541	394	89
1931	222	588	686	532	127
1941	226	648	674	491	130
1951	330	719	742	468	181
1961	499	1,243	1,441	748	360

Source: Dominion Bureau of Statistics, Census of Canada (Ottawa: Queen's Printer).

TABLE A 9

POPULATION AGED 5-24 YEARS
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1911	387	862	963	527	126
1921	410	1,027	1,077	785	173
1926	403	1,099	1,151	875	202
1931	420	1,237	1,261	998	237
1936	439	1,340	1,281	1,003	241
1941	445	1,365	1,289	942	251
1946	441	1,399	1,310	848	299
1951	587	1,503	1,393	855	328
1956	674	1,747	1,702	975	422
1961	756	2,029	2,091	1,131	530
1964	797	2,228	2,342	1,234	601
1965	806	2,289	2,437	1,265	632
1966	817	2,352	2,543	1,292	674
1967	834	2,402	2,649	1,324	711
1968	853	2,442	2,743	1,362	743

Sources: Dominion Bureau of Statistics, Census of Canada; Population 1921 to 1966. Revised Annual Estimates of Population by Sex and Age; Estimated Population by Sex and Age Group (Ottawa: Queen's Printer).

TABLE A 10

ENROLMENT IN GRADE 9 AND OVER IN PUBLICLY CONTROLLED SCHOOLS
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	14.1	N.A.	42.6	22.0	7.3
1926	18.1	N.A.	87.0	46.6	11.8
1931	22.5	N.A.	103.3	69.6	18.2
1936	28.4	N.A.	124.9	85.4	23.4
1941	29.8	N.A.	116.3	89.9	28.8
1946	28.5	N.A.	127.9	85.6	29.6
1951	41.8	N.A.	140.8	83.7	35.0

Source: Dominion Bureau of Statistics, Survey of Elementary and Secondary Education (Ottawa: Queen's Printer).

TABLE A 11

ENROLMENT IN GRADE 9 AND OVER IN PUBLIC AND PRIVATE SCHOOLS
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1956	58.2	86.4	199.8	110.4	52.4
1961	82.2	168.2	300.9	157.8	78.4
1964	104.2	244.6	413.7	201.7	104.6
1965	110.7	262.8	445.5	212.7	111.5
1966	112.5	290.4	467.2	219.1	113.5

Source: W. M. Illing and Z. E. Zsigmond, Enrolment in Schools and Universities 1951-52 to 1975-76, Staff Study No. 20, Economic Council of Canada (Ottawa: Queen's Printer, 1967).

TABLE A 12
POST-SECONDARY ENROLMENTS^a
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1956	8.6	32.7	27.6	13.2	7.8
1961	12.7	54.7	41.9	21.7	13.4
1964	17.6	77.2	55.3	31.6	17.4
1965	20.0	82.9	63.0	35.6	19.7
1966	22.5	92.2	72.3	40.7	24.9

^aThese figures include enrolment in technical institutes, community colleges and related non-university post-secondary institutions, such as teacher training institutions. Figures in Table A 7 are for enrolments in universities and colleges only.

Source: W. M. Illing and Z. E. Zsigmond, Enrolment in Schools and Universities 1951-52 to 1975-76, Study No. 20, Economic Council of Canada (Ottawa: Queen's Printer, 1967).

TABLE A 13
POPULATION AGED 15-24 YEARS ATTENDING SCHOOL
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1911	23.8	30.2	52.9	23.4	6.1
1921	28.3	49.9	73.8	49.2	13.6
1931	37.4	76.4	133.8	99.6	28.4
1941	42.4	97.6	141.9	116.9	35.6
1951	59.7	116.2	157.2	105.9	41.1
1961	101.7	261.4	308.9	173.6	85.6

Source: Dominion Bureau of Statistics, Census of Canada (Ottawa: Queen's Printer).

TABLE A 14
POPULATION AGED 15-24 YEARS
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1911	179.8	382.8	486.1	264.8	71.4
1921	182.7	445.4	493.9	316.0	73.5
1926	181.2	489.2	538.6	366.4	94.7
1931	189.7	567.0	610.1	463.5	118.1
1936	213.6	608.2	639.9	492.0	128.4
1941	219.6	655.4	663.1	475.8	135.9
1946	214.5	691.5	678.5	424.9	158.1
1951	249.2	678.4	668.0	396.5	150.1
1956	268.9	723.4	712.0	408.8	172.8
1961	293.6	836.0	823.9	447.9	207.9
1964	323.8	959.3	967.7	499.8	250.1
1965	332.8	1,000.4	1,023.6	518.3	267.1
1966	342.8	1,040.5	1,084.3	536.2	288.2
1967	359.9	1,080.8	1,150.7	560.2	310.0

Sources: Dominion Bureau of Statistics, Census of Canada; Population 1921 to 1966. Revised Annual Estimates of Population by Sex and Age; Estimated Population by Sex and Age Groups (Ottawa: Queen's Printer).

TABLE A 15

ENROLMENT OF GIRLS IN GRADE 9 AND UP IN PUBLICLY CONTROLLED SCHOOLS
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	7.9	N.A.	23.1	12.9	4.1
1926	10.9	N.A.	47.1	26.8	6.5
1931	13.7	N.A.	53.3	39.3	9.7
1936	16.6	N.A.	64.9	46.1	12.1
1941	17.8	N.A.	64.8	49.3	15.3
1946	16.4	N.A.	67.5	47.0	15.5
1951	23.4	N.A.	72.0	45.3	18.1
1956	30.5	N.A.	91.6	53.8	24.8
1961	40.7	68.6	133.9	72.2	36.2
1963	48.6	92.1	167.9	86.9	43.9

Source: Dominion Bureau of Statistics, Survey of Elementary and Secondary Education (Ottawa: Queen's Printer).

TABLE A 16

WOMEN ENROLLED IN UNIVERSITIES AND COLLEGES (FULL-TIME)
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Western Provinces
1931	.8	1.2	3.8	2.8
1936	.8	1.6	3.4	2.7
1941	.8	2.0	3.3	2.8
1946	1.1	3.2	5.0	4.3
1951	1.3	3.8	5.0	4.0
1956	1.8	3.9	5.0	4.3
1961	2.9	7.2	7.6	9.4
1963	3.9	11.6	10.6	12.2
1964	4.4	14.0	12.3	14.1
1965	5.2	16.5	14.5	16.8
1966	6.4	20.0	17.5	21.1
1967	7.1	22.8	21.0	24.6
1968	8.1	25.4	24.6	27.8

Sources: Dominion Bureau of Statistics, Survey of Higher Education; Pt. I Fall Enrolment in Universities and Colleges (Ottawa: Survey of Higher Education Queen's Printer).

TABLE A 17
WOMEN AGED 15-24 ATTENDING SCHOOL
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	15.6	24.2	38.1	25.8	7.2
1931	20.2	35.7	65.9	52.5	14.4
1941	23.1	44.8	72.0	61.3	18.0
1951	29.9	50.4	74.6	53.6	19.5
1961	48.1	113.9	138.1	79.6	38.7

Source: Dominion Bureau of Statistics, Census of Canada (Ottawa: Queen's Printer).

TABLE A 18

WOMEN AGED 15-24 YEARS
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	91.5	227.4	249.9	152.3	36.1
1926	89.2	256.2	275.4	176.0	46.8
1931	91.3	288.6	299.0	223.8	57.2
1936	103.6	313.0	309.6	243.2	62.4
1941	106.9	331.0	327.3	233.9	67.8
1946	106.7	345.4	338.7	210.9	81.0
1951	125.5	346.1	330.8	197.1	74.8
1956	132.8	364.4	353.6	207.1	83.0
1961	143.7	420.2	410.4	220.7	102.4
1963	160.7	457.1	442.2	237.2	113.9

Sources: Dominion Bureau of Statistics, Census of Canada; Population 1921 to 1966. Revised Annual Estimates of Population by Sex and Age; Estimated Population by Sex and Age Group (Ottawa: Queen's Printer).

TABLE A 19

ENROLMENT AT UNIVERSITY BEYOND EQUIVALENT OF SENIOR MATRICULATION YEAR
(Thousands)

	Atlantic Provinces		Quebec		Ontario		Prairie Provinces		British Columbia	
	1964	1968	1964	1968	1964	1968	1964	1968	1964	1968
1. Total enrolment	16.0	24.2	57.5	82.6	46.0	79.1	29.1	45.8	17.3	29.4
2. Senior matriculation or equivalent	5.0	6.5	16.0	19.9	3.3	1.3	2.6	.2	4.5	9.6
3. Enrolment beyond senior matriculation	11.0	17.7	41.5	62.7	42.7	77.8	26.5	45.6	12.8	19.8
4. Population 18-24 years	205	228	596	724	574	764	311	363	149	207
(3) as % (4)	5.4%	7.8%	7.0%	8.7%	7.4%	10.2%	8.5%	12.6%	8.6%	9.6%

Source: Dominion Bureau of Statistics, Survey of Higher Education. Pt. I. Fall Enrolment in Universities and Colleges (Ottawa: Queen's Printer).

TABLE A 20

ENROLMENT OF WOMEN AT UNIVERSITY BEYOND EQUIVALENT OF SENIOR MATRICULATION YEAR
(Thousands)

	Atlantic Provinces		Quebec		Ontario		Prairie Provinces		British Columbia	
	1964	1968	1964	1968	1964	1968	1964	1968	1964	1968
1. Enrolment beyond senior matricu- lation	2.6	5.7	9.9	18.2	11.9	24.1	8.2	17.0	3.4	6.8
2. Population 18-24 years	100	113	300	365	287	381	154	181	74	102
(1) as % (2)	2.6%	5.0%	3.3%	5.0%	4.1%	6.3%	5.4%	9.4%	5.1%	6.7%

Source: Dominion Bureau of Statistics, Survey of Higher Education. Pt. I. Fall Enrolment in Universities and Colleges (Ottawa: Queen's Printer).

TABLE A 21

POPULATION 20 YEARS AND OVER BY AGE AND LEVEL OF EDUCATION, CANADA, JANUARY 1966
(Thousands)

Level of Education	20 and Over	20-24	25-44	45-64	65 and Over
Some elementary	2,348	118	763	898	570
Complete elementary	2,319	153	912	870	385
Total elementary	4,667	271	1,675	1,768	955
Some secondary	3,319	509	1,675	896	239
Complete secondary	1,969	362	931	517	159
Total secondary	5,288	871	2,606	1,413	398
Some university	635	181	263	149	41
University degree	531	60	284	148	39
Total university	1,166	241	547	297	80
Total population	11,121	1,383	4,828	3,477	1,433

Source: Dominion Bureau of Statistics, Educational Attainment in Canada. Some Regional and Social Aspects, Special Labour Force Study No. 7 (Ottawa: Queen's Printer, 1968).

TABLE A 22

POPULATION 20 YEARS AND OVER BY AGE AND LEVEL OF EDUCATION, UNITED STATES, MARCH 1966
(Thousands)

Level of Education	20 and Over	20-24	25-44	45-64	65 and Over
Some elementary	18,015	471	3,846	7,181	6,517
Complete elementary	16,165	526	3,551	7,161	4,927
Total elementary	34,180	997	7,397	14,342	11,444
Some secondary	21,076	2,217	8,959	7,586	2,314
Complete secondary	38,045	5,654	18,936	10,837	2,618
Total secondary	59,121	7,871	27,895	18,423	4,932
Some university	12,203	2,968	4,939	3,258	1,038
University degree	11,251	1,039	5,920	3,326	966
Total university	23,454	4,007	10,859	6,584	2,004
Total population	116,752	12,876	46,148	39,347	18,381

Source: Dominion Bureau of Statistics, Educational Attainment in Canada. Some Regional and Social Aspects, Special Labour Force Study No. 7 (Ottawa: Queen's Printer, 1968).

TABLE A 23

NET VALUE OF PRODUCTION IN CANADA

Net Value of Production				Net Value of Production			
Year	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita	Year	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita
1921	2,815	3,273	372	1944	6,972	9,551	800
1922	2,939	N.A.	N.A.	1945	6,298	8,320	689
1923	3,051	N.A.	N.A.	1946	6,740	8,686	707
1924	3,081	N.A.	N.A.	1947	7,991	9,324	755
1925	3,365	N.A.	N.A.	1948	9,405	9,879	770
1926	3,640	5,207	551	1949	9,710	9,710	722
1927	3,902	5,672	589	1950	10,945	10,678	779
1928	4,123	6,037	614	1951	13,137	11,514	822
1929	3,947	5,737	572	1952	13,998	11,733	811
1930	3,336	5,001	490	1953	14,600	12,146	818
1931	2,572	4,076	393	1954	14,101	11,446	749
1932	2,105	3,732	355	1955	15,719	12,697	809
1933	1,996	3,571	336	1956	17,610	13,715	853
1934	2,381	4,207	392	1957	17,855	13,345	803
1935	2,352	4,134	381	1958	18,013	13,225	774
1936	2,581	4,397	402	1959	18,536	13,403	767
1937	3,000	4,967	450	1960	18,991	13,526	757
1938	2,953	4,913	441	1961	19,120	13,531	742
1939	3,173	5,324	472	1962	21,142	14,733	793
1940	3,726	6,000	527	1963	22,402	15,344	811
1941	4,567	6,857	596	1964	24,115	16,109	835
1942	6,039	8,677	745	1965	26,868	17,447	888
1943	6,382	9,014	764				

Source: Dominion Bureau of Statistics, Survey of Production
(Ottawa: Queen's Printer).

TABLE A 24

NET VALUE OF PRODUCTION BY REGIONS

Year	Atlantic Provinces			Quebec			Ontario			Prairie Provinces			British Columbia		
	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita
1921	235	273	273	735	855	362	1,116	1,298	442	526	612	313	199	231	440
1926	239	342	343	861	1,232	473	1,373	1,964	621	847	1,212	586	289	413	682
1931	171	271	268	687	1,089	379	1,084	1,718	501	361	572	243	194	307	442
1936	175	298	279	653	1,112	359	1,128	1,922	533	400	681	282	221	376	505
1941	249	374	331	1,270	1,908	573	2,005	3,011	795	641	962	397	393	590	721
1946	389	501	425	1,780	2,294	632	2,535	3,267	798	1,415	1,823	771	614	791	789
1951	763	669	413	3,353	2,939	725	5,273	4,621	1,005	2,436	2,135	838	1,293	1,133	973
1956	950	740	420	4,524	3,523	761	7,024	5,470	1,012	3,200	2,492	873	1,880	1,464	1,047
1961	1,039	735	387	4,974	3,520	669	7,986	5,652	906	3,197	2,263	712	1,896	1,342	824
1964	1,287	860	439	6,142	4,103	735	10,037	6,705	1,011	4,286	2,863	860	2,333	1,558	893
1965	1,447	940	478	6,716	4,361	767	11,148	7,239	1,066	4,841	3,144	934	2,650	1,721	958

Source: Dominion Bureau of Statistics, Survey of Production (Ottawa: Queen's Printer).

TABLE A 25

PERSONAL INCOME IN CANADA

Personal Income				Personal Income			
Year	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita	Year	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita
1926	4,092	5,854	619	1947	10,390	12,124	966
1927	4,305	6,257	649	1948	11,943	12,545	978
1928	4,618	6,761	687	1949	12,757	12,757	949
1929	4,657	6,769	675	1950	13,414	13,087	954
1930	4,363	6,541	641	1951	15,693	13,754	982
1931	3,692	5,851	564	1952	17,214	14,429	998
1932	3,065	5,434	517	1953	18,132	15,085	1,016
1933	2,843	5,086	478	1954	18,421	14,952	978
1934	3,153	5,571	519	1955	19,738	15,943	1,016
1935	3,373	5,928	547	1956	21,885	17,044	1,060
1936	3,577	6,094	557	1957	23,024	17,208	1,036
1937	4,042	6,692	606	1958	24,391	17,908	1,048
1938	4,090	6,805	610	1959	26,036	18,826	1,061
1939	4,320	7,248	643	1960	27,435	19,541	1,094
1940	4,947	7,966	700	1961	28,522	20,185	1,107
1941	5,896	8,853	769	1962	30,972	21,583	1,164
1942	7,475	10,740	922	1963	32,934	22,558	1,192
1943	8,176	11,548	979	1964	35,153	23,482	1,217
1944	9,002	12,332	1,032	1965	38,062	24,716	1,258
1945	9,239	12,205	961	1966	43,063	26,714	1,335
1946	9,761	12,579	1,023	1967	47,202	28,163	1,380

Source: Dominion Bureau of Statistics, National Accounts. Income and Expenditure (Ottawa: Queen's Printer).

TABLE A 26
PERSONAL INCOME BY REGIONS

Year	Atlantic Provinces			Quebec			Ontario			Prairie Provinces			British Columbia		
	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita	Current \$ Millions	Constant \$ Millions	Constant \$ Per Capita
1926	276	395	396	938	1,342	515	1,537	2,199	695	945	1,352	654	318	455	751
1931	245	388	385	953	1,510	525	1,533	2,429	708	564	894	380	320	507	731
1936	251	428	400	926	1,577	509	1,470	2,504	694	578	985	408	322	549	737
1941	399	599	530	1,470	2,207	662	2,494	3,745	989	938	1,408	581	511	767	938
1946	739	952	807	2,339	3,014	831	3,738	4,817	1,177	1,921	2,475	1,047	922	1,188	1,184
1951	1,147	1,005	621	3,763	3,298	813	6,093	5,340	1,161	3,215	2,818	1,106	1,568	1,374	1,179
1956	1,584	1,234	700	5,423	4,224	913	8,702	6,777	1,254	3,913	3,048	1,068	2,264	1,763	1,261
1961	2,047	1,449	764	7,272	5,146	979	11,490	8,132	1,304	4,650	3,291	1,035	2,953	2,090	1,283
1964	2,473	1,652	844	8,980	5,999	1,074	14,057	9,390	1,416	5,883	3,930	1,180	3,628	2,424	1,389
1965	2,748	1,784	907	9,979	6,480	1,140	15,444	10,029	1,477	6,636	4,309	1,281	4,110	2,669	1,485
1966	2,971	1,843	934	10,945	6,790	1,175	16,986	10,537	1,514	7,419	4,602	1,361	4,589	2,847	1,520
1967	3,262	1,950	975	12,141	7,240	1,222	18,758	11,210	1,532	7,857	4,680	1,855	5,022	3,000	1,495

Source: Dominion Bureau of Statistics, National Accounts Income and Expenditure (Ottawa: Queen's Printer).

TABLE A 27

TOTAL ENROLMENTS^a IN CANADA

Year	Total Enrolments Thousands	Population Aged 5-24 Thousands	Enrolments as Per Cent of Age Group	Year	Total Enrolments Thousands	Population Aged 5-24 Thousands	Enrolments as Per Cent of Age Group
1921	1,998	3,493	57.2	1945	2,203	4,282	51.4
1922	2,070	3,526	58.7	1946	2,279	4,305	52.9
1923	2,114	3,560	59.4	1947	2,295	4,345	52.8
1924	2,138	3,609	59.2	1948	2,332	4,388	53.1
1925	2,165	3,668	59.0	1949	2,478	4,575	54.2
1926	2,197	3,734	58.8	1950	2,552	4,622	55.2
1927	2,235	3,813	58.6	1951	2,619	4,675	56.0
1928	2,272	3,901	58.2	1952	2,744	4,848	56.6
1929	2,307	3,992	57.8	1953	2,883	4,997	57.7
1930	2,346	4,079	57.5	1954	3,046	5,177	58.8
1931	2,391	4,159	57.5	1955	3,246	5,359	60.6
1932	2,415	4,199	57.5	1956	3,410	5,533	61.6
1933	2,410	4,238	56.9	1957	3,557	5,764	61.7
1934	2,336	4,273	54.7	1958	3,723	5,980	62.3
1935	2,316	4,285	54.0	1959	3,959	6,163	64.2
1936	2,314	4,310	53.7	1960	4,144	6,361	65.1
1937	2,312	4,327	53.4	1961	4,342	6,552	66.3
1938	2,321	4,325	53.7	1962	4,562	6,755	67.5
1939	2,323	4,313	53.9	1963	4,757	6,983	68.1
1940	2,291	4,299	53.3	1964	4,905	7,217	68.2
1941	2,259	4,299	52.5	1965	5,109	7,445	68.6
1942	2,220	4,298	51.7	1966	5,295	7,693	68.8
1943	2,198	4,297	51.2	1967	5,482	7,939	69.0
1944	2,198	4,302	51.1				

^aPublic and private schools, universities and colleges.

Sources: Dominion Bureau of Statistics, Survey of Elementary and Secondary Education; Survey of Higher Education; Preliminary Statistics of Education (Ottawa: Queen's Printer).

TABLE A 28

EDUCATION EXPENDITURES IN CANADA

Year	Current \$ Thousands	Current \$ Per Capita	Constant \$ Per Capita	Year	Current \$ Thousands	Current \$ Per Capita	Constant \$ Per Capita
1926	142	15.0	21.5	1948	372	29.0	30.5
1927	148	15.4	22.3	1949	408	30.3	30.3
1928	157	15.9	23.3	1950	464	33.8	33.0
1929	160	15.9	23.1	1951	516	36.8	32.2
1930	165	16.2	24.2	1952	584	40.4	33.9
1931	179	17.3	27.4	1953	627	42.2	35.1
1932	164	15.6	27.7	1954	713	46.6	37.9
1933	147	13.8	24.7	1955	808	51.5	41.7
1934	139	12.9	22.9	1956	909	56.5	44.0
1935	136	12.5	22.1	1957	1,089	65.5	49.0
1936	140	12.8	21.8	1958	1,235	72.3	53.1
1937	146	13.2	21.9	1959	1,427	81.6	59.0
1938	151	13.5	22.5	1960	1,622	90.8	64.7
1939	154	13.7	22.9	1961	1,873	102.7	72.7
1940	157	13.8	22.2	1962	2,281	122.7	85.5
1941	157	13.6	20.4	1963	2,485	131.3	89.9
1942	166	14.2	20.4	1964	2,818	146.1	97.6
1943	218	18.5	26.1	1965	3,345	170.3	110.6
1944	173	14.5	19.8	1966	4,195	209.0	130.0
1945	195	16.2	21.3	1967	4,915	240.9	143.7
1946	290	23.6	30.4	1968	5,931 ^a	286.0	
1947	352	28.0	32.7				

^aPreliminary.

Source: Dominion Bureau of Statistics, Survey of Educational Finance
(Ottawa: Queen's Printer).

TABLE A 29

ENROLMENT IN GRADE 9 AND OVER, INCLUDING UNIVERSITY
(Thousands)

Year	Enrolment in Grade 9 & Over	15-24 Year Age Group	Per Cent
1952	458	2,176	21.0
1953	477	2,199	21.7
1954	503	2,230	22.6
1955	533	2,260	23.6
1956	581	2,291	25.4
1957	626	2,371	26.4
1958	690	2,440	28.3
1959	757	2,491	30.4
1960	817	2,553	32.0
1961	903	2,616	34.5
1962	1,021	2,729	37.4
1963	1,125	2,862	39.3
1964	1,229	3,008	40.9
1965	1,323	3,149	42.0
1966	1,411	3,299	42.8

Source: Illing and Zsigmond, Enrolments in Schools and Universities 1951-52 to 1975-76, Staff Study No. 20, Economic Council of Canada (Ottawa: Queen's Printer, 1967).

TABLE A 30

EDUCATION EXPENDITURES^a AS PERCENTAGE OF PERSONAL INCOME, BY REGIONS

Year	Atlantic Provinces	Quebec	Ontario	Western Provinces
1926	2.7	2.1	2.8	3.3
1931	3.3	2.9	3.6	4.9
1936	3.1	2.8	3.3	3.9
1941	2.3	2.1	2.4	3.0
1946	1.9	2.0	2.1	2.3
1951	3.1	2.1	2.5	2.7
1956	3.7	3.1	3.3	3.6
1961	5.2	5.2	4.8	5.8
1964	5.9	6.7	5.7	6.1
1965	5.9	7.2	5.9	6.1

^aThese are expenditures on public schools and on university education. They exclude private schools and technical education. No comparison can be made, therefore, with Table A 28.

Source: See Tables A 26 and A 1.

TABLE A 31
CAPITAL EXPENDITURE BY REGIONS
(Million of dollars)

Year	Atlantic Provinces		Quebec		Ontario		Prairie Provinces		British Columbia	
	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$	Current \$	Constant \$
1951	315	276	1,111	974	1,748	1,532	956	838	451	395
1956	487	379	1,851	1,442	2,842	2,213	1,750	1,363	1,089	848
1961	617	437	2,008	1,421	2,794	1,977	1,852	1,311	901	638
1964	797	532	2,828	1,889	3,747	2,503	2,276	1,520	1,296	866
1965	951	618	3,232	2,099	4,349	2,824	2,641	1,715	1,625	1,055
1966	1,230	763	3,491	2,166	5,115	3,173	4,098	2,542	2,023	1,255
1967	1,258	751	3,202	1,911	5,264	3,141	3,342	1,994	2,108	1,258
1968 ^a	1,286		3,360		5,631		3,671		2,090	

^aRevised forecast.

Source: Dominion Bureau of Statistics, Private and Public Investment in Canada (Ottawa: Queen's Printer).

TABLE A 32

LABOUR FORCE IN PRIMARY AND MANUFACTURING INDUSTRIES
(Thousands)

Year	Atlantic Provinces		Quebec		Ontario		Prairie Provinces		British Columbia	
	Primary	Mfg	Primary	Mfg	Primary	Mfg	Primary	Mfg	Primary	Mfg
1921	153	31	237	125	313	190	386	36	63	24
1931	147	29	256	157	335	224	464	51	76	35
1941	146	37	304	242	315	322	446	62	76	47
1951	114	52	249	324	245	437	355	87	60	74
1961	95	78	203	466	232	643	318	104	57	113
1966	67	80	164	511	184	826	273	112	55	131
1967	59	78	169	509	199	814	283	117	52	126

Sources: Dominion Bureau of Statistics, Census of Canada; Estimates of Employees by Province and Industry; Seasonally Adjusted Labour Force Statistics. January 1953 to December 1967
(Ottawa: Queen's Printer).

TABLE A 33
TOTAL LABOUR FORCE
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	349	781	1,117	698	220
1931	353	1,022	1,346	895	306
1941	369	1,189	1,455	869	314
1951	530	1,472	1,885	955	444
1961 ^a	562	1,768	2,393	1,158	578
1966 ^b	577	2,008	2,647	1,216	670
1967 ^b	586	2,093	2,750	1,236	718

^aAged 15 and over. Figures for other years are aged 14 and over.

^bTotal employees. Excludes unemployed and self-employed (other than agriculture).

Sources: Dominion Bureau of Statistics, Census of Canada; Seasonally Adjusted Labour Force Statistics, January 1953 to December 1967 (Ottawa: Queen's Printer).

TABLE A 34

LABOUR FORCE IN PROPRIETARY, MANAGEMENT AND PROFESSIONAL GROUPS
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	38	108	146	75	33
1931	35	128	167	89	39
1941	38	153	184	92	42
1951	68	219	292	128	72
1961	91	311	433	190	110

Source: Dominion Bureau of Statistics, Census of Canada (Ottawa: Queen's Printer).

TABLE A 35
WOMEN IN THE LABOUR FORCE
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	52.2	136.9	193.5	77.1	25.4
1931	54.0	200.9	249.1	115.6	43.7
1941	69.6	259.5	315.0	132.9	55.2
1951	99.7	340.6	444.6	179.6	98.0
1961	135.8	478.7	692.4	301.1	155.9

Source: Dominion Bureau of Statistics, Census of Canada (Ottawa: Queen's Printer).

TABLE A 36
URBAN POPULATION
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921	357	1,204	1,631	544	242
1931	367	1,683	2,016	710	385
1941	425	1,987	2,269	741	431
1951	585	2,602	2,688	1,040	594
1956	869	3,241	4,103	1,468	1,026
1961	944	3,906	4,824	1,830	1,182
1966	1,057	4,525	5,593	2,122	1,411

Sources: Dominion Bureau of Statistics, Census of Canada; Canada Year Book (Ottawa: Queen's Printer).

TABLE A 37
NET MIGRATION BY REGIONS
(Thousands)

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia
1921-31	-122	- 10	129	7	101
1931-41	- 5	- 2	77	-248	82
1941-51	- 93	- 12	305	-267	231
1951-56	- 38	96	377	25	135
1956-61	- 59	109	308	18	105

Source: Urquhart and Buckley, Historical Statistics of Canada (Toronto: Macmillan Company of Canada, 1965); Dominion Bureau of Statistics, Canada Year Book (Ottawa: Queen's Printer).

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