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THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "The Effect of Federal Education Grants on the Economic Development of N.W. Territories" submitted by Douglas J. Jackson, in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

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ABSTRACT

The objective of this study is to examine the effect of federal education grants on New Brunswick economic development from 1945 to 1967.

For the economist who is mainly concerned with the allocation of resources, the distribution of income and stable growth, the structure of government is of interest in that it implies patterns of resource use and income distribution. It is thus necessary to establish that Canada does have a federal government and how this, in fact, influences the attainment of the economic objectives of equity, stabilization, efficiency, and growth.

In a discussion of federal-provincial financial arrangements, for validation, the two objectives, efficiency and growth, are best pursued in terms of efficiency. If expenditures will be sub-optimal or spillover exist, federal grants can then be justified by examining this alternative. In this way, regional deficits would also be justified if provincial governments had no other alternative than to receive grants.

The first proposed contributions to validation, namely, the analysis of the effect of the federal grants on the growth rate, the effect of the grants on the budgetary balance, and the effect of the grants on the fiscal discipline of the provinces, are presented in the following sections. The last section contains a brief summary of the results.

current education expenditures are examined closely. The migration variables (measuring spillovers) appear to be insignificant in the determination of per pupil educational expenditures which might indicate that spillovers can be discounted as a justification for federal grants to education.

The effect of education expenditures on economic development can be examined by use of the simple correlation, the manpower needs, the returns-to-education, and the residual approaches. The latter appeared most useful as a means of measuring the importance of federal funding for education as an input into the production process in New England. To further supplement the analysis, the data for federal education grants were derived from a complete review of the sectorial development of the many different programs.

Why is the effect of federal funding on education on state's provincial product so negligible? It appears that the positive relationship does exist. On the basis of the data, it is felt that the significance to the economy, it would appear, that the aid distributed is quite substantial.

ACKNOWLEDGEMENTS

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CHAPTER I

FEDERAL AID AND EDUCATION

This dissertation is an attempt to justify federal education grants. The data used in justifying federal education grants derive from the experiences of New Brunswick during the period 1930 to 1957. While much attention is given to compiling the actual grants of the period, the criteria under theoretical concern are efficiency and growth. For analytical purposes, efficiency is defined as the degree to which the allocation of grants conform to community preferences. Efficiency is treated as the measure of output per unit input. Although significant grants were made in different kinds of institutions, my focus is on the object of considerable interest, namely, the effect of federal grants on the educational system.

This image shows a severely damaged document page. A large, irregular white area dominates the upper portion of the page, indicating significant physical damage such as water damage or a heavy object being pressed against the paper. The rest of the page is filled with extremely faint, illegible text that appears to be bleed-through from the reverse side of the document. Some faint markings and arrows are visible, suggesting a diagram or map that is too faded to be read.

concern of economists has been with two aspects of the question, namely, the justification for federal grants, and their conditionality. A principal concern of this inquiry is the justification of federal education grants.

The issue of federal grants has acquired special importance because of the widespread expansion of governmental responsibilities after World War II.⁷ Prior to the war, each level of government primarily assumed responsibilities associated with those of other levels. However, demands upon government responsibility in health, education, welfare, urban planning, law enforcement, stabilization, economic development, national defense, and foreign policy, and other responsibilities according to an ideological view that the concerns for which money was invested, identifiable, and

Country, and following the winding road, and looking across the fields at the
distant hills, I was struck by the beauty of the scene, and the grandeur of the mountains.
The sky was clear, and the sun shone brightly, making the landscape look
especially beautiful. The trees were tall and green, and the flowers were
brightly colored. The air was fresh and clean, and the sound of birds singing
filled the air. It was a perfect day for a walk in the country.

3

of education is evidenced in the following quotation:

"During the post-war period, it has become increasingly apparent that the future prosperity of a nation will depend in large measure on its success in creating and maintaining an adequate supply of professional, technical, managerial and other highly skilled manpower."³ Governments, in line with this thinking, dramatically increased their expenditures on education (see Table I). The British North America Act had restricted expenditure on education to the provincial governments.⁴ Provincial revenue sources had largely been restricted by the BNA Act, and those sources were limited by the various federal-provincial tax settlements which took effect 1943. As a result, the vast post-war growth in educational expenditure required considerable federal ~~aid~~ support.

Politicians realized the characteristics of a "post-war society" and its general dissatisfaction with the policies of the pre-war era. Individualized education (with its attendant provision for personal training) was therefore a central element of expanded expenditure on education, primarily through the introduction of apprenticeship and compensation. This was a significant departure from the traditional emphasis on teacher-centered education, which was considered to be the best way to prepare students for the world of work. The introduction of apprenticeship and compensation was seen as a way to provide students with practical skills and experience, while also providing them with a sense of personal achievement and satisfaction. This approach was seen as a way to address the needs of the post-war economy, which required a skilled and experienced workforce.

Apprenticeship and compensation were introduced in 1944, with the aim of providing students with practical skills and experience, while also providing them with a sense of personal achievement and satisfaction. This approach was seen as a way to address the needs of the post-war economy, which required a skilled and experienced workforce. The introduction of apprenticeship and compensation was seen as a way to provide students with practical skills and experience, while also providing them with a sense of personal achievement and satisfaction. This approach was seen as a way to address the needs of the post-war economy, which required a skilled and experienced workforce.

TABLE 1-1

OPERATING COSTS OF PUBLIC SCHOOL BOARDS,
CANADA, SELECTED YEARS, 1954-1967^a
(MILLIONS OF DOLLARS)

Year	Total Cost
1954	\$ 4,28.2
1957	605.3
1960	901.3
1963	1,453.1
1965	1,673.6
1966	1,917.5
1967	2,266.5

The primary source of estimates, Dominion Bureau of Statistics, *Current Statistical Information*, and *Education Statistics*, does not contain data for 1962-1963. No additional data are available prior to 1954. The data for 1967 are preliminary.

SOURCE: Dominion Bureau of Statistics, *Current Statistical Information*, and *Education Statistics*; and C. J. Léveillé (1971), *Information Canada*, 1971, p. 103.

Newfoundland was excluded from the data because it did not have a public school system until 1958. The data for Quebec were obtained from the Department of Education, Quebec, by applying the same method of "poor" proportionality as in the case of Ontario. The data for the Yukon, Northwest Territories, and Nunavut were obtained from the Department of Indian Affairs and Northern Development, Ottawa, by applying the same method of "poor" proportionality as in the case of Quebec.

The data for Prince Edward Island, Newfoundland, and the Yukon, Northwest Territories, and Nunavut were obtained from the Department of Indian Affairs and Northern Development, Ottawa, by applying the same method of "poor" proportionality as in the case of Quebec.

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the province's commitment and experience, there exists both a body of data and some well-documented conclusions.

There are two other important consequences of the choice of this topic. Since the data published by Statistics Canada are incomplete, a new set of data on federal grants for education has been devised.⁷ Secondly, this study contributes to the literature on educational returns in Canada.

1. Hypotheses

The analysis of education grants is conducted with the aid of two sets of hypotheses as follows:

- 1) The amount of spending on education within a given jurisdiction depends on (a) ability to spend, (b) need to spend, and (c) willingness to spend; and
- 2) economic development is enhanced by an increasing level of education in the population.

The first proposition suggests that statistical data on educational expenditures can be used to estimate the effect of education on economic development. This proposition also implies that the level of capital investment in education and

research, R&D, scientific and technical personnel, etc., is related to the level of education. This proposition is supported by the fact that education is a major factor in economic development.

The second proposition suggests that economic development is related to the level of education. This proposition is supported by the fact that economic development is related to the level of education. This proposition is supported by the fact that economic development is related to the level of education.

The third proposition suggests that the level of education is related to the level of economic development. This proposition is supported by the fact that the level of education is related to the level of economic development.

The fourth proposition suggests that the level of education is related to the level of economic development. This proposition is supported by the fact that the level of education is related to the level of economic development.

optimum level and/or if there are benefits in the form of economic development.

When the first set of hypotheses is adapted to take into account spillovers, it becomes possible to consider questions of federal grant policy. Available data preclude consideration of New Brunswick alone and thus the analysis of spillovers is conducted on a cross-sectional basis. The

To date, two types of arguments have been employed in the justification for federal aid to education, namely, those of an economic nature, and those involving considerations of equity. A number of the benefits of education are national in scope. For instance, the maintenance of international diplomacy depends to some extent on education. An argument for federal aid to education by the previous administration was that national security benefits. An undisciplined society, the people of which lack a wide profusion of skills, would allow a nation to easily profit from its ignorance. The supporting argument maintained that if a nation did not adequately train its own citizens, it would be compelled to import labor from other countries.

10. *Leucanthemum vulgare* L. (L.)
11. *Leucanthemum vulgare* L. (L.)

The grants themselves have been subject to numerous problems. Education grants have been the subject of almost unilateral initiation. The result has been poor utilization of the grants, particularly in the first years of operation. As well, the apportionment and matching formulas for the grants have been the subject of much criticism. Economic theory suggests that a higher level of social welfare would have been attainable with undesignated grants.⁹

Lastly, there has been much discussion in the literature as to whether it is better to proceed by direct loaning to each province without regard to national growth rates or to develop nationally without concern for the location of growth. No attempt is made to discuss that question here. The more general and immediately relevant, they being the most pertinent, possibilities of proceeding.

Of discriminatory grants and grants with federal involvement in the educational program, the longer term effect on the provinces is questionable.

In this study the educational and developmental aspects of the grants were examined. The results of the study are summarized below.

There apparently was no effort during the period studied to make up the shortfalls in the educational program. This can be seen in the following table which shows the percentage of the educational budget available for educational purposes.

It is apparent from the table that the educational budget was not increased during the period studied. The educational budget was increased in 1957-58, but the increase was not reflected in the budget for 1958-59.

Chapter II consists of a brief survey of the goals of a federal system of finance. Equity, stabilization, efficiency, and growth are examined in turn. The goals are interconnected and simultaneous achievement of all goals is not always possible. The purpose of Chapter II is to put into perspective the concepts of efficiency and growth, two goals which are the focus of the remainder of the thesis.

Chapter III presents a survey of literature with a view to discovering how responsibilities should be allocated in a federal system. Particular stress is given to such characteristics of the public good as indivisibilities and externalities. As well, brief discussions of multi-level governments. When the two discussions are coupled, a specification for federal grants is derived.

The fifth set of hypotheses is located in Chapter IV. In addition to cross-sectional data for the sample, three types of additional expenditures are hypothesized. The first hypothesis concerns the relationship between the distribution of (a) employment measured by participation rate, (b) federal grants, and (c) state and local grants per capita of population and the percentage of population.

Data for employment rates are taken from the 1960 Census, and data concerning employment rates and grants are taken from the 1960 Census of Population. Data concerning grants are taken from the 1960 Census of Government Finances. Data concerning the percentage of population are taken from the 1960 Census of Population. The first hypothesis is tested by regressing the dependent variable, grants per capita of population, on the independent variables, employment rate, grants per capita of population, and the percentage of population. The second hypothesis is tested by regressing the dependent variable, grants per capita of population, on the independent variables, grants per capita of population, and the percentage of population. The third hypothesis is tested by regressing the dependent variable, grants per capita of population, on the independent variables, grants per capita of population, and the percentage of population.

Chapter VI provides a review of literature with a view to identifying the contribution to growth made by education. The following four approaches are analyzed: simple correlation, manpower needs, direct returns-to-education, and the residual method. After an examination of the positive and negative effects, the official approach is chosen to test the second hypothesis.

In chapter V, the second hypothesis is tested. Here, a variation of a Leontief-type model is estimated for the Province of New Brunswick. Output in the model is represented by final products produced with the inputs: capital, labor, and intermediate input combinations. Since all variables are highly jointly available and little differentiation is evident, the data are used so that the parameter estimates are not biased by product differentiation. The output equation is given below:

$$\text{Output}_t = \alpha_0 + \alpha_1 \text{Capital}_t + \alpha_2 \text{Labor}_t + \alpha_3 \text{Intermediate}_t + \epsilon_t \quad (8)$$

The output equation is estimated using the following data for the Province of New Brunswick. The data are from the 1971 census and are expressed in constant 1971 dollars. The data are categorized into three groups: capital, labor, and intermediate. The capital group includes fixed capital, which is measured as the value of fixed assets in the economy. The labor group includes the number of employed persons in the economy. The intermediate group includes the value of intermediate inputs, such as raw materials, fuel, and power.

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3. Definitions

To facilitate communication and understanding, it may be appropriate to elucidate the meaning of some basic terms used in this study. "Federalism," in particular, is a rather elusive term. Weare has isolated several features common to federal states. He defines these features both in terms of constitutional law and in terms of political relationships. Accordingly, federalism implies that "The national government, like the regional governments, should operate directly upon the people . . . , each government should be limited to its own sphere, and, within that sphere, should be supreme in all respects." Another conception of federalism is that "the same exists in the local, values, attitudes, and parts of society or political action operates to give additional expression to the federal principle. The system will be presidential, party-centralized, and unitary in each of the systems, but decentralized and unitary in the national and its parts."

Another view is that of Riker, who interprets federalism in terms of bargaining theory.¹² For Riker, a system is considered to be federal if "(1) two levels of government rule the same land and people, (2) each level has at least one area of action in which it is autonomous, and (3) there is some guarantee (even though merely a statement in the constitution) of the autonomy of each government in its own sphere."¹² Riker's conception of federalism is adopted in this study because of its greater linguistic precision and operational flexibility.

The meaning of education also requires some elaboration. The Black Box has education in a narrow sense, in this study, as broadened definition as that desirable education spillover, and growth in that it is not only from experiences in formal schooling but also from experiences on "on-the-job training" and other educational programs. It is important to define education, to continue this study. The "developmental model" of education, which includes learning, growing, and development, will be used in this study.

effect of education expenditures by government is examined.

In this study "education" is used in a limiting way to refer to formalized training programs.

Finally, the reader will note references to "provinces" throughout the study. For our purposes, "provinces" and "territories" are interchangeable, according to "Province" employed with predominant frequency in order to preserve linguistic continuity.

4. Methodology

A study of federal grants can never be completed without always referring occasionally to both federal-provincial governments and to each province. Because this study emphasizes educational grants to the provinces of New Brunswick, Nova Scotia, and Quebec, no detailed information on the other provinces is given.

The particular emphasis occurring in both federal-provincial grants is to the first two goals. Because this study emphasizes educational grants to the provinces of New Brunswick, Nova Scotia, and Quebec, no detailed information on the other provinces is given.

Yearly, 1960-61, the Canadian Institute of Public Administration has conducted a survey of the public administration of the provinces and territories, and the results are published annually in a pamphlet entitled "Provincial Government Performance".

Information on provincial governments is also available in the annual publication of the Canadian Institute of Public Administration, "The Canadian Public Sector Yearbook".

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CHAPTER II

THE GOALS OF MULTI-LEVEL FINANCE

The decisions and operations of governments must be made and carried out with concern for equity, stabilization, efficiency, and growth. While there is no consensus about a definition of the term "equity," it is normally used to refer to the distribution of income. In any particular society, there is an impression about the desired income distribution, although differences in opinion exist. It is possible for decision makers to perceive a meaning of equity in any given circumstance and economists can then methodologically indicate how economic policy can be used to attain the equity objective. Various types of equity will have differing consequences for the economy.

Stabilization (the attainment of low levels of unemployment, inflation, and price stability) is a goal to which the attention of the population and the government must be turned. The fully developed political system must provide for political and public advocacy, research, and education, and for the development of policies designed to achieve the goals of stabilization. Moreover, a stable political system must be able to determine what kind of level of inflation, unemployment, and price stability are acceptable.

In a perfect market, resource allocation is determined by prices. Since this is not possible for public goods (public good characteristics such as indivisibilities, extreme externalities, and no price exclusion make it impossible to set prices), the neutrality of government policies becomes important as an efficiency norm. Growth, or an increasing output in an economy, remains an important goal.¹

Public finance cannot always separate these goals in theory or in policy. A given action by government often affects more than one goal, sometimes in a negatively nonneutral way.

Allocating funds to achieve the goals is a difficult problem in any state. Complications arise where there is more than one level of government, constitutionally given exclusive jurisdiction over certain fields, while having coordinate jurisdiction over other fields. It is necessary to make adjustments in the theory of the public sector to accommodate the division of authority between levels of government.

A discussion of the economic angle of a scenario
and its implications for other areas of planning, such as
the environment, health, and social welfare, is
essential if the scenario is to be useful. The
process of scenario development can also help to
clarify the underlying assumptions and values
of different groups, and to identify potential
conflicts or synergies between them. This
can lead to more informed and effective
decisions about the future direction of
a community.

powers, enumerated in Section 92. Section 91 of the BNA Act gives the central government power over all Matters not

coming within the Classes of Subjects by this Act assigned

exclusively to the Legislatures of the Provinces,¹² and then

it goes on to enumerate certain specific powers. Canada, then,

is one of those cases for which an adjustment must be made

in the theory of public goods to take account of multi-level

government.

This chapter examines the objectives of federal

finance as it is treated in the literature. The goals are

considered separately, i.e.: when one is considered there

is nothing else assumed to have been established. This

is particularly difficult analysis, while in practical applica-

tion, all would have to be considered simultaneously.¹³

4. Objectives

United and unitary nation, equity, democracy, refer-

endum, etc., etc. In the BNA act grant listed power over

the following matters, and other power, the legislature,

to make laws for the peace, order, and good government of

Canada, and for the defence, welfare, and safety of the people,

and for the better government of the provinces, and for making

laws for the regulation of trade and commerce throughout

the dominion, and for the regulation of money, and the coinage

of money, and for the establishment of post offices, and for

the regulation of navigation, and of shipping, and for the

protection of the rights and property of Canadian citizens

Changes in technology and world demand, the discovery and depletion of natural resources, and the decline of rural society contribute to the constantly changing fortunes of particular geographical areas.⁴ Geographically, even small countries, such as Switzerland and Luxembourg, are faced with these regional disparities and in much greater degree so are larger countries.⁵

An examination of geographic equity must be based on an economic region which is homogeneous in at least one important attribute. These attributes might be economic point of view, market size, social and cultural features, physical features, and administrative jurisdiction. This study uses provincial boundaries in defining a region, both

"Geographical factors, of course, is not the only factor influencing the location of a given office independent of the administrative divisions of a country; there are also such factors as population density, stage of economy and politics, and so on decided. The organization of the provinces of Argentina may serve this point." L. T. Krasner, An Analysis of Latin American Office Locations, p. 10. See also, L. T. Krasner, "Office Locations in Latin America," Journal of Business Research, Vol. 1, No. 1, 1953, pp. 11-16.

for the case of federal and state and county offices. By this method, each state or province is considered a separate entity, and the location of offices is determined by the needs of the state or province. This method has the advantage of being more accurate than the national average, but it also has the disadvantage of being less representative of the whole country.

The second method is to use the national average as the basis for determining the location of offices. This method has the advantage of being more representative of the whole country, but it also has the disadvantage of being less accurate than the state or provincial average.

The third method is to use a combination of the two methods. This method has the advantage of being more accurate than either the state or provincial average, but it also has the disadvantage of being more complex and difficult to use.

because these boundaries define administrative units and because statistics are more readily available by province than by other divisions.⁶

The principles of equity which have been advanced in the literature on federal finance can be divided into four basic categories. These principles are referred to as follows: (a) the principle of federation as a family; (b) the principle of derivation; (c) the principle of equalization; and (d) the principle of equalization of the fiscal residue.

4) The Relation of Federation as a Family

In classical public finance theory, the marginal social benefit (MSB) of an increment of government expenditure is expected to equal the marginal social cost (MSC), in this case to begin optimization of resources in the economy. This offically denotes demand to redistribute by Bhagwati who made it applicable of geographical distribution. The national budget can possibly be used to help the individual and families.

Maçanet de la Selva, 19 d'abril de 1900. — Aquesta és una espècie
que havia estat confusa, però que avui, després de veure, ha quedat
clarificada. La seva forma i color són molt semblants a les d'una
espècie que va ser descrita per Gmelin en el seu "Systema Naturae",
en el volum de 1770, i que es diu *Phrynosoma tigrinum*. La seva
cara i el seu cap són de color negre, amb un gran escut que cobreix
tota la part dorsal del cap i que està dividit en diverses parts.
Aquest escut té un gran nombre de línia i de puntes, i està envoltat
per un gran nombre de pèludets. El seu cos és molt llarg i estret, i
està cobert d'un gran nombre de pèludets. El seu cap és molt
grau i estret, i està cobert d'un gran nombre de pèludets. El seu
corporació és molt gruixuda i estret, i està coberta d'un gran
nombre de pèludets. El seu cap és molt gruixuda i estret, i està
coberta d'un gran nombre de pèludets. El seu cap és molt gruixuda
i estret, i està coberta d'un gran nombre de pèludets. El seu cap
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gran nombre de pèludets. El seu cap és molt gruixuda i estret, i
està coberta d'un gran nombre de pèludets. El seu cap és molt
gruixuda i estret, i està coberta d'un gran nombre de pèludets.

expenditure (such as defence, civil administration, etc.).⁷

If tastes implied by this decision rule are the same in all regions, the rule amounts to ensuring the same amount of government services and taxes in each province. The result is that more funds have to be spent by the federal government on poorer areas in order that the marginal benefits may be equated in all provinces. This may be done in two ways. The federal government can distribute its direct expenditures in such a way as to equalize the marginal benefits in provinces, or preferably the federal government can give grants to the provinces so that the states themselves can equate marginal benefit.

There are two main divisions of the elements called valency groups. First, the oxygen group is indicated by the symbol O_x . Second, the hydrogen group is indicated by the symbol H_y .

ii) The Principle of Derivation

The principle of derivation is based on a simple concept. Basically, it involves dividing federal expenditures into two parts. The first part is direct federal expenditures (on federal functions), while the second part is comprised of payments to the provinces. The latter are to be distributed to the province from which the revenues are raised.

The only redistribution of income is a result of the direct outlays of the federal government. For example,

redistribution may be on the basis of the age profile of the provinces (where old-age pensions or family allowances are distributed by the federal government). The nature of the

federal programs thus determines the degree and type of redistribution. The principle of derivation does not entail any specific amount of spending (in dollars) in various fields (such as health, etc.) nor do the specific amounts change from year to year.

The principle of derivation is also known as the principle of "fiscal federalism".

The principle of derivation is based on the assumption that the federal government has no responsibility for the welfare of its citizens.

The principle of derivation is based on the assumption that the federal government has no responsibility for the welfare of its citizens.

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and in practice.¹⁰ Musgrave has analyzed seven plans in which the criteria are mixed.¹¹ Any of these plans could be applied in varying degrees according to whether the equalization is to be 100 per cent and whether all needs (revenue, etc.) are taken into account.

Objections to the principle of equalization are usually on the basis of the contention such plans may defeat the achievement of economic efficiency; the objections in terms of economic efficiency are discussed later; but usually they involve mobility of capital and/or labour or the effect on pre-existing tax effort and/or a budget deficit.

The principal object of separation is to get rid of the
undesirable and foreign elements which may have been introduced
into the system. This is usually done by passing the
water through a filter. The filter may be made of sand, charcoal,
or some other material which will remove the undesirable
substances. After the water has passed through the filter, it
is then sent to the storage tanks.

iv) The Principle of Equalization of the Fiscal Residuum

In his article "Federalism and Fiscal Federalism," Buchanan proposed a principle which would equalize the fiscal residuum (the difference between taxes and benefits) among people of equal income living in different places.¹³

There are two ways in which the fiscal residuum might be equalized. The first would oblige the federal government to establish differing tax rates in each region to take account of the provincial residuum. Although this system preserves provincial autonomy, it might not, in general, be acceptable on administrative grounds. Consideration must be given to the fiscal potential of each province.

This second way in which the fiscal residuum might be equalized is to let the provinces increase their tax rates by a fixed percentage above those determined by the federal government. This adjustment would be different for each province, reflecting its fiscal potential. It would be up to each province to determine its own tax rates.

It is important to note that the fiscal potential of each province is not necessarily constant. It may change over time due to economic factors or changes in the population. Therefore, the fiscal potential of a province may fluctuate over time, and the federal government may need to adjust the equalization formula accordingly.

Another consideration is the impact of the equalization formula on the fiscal autonomy of the provinces. If the formula is too strict, it may limit the ability of the provinces to make decisions about their own tax rates. On the other hand, if the formula is too lenient, it may result in a lack of fiscal discipline among the provinces.

In conclusion, the principle of equalization of the fiscal residuum is a complex issue that requires careful consideration. It is important to strike a balance between maintaining fiscal autonomy and ensuring that all provinces have access to the same basic services. The federal government must also be aware of the potential impact of the equalization formula on the fiscal potential of each province and take steps to ensure that the formula remains fair and effective over time.

moving to another province with the same fiscal residuum but a different tax-expenditure combination.¹⁵

2. Stabilization

By definition, federalism implies that the provincial governments and the central government are individually responsible for their own taxation and spending policies.

The result is that both the provinces and the Federal government have an important influence on the level of aggregate demand. Given this situation and that economic instability may be distributed unequally, it becomes obvious that the Federal Government must deal with stabilization problems. For one thing, the legislature can be divided into local and non-local constituency aspects.

3. Financial Stability

In the area of financial policy, an important function of the provincial legislature has been to create a reasonably uniform fiscal stability. Provincial governments cannot be expected to provide the services required by the non-local constituents of the legislature without maintaining a stable financial position.

It is the responsibility of the provincial legislature to ensure that the financial stability of the province is maintained. This is done through the use of various fiscal instruments such as taxation, spending, and borrowing. These instruments are used to manage the fiscal situation of the province and to ensure that the financial stability of the province is maintained.

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that the provinces can take may nullify central stabilization policies.¹⁶

Since in a federation, the central government can counteract any spending and/or taxing policies of the provinces and the provinces can reduce or negate the aggregate-demand, aggregate-supply policies of the central government,

it would be inappropriate to advocate that each government act independently. It is also not satisfactory to advocate centralization, for many provincial expenditures, such as social transfers and public works, may be more appropriately varied and postponed than some federal expenditures such as defence.

Although there may be fiscal federalism to be believed in, provincial governments do not take account of the influence of past, ongoing, or likely actions. It seems reasonable to believe that the provinces are indifferent to

the federal government's actions, and vice versa. Provincial governments are not likely to be influenced by the actions of the federal government.

Central bank finance could also affect the implementation of fiscal policy. In addition, expenditure smoothing, which is a function of the central bank, could influence the implementation of fiscal policy.

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having a part in the policy-making plans of other governments.¹³

iii) Monetary Policy

Given that monetary policy is used to attempt to increase the stability of the economy, it is generally recognized that "it is difficult to see how there can be a national monetary policy."¹⁹ The literature on federal finance usually takes this centralization of monetary policy as given. The problem of implementing a federal monetary policy is simple, but need not detain us here.²⁰

10. By the time of the first census in 1850, the population had increased to

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10. The following table gives the results of the experiments made by Mr. J. C. Galt on the effect of the different methods of treatment on the growth of the larvae of *Leucania*.

10. *Leucosia* sp. (Diptera: Syrphidae) was collected from the same area as the *Chrysanthemum* plants.

and the efficiency norm involved ("least-price" distortion).²¹

Typical of these earlier works were those of Buchanan and Scott in which efficiency was defined in terms of GNP measured by market prices of private goods and services.²²

Buchanan, starting from equity norms, treated efficiency as a secondary concern. It was not until his article "Federal Grants and Resource Allocation"²³ appeared that he directed significant attention to resource allocation. In that article Buchanan comes to the conclusion that:

Equilibrium transfers can be set out by the central government designed to reflect the price signal of the free market. It cannot be expected to reflect efficiency exactly. It has been argued that the market may reflect very far from its true cost of production and yet satisfy all applicable constraints.²⁴

Buchanan's argument here is that if a market is not competitive or if a price is set that is not determined by supply and demand, then the market will not reflect the true cost of production. This is true, therefore, of the public sector.

It is also true, however, that the public sector is not necessarily non-competitive. In fact, it is often highly competitive. The public sector is not necessarily non-competitive because it is not necessarily non-competitive. It is non-competitive because it is not necessarily non-competitive.

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Scott, on the other hand, assumed an economy which is not in long-run equilibrium.²⁵ In his model, transfers are alleged to provide amenities to poor people living in provinces with poor resource endowments. These grants counteract incentives to labour mobility.

Scott starts with the theory that "the intensity of the application of labour to scarce resources should be the same everywhere, in order to maximize production."²⁵ Since this can only be accomplished when labour is transferred such that the marginal product of labour becomes the same in all places, the grants which work against mobility prevent maximization of national production.

The theory used by Buchanan and Tullock is a theory which includes reference to public goods which, because of the analytical framework, impossible distinguishing between private and public goods, is based on the mid-1940's. In its maturity, the theory, although the "Nash" and "Hicksian" were joined to provide a more complete picture of the economy, was still based on the

Recent contributions to the literature on efficiency in federations have taken into account the theory of public goods. Particularly noteworthy is the use that spillovers (economies and diseconomies of provincial government operations that accrue to other provinces) have had in developing an ideal constitution.²⁹ The idea is that each community stops short of the socially optimal level of production, depending on the community's estimate of the spillover benefits or costs that will be incurred. Breton, in his article "A Theory of Government Grants," shows that conditional grants from central to lower jurisdictions remedies the shortfall of production.³⁰ This view is examined in the next chapter.

4. Growth

The literature on growth is invariably connected with the other topics reviewed in this chapter. For instance, the Buchanan-Scott debate which had been focused totally on growth with equity and efficiency is really about our growth.³¹ Buchanan advocates capital movements between

²⁹ See, e.g., M. Friedman, "An Economic Theory of Intergovernmental Grants," in *Public Finance and the American Economy*, Special Edition, *Brookings Institution*, Washington, D.C., 1961. Marshall Friedman and Theodore W. Schultz, *Capitalism, Free Enterprise, and Democracy* (New York, 1963), pp. 77-81; and "Cooperation among Government Units," in the same volume, pp. 101-11; and Friedman, "A Theory of Intergovernmental Relations," *Journal of Political Economy*, 68, 1960, pp. 101-11.

³⁰ See, e.g., J. Breton, "Optimal Grants."

poorer provinces for education, natural resource exploration, and health, while Scott advocates labour movements away from the poorer provinces to areas where the productivity would be higher. The chief difficulty with Scott's system is that it depends on labour mobility when often one factor leading to a federation (rather than a unitary state) is cultural (which implies immobility of people).³¹

There are some further factors to be considered in discussion of growth. First, there is an increased tax burden which falls on a "growing" province to support those provinces which are not growing.³² To balance this effect, federation provides a larger protected market which allows a shift to gain from economies of scale. As well, the "spillover" effect,³³ if left to the poorer provinces, may be less effective, in that than the equalization payments made by the rich provinces to the poor provinces.³⁴ The latter benefit may be offset by the effect of increased reallocation of the military budget from the poor provinces to the rich provinces. The chief effect of a shift to a unitary state is that the richer provinces will have to bear a larger share of the costs of the national government.

It is interesting to note that the Canadian experience has been similar to that of the United States.

In the United States, the growth of the central government has been accompanied by a shift of power from the states to the central government.

The shift of power has been accompanied by a shift of wealth from the states to the central government.

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5. Conclusion

It is clear from the foregoing that there are strong connections between the our goals outlined. To achieve one goal, another goal must, at times, be compromised.

This study attempts to justify federal education grants to New Brunswick. If policies are inputs and the goals are the desired outputs, then a partial equilibrium analysis would have one output (for example, growth). If the desired output (the attainment of one goal) is attained by one input (one policy such as education grants), then the policy should not be rejected. In other words, if education grants do stimulate growth, one would accept the policy of wedging on grants until the testing could determine whether other policies might stimulate growth more efficiently.

education grants assist in the attainment of some knowledge than others. For instance, education grants add to the cost of experiments only if the federal government does not make loans or grants to the educational institutions which conduct the experiments. In this way, the money available will be diminished by education grants.

Spillovers (benefits accruing to individual outside the government jurisdiction in which the expenditure is made) may intrude upon two socialist distributional equity and allocative efficiency.³⁴ In the first instance, equity considerations suggest that residents share in the goods in relation to the benefits enjoyed.³⁵ In the second situation it is suggested here that marginal benefits should be equated to marginal costs. But spillover creating marginal societal benefit, reflecting non-local rather than marginal provincial benefit,³⁶ suggests that the activity would then be pursued if the marginal spending of local government exceeded the marginal benefit of the activity. Marginal allocative inefficiency can be argued to be inherent in this approach.

The goals of stabilization, equity, growth, and efficiency are examined in this chapter. Each is seen to be interconnected and each is important to the government decision maker. They cannot be separated in practice.³⁸ This study examines only the goals of allocative efficiency and growth. If either goal is made more easily attainable by education grants, then education grants should not be rejected as a policy without further investigation. Further studies would have to examine the relative efficiency of education grants in attaining the goals, but that is not the topic of this study.

CHAPTER III

PUBLIC GOODS IN A FEDERATION

Government expenditures, which do much to shape the kind of world that individuals face, received little attention from public finance experts (at least in North America) until the middle fifties.¹ Two articles by Samuelson stimulated economic analysis of public expenditures in terms other than a Keynesian national income sense.² Even then, the reality of multi-level government was not analyzed completely.

In the past fifteen years, however, some principles have been established which provide a framework for thinking

¹ A good deal of work has been done in Europe, and extracts from some of those contributions by Gersbach, Lindahl, Solvberg, and Stiglitz have been translated into English by A. Margerison and G. T. Peacock, *Public Expenditure in the European Economic Community* (New York: Harper, 1961).

² "An Income Theory," and "The Economic

³ "An Income Theory," and "The Economic

⁴ "An Income Theory," and "The Economic

⁵ "An Income Theory," and "The Economic

⁶ "An Income Theory," and "The Economic

⁷ "An Income Theory," and "The Economic

⁸ "An Income Theory," and "The Economic

⁹ "An Income Theory," and "The Economic

¹⁰ "An Income Theory," and "The Economic

¹¹ "An Income Theory," and "The Economic

study. After first establishing the characteristics of a public good, it is proposed that the two basic approaches to examining public expenditures (the individual preference approach and the social preference approach) be scrutinized.

It is then possible to make some necessary modifications in the individual preference approach to make it applicable for multi-level governments. Grants can then be examined in terms of economic efficiency.

Part I. Public Goods

If one starts at any point and place in history--say the United States in 1970--it is clear that the society has decided that there exist certain activities that are legitimately performed by governments. Many activities are by long tradition provided by various levels of government and are funded by the political power of the state to raise funds. Others are left to the private sector. Without wishing to dispense the implementation of the debate, the proper dividing line between private and public provision, the fact is that it is difficult, relatively rigid and usually incontrivable to delineate a "governmental function" of the economy and its equivalents in every nation in the world.

What makes a good thing a public provision? Various explanations have been offered, but one often finds it useful to consider that they can be categorized into three principal types. The first is that an activity is a public good. This is a technical definition involving the properties of non-excludability and non-rivalry. The second is that the activity is a merit good. This is a descriptive term referring to an activity which is considered to be in the public interest. The third is that the activity is a public service. This is a descriptive term referring to an activity which is provided by government.

The first type of public good is the most common. It is also the easiest to analyze. The second type is the most interesting. The third type is the most difficult to analyze. The first type is the most common. It is also the easiest to analyze. The second type is the most interesting. The third type is the most difficult to analyze.

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Individual, private goods are delineated by 1, 2, 3, 4, and 5, while public goods are delineated by 6, 7, 8, and 9.

For instance, it would be difficult to exclude someone from a house (private) from protection, as it might be difficult to tell exactly which a country gets specific defense spending. In this case, houses (people) A and C receive protection in part with the intention of some wants, but B cannot be excluded. If A and C want to buy books, however, they can purchase them without having to pay for B to do so. In this first example, defense is individual, while protection in the second example, houses (private good) are divisible.

Two additional types of goods fall into the category of public or divisible goods. The first of these two categories, the other being a common good, is a club good. A club good is one in which the individual members of the club are willing to pay for the provision of a particular good. As such, the club members are entitled to the particular good. As such, the cost of the club is divided among all the members.

For example, "the local highway," is a club good. The members of the town, "the townies," all contribute to the maintenance and construction of the highway. This is a club good because the members of the town are willing to contribute to the maintenance of the highway. The members of the town are willing to contribute to the maintenance of the highway because they benefit from the highway.

Another type of good is a merit good. Merit goods are those goods that are "desirable in itself, partly" as well as being "desirable as a means to some other end." In other words, the good in question is not necessarily wanted for its own sake, but rather for the sake of something else. For example, "the local library" is a merit good because the people who use the library do so for the sake of reading books, but also for the sake of getting information, or for the sake of socializing with others.

The third type of good is a free good. Free goods are those goods that are "desirable in itself, partly" as well as being "desirable as a means to some other end." In other words, the good in question is not necessarily wanted for its own sake, but rather for the sake of something else. For example, "the local library" is a merit good because the people who use the library do so for the sake of reading books, but also for the sake of getting information, or for the sake of socializing with others.

"External economics" is a concept which is used extensively in later parts of the study and a complete understanding of it is necessary. An external economy (dis-economy) is the gain (loss) received by other economic units which emanates from one economic unit initiating or not initiating some action or service for its own usage. For example, suppose that a firm manufacturing steel is made more efficient by the introduction of a new technique. If this new technique also resulted in less ~~less~~ pollution than the old technique, the house, office, and manufacturing concerns in the surrounding area would be receiving a benefit which to them, is external (based on the interpretation that benefits are either private like yourself, family, friends, etc., or general, i.e., the entire community). It should be noted that the concept of externalities can be applied to problems involving both positive and negative externalities.

It is important to note that the concept of externalities can be applied to problems involving both positive and negative externalities. In the case of positive externalities, the individual's action or service benefits others without the individual having to pay for it. This is true in the case of a firm that uses a new technique to reduce pollution. The firm benefits from the reduction in pollution, but it also benefits the surrounding community by reducing pollution.

In the case of negative externalities, the individual's action or service harms others without the individual having to pay for it. This is true in the case of a firm that uses a new technique to reduce pollution. The firm benefits from the reduction in pollution, but it also harms the surrounding community by increasing pollution.

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Lastly, the consequences of decreasing cost can best be demonstrated by the traditional example of a bridge with a uniform toll to cover average cost in a particular time period. In this example, it is likely that the bridge would not be used to "capacity" and some individuals who would be willing to pay marginal social cost would be excluded by the average cost price. Pareto-efficiency would require lowering the uniform price towards the true marginal social cost of supplying the service to the last user (zero if wear and tear is neglected) and this would result in substantial losses due to decreasing costs.

In a comprehensive treatment of the subject, Bradfield claims that governments should be encouraged to expand their role in providing public services, i.e., "jointness" and "availability." An example given supports further expansion of centralized and publicly funded utility companies which are more efficient than privately run firms. The argument goes that the private sector has no incentive to provide services to low-income groups.

Bradfield also claims that the private sector is less efficient than the public sector in providing "public goods," such as national defense, basic research, and environmental protection.

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When private markets no longer exist, the state can use its coercive power to economize on transactions costs.

i) An Example: Education

Education is one of many goods which in Canada is supplied publicly, but which does not fit the (Sanderson) ¹⁸ polar case of a public good. First, elements of education are divisible. There is evidence of this in the many studies done on rates-of-return to individuals from additional education.¹⁹ Work on the private rates-of-return ²⁰ gradually involved determining a rate of discount by which a present value of the marginal of revenues derived from marginal participation in education is equated to the cost of that participation. This is all based on a capitalistic model which does not necessarily apply to, but it would appear that the principles of economic analysis apply equally well to a public good such as education.

The privately supplied, but not owned, approach to education has been used in Canada since the 1950's. In addition to the public sector, there are now three other sectors: the private sector, the co-operative sector, and the voluntary sector. The private sector includes private schools, private universities, and private foundations. The co-operative sector includes co-operative schools, co-operative universities, and co-operative foundations. The voluntary sector includes voluntary schools, voluntary universities, and voluntary foundations. These three sectors are not necessarily separate and distinct, but rather they are interconnected and interdependent. They all share a common goal: to provide education to those who cannot afford it or who do not have access to it through the public sector.

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benefits (MIB) equal marginal individual costs (MIC) which would maximize welfare, given that all benefits were individual and all costs were individual.

Not all benefits, however, can be appropriated by the individual for himself. In other words, not all benefits are divisible. Schooling benefits many people other than the student and his family. It benefits the neighbour, who may be affected favourably by the social values developed in children by the schools, and even by the quietness of the neighbourhood. Charity schools expand schooling benefits employed who enter a trained labour force; and it is the employer's responsibility to pay premium for the productivity of educated workers, who are the product of the educated population. Education is a public good.

Education is a public good because it is non-excludable and non-rivalrous. Excludability means that it is difficult to prevent a person from using the service. Non-rivalry means that one person's use of the service does not reduce the amount available for others.

Education is a public good because it is a merit good. Merit goods are those goods which are used for the public welfare. They are also called positive externalities. Education is a merit good because it has positive externalities. The positive externalities of education are the benefits to society at large.

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uneducated due to an increase in the education of one worker does not lend itself to division.

These benefits can also be external. Mobility increases the external benefits but they are also present without any mobility. Suppose community A and community B are in the same province but are situated several hundred miles apart. Suppose also that community A has developed a very functional education system while community B has happened to have no education system. The external benefit received by community B includes lower provincial taxes (community B does not require much provincial welfare), higher educational total product, better job opportunities, etc. These external benefits are not present if there is no mobility between the two communities.

The externalities of education are not limited to the individual and the community. They also affect the whole society. The individual and the community are not the only ones who benefit from the education of one person. The whole society benefits from the education of one person.

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Is there value in analyzing any other than a pure public good? The answer is yes. Samuelson recognized that a good is quite unlikely to be a polar case of a purely public or a purely private good.¹⁴ Hend has pointed out that a given unit of a good, once produced, which can be made partially available to several individuals exhibits "individuality" of a less extreme nature than that used previously in this study.¹⁵

The presence of public good elements in this society is quite sufficient to rule the change in the allocation of resources to the right, and consequent shift in the individual's self-interests. In this way, the public good concept, and right, the theory of public policy, is based on, the beginning, more realistic and important.

Public policy is not always based on a strict application of the principles of public choice. The public choice approach is well suited to the analysis of the individual's self-interests, but it is not well suited to the analysis of the public interest.

Public choice theory is not well suited to the analysis of the public interest because it does not take into account the fact that the public interest is not necessarily the same as the individual's self-interest.

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from various public expenditures should be equalized.

Secondly, the satisfaction from the last dollar spent should equal the lost satisfaction from the last dollar of taxes.

To demonstrate these principles, Musgrave has introduced a diagram similar to the one presented below.¹⁹ In

Figure 3-1, the line aa shows the marginal utility of successive units of public expenditures, allocated optimally between different public uses. The marginal disutility of successive units of taxes, designed to cause the least total sacrifice, is shown by bb. The line cc measures the net benefits from successive additions to the public budget and is obtained by subtracting bb from aa. The optimum size of the budget is at the point where marginal net benefits are zero (0).

The one advantage of this Paretian approach is that the solution can be derived from equality of wants and sacrifices without regard to individual benefit and costs.

These commodity wants can easily be translated into the notion of income and merit wants which do not appear in the individual's preference schedule. Income need applies to the economic definition of a public good.

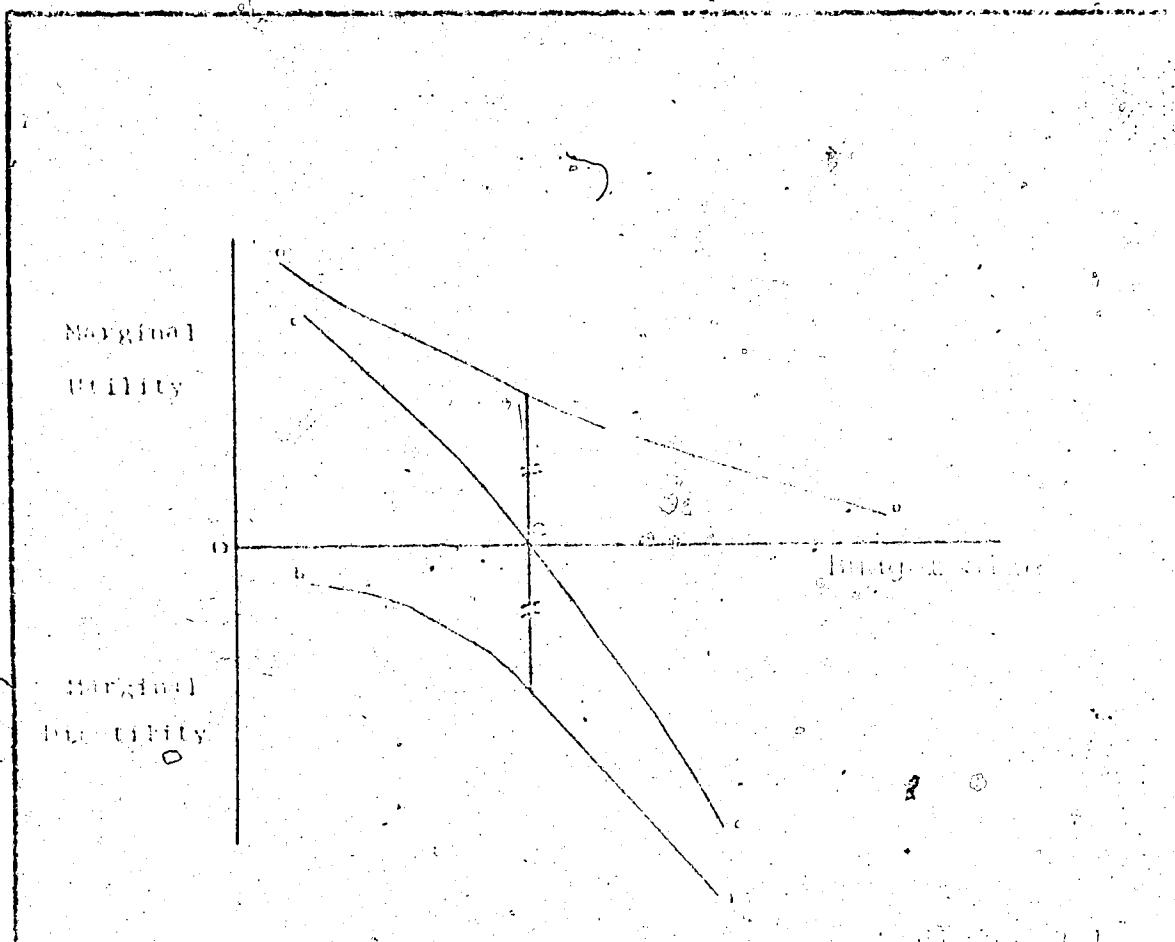
Merit wants are those which are "publicly provided" and are not available to individuals in the private market.

It is this second type of want which is represented by the aa curve in the diagram.

It is the income want which is represented by the bb curve.

It is the merit want which is represented by the cc curve.

on the immeasurable social utility of public services while it must depend on the equally immeasurable social utility foregone by directing resources to the public sector. Furthermore, the principle of equal marginal benefit permits no concrete standard by which the efficiency of various expenditure programs may be determined. Figure 3-1 "offers little more than a pious reminder that the budget should be planned efficiently."²⁰



This model, requiring a collective mind, has been criticized for another reason. It has been used and is subject to use as a justification for all configurations of government. As a result, "there is perhaps little that an economic theorist can usefully say about it."²¹

3. Individual Preference Approach to Resource Allocation

In his early work on the determination of public expenditure and taxation by the individual preferences of members of a family in partial equilibrium,²² Samuelson under-took to complete those early works in general equilibrium form. The general ones of Samuelson's article and those of his first preceding him have been an exception between individual and the government. Individual spending decisions are decided to be imposed on the government for all of its expenses. In the publication of the *Journal of Public Economics*, he has also written a paper and set forth

This image shows a severely damaged document page. The paper is off-white with numerous dark brown, irregular stains and holes, suggesting water damage or mold. The text is completely illegible due to the damage.

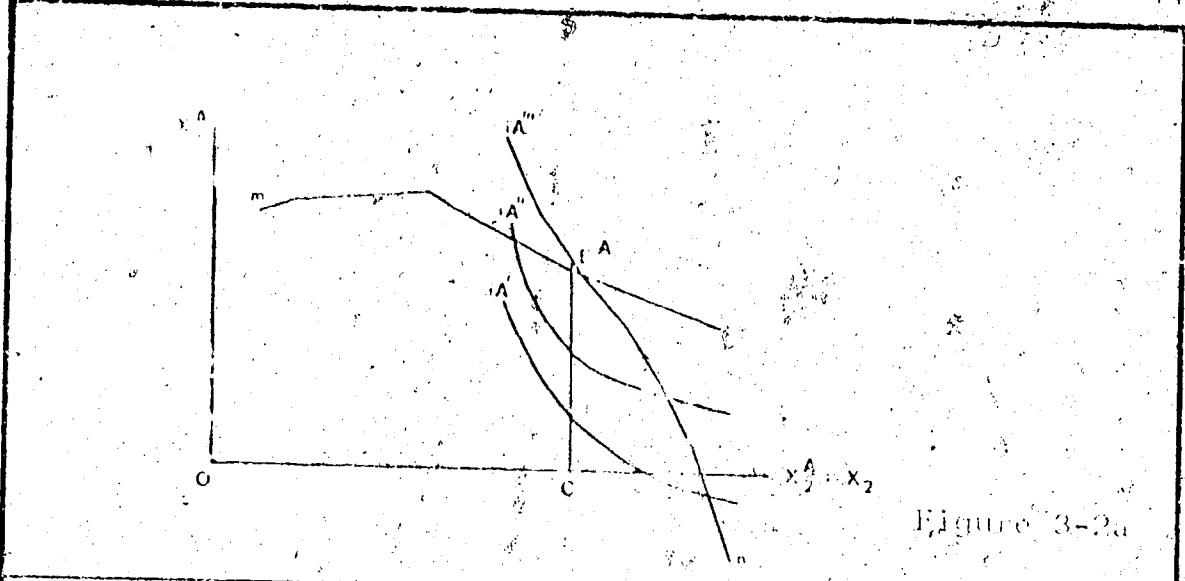


Figure 3-2a

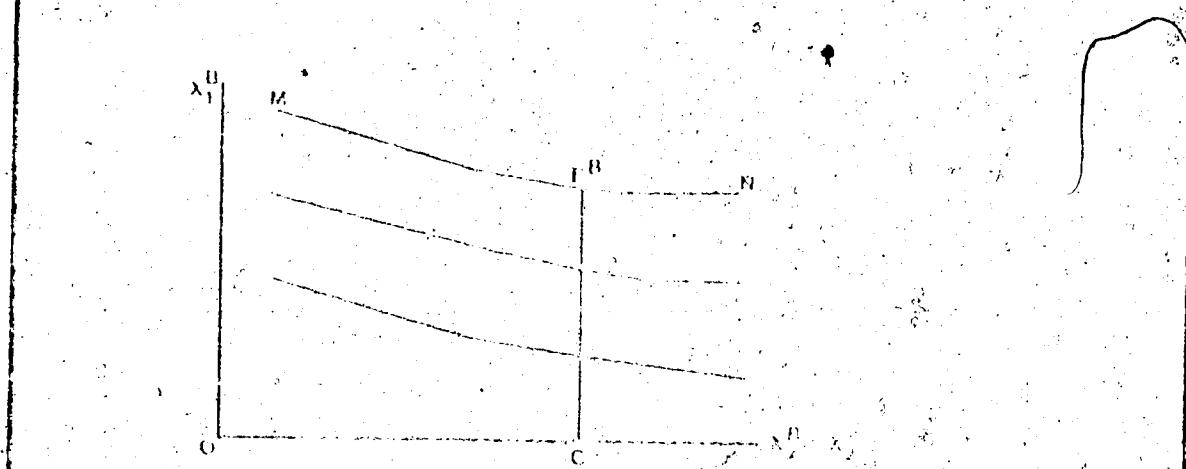
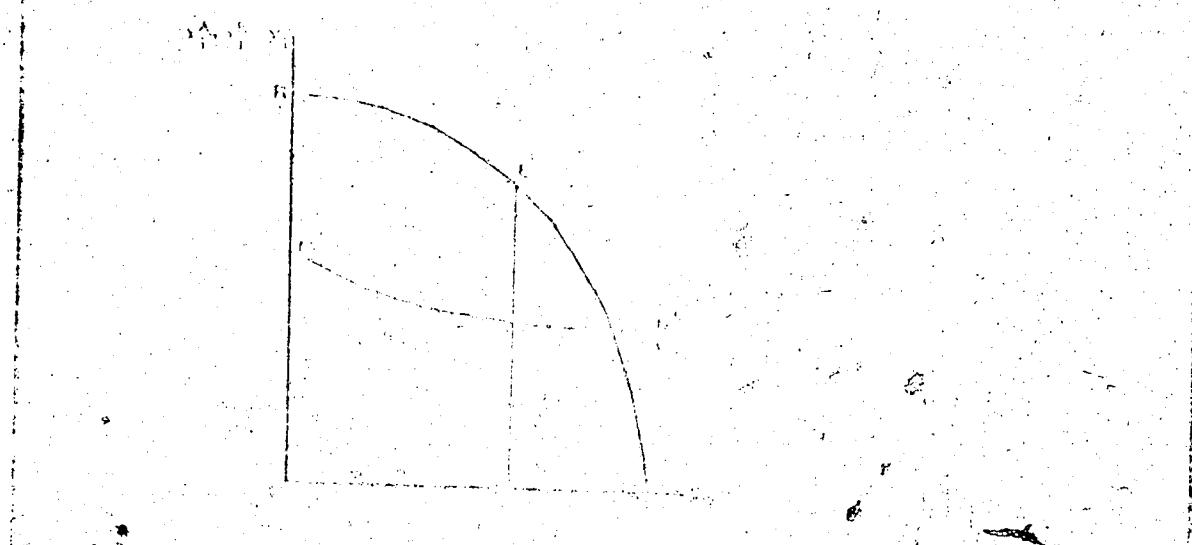


Figure 3-2b



shown by a standard indifference map.¹ Likewise, in Figures 3-2b, individual B's preferences between the same two goods are shown by indifference curves. Finally, in Figure 3-2c, RE relates the production frontier for the two goods, in the usual manner—i.e., with the assumption of non-increasing relative marginal costs.

In those three figures, a spatial definition of a public-good menu must they are not independent.² Each must have exactly the same horizontal scale. Each and every man must always be at the exact same longitudinal point such that $x_1^A = x_2^B = x_3^C$. That restriction is not apparent from private goods and their indifference curves, the so-called "axiom of free disposal." The same could not be said if individual A had a standard menu of private goods while individual B had a menu of public goods. For example, individual A's curve would differ from his curve if he were given a free disposal principle of his own private goods and public goods which were only nonaffine. In other words, the public-goods menu policy, the menu

restriction, is dependent on the assumption that all men have the same menu of private goods. If individual A's menu were not the same as individual B's, then the menu restriction would not hold. For example, individual A's curve would differ from his curve if he were given a free disposal principle of his own private goods and public goods which were only nonaffine. In other words, the public-goods menu policy, the menu

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man B is held on indifference curve M_A (Figure 3-2b). The problem, then, is to find the highest indifference curve that man A can attain given the society demonstrated in

Figure 3-2c by RT. MN is copied on Figure 3-2c and is labelled M'N'. The difference between M'N' and RT represents the amount of the two goods physically available to man A. This difference is demonstrated by the curve m in Figure 3-2c, i.e., where m just touches the indifference contour I₁, i.e., the tangency point which makes man A best off.

This solution method is enabled by creating an individual indifference curve for each B. There will be a new indifference curve for each point on the original A curve. Each of these indifference curves defines a new possibility. Thus, there are infinite numbers of Pareto-optimal points which define the complete welfare set with full precision. In more than one dimension, the points of indifference will always form convex sets.

Even if they do appear in the individual's preference schedule, there are difficulties in the political process which allow the revelation of individual preferences for public goods.²⁵

Arrow points out that if collective decisions are to be rational, in revealing true individual preferences (the "efficient social welfare function"), the following conditions must be met:

- (1) A unique social ordering must exist regardless of the manner in which individuals in the community order their alternative choices. This is called "transitivity".
- (2) The choice of a commodity cannot be rejected. Because many individuals may want the same thing, it is not necessarily efficient to reject it.
- (3) Individuals can trade among themselves. This is called "commodity exchange".

Arrow also points out that the first two conditions are not always met. In fact, he claims that "there is no way to make a rational social choice without making a political decision".

He claims that the third condition is met in most cases. He says that "the market is the best way to achieve efficiency".

He also claims that "the market is the best way to achieve efficiency".

4) All alternatives must be permitted a free vote by individuals in the community. Social choices must be non-dictatorial.

In Arrow's recent work, reference is again made to some problems of the political process. Voting on the issue of income distribution is again shown to exhibit intransitivity. He also refers to political policy which is formulated by representatives or agents, which leads to the question of how individual preferences are taken into account.

Arrow poses these as problems to be faced, not as avoided by the introduction of a representative agent.

In this study, I did not pursue these difficulties. The important element the analysis is presented in this study is that the individual can act in an individual way to private goods and partly in a collective way to public goods. In this way, two different types of individual preferences emerge. There is no difficulty in analyzing the individual and conceptual and the collective aspects of the problem.

The problem of individual and collective social performance may still be considered as a problem of the individual and collective social performance. This is a problem of the individual and collective social performance. This is a problem of the individual and collective social performance.

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coordinate jurisdiction over other fields. In the case of Canada, the British North America Act allocated to the provincial government certain exclusive powers, enumerated in section 92. Section 91 of the BNA Act gives the central government power over "all matters not coming within the classes of subjects by this Act assigned exclusively to the Parliament of the Province."¹²² and then goes on to enumerate certain specific powers. Thus, Canada is one of those countries for which an adjustment must be made in the theory of public goods to take account of multi-level governments.

The adjustment to be made lies in this way: public goods are defined as those already been shown that national goods

or nationalised public goods are not the same thing as nationalised or partially nationalised public goods. In addition, there is no hierarchy.

There are two kinds of nationalised public goods. There are those which are wholly owned by the state, and there are those which are partly owned by the state and partly privately owned. "Partly privately owned" means that the state has a majority share, but not 100%.

For example, if the state owns 51% of a company, then that company is partly privately owned. This is because the state has a majority share, but not 100%.

It is important to note that the state's ownership of a company does not mean that the company is wholly owned by the state. The state may own only a minority share, and the rest may be owned by private individuals or other entities.

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Others are of a geographical nature. In the first case, a standard example would be vaccination against communicable diseases where the level of prevention increases as the number of users increases.¹⁷ In the second case, the nearer the good is to the consumer, the greater the amount available.

There are many examples but a standard illustration, sufficient to demonstrate the principle, is fire protection where the objective benefit (in event of fire) decreases as the distance from the fire hall increases.

Breton defines the degree of "publicness" spatially and argues that many "non-private" goods exhibit similar spatial characteristics. He is therefore able to label these clusters of goods and develop each of publicness as follows:

level 1: "international" goods, continental products, national goods, regional goods, provincial goods, metropolitan goods, and local and rural goods.¹⁸

The same basic ranking can be obtained by taking the following geographical factors into account by rank:
 1. International goods
 2. National goods
 3. Regional goods
 4. Provincial goods
 5. Metropolitan goods
 6. Local and rural goods

The same basic ranking can be obtained by taking the following economic factors into account by rank:
 1. International goods
 2. National goods
 3. Regional goods
 4. Provincial goods
 5. Metropolitan goods
 6. Local and rural goods

The same basic ranking can be obtained by taking the following social factors into account by rank:
 1. International goods
 2. National goods
 3. Regional goods
 4. Provincial goods
 5. Metropolitan goods
 6. Local and rural goods

exhausted within the boundaries of the jurisdiction providing the good (local). There is only one governmental system that is compatible with perfect mapping and that is one in which there are different levels of authority parallel to the types of non-private goods.

Revenue systems can be justified on two principles—the ability-to-pay approach and the benefit approach.³¹ If government revenues are based on the latter (each person pays for the goods-based) then government has sufficient tax revenue to compensate its own expenditures since all goods are used within the jurisdictional borders.³² The ideal state, however, provides equal individualized voluntary benefits to all individuals available to them with supply. This is difficult to do if every person could benefit from the same good. This leads us to the second principle of taxation, namely, the ability-to-pay approach. After all, it is only fair that those who benefit from a particular good pay for it. This is the basic idea behind taxation.

The difficulty is that every person could benefit from the same good. This leads us to the second principle of taxation, namely, the ability-to-pay approach. After all, it is only fair that those who benefit from a particular good pay for it. This is the basic idea behind taxation. The problem is that this is not always the case. In fact, it is often the case that many people benefit from the same good without paying for it. This is because the government provides certain goods and services that are available to everyone. These goods and services are provided at a cost, but they are not paid for by the individual who receives them. This is known as a "public good".

The problem with public goods is that they are not paid for by the individual who receives them. This is because the government provides certain goods and services that are available to everyone. These goods and services are provided at a cost, but they are not paid for by the individual who receives them. This is known as a "public good".

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public sector and ignores the social division between public and private goods.³³

Most governments, therefore, adopt some variation of the ability-to-pay approach based on an index such as income, wealth or consumption.³⁴ In multi-level governments, the difficulty with the ability-to-pay principle is in dividing up the taxation base between the various levels of government. As it is impossible to distribute the revenues to correspond exactly to the expenditures, one solution would be to give the broadest-level government all revenues based on ability-to-pay and to have them give to each of the smaller jurisdictions an unconditional grant. Under this system, if a smaller jurisdiction (e.g., province) needed more funds, its taxation capacity would be alleviated through a proportional reduction in jurisdiction A's grant, maintaining substantially similar quality of service than another jurisdiction (presumably).

However, the problem with this type of fiscal policy

is that it is difficult to determine the appropriate level of taxation, and by whom. Officially, the pay and receive model is based on individual, rather than collective, income. However, the concept of individual income is not well defined. In fact, it is often argued that individual income is not a good measure of a person's ability to pay taxes. This is because individual income does not take into account the fact that some individuals have higher expenses than others. For example, a single-parent family with two children will likely have higher expenses than a couple without children. Therefore, using individual income as the basis for taxation may result in unfair treatment of certain groups of people.

into the territory of the contiguous jurisdiction). When this type of discontinuity in government is present, the expenditure should be made by the next higher level of government.³⁴ If each province has its own preference function which differs from other provincial preference functions and from the federal government's preference function and if provincial sovereignty is important, the expenditure by the next higher level of government is unacceptable.

A pragmatic solution might then be to establish a limited number of government levels, each with functions approximating its spatial coverage. In this system, the more senior government would collect taxes on the ability-to-pay principle and give conditional grants to the more junior levels of government. If there were some junior-level functions with external effects, conditional government spirititual would yield a Pareto-optimal allocation of resources, even if the lower-level governments were using lump-sum taxation.

The Canadian Constitution appears after the preamble to begin with a list of powers given to the federal government. This is followed by a section on the powers of the provinces. This

list of specifically defined powers will not allow for the sharing of authority between the two levels of government. This is because the list of powers is closed, and the only way to add new powers is to amend the Constitution.

The Canadian Constitution also contains a section on the powers of the federal government. This section is open-ended, and it allows for the sharing of authority between the two levels of government. This is because the list of powers is open-ended, and the only way to add new powers is to amend the Constitution.

made in Canada as to which level of government uses which principle to collect revenues. In practice, the federal authority tends to use ability-to-pay more than benefit as a principle while the provinces use both. Likewise, the principle of conditional grants in cases of spillovers only is not adhered to. In fact, the federal government often uses conditional grants in establishing its own programs or priorities even when spillovers are significant.

III. Education According to

CHAPTER IV.

GEOGRAPHICAL SPILLOVERS AND EDUCATION

In this chapter an attempt is made to investigate the geographical spillovers of education and whether their existence has affected the level of provincial financial support for elementary, secondary, and higher education.

The analysis tests the hypothesis that support for education is based on the expectation of net benefits. According to the hypothesis, the existence of spillover benefits to provinces outside New Brunswick (of any magnitude) will expand the locus of potential beneficiaries by defining benefits in the province. As a consequence, the spillover benefits were expected to have an influence on the establishment of provincial and territorial governments' level of support for public education in the province.

Table 10 looks at the provinces' own fiscalization of postsecondary education in the early 1970s. It compares the

forms.² Firstly, the additional lifetime productivity generated by the education may be lost to the province from which the individual is leaving. Secondly, the tax revenues for the province losing the educated would be decreased by some factor times the additional income that would have been generated because of the extra education. Thirdly, there would be a loss to the province of the non-monetary benefits of education such as social norms and values, good citizenship, and so forth.

Demand for education may be differentiated as follows:

- 1) the demand of the student for knowledge and future earnings;
- 2) the demand of parents on behalf of their present and future school-age offspring; and
- 3) the demand for the education of other people's children.

The first two demands are not likely to be diminished by the knowledge that the recipient of the education may eventually leave the province. The willingness of adults to support education (other than the families of students and future students) may be a negative function of the degree to which potential benefits accruing to them from the schooling of other people's children are lost to those outside of the province.³

² Pecotich, "Theory of Optimal Levels," p. 194.

³ Weisbrod, "Geographical Spillover Structures," p. 195.

For efficiency of resource allocation and for equity, the implication of these geographic spillovers is that if a province realizes that benefits produced by expenditures on education are captured by persons outside the province, it may fail to undertake expenditures on education that would be desirable from the standpoint of the entire society. The analysis assumes a decision-making unit that tends to equate the marginal costs it bears with the marginal benefits it receives.

Benefit spill-ins, which the province receives from migration into the province, may tend to cancel the spill-outs of out-migration from the province. However, the spill-ins of benefits to the province from education provided outside the province are essentially independent of its own education expenditures. Assuming collective welfare maximization, the spill-ins of benefits to the province constitute fixed benefits which have no influence on decisions at the margin. Thus the tendency of benefit spillovers to cause underexpenditure on education is not offset by a tendency of spill-ins to cause overexpenditure.⁴ The consequence is that expenditures on education may be less than optimal unless a higher-level government supports them or the lower-level government is expanded geographically so as to internalize the spillover benefits.

4.1. Empirical Model

A linear multiple regression model is used to examine the influences of a number of "independent" variables (including pupils' and parents') on per-pupil educational expenditure. The variables are listed as follows:

(1) Expenditure per pupil: E_{ij} , measured in thousands of rupees.

The dependent variable, E_{ij} , measures the expenditure per pupil. Variables affecting per-pupil expenditure, namely, family size, family income, family size squared, family size cubed, and age of children, are included in the model. The variables are defined as follows:

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The dependent variable, E_{ij} , measures the expenditure per pupil. Variables affecting per-pupil expenditure, namely, family size, family income, family size squared, family size cubed, and age of children, are included in the model. The variables are defined as follows:

DATA
SOURCES

DOMESTIC
EXGEN

STATE
STATISTICS

INDUSTRIAL
STATISTICS

AGRICULTURAL
STATISTICS

FORESTRY
STATISTICS

MINING
STATISTICS

POWER
STATISTICS

1. GENERAL INFORMATION
2. INDUSTRIAL INFORMATION
3. AGRICULTURAL INFORMATION
4. FORESTRY INFORMATION
5. MINING INFORMATION
6. POWER INFORMATION

1. GENERAL INFORMATION
2. INDUSTRIAL INFORMATION
3. AGRICULTURAL INFORMATION
4. FORESTRY INFORMATION
5. MINING INFORMATION
6. POWER INFORMATION

1. GENERAL INFORMATION
2. INDUSTRIAL INFORMATION
3. AGRICULTURAL INFORMATION
4. FORESTRY INFORMATION
5. MINING INFORMATION
6. POWER INFORMATION

1. GENERAL INFORMATION
2. INDUSTRIAL INFORMATION
3. AGRICULTURAL INFORMATION
4. FORESTRY INFORMATION
5. MINING INFORMATION
6. POWER INFORMATION

expenditures are included.⁷ Federal contributions are excluded. Thus, column (7) of Table A-1 represents total expenditures on education out of funds raised within provincial borders and out of funds borrowed outside the provincial boundaries by the provincial or local authorities.⁸ The numerator for calculating expenditures per pupil is thus found in column (8).

The denominator in the calculation of current expenditures per pupil is found in column (3) of Table A-1 which is a summation of the number of public and private elementary and secondary students, plus secondary vocational school pupils attending governmentally supported private day, dormitory, university, technical, business, and trade schools. Private and public students are listed in the census documents and censuses. Figures for the number of students in institutions of federal and state governments are not available, but the number of students per pupil is dependent upon the number of pupils in the system.

Expenditures of local authorities are calculated by dividing the total amount spent by the number of students in the system.

Expenditures of the federal government are calculated by dividing the total amount spent by the number of students in the system.

Expenditures of state governments are calculated by dividing the total amount spent by the number of students in the system.

Expenditures of local governments are calculated by dividing the total amount spent by the number of students in the system.

This image shows a severely damaged document page. The paper is off-white or light gray. There are several large, irregular holes of varying sizes scattered across the surface, particularly on the left side. A prominent, roughly rectangular area in the center-right has been completely redacted with a thick black marker. The text, which appears to be in a cursive or script-like font, is mostly illegible due to the damage. Some faint traces of the original text are visible through the holes and the redacted area.

TABLE 4-3

PROVINCIAL EXPENDITURE PER PUPIL BY
PROVINCE, 1941-42

Province and Local Government ^a	Expenditure per Pupil ^b	Expenditure per Pupil ^c \div (3)		
	(1)	(2)	(3)	(4)
Newfoundland	423.4	137.1	417.1	
Prince Edward Island	53.3	16.7	199	
Nova Scotia	43.6	19.2	224	
New Brunswick	36.3	10.8	222	
Quebec	467.5	142.0	334	
Ontario	229.1	145.1	413	
Manitoba	172.9	24.8	654	
Saskatchewan	147.9	21.1	697	
Alberta	149.8	23.8	632	
British Columbia	149.8	21.1	711	

iii) Federal Grants for Education as a Percentage of Educational expenditures made by the Province: %

The first independent variable to be considered is federal grants for education as a percentage of provincial expenditures on education. This variable is included so as to determine any systematic relationship between federal grants and the level of expenditures per pupil. A positive sign on the regression coefficient would indicate larger sums of money being spent on education (per pupil) in those provinces in which federal grants are larger. A negative sign would indicate the opposite.

A positive sign could then imply that grants induce a spending effect. On the other hand, it could indicate that the provinces receiving the federal grants are the ones whose level of education expenditures are higher, which for their part are able to attract higher levels of spending. The difference between the educational spending of the provinces receiving grants and the provinces not receiving grants may be due to the fact that the former are more likely to have better teachers, more modern equipment, etc. It may also be the case that the provinces receiving grants are more inclined to invest in education.

going to provinces which spend little on education (per pupil), either because they cannot afford to spend more or because of a desire not to spend more.

Table 4-1 established the federal contributions, by province, for the year 1961 as a percentage of provincial net local expenditures on education. It will be noted that the percentages vary from 12.13 per cent. (for Prince Edward Island) to a low of 3.34 per cent. (for Quebec). Quebec projected some types of grants in 1961. However,

(iii) The following table summarizes the results of the sensitivity analysis.

TABLE 42-4

FEDERAL CONTRIBUTIONS AS A PERCENTAGE OF
PROVINCIAL EDUCATIONAL EXPENDITURES,
1961-62

Province	Federal Contributions as a Percentage of Provincial and Local Provincial Expenditures	Federal Contributions as a Percentage of Provincial and Local Expenditures
Newfoundland	34.4	34.4
Prince Edward Island	10.7	11.3
Saskatchewan	15.3	15.3
Nova Scotia	14.1	14.8
New Brunswick	15.9	16.9
Alberta	17.9	18.1
Manitoba	16.0	16.1
Quebec	17.9	18.8
Ontario	16.9	17.9
British Columbia	11.2	11.6
Yukon	10.0	10.0
N.W.T.	10.0	10.0
Northwest Territories	10.0	10.0

the public schools, it is an indication of the "willingness" of the people to support the system.

Some difficulty is encountered in deciding the ages which constitute "school-age," since most provinces require children enroled in kindergarten at age five and school attendance is controlled by law until age thirteen or sixteen, depending upon the population and above to sixteen. In relevant data student rates complete a four-year primary, go beyond secondary graduation, while in others they are limited until the completion of grade eight, but if the world of today is considered, twenty-two years is a reasonable population figure. The available figures of the secondary and post-secondary schools are not available, but the figures of the primary schools are available for all the provinces, and of these, the following are the largest and most reliable:

Alberta: 1930-31, 1,000,000; 1931-32, 1,000,000; 1932-33, 1,000,000; 1933-34, 1,000,000; 1934-35, 1,000,000; 1935-36, 1,000,000; 1936-37, 1,000,000; 1937-38, 1,000,000; 1938-39, 1,000,000; 1939-40, 1,000,000; 1940-41, 1,000,000; 1941-42, 1,000,000; 1942-43, 1,000,000; 1943-44, 1,000,000; 1944-45, 1,000,000; 1945-46, 1,000,000; 1946-47, 1,000,000; 1947-48, 1,000,000; 1948-49, 1,000,000; 1949-50, 1,000,000; 1950-51, 1,000,000; 1951-52, 1,000,000; 1952-53, 1,000,000; 1953-54, 1,000,000; 1954-55, 1,000,000; 1955-56, 1,000,000; 1956-57, 1,000,000; 1957-58, 1,000,000; 1958-59, 1,000,000; 1959-60, 1,000,000; 1960-61, 1,000,000; 1961-62, 1,000,000; 1962-63, 1,000,000; 1963-64, 1,000,000; 1964-65, 1,000,000; 1965-66, 1,000,000; 1966-67, 1,000,000; 1967-68, 1,000,000; 1968-69, 1,000,000; 1969-70, 1,000,000; 1970-71, 1,000,000; 1971-72, 1,000,000; 1972-73, 1,000,000; 1973-74, 1,000,000; 1974-75, 1,000,000; 1975-76, 1,000,000; 1976-77, 1,000,000; 1977-78, 1,000,000; 1978-79, 1,000,000; 1979-80, 1,000,000; 1980-81, 1,000,000; 1981-82, 1,000,000; 1982-83, 1,000,000; 1983-84, 1,000,000; 1984-85, 1,000,000; 1985-86, 1,000,000; 1986-87, 1,000,000; 1987-88, 1,000,000; 1988-89, 1,000,000; 1989-90, 1,000,000; 1990-91, 1,000,000; 1991-92, 1,000,000; 1992-93, 1,000,000; 1993-94, 1,000,000; 1994-95, 1,000,000; 1995-96, 1,000,000; 1996-97, 1,000,000; 1997-98, 1,000,000; 1998-99, 1,000,000; 1999-2000, 1,000,000; 2000-2001, 1,000,000; 2001-2002, 1,000,000; 2002-2003, 1,000,000; 2003-2004, 1,000,000; 2004-2005, 1,000,000; 2005-2006, 1,000,000; 2006-2007, 1,000,000; 2007-2008, 1,000,000; 2008-2009, 1,000,000; 2009-2010, 1,000,000; 2010-2011, 1,000,000; 2011-2012, 1,000,000; 2012-2013, 1,000,000; 2013-2014, 1,000,000; 2014-2015, 1,000,000; 2015-2016, 1,000,000; 2016-2017, 1,000,000; 2017-2018, 1,000,000; 2018-2019, 1,000,000; 2019-2020, 1,000,000; 2020-2021, 1,000,000; 2021-2022, 1,000,000; 2022-2023, 1,000,000; 2023-2024, 1,000,000; 2024-2025, 1,000,000; 2025-2026, 1,000,000; 2026-2027, 1,000,000; 2027-2028, 1,000,000; 2028-2029, 1,000,000; 2029-2030, 1,000,000; 2030-2031, 1,000,000; 2031-2032, 1,000,000; 2032-2033, 1,000,000; 2033-2034, 1,000,000; 2034-2035, 1,000,000; 2035-2036, 1,000,000; 2036-2037, 1,000,000; 2037-2038, 1,000,000; 2038-2039, 1,000,000; 2039-2040, 1,000,000; 2040-2041, 1,000,000; 2041-2042, 1,000,000; 2042-2043, 1,000,000; 2043-2044, 1,000,000; 2044-2045, 1,000,000; 2045-2046, 1,000,000; 2046-2047, 1,000,000; 2047-2048, 1,000,000; 2048-2049, 1,000,000; 2049-2050, 1,000,000; 2050-2051, 1,000,000; 2051-2052, 1,000,000; 2052-2053, 1,000,000; 2053-2054, 1,000,000; 2054-2055, 1,000,000; 2055-2056, 1,000,000; 2056-2057, 1,000,000; 2057-2058, 1,000,000; 2058-2059, 1,000,000; 2059-2060, 1,000,000; 2060-2061, 1,000,000; 2061-2062, 1,000,000; 2062-2063, 1,000,000; 2063-2064, 1,000,000; 2064-2065, 1,000,000; 2065-2066, 1,000,000; 2066-2067, 1,000,000; 2067-2068, 1,000,000; 2068-2069, 1,000,000; 2069-2070, 1,000,000; 2070-2071, 1,000,000; 2071-2072, 1,000,000; 2072-2073, 1,000,000; 2073-2074, 1,000,000; 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20412-20413, 1,000,000; 20413-20414, 1,000,000; 2

TABLE 4-5
PERCENTAGE OF 5-24 YEAR OLDS ENROLLED
IN PUBLIC EDUCATION, 1961-62

Province	Population Enrolment ^a	Population 5-24 Years Old ^b	Percentage Enrolled
Newfoundland	137,100	197,900	69.3
P.E.I.	26,700	39,700	67.3
Nova Scotia	195,900	273,600	70.1
New Brunswick	162,600	239,600	68.9
Quebec	1,141,860	1,626,200	69.6
Ontario	1,616,100	2,091,300	72.8
Manitoba	176,300	321,500	54.0
Saskatchewan	217,100	331,000	65.6
Alberta	311,600	477,600	65.3
British Columbia	332,700	523,000	63.5

iv) Percentage of Total Enrolment Registered
in Post-Elementary Education: X₄

Secondary schooling is more costly than elementary education (the first eight grades [seven in Quebec]), and post-secondary education in the trades and university is even more expensive. A positive sign is forecast for the coefficient of this variable indicating that the larger the percentage of pupils in the higher educational levels, the larger the anticipated per-pupil cost increase on education.

One of the reasons for differences between provinces in this figure is that the age distribution of the children may vary by province. "Older" rather than "utilized" may then be represented by this variable.

In Table 4-4, the difference in secondary, post-secondary, supplementary, elementary enrolment and post-elementary

in families under forty roughly corresponds to the difference in elementary and post-elementary enrolment.

Post-elementary enrolment is approximately 10% of total enrolment, while supplementary enrolment is about 15% of total enrolment. This figure is based on the assumption that all post-elementary students are in fact post-elementary enrolment.

The figure for post-elementary enrolment is probably too low since it does not include those who are in post-elementary but not registered.

The figure for supplementary enrolment is probably too high since it includes those who are in post-elementary but not registered.

The figure for elementary enrolment is probably too high since it includes those who are in post-elementary but not registered.

The figure for secondary enrolment is probably too high since it includes those who are in post-elementary but not registered.

TABLE 4-6
ENROLMENT BY LEVELS OF EDUCATION, 1951-52
(Thousands of Students)

Province	Total Enrollment ^a	Elementary Enrollment ^b	Total Enrollment in Secondary Schools ^c	Percentage of Total Enrollment in Secondary Schools ^d	Post-Secondary Enrollment ^e
(1)	(2)	(3)	(4)	(5)	(6)
Newfoundland	137.4	112.3	24.3	18.1	—
Prince Edward Island	10.7	20.3	5.9	22.4	—
Nova Scotia	195.2	153.9	41.6	21.4	—
New Brunswick	162.3	136.6	25.7	22.3	—
Quebec	1,223.9	904.7	319.2	26.1	—
Ontario	1,511.1	1,143.6	367.6	24.3	—
Manitoba	220.2	180.5	39.7	17.9	—
Saskatchewan	224.1	167.6	50.4	22.3	—
Alberta	230.1	205.6	24.5	10.6	—
British Columbia	201.4	166.0	35.4	17.6	—
Yukon, Northwest Territories, and Nunavut	10.0	—	—	—	—

^a Total enrollment includes all students in public, separate, and private elementary and secondary schools.

^b Elementary enrollment includes all students in public, separate, and private elementary schools.

^c Secondary school enrollment includes all students in public, separate, and private secondary schools.

^d Percentage of total enrollment in secondary schools based on total enrollment in secondary schools.

^e Post-secondary enrollment includes all students in post-secondary institutions.

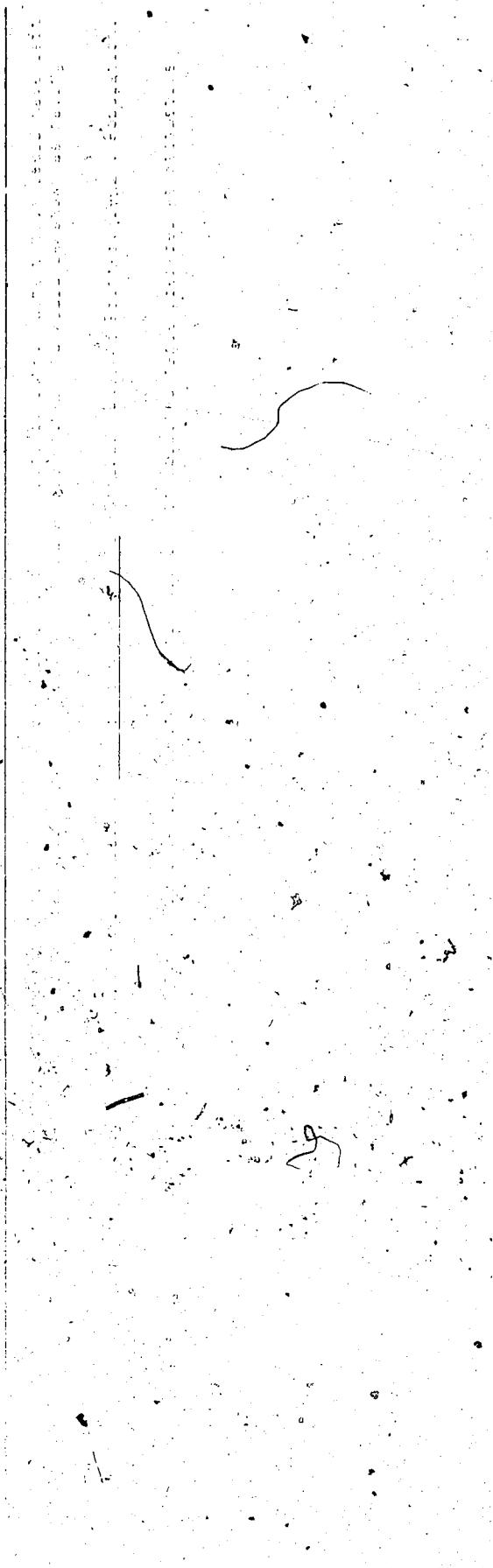
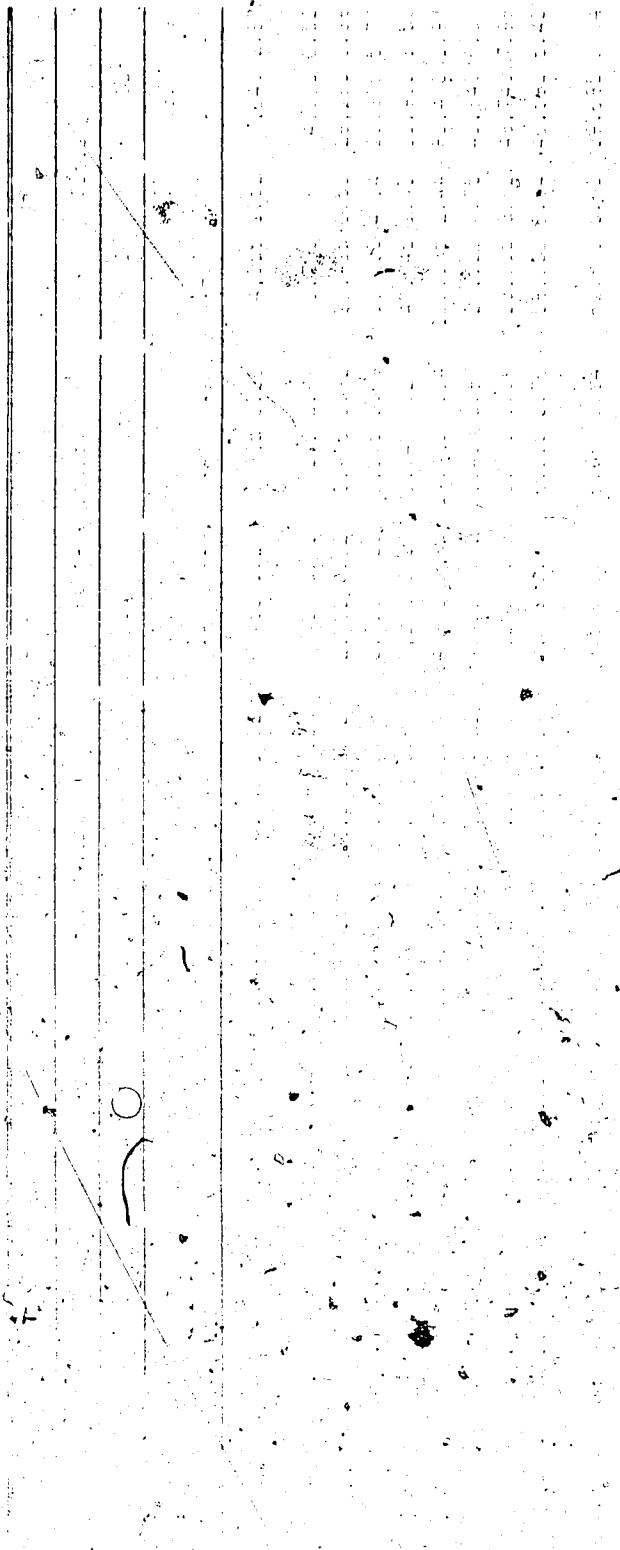
v) Population Change with Elementary-Level Education or Less:

The percentage change in the population resulting from the net migration of people with elementary-level education or less should affect attitudes towards educational expenditures. For instance, out-migration of people with an elementary-level of education results in a decrease in expected commodity benefits. In-migration results in an increase in expected benefits. Decision makers would then be expected to not spend as much per pupil if it arose where out-migration was taking place and to spend more per pupil if it arose where in-migration takes place. The predicted sign is for the coefficient to be this positive.

Table 4-7 contains the number of individuals aged 15 to 24 years old who moved into and out of each province between 1986 and 1991. This figure is presented as a ratio of the total population over fifteen years old and can be found in Table 4-8. The 1991 data only, is used in our analysis. The players of capital are categorized, 1990 and later. The 1990 data could have links to previous and subsequent years. The data is categorized by moves into and out of each province. Finally, and lastly, the number of individuals aged 15 to 24 years old in each province is presented.

Using the 1990 data and the City of Edmonton's population projections, we can estimate the number of individuals aged 15 to 24 years old in each province. The number of individuals aged 15 to 24 years old in each province is estimated by the following equation:

$$\text{Number of individuals aged 15 to 24 years old in each province} = \frac{\text{Number of individuals aged 15 to 24 years old in 1990}}{\text{Total population in 1990}} \times \text{Projected population in 1991}$$



vi) Population Change at the secondary level
Education

The variable S_2 is the percentage of net movement
with population with secondary school education. Mobility
profiles are made between those who have completed high school
and those who have completed only the part of secondary school.

With the consideration to make partial about the variable
education individual of the population, the regression model has
a regression coefficient equal to zero. Variable S_2
contains the following information:

1. The first part of the variable contains the information
about the population with secondary school education
and the second part contains the information about the
population with primary school education.

2. The first part of the variable contains the information
about the population with secondary school education
and the second part contains the information about the
population with primary school education.

3. The first part of the variable contains the information
about the population with secondary school education
and the second part contains the information about the
population with primary school education.

4. The first part of the variable contains the information
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5. The first part of the variable contains the information
about the population with secondary school education
and the second part contains the information about the
population with primary school education.

6. The first part of the variable contains the information
about the population with secondary school education
and the second part contains the information about the
population with primary school education.

attainment is designated as A_{ijt} . Data for this variable are found in Table A-7.

It is expected that if a province is losing any population, it would tend to invest less in human capital, and for this reason would tend to invest less in human capital, the expected sign for this variable is positive.¹²

In Table A-8, the data used are those for the Canadian provinces in 1961, except that the migration data concern the period 1951-1961. The data are therefore roughly analogous to those of the first section, but they differ in that the data are for a single year.

The results of the regressions are given in Table A-9. The data are ordered by size of the population of each province. The first column gives the estimated coefficients, the second the standard errors, and the third the coefficient of multiple correlation. The last column gives the value of the test statistic for testing the hypothesis that all the coefficients are zero.

It is evident from the table that the coefficient of the variable A_{ijt} is positive and significant, which supports the hypothesis that provinces with lower levels of education tend to invest more in human capital.

It is also evident that the coefficient of the variable M_{ijt} is negative and significant, which supports the hypothesis that provinces with higher rates of migration tend to invest less in human capital.

It is also evident that the coefficient of the variable R_{ijt} is positive and significant, which supports the hypothesis that provinces with higher rates of return to education tend to invest more in human capital.

It is also evident that the coefficient of the variable S_{ijt} is positive and significant, which supports the hypothesis that provinces with higher rates of secondary school enrollment tend to invest more in human capital.

It is also evident that the coefficient of the variable T_{ijt} is positive and significant, which supports the hypothesis that provinces with higher rates of tertiary school enrollment tend to invest more in human capital.

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Comparative data for the Northwest Territories and Yukon

Yukon would have been identifiable, but it would not have been identifiable. The identifiability of the statistical distributions of the data is not affected by the identifiability of the data itself. This data may be identified, and identified, but it is not identified to include either individual or the population underlying.

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"need" would have higher expenditures per pupil than would otherwise be expected.

The regression equation obtained was as follows:¹³

$$\begin{aligned} \text{Expend}_1 &= 4026.91 + 16.13 X_1 + 9.43 X_2 + 34.30 X_3 \\ &\quad - (5.62) \quad (4.93) \quad (4.81) \end{aligned}$$

$$\begin{aligned} R^2 &= .132.74 \quad X_1 + 131.00 \quad X_2 + 199.77 \quad X_3 \\ &\quad - (143.30) \quad (141.70) \quad (247.41) \end{aligned}$$

The standard errors are in parentheses. The coefficient of X_1 , about which there was no a priori expectation, is significant and slightly unit at the 5 per cent level. The above, two possibilities could be given for a negative regression coefficient and suggested that it is not significant. It is difficult to say whether previous results by other analysts of expenditures may justify continuing the hypothesis that expenditures increase with population density. The hypothesis that expenditures increase with population density has been established by the present study, with the aid of the number of children per family as a regressor, even though some caution must be exercised.

Part of the reason for the popularity of this hypothesis is that it is consistent with the generalization of the law of diminishing returns. This is a plausible hypothesis, but it is not necessarily true.

It is also plausible that the population variable is correlated with other variables which are causally related to expenditures. In this case, the population variable is not causally related to expenditures, but it is causally related to other variables which are causally related to expenditures.

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The variables X_3 and X_4 both have the expected sign and are significant at better than the 10 percent and 1/2% 61.1 percent levels respectively.

Attention can now be turned to the coefficients of the variables X_5 . So X_5 , the sign of the coefficient of X_5 and X_6 are all positive and both are not statistically significant. The sign of the coefficient for X_7 is not significant, and, as expected, is smaller than the 10 percent level. The other variables are different and are not statistically significant. Perhaps the most important variable is the one which represents the suspended sediment content of the river (X_8).

It is clear that X_8 is positively correlated with the dependent variable. This is also true of X_9 and X_{10} . The variable X_9 represents the degree of industrialization, and X_{10} represents the degree of urbanization. Both are negatively correlated with the dependent variable. The variable X_{11} represents the degree of industrialization, and X_{12} represents the degree of urbanization. Both are negatively correlated with the dependent variable.

It is clear that X_8 is positively correlated with the dependent variable. This is also true of X_9 and X_{10} . The variable X_9 represents the degree of industrialization, and X_{10} represents the degree of urbanization. Both are negatively correlated with the dependent variable. The variable X_{11} represents the degree of industrialization, and X_{12} represents the degree of urbanization. Both are negatively correlated with the dependent variable.

Regression equation obtained with third choice was:¹⁹

$$X_1 = -997.03 + 136.53 X_2 + 9.47 X_3 + 32.03 X_4 + 17.36 X_5 \\ (6.37) \quad (4.31) \quad (6.17) \quad (9.59)$$

This time the coefficient of X_2 in $136.53 X_2$ is significant at

close to the 10 percent level and greater than the 1% of 1.37

percent level expected.²⁰ The coefficient for X_3 is

marginally and significant at the 10 percent level.

The coefficient of X_4 is significantly different from

zero at the 1% level and significant at the 5 percent level.

The coefficient of X_5 is significantly different from

zero at the 1% level and significant at the 5 percent level.

The results of the regression analysis in this paper

point to one other point. This model is good and useful in

the determination of price elasticity of demand for

consumers. The results can be used to predict the effect

of a change in one or more variables on the demand for

the product. The results can also be used to determine

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attitude, the coefficients suggest that positive attitudes will be expressed in higher capital creation expenditure rates.

The marginal one-way partial digression seems to be significant in the determination of per capita educational expenditures. This insight suggests that educational expenditure rates are influenced by more forces than that of education.

This conclusion does not coincide with the results of the study done by Whitedom among the educational expenditure

processes in non-industrialized countries, where the coefficient of the educational variable was negative.

The coefficient of the educational variable was negative, which contradicts all the previous hypotheses. The value of the

partial regression coefficient in the case of the educational variable, however, is positive, which contradicts the hypothesis.

The hypothesis of the positive effect of the educational variable on the educational process is supported by the fact that the coefficient of the educational variable is positive, while the coefficient of the educational variable is negative.

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The hypothesis of the positive effect of the educational variable on the educational process is supported by the fact that the coefficient of the educational variable is positive, while the coefficient of the educational variable is negative.

attempted in Canada to make the educational system consistent between provinces in terms of school leaving age and curriculum. Some of this consistency is a result of the active cooperation of the provinces through political ministerial associations and the own provincial standards which allow very little local autonomy. In Canada, as well, a large percentage of school funding under central (federal and provincial) governments, though this shifted to the provinces after the creation of the post-war federal-provincial fiscal compact.

On the other hand, the lack of autonomy of the provinces in education has been a major factor in the lack of educational reform in Canada. The lack of autonomy has been a major factor in the lack of educational reform in Canada.

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programs which would cause expenditures per pupil to vary.

Weisbrod found the coefficient for this variable to be not significantly different from zero and suggests that federal grants might not be considered an incentive nor a disincentive to (U.S.) state education expenditures.²⁶ This view would lend credence to the idea that grants are being given to those jurisdictions that can least afford education expenditures (i.e., grants do not cause more or less spending on education).

Before this discussion is concluded, it is necessary to refer to the statistical difficulties associated with the study. First, there are only ten provinces which means that a cross-sectional study suffers from a small number of observations relative to the number of variables. One way to overcome this would be to run a combination of time-series and cross-sectional studies but in this study migration data are unavailable on a timely basis. Secondly, Statistics Canada was kind enough to release their unpublished migration tables but they had their own reasons for availability of the data. Significant problems of using migration data include: (1) the data are based on a five year sample distribution, (2) the data are incomplete, and (3) the data are not representative of the total population. Thus, the results may not apply to the entire population.

Finally, the data are not representative of the total population because the data are based on a sample of the population.

It is felt that the data are representative of the total population because the data are based on a sample of the population.

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The data on expenditures per pupil must be considered tentative. To maintain consistency, Statistics Canada data are used. These suffer from being incomplete.²⁷ Also, Statistics Canada admits that because of recording changes, enrolment data are incomplete for 1961-62.²⁸

In spite of the statistical difficulties, the results are remarkably similar to studies done elsewhere.

The desirability of further data collection and testing is clear.

There are two further items to consider in concluding. The reader is reminded that education expenditures are made as part of a political process involving voters, their representatives and bureaucrats.²⁹ Throughout this chapter references are made to decision makers. Who are these decision makers and to whom are they responsible? From province to province the decision process and institutional arrangements vary. All provinces are consistent, however, in that

seem to be involved to some extent in the control of expenditures and revenues. All provinces have some form of elected boards at the local level but this varies considerably. In Ontario these boards are known by such names as

27 Data for New Brunswick are included in Appendix A.

28 See Table 1, Part II.

29 The might add reference to R. W. Atkinson, *Political Control of Education in Canada*, Toronto, 1962.

30 For an analysis of the political effects of educational policy see D. L. Smith, *Education and Politics in Canada*, 1962.

salary scales and local property taxes (collected by the municipality) while in New Brunswick, all costs are paid for by the provincial government.³⁰

It would appear, then, that the basic decision-making unit in Canada is the province. The federal government is involved in education but has little direct control.

The control of the federal government evolves from its influence on provincial decision makers through conditional grants. The provincial ministers of education do meet on a regular basis, as do civil servants, to make common decisions but the province still maintains its autonomy in decision making.

The decision making which does take place has been referred to above as taking place within the political system. Alice Rivlin suggests that decisions with respect to education have, in the past, been oriented towards "availability" of education.³¹ She suggests that the problem has only recently become one of "efficiency" and that decision makers are faced with trying to measure benefits and costs of particular social actions "which are much harder to identify and to measure, though no less important than the availability of education."

³⁰For a recent description of the institutional arrangements, see Canadian Foundation, Provincial and Territorial Education: A Comparative Analysis, Ottawa, 1967, section on present bilingual priority to French.

³¹Alice M. Rivlin, Measuring Social Progress, Washington, D.C., 1967, p. 10.

private benefits.⁶³² This chapter attempts to measure the various influences felt by the decision makers in determining per-pupil expenditures.

Finally, this chapter deals with migration, an area which has been largely neglected in the literature. Schulte suggests that this neglect may be because policy has been of a laissez-faire nature.⁶³³ Whatever the cause of neglect, this study suggests that education decision makers are not influenced by the migration of those with higher education when per-pupil expenditures are established.

⁶³² See India, 1971, Statistical Abstract, Ministry of Finance, Government of India, New Delhi, Central Statistical Bureau, Fifteenth Analytical Collection, 1971, New Delhi, Central Statistical Bureau of India, New Delhi, 1971, Table F-47, Education, Education expenditure, public, charitable, non-religious, private and religious, may be that they will not necessarily be socially efficient. Also, in this suggestion, education is not being kept efficient because public expenditure is not controlled from making undesirable corrections.

⁶³³ See India, 1971, Statistical Abstract, Ministry of Finance, Government of India, New Delhi, Central Statistical Bureau, Fifteenth Analytical Collection, 1971, New Delhi, Central Statistical Bureau of India, New Delhi, 1971, Table F-47, Education, Education expenditure, public, charitable, non-religious, private and religious, may be that they will not necessarily be socially efficient. Also, in this suggestion, education is not being kept efficient because public expenditure is not controlled from making undesirable corrections.

CHAPTER V

EDUCATION AND GROWTH

A variety of approaches have been employed in attempts to assess the economic contribution of education in various studies. These have been characterized as the following:

i) the simple correlation approach;

ii) the manpower needs (planning) approach;

iii) the reading-to-education approach; and

iv) the individual approach.

Each of these methods of evaluation of the contribution of

education to development has its own advantages and disadvantages.

The first approach will now be examined in some detail.

1.1. Simple Correlation Method

A number of studies have attempted to correlate

education expansion rates, education levels of the labour force,

etc., on one hand, and economic growth rates, capital formation

etc., on the other, through simple correlation. Correlation

is a statistical technique which measures the degree of association

between two variables, i.e., the extent to which they change in

the same direction or in opposite directions. Correlation

coefficient is a measure of the strength of the relationship between

two variables. It is expressed as a ratio of the covariance of the

variables to the product of their standard deviations.

The intertemporal variant of this approach consists of correlating education and GNP within a given country over time. Both Schultz and Harris have made correlations of this kind.¹

Attempts at intertemporal correlations highlight two problems which plague the approach. First, there is a question of what cause and effect relationship is involved in the education-GNP correlation. A positive correlation may support the view that spending money on education is an important way of raising a country's GNP. The same correlation could also be viewed as evidence of education being a ~~consummer good~~ in which more is spent as GNP increases.

The second problem is present in any analysis involving time series. Education is an investment and presumably stays with the student for most of his life. The analyst must, therefore, decide whether a time-lag is appropriate and how it should be weighted.²

Intercountry correlations get a fixed point in time. It has been shown that there is a positive relationship between

¹ W. W. Rostow, "Education and Economic Growth," in Economic Development and Social Change, ed. by W. W. Rostow, University of Chicago Press, 1960, and Education and Economic Development, McGraw-Hill, 1961.

² See D. H. Beckenstein, "Theory and Practice in the Analysis of Educational Data," Journal of Educational Statistics, Vol. 1, No. 1, Spring 1976, pp. 1-12.

education and GNP/capita.³ These studies point out the educational efforts of one country in relation to what is being done elsewhere. The construction of meaningful inter-country comparisons is plagued with practical problems.

Beside the cause and effect problem which has already been referred to, there are problems in obtaining comparable GNP figures and finding comparable indices of educational activity. If, for the latter, expenditure data are used, there is the added problem that equal expenditures imply equal output only if the efficiency of the two or more systems is the same.

The third variant of the simple correlation approach is that of inter-industry or inter-firm correlations. The advantage of this variant is that the two-way causation problem is not so serious as it was in inter-country or inter-temporal correlations. Firms are not usually considered to be "consumers" of education in the way that individuals do.

There are problems associated with inter-industry correlations. Differences in geographical location,

³C. Myrdal and P. Hirschman, Education, Manpower and Economic Development (London: Oxford University Press, 1968), and C. Myrdal, "The Education Factor in Economic Development," Review of Economics and Statistics, 51, no. 2 (1969), find that there is a very tight positive correlation of 0.9 between a composite index of human resource development and real per capita expenditure in developing countries. See p. 40 of my book, The World Economy in the Twentieth Century; R. Fogel, and D. Livingston, "Targets for Educational Attainment in Latin America and the Caribbean," Review of Economics and Statistics, 51, no. 2 (1969), find a positive correlation of 0.8 between educational attainment and economic development.

differences in technology, and differences in market-power may be reflected in both the educational levels of employees and the profitability of the industry. Inter-firm correlations are less inclined to be affected by these problems but are not completely free of them.

All three variants of the simple correlation approach involve a number of problems which have been discussed above. Further research may help to eliminate some of the problems. The variant most favoured in the literature for future prospects is inter-firm correlation within one industry.

2. Manpower Needs Approach

The objective of "forecasting" manpower needs is to provide educational planners and potential students with information as to the likely needs for persons with various kinds of training. A number of methods for forecasting manpower requirements have been tried.

The manpower needs approach is not strictly a method of examining the effect of educational or economic growth but

The reason for this third-fifth approach is very useful in the context of a broader manpower needs approach in that the need for education in manpower may become evident. See William R. Brown, "A Cross-Industry Generalization of Education: An Appraisal of the Educational Approach," in *Journal of Educational Administration*, by George W. Morris (Editor), 1963, Vol. 1, No. 1, pp. 1-10, and Bertil H. Wihlborg, "Education and Employment," in *Journal of Educational Administration*, by George W. Morris (Editor), 1963, Vol. 1, No. 2, pp. 1-10.

it is viewed by some people as being a means of overcoming bottlenecks which hinder economic growth.⁵ In developed countries, the emphasis is on accelerating or continuing past levels of growth while in underdeveloped countries, the emphasis has been on developing a domestic labour force capable of utilizing the various physical and economic resources available to that country.

There are five distinct methods used by manpower forecasters as follows:

- 1) employer survey;
- 2) projecting present manpower ratios;
- 3) comparisons with more developed countries;
- 4) averaging method; and
- 5) Mediterranean Regional Project method.

The employer survey method is direct. It asks that employers specify the number of persons with a specified kind of qualification they will require at a certain point of time in the future.

Projecting ratios of qualified manpower to employment into the future can take into account demographic information,

⁵ See S. L. and M. L. K. "The Manpower Problem in Underdeveloped Countries," *Journal of Economic History*, Vol. 20, No. 1, March 1962, pp. 1-16. A. K. and P. J. "The Manpower Problem in Underdeveloped Countries," *Journal of Economic History*, Vol. 20, No. 1, March 1962, pp. 17-32.

expected shifts in the relative importance of various industries, and past changes in the ratios.⁷

Some educational planners undertake to examine the present ratios between skilled manpower and the total work force in countries at more advanced stages of development on the assumption that a capital/trained manpower ratio in the advanced country is the causal force in determination of national income.⁸

The FLOR-Trend method (incremental labour-output ratio) foresees the future demand for each occupational group by extrapolating a linear regression of the number in a particular occupation on national income. To accomplish this, the available man-years of service indicate output per man-years classed by sector, occupation, and educational qualification and by capital.⁹

The Multi-year projections Project can be projected to produce educational planning in Italy, Spain, Italy, Portugal, Argentina, and Turkey,¹⁰ proceeded in stages. The project initially planned a target and breakdown by sector, age, and gender of population applying different

⁷ W. B. Knowles, "National Income Planning," *Journal of Political Economy*, Vol. 40, No. 1, March 1932, pp. 1-16; also, "National Income Planning," *Review of Economics and Statistics*, Vol. 14, No. 1, February 1932, pp. 1-10.

⁸ In 1930, the Federal Reserve Board developed the concept of a capital/trained manpower ratio as a causal factor in determining national income. The concept was based on the assumption that the ratio of capital to trained manpower in the United States was constant over time and that the ratio of capital to trained manpower in the United States was similar to that in other countries.

labour-output ratios to the GNP targets in each sector, yielding labour requirement forecasts by sector. The latter were then distributed among a number of occupational categories. The next step was to allow for persons leaving occupations due to death, retirement, and emigration. The final result was a forecast of the demand for educated people conditional on achievement of the GNP target.¹⁰

The manpower needs approach has the advantage that it offers definite guidelines framed in the terms in which decisions are actually made. This advantage is balanced by several difficulties with the approach. As mentioned earlier, the approach is meaningless unless some relationship between the benefit of having a particular number of trained persons and the costs involved in having them.

Secondly, manpower projections to date have not foreseen the implications of new scientific-technical agents and have failed to take account of the elasticity of substitution between capital and labour and between highly-trained manpower and less highly-trained manpower.

Thirdly, there are two major problems in the manpower needs approach - one technical and one political.

The technical problem concerns the definition of the concept of "highly-trained manpower". This is a concept which is not clearly defined in the literature on manpower planning.

The political problem concerns the definition of the concept of "highly-trained manpower" in the context of the social and economic system of a country. This is a concept which is not clearly defined in the literature on manpower planning.

profit orientation, and the national productivity orientation. Although the personal profit orientation (differences in net earnings of people with varying amounts of education being evidence of the financial gain associated with attainment of education) is interesting, it is not relevant to a discussion of the effect education has on a province's development. The personal profit orientation represents the added profitability of the individual to an employer. A province may capture some of this through taxation but the setting taxes out can handle this problem. What is important to note is that it is a personal motivation for education, not one on which public spending must be based.

The national productivity orientation looks at education-related economic differences as partial evidence of the effects of education on the output of the province.

(Continued), based on the principal and minor differences in orientation reflected in the degree of porosity. This differentiation, which is of definite interest in this study,

To find the problem associated with the given
bulletin, it is necessary to find the document number
of the original document. This can be done by
looking at the first page of the document. The
document number is usually located near the top
center of the page. It may also be located on the
left side of the page. Once the document number
is found, it can be used to search for the original
document.

10. *Leucanthemum vulgare* L. (L.)

this problem but the efforts, to date, have been less than entirely satisfactory.¹²

Another problem associated with the approach is the link between relative wages and marginal productivities.

This link may not be present if firms are not profit maximizers, if the salary structure is rigid by tradition, if the non-monetary attractions vary from one type of work to another, or if collective power in certain sectors influences relative earnings.¹³

External economies are not accounted for in the direct returns-to-education approach. These external economies could include a better-informed electorate, culturally creative neighbourhoods, healthier and less crime-prone populations, and so on. It is not impossible to have external costs, however, although it is difficult to know of what orders or magnitude they are.¹⁴

Finally, this approach projects rates-of-return based on the average rates for past periods. Fenshaw and others have nonetheless had difficulty because additional information is required to calculate rates of return for individual workers.

¹² See Harry Raedy, "Underinvestment in Higher Education," *Journal of Economic Literature*, Vol. 15, No. 4, December 1977, pp. 1171-1191, and the comments on this paper by Michael J. Howard, "An Alternative Construction of Educational Efficiency," pp. 1192-1204, and by John C. Scott and James G. Kneller, "Comments on Efficiency," pp. 1205-1210.

¹³ See Michael J. Howard, "The Supply of Higher Education," pp. 1211-1228, and the comments on this paper by John C. Scott and James G. Kneller, "Comments on Supply," pp. 1229-1236.

is apt to have a smaller rate-of-return by virtue of the law of diminishing returns.¹⁵ Miller and Becker, however, have shown that the rates-of-return have been roughly constant over time.¹⁶

At this point, attention will be shifted to three advantages of this approach. First, direct rates-of-return can be calculated for individual groups (males, females, racial origins, and so on). Secondly, useful information for allocating resources is provided, because educational benefits are related to educational costs. Lastly, and perhaps most significantly, this approach is susceptible to refinements.¹⁷

4. Residual Approach

A great deal of literature has been published in the last decade on the residual approach to measuring the contribution of education to the output of a country.

¹⁵ See, for example, F. R. Billingham, "Estimating the Marginal Product of Education," *Review of Economics and Statistics*, 63 (August, 1981), 581-591.

¹⁶ See, for example, H. P. Mills, "Growth and Efficiency in Relation to Education: 1930-1969," *Review of Economics and Statistics*, 62 (December, 1980), 962-3; and Becker, "Investing in the Future," pp. 157-60.

¹⁷ See, for example, J. E. Bowen, "Assessing the Social Return of Education," pp. 133 and 197; similarly, J. E. Bowen, *Education, Income, and Opportunity: The Educational Attainment of Negroes* (New York, 1970); and, for an interesting treatment of such questions as the educational knowledge problem and the social rate-of-return, J. E. Bowen, *Education*.

best-known study is probably that of Denison in which he estimates that 23 per cent of the total growth of national product in the United States from 1929 to 1957 could be attributed to improvements in the quality of the labour force of which education was the most significant factor.¹⁸

Other contributors to the approach have included Kendrick,

Abramovitz and Sоловьев, 19

the basic methodology used in the residual approach.

is, to identify as much as possible of the total approach.

economic output with the increase of the total increase in

...coupled with measurable inputs, the usual ones being current and voltage.

being Capital and Labour. This leaves some of the increase

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W. E. DODDSON, THE EFFECTS OF MONOCOTYLARON GROWTH IN HYBRIDIZED SISTERS AND OTHER FAMILIES. (Continued from p. 106.)

¹ See *Report of the Secretary General on the Economic and Social Council, 1961-1962* (New York: United Nations, 1962), p. 257.

¹ See W. Rindfuss, "Productivity Trends: Capital Intensity," *Review of Economics and Statistics*, Vol. 53, No. 2, May 1971.

and output given by ϕ and ψ respectively. The input units to

and efficiency which do less than nothing, that productivity gains,

recovered 10% more than half of the 3.5 million average rate of growth in the economy.

The Agency and Department and the other related entities since 1998, have been working to develop a system of integrated management.

St. Paul, Minnesota, First National Bank, April 1, 1911.

Only 11 percent of the public said it had been influenced by what he heard.

had a higher GNP per capita than the United States product per capita.

and the other characters may be specifically mentioned in the following table.

10. *On the other hand, the author of the present paper has*

¹ See, for example, the discussion of the relationship between the two in the introduction to *Philosophical Perspectives*, 1992, 5, pp. 1–12.

10. The following table gives the number of cases of smallpox in each of the 100 districts of England and Wales.

故人不以爲子也。子之不孝，則無子矣。

10. The following table gives the number of hours per week spent by students in various activities.

in economic output (the residual) attributable to unspecified inputs. Education and technical change are probably the most important of the unspecified inputs.

The Cobb-Douglas production function has been the usual basic model used. With constant returns to scale, it is usually written as:

$$O_t = A_t L_t^b K_t^{1-b} \quad (5-1)$$

where O_t is potential gross national product in year t , L_t and K_t are potential labour and capital inputs respectively.

In year t , A_t is an index of total factor productivity, and b and $(1-b)$ are the elasticities of output with respect to labour and capital respectively.

By taking logarithms, differentiating, and assuming neutral technological change (b constant), the relative rate of growth of output is as follows:

$$\Delta O/O = \Delta A/A + b (\Delta L/L) + (1-b) (\Delta K/K) \quad (5-2)$$

where $\Delta O/O$ is the rate of growth of gross national product,

$\Delta A/A$ and $\Delta L/L$ are the relative rates of growth of capital and labour inputs.²⁰ That part of the growth in output that cannot be explained by the growth of capital and labour inputs is measured by $\Delta A/A$, the relative rate of growth of total factor productivity.

²⁰ This type of analysis was undertaken by Richard H. Nelson, "The Rate of Productivity Growth in Manufacturing Industries," *Review of Economics and Statistics*, 1959, 41, 349-361.

Denison can be interpreted as having introduced into the model an average labour quality variable such that:²¹

$$O_t = A_t^* E_t^b K_t^{1-b} \quad (5-3)$$

where $E_t = L_t q_t$, q_t being the index of quality, and A_t^* being a narrower concept of total factor productivity (as compared to A_t in Equation 5-1).²²

If $\Delta q/q$ is designated by λ_q , $\Delta R/R = \Delta L/L + \lambda_q$ and the Denison variation of the Cobb-Douglas production function becomes:

$$\Delta O/O = \Delta A^*/A^* + b\lambda_q + b(\Delta L/L) + (1-b)(\Delta K/K) \quad (5-4)$$

In this formulation $\Delta A^*/A^* + b\lambda_q$ is the relative rate of

²¹The reader is reminded that Denison dealt with capital as well but for the purposes of this discussion, only the labour quality factor has been examined. Nelson deals with the complete Denison system which could be written

$$O_t = A_t^* Q_t^b J_t^{1-b} K_t^{1-\delta} L_t^\delta \quad (5-5)$$

where Q_t is the same as E_t , J_t is a quality-weighted number of machines with new machines given greater weight than old machines, and A_t^* is an even narrower concept of total factor productivity than A_t . The differentiated equation after taking logarithms have been taken without brackets.

$$\Delta O/O = \Delta A^*/A^* + b\lambda_q + (1-b)\lambda_K - (1-b)\lambda_{K\delta} + \Delta L/L + (1-b)\Delta K/K \quad (5-6)$$

where $\Delta A^*/J = \lambda_K/K + \lambda_{K\delta}$, where λ_K is the percentage per year improvement in the quality of new machines and δ is the by-weight age of capital.

²²See also for a present discussion of A_t^* , the "quality index," in the development of "Notes on the Theory of Production," "Production Function and Growth Accounting," in *Review of Economics and Statistics*, Vol. 51, No. 1, January 1969, pp. 14-20; and "The Productivity Slowdown Revisited," in *Journal of Political Economy*, Vol. 77, No. 5, September 1969, pp. 1003-1020. In this paper, Denison's "quality index" is called the "quality factor." The term "quality factor" was first used by Denison in his article "Trends in American Productivity Growth Since World War II," in *Review of Economics and Statistics*, Vol. 47, No. 1, February 1965, pp. 3-14. Denison's "quality factor" is the same as the "quality index" of the present paper.

growth of factor productivity. Improvements not "embodied" in labour inputs (for example, improvements in management practices) are represented by $\Delta A^*/A^*$. The relative rate of improvement in the average quality of a labour force is λq .

According to Nelson, Denison's λq is defined in terms of the average quality of all labour and does not strictly deal with improvements in educational standards which principally affect new entrants to the work force. Denison also includes the changing age-sex composition of the work force and the decrease in the average work week as part of the changing quality of labour. The largest of these three factors was in the education level of the work force, which accounted for approximately 70 per cent of the total relative change in labour quality.²³

Other Considerations

Four factors relating to evaluating the contribution of education to economic growth have been examined in this chapter. As outlined by Denison, various problems exist in distinguishing between direct and indirect contributions of education to economic growth. One approach is to relate the output of an economy to the investment of the educational system. This approach has the merit of being simple and direct, but it fails to take into account the fact that education is a long-run investment. Another approach is to relate the output of an economy to the number of years of completed schooling. This approach has the merit of being simple and direct, but it fails to take into account the fact that education is a long-run investment. A third approach is to relate the output of an economy to the quality of its labour force. This approach has the merit of being simple and direct, but it fails to take into account the fact that education is a long-run investment. A fourth approach is to relate the output of an economy to the rate of growth of its labour force. This approach has the merit of being simple and direct, but it fails to take into account the fact that education is a long-run investment.

take into account elasticities of substitution. In the returns-to-education approach, difficulties arise in attributing to education the returns which ought to be attributed to other things such as ambition. There are also problems in accounting for externalities, relating salaries to marginal productivity, and assuming constant returns. Lastly, the residual approach involves assuming neutral technological change and it also involves difficult measurement problems.

The problems outlined here can be overcome in various ways. The purpose of this chapter, however, is to demonstrate the various possible methods of measuring the economic growth attributable to federal grants for the Province of New Brunswick. The residual approach would appear to be useful for this purpose.²³ It associates increased production with standard inputs into the production process. Federal funding for education is an input into the production process and can be associated with increased production.²⁴ It is, therefore, the residual approach that will be used in the next chapter to test the effect of education grants on the development of New Brunswick.

²³ See, for example, D. J. Heston, "The Measurement of Output in Education," in *Education, Income and Capital Formation*, ed., M. W. Jones (London, 1967), pp. 107-116. Elasticities of substitution between education and other variables are usually regarded as very low. This will, unfortunately, introduce the residual approach of measuring education's contribution to growth into disrepute.

²⁴ The residual approach has certain problems for government grants to education. The first problem is that the calculation of the contribution of education to output will be limited to the output of the educational sector. This is particularly important if one wishes to measure the effect of education on the economy as a whole. The second problem is that the contribution of education to output will be limited to the output of the educational sector. This is particularly important if one wishes to measure the effect of education on the economy as a whole.

CHAPTER VI

EDUCATION AND NEW BRUNSWICK DEVELOPMENT

The purpose of this chapter is to examine empirically the development of New Brunswick in the light of concepts developed in the last chapter. An attempt is made to make quantitative statements about the effect of labour, capital, and federal education grants on the development of New Brunswick.

I. Denison's Model

In the last chapter, under the discussion of the residual approach to determine the effect of education on the development of an economy, a simplified version of Denison (equation 6-3) was presented. This equation would appear to lend itself to estimation and, therefore, quantitative statements about the probable effects of education should be possible.

In attempting to analyze the economy of New Brunswick, however, certain problems became evident. First, data on state-produced products, labour force, capital stock, and labour productivity, which are required to estimate the variables in the equation, were not available for all years from 1946 to 1960. In addition, the data for 1960 were not available at the time of writing.

Appendix B.² Labour stock can be estimated for New Brunswick on an annual basis.³ The labour force data are in index form with the two different base years of 1949 and 1961. The indices overlap at 1961 which permits calculation of actual labour force figures back to 1946. Only one actual figure was available and that was for 124.1 = 86,772 on the 1961 base.

Capital stock presents more of a problem, and so does any calculation of labour quality. Neither has been dealt with in official statistics.

⁴ To calculate a capital stock requires a great deal of background data, most of which are unavailable.

These are calculated from Canada, Dominion Bureau of Statistics, Labour Division, Employment and Average Weekly Earnings and Earnings (Ottawa: Queen's Printer, various years, 1946-67), and Canada, Dominion Bureau of Statistics, Labour Division, Selected series of Canadian Labour Statistics, 1946 (Ottawa: Queen's Printer, 1957). For the intervening years, Canada, Dominion Bureau of Statistics, Canadian Statistical Review of Employment (Ottawa: Queen's Printer, various years, 1946-77), provides the necessary data.

Report of the Royal Commission on Canada's Economic Prospects, Output, Employment and Social Security, 1941-42, ed. by William G. Head and Arthur R. E. Clark, Ottawa, 1942.

approximate Denison's labour quality for New Brunswick would require calculation of the distribution of individuals by the number of years of schooling completed in order to isolate the effects of schooling, measured in years, on average income, which then could be further refined to take account of changes in the number of days of school attendance during the year.⁵ For Canada, equivalent data are lacking.⁶

It is not intended that much effort be given to deriving methods of estimation for capital stock and labour quality. The purpose of this chapter is to carry out a statistical analysis of federal education grants and growth.

This can be done directly through the use of a linear regression analysis using annual figures (time series).

This is one variant of the correlation approach analyzed by Bowen.⁷

Investment in Canada, 1921-1950 (Ottawa: Queen's Printer, 1951), and an annual publication on utilization of public expenditure. From 1950, provincial data have been included with Ontario (the 1950 publication includes material back to 1949).

⁶ See also Denison, The Economics of Growth in the United States and Canada, pp. 76.

⁷ The original in form did not include educational investment, but when it is included, the results are very similar to those obtained by Denison. The reason for this is that the educational investment is a small part of total investment in Canada.

There is a significant difference between the results obtained by Denison and those obtained by the author, however, in the results obtained by the author. The reason for this is that the author has used a different method of calculating the growth rate of output. Denison uses a simple average of the growth rates of output for each year, while the author uses a weighted average of the growth rates of output for each year, where the weight is the ratio of the output of each year to the total output of all years.

The results obtained by the author are more consistent with the results obtained by Denison than the results obtained by the author are with the results obtained by the author. The reason for this is that the author has used a different method of calculating the growth rate of output. Denison uses a simple average of the growth rates of output for each year, while the author uses a weighted average of the growth rates of output for each year, where the weight is the ratio of the output of each year to the total output of all years.

2. The Model

A linear regression model with three independent variables and one dependent variable is used to relate federal education grants to New Brunswick with New Brunswick output. By using first differences, the estimate of the regression coefficient is the marginal physical product.

For instance, the parameter for the variable ΔC is $\frac{\delta O}{\delta C}$ which is the marginal physical product of the capital.

The variables are as follows:

i) Change in Output: ΔO

The change in output is given by the increment in gross provincial product from year t to year $t + 1$. It is dependent on the various inputs into the production process, some of which are measurable and are included in the formulation of a production function used in this chapter.

Output data are found in table 6-1. The data are

independent dollars by year and represent real output. The first difference is shown in column (2) of table 6-2.

ii) Change in the Employed Labour Force: ΔL

The change in the employed labour force (ΔL) is included as a variable to explain the growth of the output. The latest available quantity is 1954. Table 6-2 shows the first difference in the labour force. The information in

table 6-2 is used to estimate the marginal physical product of capital. The results are shown in table 6-3.

labour force is expected to result in an increment in output. The regression coefficient will have an expected sign which is positive.

iii) Change in Capital Stock: AC

Increments in capital stock are hypothesized to affect increments in output positively. This is another way of saying that the regression coefficient (marginal physical productivity of capital) is expected to be positive.

The change in capital stock is gross investment in New Brunswick less depreciation in New Brunswick.² The calculation of the change in capital stock is found in Table A-1.

The data for New Brunswick investment in 1946 and 1947, which appear in Table A-1, are estimated by simple linear regression.³ Although it would have been preferable to have had actual data for these two years, the estimated data appear reasonable for use in the regression model. The confidence of the regression coefficient is increased, however, because of estimated rather than actual data.

In Table A-1 the sign of the estimation of depreciation is negative. In the analysis of capital depreciation, the relationship between New Brunswick's Reproduced

² The data for investment and depreciation were obtained from the New Brunswick Department of Finance, Annual Report, 1947, pp. 10-11.

³ The data for investment and depreciation were obtained from the New Brunswick Department of Finance, Annual Report, 1947, pp. 10-11.

TABLE 6-1
CAPITAL STOCK CHANGES, NEW BRUNSWICK,
1946-1957

Year	Gross Investment ^a (millions)	Canada Depreciation ^b (millions)	New Brunswick Depreciation ^c (millions)	Change in Capital Stock ^d (millions)
(1)	(2)	(3)	(4)	(5)
1946	\$ 74.3	\$1,071	\$ 24.6	\$ 49.7
1947	90.2	1,301	29.9	60.3
1948	128.2	1,364	34.6	93.6
1949	143.5	1,781	39.8	104.1
1950	170.9	1,960	45.1	125.8
1951	178.7	2,300	52.9	125.8
1952	170.7	2,537	58.4	112.3
1953	175.7	2,844	65.4	110.3
1954	181.6	3,146	72.4	109.2
1955	223.4	3,527	81.1	147.3
1956	249.4	4,020	92.5	156.9
1957	226.3	4,387	100.9	125.4
1958	245.0	4,391	100.3	145.2
1959	274.7	4,785	108.6	166.1
1960	261.8	5,003	110.3	159.5
1961	247.9	5,162	119.2	143.7
1962	238.3	5,394	129.7	131.8
1963	270.4	5,918	135.3	135.6
1964	345.7	6,515	140.1	195.6
1965	427.9	6,560	156.4	271.5
1966	435.9	7,484	170.5	320.0
1967	436.0	7,595	181.6	355.0

^a Canada, Department of Trade and Commerce, and ^b Statistics Canada, Bulletin of Statistics, Population and Public Institutions of Canada, and Capital Expenditure and Building Program, Various Years, 1946-1957. For 1946 and 1957, the data are estimated by the author; for 1947-1956, the data are taken from the Statistical Abstract of Canada, 1958, and the figures of depreciation are estimated by the author.

^c New Brunswick, Department of Finance, Annual Statement of the Financial Condition of the Province of New Brunswick, 1946-1957. The data are estimated by the author.

^d The capital stock of New Brunswick is estimated by the author from the data given in the Annual Statement of the Financial Condition of the Province of New Brunswick.

is estimated to be in the same proportion to Canada's depreciation as New Brunswick's investment is to Canada's investment. Depreciation figures by province are not provided by Statistics Canada, and New Brunswick does not calculate depreciation data for its own purposes.

iv) Change in Education Stock Attainable to Federal or State for Education

Purpose: All

A simple production function postumes an increase in the (constant-quality) quantity of the inputs labour and fixed capital. In the last chapter, it was indicated that education may change the quality of labour in the production process. The change in education is, then, to be indicated as an input which positively will affect productivity. This adds labour quality, a positive sign on the regression coefficient. Its significance is anticipated. 10

The first difference is included for the educational variable. The second difference is included for the regional variable. This variable is included to control for the effect of the location of the firm on the quality of labour. The third difference is included for the quality of labour, as appreciated by the flow of information from the ability of individuals to communicate effectively.

Regional changes in the economy can have an effect on the quality of labour. This may be due to the migration of labour from one region to another. It may also be due to the fact that the quality of labour in one region is higher than in another. This is a possibility because the quality of labour is affected by the level of education and the level of income.

The third difference is included for the quality of labour. This is a possibility because the quality of labour is affected by the level of education and the level of income.

of time between the investment in education and the entrance of that education into the labour force. While some of the federal grant programs anticipate an immediate entry into the labour force, others anticipate several years before there is entry into the labour force. Thus, for our purposes, a one-year lag appears to be appropriate.¹¹ Data for the variable are found in Table 6-2.

3. Data

In a statistical test of this model, data were gathered on an annual basis for the years 1946 to 1957 inclusive. Because the statistical test deals with first differences, there are twenty-one valid cases in the computations (two of which involve missing data).

The change in the labour force is the only variable which has negative observations. Just because the change in output, capital stock, and education stock are measured in current dollars and are positive, in money terms, it would be misleading to assume that they are positive in real terms. For instance, an increase in output of \$4 million

¹¹ It is interesting to note that the average duration of postsecondary education is about four years.

TABLE 6-2
DATA USED TO EXAMINE EFFECTS OF EDUCATION
GRANTS ON NEW BRUNSWICK DEVELOPMENT,
1946-1967.

Year	Change in Output ^a (millions)	Labour Force ^b (millions)	Employed Labour Force (thousands)	Capital Stock ^c (thousands)	Change in Federal Education Grants ^d (thousands)
(1)	(2)	(3)	(4)	(5)	(6)
1946	1.5	66.0	1,320	449.7	1.5
1947	3.25	70.2	1,412	600.3	623.1
1948	4.41	70.8	1,406	93.6	1,703.4
1949	4.13	67.3	1,256	104.1	1,161.3
1950	3.35	69.0	1,374	129.3	610.4
1951	3.43	73.4	1,444	125.3	2910.6
1952	2.24	73.7	1,403	112.3	430.7
1953	1.13	68.2	1,355	110.3	662.0
1954	1.37	68.3	1,344	109.2	583.4
1955	2.29	69.3	1,375	147.3	566.3
1956	0.64	71.0	1,477	196.9	603.6
1957	1.01	70.5	1,385	129.4	601.1
1958	1.77	66.0	1,315	145.2	919.1
1959	1.04	68.4	1,324	166.1	1,373.5
1960	1.40	69.6	1,472	139.0	2,316.6
1961	1.12	69.9	1,403	123.7	1,916.1
1962	1.50	69.8	1,411	121.8	2,322.9
1963	1.15	70.3	1,456	133.6	2,392.0
1964	1.86	73.1	1,523	198.2	2,396.1
1965	1.12	76.7	1,566	271.5	2,033.6
1966	2.55	80.5	1,613	320.0	3,639.7
1967	1.76	81.5	1,606	305.0	4,046.1

^aTable 4-21, p. 147.

^bComputed as per Table 4-103.

^cTable 3-1.

^dTable A-20, p. 197, for each year.

may actually be a decrease in real output, depending on the price index.

4. Results

Because this production model is already in first differences and is linear, the estimate of the parameter of each variable is also the marginal physical productivity of that variable.¹³ For instance, the estimate of the parameter for labour represents the marginal physical productivity of labour. Likewise, the estimates of the parameters for capital and education grants represent the marginal physical productivities of capital and education respectively. It is, therefore, predicted that the parameters (and therefore the marginal physical productivities) would be positive but there is no a priori expectation as to the magnitude of the parameters.

The regression equation obtained is as follows:¹⁴

$$\Delta Q = 4.18 + 0.19 \Delta L + 3.87 \Delta K + 0.01 E - 0.001 P \\ (0.09) \quad (1.11) \quad (0.06) \quad (0.001)$$

¹³ For a description of a model using first differences, although for a different purpose, see Daniel B. Suits, "Forecasting and Analysis with an Econometric Model," *Statistical Forecasting*, 117 (March, 1960), 104-32.

¹⁴ The coefficient of multiple determination, R^2 , is 0.69 and the adjusted coefficient, r^2 , is 0.69. The t -ratios for the individual significant variables show the following: the coefficient of capital is significant at:

$$t_{\Delta K} = 3.49 \quad t_{\Delta L} = 0.19 \quad t_{\Delta E} = 0.01$$

$$t_{\Delta P} = 0.77 \quad t_{\Delta Q} = 4.18$$

These figures are based on the results of the regression analysis of the data for 1955-56, 1956-57, 1957-58, 1958-59, 1959-60, 1960-61, 1961-62, 1962-63, 1963-64, 1964-65, 1965-66, 1966-67, 1967-68, 1968-69, 1969-70, 1970-71, 1971-72, 1972-73, 1973-74, 1974-75, 1975-76, 1976-77, 1977-78, 1978-79, 1979-80, 1980-81, 1981-82, 1982-83, 1983-84, 1984-85, 1985-86, 1986-87, 1987-88, 1988-89, 1989-90, 1990-91, 1991-92, 1992-93, 1993-94, 1994-95, 1995-96, 1996-97, 1997-98, 1998-99, 1999-2000, 2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024, 2024-2025, 2025-2026, 2026-2027, 2027-2028, 2028-2029, 2029-2030, 2030-2031, 2031-2032, 2032-2033, 2033-2034, 2034-2035, 2035-2036, 2036-2037, 2037-2038, 2038-2039, 2039-2040, 2040-2041, 2041-2042, 2042-2043, 2043-2044, 2044-2045, 2045-2046, 2046-2047, 2047-2048, 2048-2049, 2049-2050, 2050-2051, 2051-2052, 2052-2053, 2053-2054, 2054-2055, 2055-2056, 2056-2057, 2057-2058, 2058-2059, 2059-2060, 2060-2061, 2061-2062, 2062-2063, 2063-2064, 2064-2065, 2065-2066, 2066-2067, 2067-2068, 2068-2069, 2069-2070, 2070-2071, 2071-2072, 2072-2073, 2073-2074, 2074-2075, 2075-2076, 2076-2077, 2077-2078, 2078-2079, 2079-2080, 2080-2081, 2081-2082, 2082-2083, 2083-2084, 2084-2085, 2085-2086, 2086-2087, 2087-2088, 2088-2089, 2089-2090, 2090-2091, 2091-2092, 2092-2093, 2093-2094, 2094-2095, 2095-2096, 2096-2097, 2097-2098, 2098-2099, 2099-20100, 20100-20101, 20101-20102, 20102-20103, 20103-20104, 20104-20105, 20105-20106, 20106-20107, 20107-20108, 20108-20109, 20109-20110, 20110-20111, 20111-20112, 20112-20113, 20113-20114, 20114-20115, 20115-20116, 20116-20117, 20117-20118, 20118-20119, 20119-20120, 20120-20121, 20121-20122, 20122-20123, 20123-20124, 20124-20125, 20125-20126, 20126-20127, 20127-20128, 20128-20129, 20129-20130, 20130-20131, 20131-20132, 20132-20133, 20133-20134, 20134-20135, 20135-20136, 20136-20137, 20137-20138, 20138-20139, 20139-20140, 20140-20141, 20141-20142, 20142-20143, 20143-20144, 20144-20145, 20145-20146, 20146-20147, 20147-20148, 20148-20149, 20149-20150, 20150-20151, 20151-20152, 20152-20153, 20153-20154, 20154-20155, 20155-20156, 20156-20157, 20157-20158, 20158-20159, 20159-20160, 20160-20161, 20161-20162, 20162-20163, 20163-20164, 20164-20165, 20165-20166, 20166-20167, 20167-20168, 20168-20169, 20169-20170, 20170-20171, 20171-20172, 20172-20173, 20173-20174, 20174-20175, 20175-20176, 20176-20177, 20177-20178, 20178-20179, 20179-20180, 20180-20181, 20181-20182, 20182-20183, 20183-20184, 20184-20185, 20185-20186, 20186-20187, 20187-20188, 20188-20189, 20189-20190, 20190-20191, 20191-20192, 20192-20193, 20193-20194, 20194-20195, 20195-20196, 20196-20197, 20197-20198, 20198-20199, 20199-20200, 20200-20201, 20201-20202, 20202-20203, 20203-20204, 20204-20205, 20205-20206, 20206-20207, 20207-20208, 20208-20209, 20209-20210, 20210-20211, 20211-20212, 20212-20213, 20213-20214, 20214-20215, 20215-20216, 20216-20217, 20217-20218, 20218-20219, 20219-20220, 20220-20221, 20221-20222, 20222-20223, 20223-20224, 20224-20225, 20225-20226, 20226-20227, 20227-20228, 20228-20229, 20229-20230, 20230-20231, 20231-20232, 20232-20233, 20233-20234, 20234-20235, 20235-20236, 20236-20237, 20237-20238, 20238-20239, 20239-20240, 20240-20241, 20241-20242, 20242-20243, 20243-20244, 20244-20245, 20245-20246, 20246-20247, 20247-20248, 20248-20249, 20249-20250, 20250-20251, 20251-20252, 20252-20253, 20253-20254, 20254-20255, 20255-20256, 20256-20257, 20257-20258, 20258-20259, 20259-20260, 20260-20261, 20261-20262, 20262-20263, 20263-20264, 20264-20265, 20265-20266, 20266-20267, 20267-20268, 20268-20269, 20269-20270, 20270-20271, 20271-20272, 20272-20273, 20273-20274, 20274-20275, 20275-20276, 20276-20277, 20277-20278, 20278-20279, 20279-20280, 20280-20281, 20281-20282, 20282-20283, 20283-20284, 20284-20285, 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The standard errors are in parentheses. All parameters are significantly different from zero.¹⁵

There was an expectation that the three regression coefficient would be positive and this is borne out in the regression equation derived. What this means is that the marginal physical productivities of labour, capital, and federally-supported education stock are positive. Therefore, given constant levels of capital and labour, a small increase in federally-supported education stock will result in an increase in gross provincial product of .01 times the increase in education stock.

The input elasticity for the labour force mean is calculated by multiplying the marginal physical product of labour by the ratio of the mean of the stock of the labour force to the mean of the gross provincial product.¹⁶ The resulting elasticity was .002 which could be interpreted as suggesting that a 1 per cent increase in the labour force would result in a .002 per cent increase in gross provincial product.

¹⁵This is on the basis of a single-tail test. The single-tail test is appropriate since the sign of the coefficients had been predicted.

¹⁶It is also the adjusted and the unadjusted elasticity. In other words, it is the elasticity of output which is dependent

The corresponding input elasticities for capital and education can not be calculated from the available data.¹⁷

Both calculations, if they could have been made, would have been of importance in gauging the importance of these inputs in the development of New Brunswick.

5. Conclusion

There has been an attempt in this chapter to test the hypothesis that education grants from the federal government aided in the economic development of New Brunswick.

It has been shown that there is a positive marginal physical product of the educational stock resulting from federal grants-in-aid to New Brunswick. Because an educational stock of this size was unavailable, it was impossible to calculate the elasticity of output with respect to this particular input.

Some elasticity of some of the model age worth exploring.

Let us suppose that the desired investment output for 1951 had been \$1.1 billion instead of the actual \$1.2 billion.

What, if anything, in 1950, if federal educational grants would have

been sufficient to this desired investment output of \$1.1 billion?

It turns out that if no increase in federal grants-in-

aid, to the educational sector had taken place, the desired

investment level would have been \$1.1 billion.

It is interesting to note that the desired output of \$1.1 billion

was not quite the same amount as the actual output of

\$1.2 billion, although the two outputs were very close.

It is also interesting to note that the actual output of

eighty cents per pupil. These results must be viewed with caution for, in fact, education grants and the increment in output may both be related in other than a causal way. However, subject to this precaution, it would appear that a small increase in education grants would lead to a significant increase in output.

All the coefficients were significant and with twenty-one readings, the sample is large enough that the results can be accepted with some degree of reliance.¹⁹

It is important to examine the data deficiencies.

It must be remembered that output data, changes in capital stock, and educational expenditures by the federal government as far as readily available in official statistics for New Brunswick. They can, however, estimate with some justification, a more satisfactory (in the sense that more information would be derived) model could have been used had data been available for capital stock and educational

¹⁹ It is interesting to note that the coefficient of education grants is precisely what one would expect. One might expect some variation in response to war time needs but it is correspondingly to some extent. This indicates that the model is not too sensitive to the particular form of the production function assumed. However, if the production function were more complex, the effect of education grants would be more pronounced.

The author wishes to thank Dr. G. W. Brundage for his help in the preparation of this paper. He also wishes to thank Mr. J. C. MacLennan and Mr. D. C. MacLennan for their valuable assistance in the preparation of the data. The author is also grateful to the Royal Canadian Mounted Police for permission to use the data which they collected. The author is also grateful to the Royal Canadian Mounted Police for permission to use the data which they collected.

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stock.²⁰ Even if the model in this chapter had been used, elasticities could have been calculated. It is clear, then, that the results presented in this chapter are subject to further testing if appropriate data can be obtained.

²⁰ The reference here is to the residual model which would have found the amount of decrease in the residual asset as a result of federal education expenditures. It would also have been comparable to other studies done, whereas the model here has not been used in analyzing economic development in other jurisdictions.

CHAPTER VII

CONCLUSION

Government educational expenditures are under continuous scrutiny by policy makers. This study is an attempt to shed some light on the economic effect of federal education expenditures, particularly those directed towards the Province of New Brunswick. By implication the study must then involve an examination of federal-provincial financial relations.

In order to facilitate a review of the results of the study, this chapter is divided into four parts concerning federal systems, education expenditures, relevant data, and recent developments.

1. Federal Systems

A federal system exists when there are two governmental units (a central and a sub-central unit), each making decisions concerning the provision of certain public services within its specifically autonomous jurisdiction. However, for the purposes of this study it will be necessary to focus on education, not all distributed services. The rationale for this approach is best illustrated by reference to the Canadian system of government. In Canada, the federal government is responsible for the delivery of a number of services, such as national defence, foreign affairs, and communications. The provinces, on the other hand, are responsible for the delivery of a number of services, such as health care, education, and social welfare. The federal government also has responsibility for the delivery of certain services, such as national defence, foreign affairs, and communications. The provinces, on the other hand, are responsible for the delivery of a number of services, such as health care, education, and social welfare.

The Canadian system of government is based on a principle of federalism, which means that power is shared between the federal government and the provincial governments. The federal government has responsibility for the delivery of certain services, such as national defence, foreign affairs, and communications. The provinces, on the other hand, are responsible for the delivery of a number of services, such as health care, education, and social welfare. The federal government also has responsibility for the delivery of certain services, such as national defence, foreign affairs, and communications. The provinces, on the other hand, are responsible for the delivery of a number of services, such as health care, education, and social welfare.

Federalism implies a mechanism by which geographical subsets of the population can influence the provision of public goods and services. The implications are discussed in Chapter I.

Canada has a federal system of government; the BNA Act allocates to the provincial governments certain exclusive powers with respect to the provision of public goods and collection of revenues. The BNA Act also allocates exclusive public goods provision and revenue collection powers to the federal government. Chapter II provides a review of the literature on the influences that federalism has on the degree of attainment of the economic objectives of equity, stabilization, efficiency, and growth.

In Chapter II, it is concluded that two of the objectives, efficiency and growth, are most relevant in a discussion of federal-provincial financial arrangements for education. In terms of efficiency, expenditures are sub-optimal if spillovers exist. Federal grants can thus be justified in overcoming this allocative inefficiency. Federal grants are also justified if precluded growth can be certain to be realized by others. The expansion of government expenditures has aggravated the problem of attaining a balanced political system. As the number of responsibilities, the functions, and the amount of expenditure all expand, the pressure will increase, the need for adjustments in the allocation of fiscal power, i.e., the level of government, will become evident. This requires a redefinition of the boundaries of

federal system experienced in Canada influences the pattern of education expenditures. Federalism is not, however, the only significant influential factor.

2. Education Expenditure

In Chapter II efficiency and growth are established as justifications for federal grants. Chapters III to VI examine these justifications more closely.

Chapter III provides an introduction to the problem of education spillovers. A number of aspects of the question are examined. First, it is concluded that education is a public good which diminishes in importance geographically.

Theories of resource allocation, specifically in multi-level governments, are reviewed, and it is thus established that goods which exhibit externalities should be provided by the more general level government or should be assisted by conditional grants from a more senior-level government.

It is in Chapter IV that the first empirical evaluation is made. In this analysis, the expenditure per pupil in each province is the dependent variable, while the independent variables include federal contributions as a percentage of total expenditures, the percentage of 6-24 year olds enrolled in publicly maintained, the percentage of students in private elementary schools, and rural population as a percentage of total population.

The most striking variable in this estimation is the percentage of pupils in privately maintained schools. The

percentage enrolment in post-elementary schools. The other variable which seems to be consistently significant is the percentage of 5-24 year olds enrolled in public education.

A positive attitude towards public education in the community would appear in increased enrolment in post-elementary schools and in the percentage enrolment of 5-24 year olds.

Also, the percentage enrolment in post-elementary schools reflects provincial wage differentials.

The migration variables appear to be insignificant in the determination of per-pupil educational expenditures, while the coefficient for federal grants appears to be significant but of the wrong sign. In the case of the former, several possible explanations are offered in Chapter IV.

These findings show the high degree of consistency between provinces in school-leaving age and curriculum, and the fact that the available sample of data is too small to make valid judgments. One possible reason offered in Chapter IV for the negative sign of the coefficient for federal grants is the standardization of grants per student.

Chapter V provides a review of the literature on the various methods of recording and quantitation of abfraction to the oral hard tissue. A brief discussion of the simpler methods, the clinical findings, the more sophisticated and time consuming methods, and the results of the studies will be presented.

It is in Chapter VI that this approach is applied. Because of the data, all the variables (labour, capital and federally-supported education) are in first differences. The coefficient of each of the variables is positive and significantly different from zero. This indicates positive marginal physical productivities.

Federal education grants are justified if they can be shown to improve the allocation of resources and/or to increase growth. In the case of resource allocation, it is concluded that federal government grants are not significant, but growth can be stimulated by education grants. Both results must be considered tentative on the basis of the available data. On balance, however, until there is further evidence to the contrary, it appears that federal education grants are justifiable. There are perhaps other reasons for well founded confidence, such as fiscal needs, geographical equity, political considerations, and other factors.

Conclusion. Considerable difficulty in obtaining data for many of the variables in the model has been experienced. This is due to the fact that the data are not collected by the same organization for all variables. The data on population and labour force are collected by the Bureau of Statistics. The data on investment, output, and gross national product are collected by the Department of National Resources. The data on federal grants, rents, and ownership costs are collected by the Department of National Education.

The data on labour force, investment, output, and gross national product are collected by the Department of National Resources. The data on federal grants, rents, and ownership costs are collected by the Department of National Education. The data on population and labour force are collected by the Bureau of Statistics. The data on investment, output, and gross national product are collected by the Department of National Resources. The data on federal grants, rents, and ownership costs are collected by the Department of National Education.

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receipts. Generally, the direct survey method permits variations in reporting by the respondents.

Other difficulties are evident in the data provided by Statistics Canada. As changes are made in the statistics, no attempt is made to reconcile previous data to newly collected data. Secondly, since the census occurs decennially, important data on education attainment, migration, and other variables are unavailable. Lastly, the definition of federal "education" grants to the provinces is narrow compared with the broader interpretation in this study.

Problems also exist with other sources of data. A major difficulty results from the accounting techniques used by various government departments. The Honorable E. J. Bennett, Minister of Finance, wrote that program planning and budgeting have been introduced by the federal government in Canada. A proper conception of PFB is that it requires control and review by function within a project, detail and only in service or stage under its functional responsibility. The accounting system used by some departments does not permit definition of financial responsibility of personnel.

10. The following is a list of the names of the members of the Board of Education of the City of New York, and the date of their election:

the federal grant programs for "education" and the payments made to New Brunswick under those programs--something which had not been done to date. The resulting compilation of data was used in the statistical tests carried out in Chapter VI.

Appendix B provides a review of the demographic and economic characteristics of New Brunswick. Of use in the statistical test in Chapter VI were the estimates of its gross provincial product.

The statistical testing in Chapter IV suffers from a lack of data of which migration data by education level were the most significant. These data were first gathered for the 1961 census, but were not published. Further examination of options is dependent on the availability of better migration data.

April 4, 1971

In 1967 the funds for post-secondary education grants were announced. It was agreed that the financial government would contribute \$100 million to the province for post-secondary education from 1968 to 1972. In payment of this obligation, the government established the following program:

- 1. An independent university commission for the administration of the program.
- 2. An independent commission for the administration of grants to universities and other post-secondary educational institutions.
- 3. An independent commission for the administration of grants to the technical institutes.
- 4. An independent commission for the administration of grants to the vocational schools.
- 5. An independent commission for the administration of grants to the community colleges.
- 6. An independent commission for the administration of grants to the technical institutes and vocational schools.
- 7. An independent commission for the administration of grants to the community colleges.

The independent commissions were to be responsible for the administration of the grants to the various educational institutions. The independent commissions were to be responsible for the administration of the grants to the various educational institutions.

or refund would be made to equalize the total transfer to what was due the province under the formula.

The agreement specified expenses which were not considered to be operating expenditures and defined deductions to be made from operating expenditures. It also defined

"post-secondary education" to be any course certified by the Lieutenant-Governor in Council which is of twenty-four weeks' duration or more and requires junior matriculation for admission. Included in the agreement were a removal of the limit for capital grants under the Technical and Vocational Training Assistance Act and an undertaking by the Federal government of the full cost of adult training

and upgrading programs. Other programs outlined in Appendix I include, veterans' allowances, and Canadian Control players, continuing.

It should appear that the above agreements are not dependent in any way upon the method of funding for the education of children. Rather, the method of paying has changed so that the responsibility for paying is not our purpose but to afford a more relevant and classified analysis of this money.

Finally, the people of Quebec have agreed to provide the federal government with a loan of \$100 million for the financing of post-secondary education. This indicates an additional amount of \$100 million will be available for the funding of post-secondary education.

It is the hope of the Quebec government that this loan will be used to assist the federal government in its efforts to

achieve its goal of making post-secondary education available to all qualified students.

TABLE 7-1

TOTAL FEDERAL PAYMENTS AND FEDERAL PAYMENTS
TO NEW BRUNSWICK FOR EDUCATION, 1968-1973
(In Millions of Dollars)

Year ^a	Personal Income Tax ^b	Corporate Income Tax ^b	Cash Transfers ^c	Other Payments ^b	Total Value of Transfer to Provinces ^c	
	(1)	(2)	(3)	(4)	(5)	(6)
Canada						
1968	\$174.1	\$52.5	\$182.7	\$ 13.0	\$ 422.3	
1969	195.2	57.7	238.4	40.8	532.1	
1970	239.6	64.7	303.8	40.8	643.9	
1971	234.0	63.9	392.9	72.8	812.6	
1972 ^d	321.1	63.4	449.8	135.3	969.6	
1973 ^e	380.3	76.8	480.1	210.9	1,143.6	
New Brunswick						
1968	\$2.6	40.8	\$2.6	\$ 3.3	\$ 9.3	
1969	2.9	0.9	3.8	4.1	11.	
1970	3.7	1.0	5.1	4.5	14.3	
1971	4.3	0.9	6.9	3.7	25.9	
1972	4.9	1.0	8.2	10.0	29.1	
1973	5.8	1.1	8.7	17.2	32.8	

^aFiscal year ending March 31.

^bOther payments include equalization payments plus, for 1971 to 1973 other education transfers as set out in the National Finances which are annualized for 1970.

^cIt should be noted that New Brunswick's share of the capital component is included in the cash transfers.

^dEstimated for July, 1971.

^eEstimated for March, 1973.

^fSource: Canadian Tax Foundation, *Canadian Budget*, various years; 1973, and continuing (1) *Financial Statement of the Government of Canada*, Department of Finance, "Fiscal Arrangements and Agreements Act," 1967 and 1971, and (2) *Annual Budget Tables*, June 1, 1973.

Table 7-1 is a brief review of the education payments made to the Province of New Brunswick. In 1966-1967, New Brunswick had received \$12.8 million⁴ in education subsidies while in 1972-1973, the estimated subsidy for education in New Brunswick is valued at more than two and one-half times that amount, \$32.8 million.

5. Concluding Remarks

This dissertation is an attempt to examine the implications of federal grants for education. In other words, the policy of the federal government directing grants to the provinces for education expenditures is questioned.

To reject policy as being inappropriate, there must be some evidence that there are alternatives which are significantly better, or at the very least, there must be evidence that present policy is not accomplishing even partially the intention set out for it. The evidence in this study would seem to suggest that federal education grants do not change the policy-makers' response to inflation, but the economic development of New Brunswick appears to have been assisted by those grants. Although both conclusions are tentative, it is nevertheless apparent that a continuation of federal support for education would be justified. Further analysis based on detailed and more complex data would be desirable. Federal

grants for education do serve a purpose, and until evidence to the contrary becomes available, these grants should be continued.

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APPENDIX A

FEDERAL AID TO EDUCATION: A HISTORICAL REVIEW

The purpose of this appendix is to show in both verbal and statistical form the historical evolution of various federal programs. The reader will note a brief description of each program accompanied by a table relating the amounts paid out under that program.

4. Vocational Training Corporation Act

Vocational Education

The largest gift by far ever made to the Vocational School was given by Mr. Frank J. Eckford, of Boston, whose vocational school, as we have seen, is the best in the country. The gift, which was made for two purposes--capital and endowment--was originally estimated at \$100,000. Under the latter, each province received an outright grant of \$10,000, and the remaining \$90,000 was to be distributed by the provinces, according to their needs. The provinces had the choice of fifty-year old timber or other property, or cash. In addition, there was a stipulation of \$4,000 per year for maintenance, and the first payment was made in January 1901. The Boston School, however, has not yet

TABLE A-1
PAYMENTS MADE UNDER THE VOCATIONAL TRAINING
CO-ORDINATION ACT, 1946-1951

Year ^a	Receipts by N.B.	On a	Payments by Canada	On a
	Under the Vocational Training Co-ordination Act (in thousands of dollars)	Per Capita Basis	Under the Vocational Training Co-ordination Act (in thousands of dollars)	Per Capita Basis
1946	520.2	41.11	\$ 6,136.9	\$0.50
1947	953.9	1.99	15,471.6	1.25
1948	527.9	1.08	10,123.4	0.80
1949	341.1	0.68	6,066.3	0.47
1950	589.5	1.16	5,075.2	0.37
1951	230.4	0.45	4,370.3	0.31
1952	271.6	0.52	4,449.5	0.31
1953	240.3	0.45	4,960.3	0.34
1954	225.4	0.42	4,105.6	0.27
1955	247.3	0.45	4,031.7	0.26
1956	231.7	0.42	3,963.5	0.25
1957	247.1	0.44	4,059.7	0.25
1958	277.3	0.49	4,203.6	0.25
1959	359.3	0.62	7,653.7	0.44
1960	4,184.4	0.72	8,131.6	0.46
1961	595.3	1.03	3,452.7	0.47
Total	36,729.9	16.79	39,1261.7	30.43
Average	3,060.8	1.39	3,259.4	2.54

^a The data for 1946-1951 payments are taken from the Annual Report of the Minister of National Resources, Department of National Resources, Ottawa, Ontario, Canada.

Territories, and the Yukon came into the agreement, the ceiling was raised so that by 1954-55 the allotment had been raised to \$2.1 million per annum.

The federal contribution from the annual allotment was limited to an amount not in excess of the increase in provincial expenditures over a basic year prior to the agreement or 50 percent of the actual provincial expenditures, whichever was the lesser. It was this stipulation which gave the provinces the impetus to increase vocational education - either in quantity or quality.

The provinces made a number of different decisions as to how the money would be used. As well, some provinces retained much more of their allotment than other provinces. Table A-2 shows the usage of the annual allotments during the first five years of the agreement.

In 1955, the Vocational Training Advisory Council recommended that the agreement giving annual allotments to the provinces be renewed for ten years with the federal contribution increased to an annual \$4.6 million maximum. However, two one-year extensions were given while investigations were conducted and legislation prepared.

On April 1, 1957, the Vocational and Technical Agreement came into effect for a five-year period. This

agreement provided \$4.6 million for the first year, \$5.1 million for the second, \$5.6 million for the third, \$6.1 million for the fourth, and \$6.6 million for the fifth year. The

total amount of \$28.9 million was to be used for vocational and technical training, apprenticeship training, and

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vocational high schools. For the first two years the annual appropriations were to be \$2.5 million, \$3.0 million for the third year, and \$3.5 million for the last two years. Within the annual appropriation, \$30.0 thousand was to be an unmatched grant to each province, \$20.0 thousand was to be an unmatched grant to each territory, and the remainder was to be distributed according to the proportion of the population in the 15-19 year age group. The latter portion was to be matched.

Throughout this discussion the grants for capital purposes have been left out. They were rather significant. Originally, in 1940, a special Dominion allotment of \$10.0 million was made available for capital expenditures on buildings and equipment subject to a deadline of March 31, 1943. These funds were to be distributed on the basis of the proportion of 15-19 year olds living in the province and were to be matched by the province. Immediately after the war there was a shortage of building supplies; consequently the original deadline for time limit for expenditures under this program was extended to March 31, 1947 for all buildings and equipment grants later approved by the Minister by March 1, 1946, the deadline for which was recommended by the Minister for Employment was pushed.

The new deadline of March 31, 1947, was to be matched by the provinces for capital expenditures on buildings and equipment approved by the Minister by March 1, 1946, the deadline for which was recommended by the Minister for Employment was pushed.

later years, however, permission was granted for the annual allotments to be used for capital purposes.

The Vocational and Technical Training Agreement No. 2, which came into effect April 1, 1957,¹ provided \$25.0 million over five years for capital assistance. Again, this money was to be allotted on the basis of the population in the 15-19 age group, but this time provision was made to reallocate funds not required to match provincial government expenditures on approved projects. As there would not be sufficient funds to match all provincial capital expenditures in the field of vocational training, preference was to be given to the building and equipping of technical and trades institutes. Lower in priority were vocational training projects in secondary schools and special training centres.

By March 1, 1960, the provinces (other than Quebec) had capital projects planned or in progress which would require the full amount of capital assistance. Fifty-one per cent of these funds were allotted to institutes of technology. The other combined institutes of technology and vocational centres, independent training or vocational training centres, and for secondary vocational high schools.

On January 1, 1961, the capital agreement, the federal share allotted to the provincial governments, was increased by

\$10.0 million. This increase will be applied to the capital

expenditures of the provinces on vocational training

TABLE A-3
NATIONAL SCHOOL ASSISTANCE,
(in thousands of dollars)
1946-1951

Payments by Canada			
Annual	Building	Equipment	
\$ 6,271.2	\$ 4,455.4	\$ 72.0	
4,453.3	921.8	233.2	
1,899.9	1,856.7	422.8	
1,974.2	1,697.3	357.4	
1,638.7	795.8	355.1	
2,0342.9	594.	262.9	
2,1393.3	913.0	221.0	
2,129.2	105.0	135.8	
2,063.5	219.2	73.1	
2,029.5	219.7	2.6	
2,157.7	2,157.7		
2,167.0	2,167.0		
13.6	979.3	855.4	b
20.2	2,435.4	2,350.6	b
72.9	2,049.5	3,890.0	b
57.4	2,347.7	2,818.7	b
Total	\$1,363.7	\$16,750.4^d	\$2,188.9

Source: Year ending March 31.

Included in the figures for building.

Because of rounding, the figures do not necessarily add up.

Part of which is for equipment.

Source: Canadian Department of Labour, Annual Report (Ottawa: Queen's Printer, various years, 1946-61), and Canada, Department of Finance, Public Assessments (Ottawa: Queen's Printer, various years, 1946-61).

provisions of the Technical and Vocational Training Assistance Act, 1961.³ By the end of the fiscal year, the Minister of Labour had approved projects for capital expenditures totalling \$4.3 million.⁴

iii) War Emergency Training

During the Second World War and immediately following the greatest single task undertaken under the Vocational Training Co-ordination Act was the training of workers involved with varying aspects of defence. Various programs came under the general arrangement on war emergency training. These included: (a) training for the armed forces, (b) training of workers in defence industries, (c) supervisory training, (d) training of veterans for civilian jobs, and (e) supplying funds and equipment for such programs. Each will be examined in turn.

In June 1940, with the inception of training armed forces personnel, the Canadian Government made payments for training under this program. Between March 1, 1940 and the start of the Korean War in June 1950, the total amount mobilized amounted to \$1,000,000,000. This figure includes the cost of training of all categories of personnel in the Canadian Armed Forces. The cost per annum increased with each year, the following being provided for:

1940	\$10,000,000
1941	\$15,000,000
1942	\$20,000,000
1943	\$25,000,000
1944	\$30,000,000
1945	\$35,000,000
1946	\$40,000,000
1947	\$45,000,000
1948	\$50,000,000
1949	\$55,000,000
1950	\$60,000,000

The following table shows the estimated cost per annum for the period 1940-50.

1940	\$10,000,000
1941	\$15,000,000
1942	\$20,000,000
1943	\$25,000,000
1944	\$30,000,000
1945	\$35,000,000
1946	\$40,000,000
1947	\$45,000,000
1948	\$50,000,000
1949	\$55,000,000
1950	\$60,000,000

The following table shows the estimated cost per annum for the period 1940-50.

1940	\$10,000,000
1941	\$15,000,000
1942	\$20,000,000
1943	\$25,000,000
1944	\$30,000,000
1945	\$35,000,000
1946	\$40,000,000
1947	\$45,000,000
1948	\$50,000,000
1949	\$55,000,000
1950	\$60,000,000

Under this schedule, the federal government bore 100 per cent of the cost of training while the provincial governments paid certain administrative charges and provided vocational shops in the existing technical and vocational schools without charge for rental or depreciation.

The above schedule was split in 1952 into "Training for the Armed Forces" (K-1) and "Training of Workers in Defence Industries" (K-2). Under the provisions of the latter, the provinces were reimbursed for 75 per cent of the cost of operating K-2 units. New Brunswick did not participate in either program after March 31, 1956.

In 1948-49, supplementary training was carried on as part of Schedule K, but during that year the provincial government notified the Department of National Defence that it would no longer approve funds on a 50-50 basis, and so the provincial unit closed. The Province of New Brunswick had been the only type of province to have a unit under Schedule K.

On April 1, 1950, the federal government announced that it would no longer finance training units under Schedule K. This was in accordance with the recommendations of the Royal Commission on National Health and Welfare which had recommended that the federal government should not be involved in financing training units.

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of Veterans Affairs; (b) the anticipated field of employment in each occupation.⁵

The federal Department of Labour co-operated with all provincial governments but with the costs of training veterans borne solely by the Dominion. The only exception was for certain items of capital equipment towards which the provinces contributed 50 per cent of the purchase price in return for outright ownership when the equipment was no longer required for the training of veterans.

On December 31, 1947, responsibility for the supervision of veteran training in private schools was transferred to the Department of Veterans Affairs. By 1950, the program had phased out its affiliation through payment of fees which were discontinued until 1951. Control of recruitment within the Department of Labour was evidenced in the following quotation:

"Will the Minister of Veterans Affairs be satisfied that through the V.O.T.C. and V.A.T.C. the Board and the Department of Labour will be responsible for the recruitment of veterans? We will do our best to help you in this regard, but we must emphasize that the V.O.T.C. and V.A.T.C. are not affiliated with the Department of Labour, and that the Department of Labour is not affiliated with the V.O.T.C. and V.A.T.C. The V.O.T.C. and V.A.T.C. are affiliated with the Department of Veterans Affairs." (Emphasis added)

TABLE A-4

DEFENCE-RELATED TRAINING, 1946-1961
(In Thousands of Dollars)

Year ^a	Payments Made to New Brunswick					
	K-1 ^b	K-2 ^c	L ^d	Buildings	Equipment	Total ^e
1946	\$ 33.6		\$ 258.6	\$ 4.5	\$ 93.6	\$ 395.3
1947			667.4	15.3	163.5	841.6
1948			415.4		51.9	467.3
1949			104.9		55.1	109.9
1950	15.9		10.1			26.3
1951	14.3		1.8			16.0
1952	12.1	\$13.0				25.2
1953	12.6	19.5				32.1
1954	3.9	9.1				15.0
1955	5.0	2.5				7.5
1956	4.7					4.7
1957						
1958						
1959						
1960						
1961						
Total	\$104.7	\$61.7	\$1,187.9	\$14.5	\$261.0	\$1,941.6

^a Financial year ending March 31.^b Training for the Armed Forces.^c Training for defence-related industry.^d Training for civil defence.^e Sum of or rounded to totals, before consideration of transfers.^f Excludes: Newfoundland, Yukon, Northwest Territories.^g Excludes: Newfoundland, Yukon, Northwest Territories.^h Excludes: Newfoundland, Yukon, Northwest Territories.ⁱ Excludes: Newfoundland, Yukon, Northwest Territories.^j Excludes: Newfoundland, Yukon, Northwest Territories.^k Excludes: Newfoundland, Yukon, Northwest Territories.^l Excludes: Newfoundland, Yukon, Northwest Territories.^m Excludes: Newfoundland, Yukon, Northwest Territories.ⁿ Excludes: Newfoundland, Yukon, Northwest Territories.

DEFENSE-RELATED EXPORTS,
CHINA AND TAIWAN, 1946-1961
(in thousands of dollars)

Employment Place by Canada		Supervision		Supervisory		Total
Year	Number	Supervision	Supervision	Supervision	Supervisory	Total
1900	32,709.3	5	359.9	5	12.1	\$5,054.3
1901	2,260.7	12	352.5	5	11.2	12,859.4
1902	1,027.4	11.2	9.6	9.6	6,355.4	1,078.3
1903	98.6	15.7	7.3	7.3	1,122.5	77.9
1904	1,027.4	7.6	7.6	7.6	151.7	194.1
1905	98.6	4.1	4.1	4.1	292.7	163.7
1906	1,027.4	7.9	9.0	9.0	31.4	0
1907	98.6	4.1	3.6	3.6	43.9	7.3
1908	1,027.4	7.3	9.3	9.3	47.1	41.1
1909	98.6	7.3	9.5	9.5	35.5	32.3
1910	1,027.4	13.8	13.8	13.8	22.2	9.1
1911	98.6	5,677.3	5,677.3	5,677.3	\$22.1	\$25,555.3
1912	1,027.4	7.2	2.2	2.2	0	7.3

General year ending March 31.

from the armed forces.

• SUPPLY & SERVICE CO., INC.

29 cases of recording the totals do not necessarily add.

Canada: Department of Labour, Annual Report (Ottawa: Queen's Printer, various years, 1946-61), and Canada, Department of Finance, Public Accounts (Ottawa: Queen's Printer, various years, 1946-61).

purposes:

- a) the acquisition of buildings and property from the War Assets Corporation, Departments of the Federal government and other body's [sic];
- b) for alterations to premises acquired for training; and
- c) for the purchase of equipment from the War Assets Corporation and other body's [sic].

This fund was of importance only until 1948-49 after which no payments were made.

(iii) Retraining of Civilian Workers.

At the end of the war, civilian retraining was a new concept. During 1945-46 only four provinces reached agreement with the Federal government to provide this type of training and they claimed only one thousand dollars of a \$15.5 million allocation. The reason for this was that first priority was given to the training of returning members of the forces. In 1946-47 the amount allocated to the provinces increased to \$25 million. Under the agreements, the federal government was to pay and the provincial foundations get a weekly "allowance" to help defray costs. The Federal government and the provinces had to equally share the cost of spending this type of money. This all came to an abrupt halt in 1947-48 due to the financial problems of the provinces. The government, which had been asked to provide the money, refused to do so.

RETRAINING OF CIVILIAN WORKERS

The following table shows the amount allocated by the federal government to the provinces for the retraining of civilian workers during the period 1945-46 to 1950-51. The figures are in thousands of dollars.

Year	Allocation
1945-46	4,000
1946-47	25,000
1947-48	0
1948-49	0
1949-50	0
1950-51	0

receipt of Unemployment Insurance. At the same time, greater authority was given to the provinces in the selection of trainees and courses. In return, the approved costs were to be shared equally between the province and the federal government with the province being responsible for recommending the scale of training allowances which should be paid.

By 1950-51, New Brunswick was offering training to men in barbering, blacksmithing, cabinet-making, machine-shop, shoe-repair, upholstering, and welding, and to women in dressmaking, nursing-aides, and handicrafts.

In 1954-55, the programme was divided into "Training for the Employed Person" (occupational) and "Training for the Unemployed Person" (vocational). The latter was discontinued with the individual responsibility of each business. Only people who were unemployed because of a breakdown of industry and who could be fitted for suitable part-time employment qualified for grants.

During the years of the Great Depression, 1930-31, the provincial budget was controlled by the federal government to provide for employment for qualified unemployed workers.

Under the federal plan, a committee of the provincial Board of Education, the Provincial Employment Commission, and the Provincial Department of Labour, was responsible for the administration of the program.

The Provincial Employment Commission was responsible for the placement of the unemployed in available work. The Provincial Department of Labour was responsible for the administration of the program and the Provincial Board of Education was responsible for the training of the unemployed.

EMPLOYEES
IN CANADA
1946-1961

Department of Finance

	1946	1947	1948	1949	1950	1951	Total	% to M.B.
	1946	1947	1948	1949	1950	1951	Total	% to M.B.
1. Total	1,467,600	1,677,700	1,887,800	2,107,900	2,328,000	2,548,100	12,500,400	100.0
2. Civil Service	1,380,000	1,580,000	1,790,000	2,010,000	2,230,000	2,450,000	11,500,000	91.6
3. Royal Canadian Mounted Police	10,000	10,000	10,000	10,000	10,000	10,000	60,000	0.5
4. Royal Canadian Air Force	80,000	90,000	100,000	110,000	120,000	130,000	700,000	5.6
5. Royal Canadian Navy	10,000	10,000	10,000	10,000	10,000	10,000	60,000	0.5
6. Other Government Departments	80,000	90,000	100,000	110,000	120,000	130,000	700,000	5.6
7. Provincial Government Employees	80,000	90,000	100,000	110,000	120,000	130,000	700,000	5.6
8. Local Government Employees	10,000	10,000	10,000	10,000	10,000	10,000	60,000	0.5
9. Other Employees	10,000	10,000	10,000	10,000	10,000	10,000	60,000	0.5
10. Total by Province	1,467,600	1,677,700	1,887,800	2,107,900	2,328,000	2,548,100	12,500,400	100.0
11. Ontario	563,000	620,000	677,000	734,000	791,000	848,000	4,034,000	32.2
12. Quebec	400,000	450,000	480,000	510,000	540,000	570,000	2,600,000	20.8
13. British Columbia	100,000	110,000	120,000	130,000	140,000	150,000	750,000	6.0
14. Alberta	80,000	85,000	90,000	95,000	100,000	105,000	525,000	4.2
15. Saskatchewan	60,000	65,000	70,000	75,000	80,000	85,000	425,000	3.4
16. Manitoba	40,000	45,000	50,000	55,000	60,000	65,000	325,000	2.6
17. Newfoundland	20,000	25,000	30,000	35,000	40,000	45,000	225,000	1.8
18. Prince Edward Island	10,000	10,000	10,000	10,000	10,000	10,000	100,000	0.8
19. Yukon and Northwest Territories	10,000	10,000	10,000	10,000	10,000	10,000	100,000	0.8

Figures of 1946 and 1947 do not necessarily add up to figures of 1948, 1949, 1950, 1951 and total because of rounding.

Sources: Canada, Department of Labour, Annual Report, Various Years, 1946-61; Ottawa: Queen's Printer.

iv) Apprenticeship Training

From a small beginning in 1945-46, the funds expended by the Canadian government on apprentice training agreements had grown more than thirty-eight times by 1960-61.

During the period under review, all provinces except Prince Edward Island and Quebec had apprenticeship agreements with the federal government.

In each agreement, provision was made for class training (partly practical and partly technical) in selected subjects, as well as correspondence courses. For the training of civilians, the Department of Labour shared equally with the province in the following apprenticeship connected with class training:

- (a) cost of materials, supplies, equipment, and books;
- (b) cost of instruction, including travel, board, and lodgings;
- (c) weekly allowances and stipends; and
- (d) other expenses.

The cost of instruction, including travel, board, and lodgings, was to be paid by the employer, and the cost of other expenses by the government. The cost of instruction, including travel, board, and lodgments, was to be paid by the employer, and the cost of other expenses by the government. The cost of instruction, including travel, board, and lodgments, was to be paid by the employer, and the cost of other expenses by the government.

The cost of instruction, including travel, board, and lodgments, was to be paid by the employer, and the cost of other expenses by the government. The cost of instruction, including travel, board, and lodgments, was to be paid by the employer, and the cost of other expenses by the government.

The cost of instruction, including travel, board, and lodgments, was to be paid by the employer, and the cost of other expenses by the government. The cost of instruction, including travel, board, and lodgments, was to be paid by the employer, and the cost of other expenses by the government.

sum by the provinces for apprenticeship charges. When this first agreement expired in 1953 only a new list of agreements covering all the areas previously included was submitted indicating that two expenditures were established, as follows:

Well, I intended to say the first payment to Newfoundland and the second to Quebec. Under these agreements, payments were made only to indentured apprentices registered under the provisions of

the provincial apprenticeship acts. Payments were not made to other apprentices who were being trained individually by corporations and individual employers.

In the immediate post-war years, the Federal Department of Labour bore the responsibility of apprenticeship training for federal employees which fell within the federal civil service system. In 1954, the Department of Labour and the Canadian Council of Appropriate Employment, now known as the Canadian Employment Service, established a joint apprenticeship committee of the Canadian Employers' Association and apprenticeship officers of the Department of Labour. In 1955, the payment of training

and living expenses to apprenticeship training by the Department of Labour was discontinued.

With the establishment of the Canadian Employment Service, the responsibility for apprenticeship training was transferred to the Canadian Employment Service.

The Canadian Employment Service decided to make apprenticeship training available to federal apprentices through the Canadian Employment Service.

At the same time, the Canadian Employment Service also began to offer apprenticeship training to federal apprentices through the Canadian Employment Service.

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v) Youth Training

The purpose of this part of the Vocational Training Co-ordination Act was to carry on programs established under the Youth Training Act, 1939.⁸ Youth training had been provided originally to meet the needs of young people who, because of the depression in the 1930's, had never been permanently employed and who required a period of training to acquire gainful employment. The major part of the programs consisted of a wide range of short-term courses (from a few days to several months) for young people sixteen to thirty years of age (the upper limit was removed in 1958-59). These courses were in various phases of agriculture, home-maintenance, leadership, and instructional, vocational, and technical, commercial work, such as advertising, dressmaking, apparel goods, dried and canned vegetables, and articles for household equipment, marketing, meat, fish, and dairy, and general building and repair. Through the latter, youths of all ages and interests could profitably take part of the funds available for vocational training, which was derived from apprenticeship fees, industrial insurance premiums, and other contributions.

Apprenticeship fees, which were derived from apprenticeship agreements between employers and employees, provided the largest amount of money for vocational training. As can be seen in Table A, New Brunswick received approximately \$1,000,000 in apprenticeship fees in 1948. This amount, however, did not affect many of the students, since they were not apprentices. In fact, only about one-half of the apprentices in New Brunswick were employed in agriculture, while the other half were in non-agricultural industries.

Industrial insurance premiums were derived from employers and employees. These premiums were used to provide compensation to workers who were injured or disabled at their place of work. The amount of money received by New Brunswick from industrial insurance premiums was relatively small, but it did provide some assistance to those who were injured or disabled. The amount of money received by New Brunswick from industrial insurance premiums was relatively small, but it did provide some assistance to those who were injured or disabled. The amount of money received by New Brunswick from industrial insurance premiums was relatively small, but it did provide some assistance to those who were injured or disabled.

TABLE A-8
YOUTH TRAINING AND STUDENT AID, 1944-1961
(In Thousands of Dollars)

Year	Received by New Brunswick			Paid Out by Canada		
	Youth Training Aid	Student Aid	Total	Youth Training Aid	Student Aid	Total
1946	\$ 28.1	\$ 15.1	\$ 43.3	\$ 257.7	\$ 179.3	\$ 436.9
1947	27.0	11.0	39.4	344.9	202.4	547.3
1948	23.2	b	25.2	395.6	b	395.6
1949	19.7	b	18.7	355.3	b	355.3
1950	34.1	b	34.1	367.4	b	367.4
1951	37.6	b	37.6	363.1	b	363.1
1952	38.3	b	38.3	366.2	b	366.2
1953	39.9	b	39.9	365.4	b	365.4
1954	41.2	b	41.2	311.6	b	311.6
1955	41.4	b	41.4	350.3	b	350.3
1956	47.7	14.3	62.0	132.3	105.3	237.6
1957	194.7	14.3	214.0	141.4	130.0	271.4
1958	191.7	14.3	206.0	141.4	130.0	271.4
1959	193.5	14.3	207.8	141.4	130.0	271.4
1960	195.9	14.3	210.2	141.4	130.0	271.4
1961	197.4	14.3	211.7	141.4	130.0	271.4
<i>Total</i>	<i>1,175.4</i>	<i>107.0</i>	<i>1,282.4</i>	<i>1,071.2</i>	<i>936.6</i>	<i>2,007.8</i>

Fiscal year ending March 31.

The individual youth training aid

payments made under the New Brunswick apprenticeship and vocational training program were

paid directly by the provincial government to the employer.

The student aid payments were made directly to the student by the provincial government.

The youth training aid payments were discontinued in 1961.

The student aid payments were discontinued in 1961.

The youth training aid payments were discontinued in 1961.

The student aid payments were discontinued in 1961.

The youth training aid payments were discontinued in 1961.

The student aid payments were discontinued in 1961.

The chief sub-schedule of youth training dealt with student aid. In each province, the funds expended on this schedule aided prospective teachers, nurses in training, and university students of good academic standing who, without financial assistance, could not start or continue their course. The assistance could be in the form of a loan, a grant, or a combination of the two. The provinces had discretion in this matter and in New Brunswick only loans were used during the years examined.

It will be noted in Table A-3, that the funds for student aid decreased slightly during the period under review. The decrease in total funds in this program were more than compensated by the grants which included the following: Education of the Poor, University Scholarships, Vocational Training, and the like. The grants were given to the provinces by the Federal Department of National Education, and the amounts were distributed among the provinces according to their population and training for student aid. The amount of money given to the provinces by the Federal Department of National Education for student aid was \$1,000,000 in 1933-34, \$1,100,000 in 1934-35, \$1,200,000 in 1935-36, \$1,300,000 in 1936-37, \$1,400,000 in 1937-38, \$1,500,000 in 1938-39, \$1,600,000 in 1939-40, \$1,700,000 in 1940-41, \$1,800,000 in 1941-42, \$1,900,000 in 1942-43, \$2,000,000 in 1943-44, \$2,100,000 in 1944-45, \$2,200,000 in 1945-46, \$2,300,000 in 1946-47, \$2,400,000 in 1947-48, \$2,500,000 in 1948-49, \$2,600,000 in 1949-50, \$2,700,000 in 1950-51, \$2,800,000 in 1951-52, \$2,900,000 in 1952-53, \$3,000,000 in 1953-54, \$3,100,000 in 1954-55, \$3,200,000 in 1955-56, \$3,300,000 in 1956-57, \$3,400,000 in 1957-58, \$3,500,000 in 1958-59, \$3,600,000 in 1959-60, \$3,700,000 in 1960-61, \$3,800,000 in 1961-62, \$3,900,000 in 1962-63, \$4,000,000 in 1963-64, \$4,100,000 in 1964-65, \$4,200,000 in 1965-66, \$4,300,000 in 1966-67, \$4,400,000 in 1967-68, \$4,500,000 in 1968-69, \$4,600,000 in 1969-70, \$4,700,000 in 1970-71, \$4,800,000 in 1971-72, \$4,900,000 in 1972-73, \$5,000,000 in 1973-74, \$5,100,000 in 1974-75, \$5,200,000 in 1975-76, \$5,300,000 in 1976-77, \$5,400,000 in 1977-78, \$5,500,000 in 1978-79, \$5,600,000 in 1979-80, \$5,700,000 in 1980-81, \$5,800,000 in 1981-82, \$5,900,000 in 1982-83, \$6,000,000 in 1983-84, \$6,100,000 in 1984-85, \$6,200,000 in 1985-86, \$6,300,000 in 1986-87, \$6,400,000 in 1987-88, \$6,500,000 in 1988-89, \$6,600,000 in 1989-90, \$6,700,000 in 1990-91, \$6,800,000 in 1991-92, \$6,900,000 in 1992-93, \$7,000,000 in 1993-94, \$7,100,000 in 1994-95, \$7,200,000 in 1995-96, \$7,300,000 in 1996-97, \$7,400,000 in 1997-98, \$7,500,000 in 1998-99, \$7,600,000 in 1999-2000, \$7,700,000 in 2000-2001, \$7,800,000 in 2001-2002, \$7,900,000 in 2002-2003, \$8,000,000 in 2003-2004, \$8,100,000 in 2004-2005, \$8,200,000 in 2005-2006, \$8,300,000 in 2006-2007, \$8,400,000 in 2007-2008, \$8,500,000 in 2008-2009, \$8,600,000 in 2009-2010, \$8,700,000 in 2010-2011, \$8,800,000 in 2011-2012, \$8,900,000 in 2012-2013, \$9,000,000 in 2013-2014, \$9,100,000 in 2014-2015, \$9,200,000 in 2015-2016, \$9,300,000 in 2016-2017, \$9,400,000 in 2017-2018, \$9,500,000 in 2018-2019, \$9,600,000 in 2019-2020, \$9,700,000 in 2020-2021, \$9,800,000 in 2021-2022, \$9,900,000 in 2022-2023, \$10,000,000 in 2023-2024, \$10,100,000 in 2024-2025, \$10,200,000 in 2025-2026, \$10,300,000 in 2026-2027, \$10,400,000 in 2027-2028, \$10,500,000 in 2028-2029, \$10,600,000 in 2029-2030, \$10,700,000 in 2030-2031, \$10,800,000 in 2031-2032, \$10,900,000 in 2032-2033, \$11,000,000 in 2033-2034, \$11,100,000 in 2034-2035, \$11,200,000 in 2035-2036, \$11,300,000 in 2036-2037, \$11,400,000 in 2037-2038, \$11,500,000 in 2038-2039, \$11,600,000 in 2039-2040, \$11,700,000 in 2040-2041, \$11,800,000 in 2041-2042, \$11,900,000 in 2042-2043, \$12,000,000 in 2043-2044, \$12,100,000 in 2044-2045, \$12,200,000 in 2045-2046, \$12,300,000 in 2046-2047, \$12,400,000 in 2047-2048, \$12,500,000 in 2048-2049, \$12,600,000 in 2049-2050, \$12,700,000 in 2050-2051, \$12,800,000 in 2051-2052, \$12,900,000 in 2052-2053, \$13,000,000 in 2053-2054, \$13,100,000 in 2054-2055, \$13,200,000 in 2055-2056, \$13,300,000 in 2056-2057, \$13,400,000 in 2057-2058, \$13,500,000 in 2058-2059, \$13,600,000 in 2059-2060, \$13,700,000 in 2060-2061, \$13,800,000 in 2061-2062, \$13,900,000 in 2062-2063, \$14,000,000 in 2063-2064, \$14,100,000 in 2064-2065, \$14,200,000 in 2065-2066, \$14,300,000 in 2066-2067, \$14,400,000 in 2067-2068, \$14,500,000 in 2068-2069, \$14,600,000 in 2069-2070, \$14,700,000 in 2070-2071, \$14,800,000 in 2071-2072, \$14,900,000 in 2072-2073, \$15,000,000 in 2073-2074, \$15,100,000 in 2074-2075, \$15,200,000 in 2075-2076, \$15,300,000 in 2076-2077, \$15,400,000 in 2077-2078, \$15,500,000 in 2078-2079, \$15,600,000 in 2079-2080, \$15,700,000 in 2080-2081, \$15,800,000 in 2081-2082, \$15,900,000 in 2082-2083, \$16,000,000 in 2083-2084, \$16,100,000 in 2084-2085, \$16,200,000 in 2085-2086, \$16,300,000 in 2086-2087, \$16,400,000 in 2087-2088, \$16,500,000 in 2088-2089, \$16,600,000 in 2089-2090, \$16,700,000 in 2090-2091, \$16,800,000 in 2091-2092, \$16,900,000 in 2092-2093, \$17,000,000 in 2093-2094, \$17,100,000 in 2094-2095, \$17,200,000 in 2095-2096, \$17,300,000 in 2096-2097, \$17,400,000 in 2097-2098, \$17,500,000 in 2098-2099, \$17,600,000 in 2099-20100, \$17,700,000 in 20100-20101, \$17,800,000 in 20101-20102, \$17,900,000 in 20102-20103, \$18,000,000 in 20103-20104, \$18,100,000 in 20104-20105, \$18,200,000 in 20105-20106, \$18,300,000 in 20106-20107, \$18,400,000 in 20107-20108, \$18,500,000 in 20108-20109, \$18,600,000 in 20109-20110, \$18,700,000 in 20110-20111, \$18,800,000 in 20111-20112, \$18,900,000 in 20112-20113, \$19,000,000 in 20113-20114, \$19,100,000 in 20114-20115, \$19,200,000 in 20115-20116, \$19,300,000 in 20116-20117, \$19,400,000 in 20117-20118, \$19,500,000 in 20118-20119, \$19,600,000 in 20119-20120, \$19,700,000 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20154-20155, \$23,200,000 in 20155-20156, \$23,300,000 in 20156-20157, \$23,400,000 in 20157-20158, \$23,500,000 in 20158-20159, \$23,600,000 in 20159-20160, \$23,700,000 in 20160-20161, \$23,800,000 in 20161-20162, \$23,900,000 in 20162-20163, \$24,000,000 in 20163-20164, \$24,100,000 in 20164-20165, \$24,200,000 in 20165-20166, \$24,300,000 in 20166-20167, \$24,400,000 in 20167-20168, \$24,500,000 in 20168-20169, \$24,600,000 in 20169-20170, \$24,700,000 in 20170-20171, \$24,800,000 in 20171-20172, \$24,900,000 in 20172-20173, \$25,000,000 in 20173-20174, \$25,100,000 in 20174-20175, \$25,200,000 in 20175-20176, \$25,300,000 in 20176-20177, \$25,400,000 in 20177-20178, \$25,500,000 in 20178-20179, \$25,600,000 in 20179-20180, \$25,700,000 in 20180-20181, \$25,800,000 in 20181-20182, \$25,900,000 in 20182-20183, \$26,000,000 in 20183-20184, \$26,100,000 in 20184-20185, \$26,200,000 in 20185-20186, \$26,300,000 in 20186-20187, \$26,400,000 in 20187-20188, \$26,500,000 in 20188-20189, 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20257-20258, \$33,500,000 in 20258-20259, \$33,600,000 in 20259-20260, \$33,700,000 in 20260-20261, \$33,800,000 in 20261-20262, \$33,900,000 in 20262-20263, \$34,000,000 in 20263-20264, \$34,100,000 in 20264-20265, \$34,200,000 in 20265-20266, \$34,300,000 in 20266-20267, \$34,400,000 in 20267-20268, \$34,500,000 in 20268-20269, \$34,600,000 in 20269-20270, \$34,700,000 in 20270-20271, \$34,800,000 in 20271-20272, \$34,900,000 in 20272-20273, \$35,000,000 in 20273-20274, \$35,100,000 in 20274-20275, \$35,200,000 in 20275-20276, \$35,300,000 in 20276-20277, \$35,400,000 in 20277-20278, \$35,500,000 in 20278-20279, \$35,600,000 in 20279-20280, \$35,700,000 in 20280-20281, \$35,800,000 in 20281-20282, \$35,900,000 in 20282-20283, \$36,000,000 in 20283-20284, \$36,100,000 in 20284-20285, \$36,200,000 in 20285-20286, \$36,300,000 in 20286-20287, \$36,400,000 in 20287-20288, \$36,500,000 in 20288-20289, \$36,600,000 in 20289-20290, \$36,700,000 in 20290-20291, \$36,800,000 in 20291-20292, \$36,900,000 in 20292-20293, \$37,000,000 in 20293-20294, \$37,100,000 in 20294-20295, \$37,200,000 in 20295-20296, \$37,300,000 in 20296-20297, \$37,400,000 in 20297-20298, \$37,500,000 in 20298-20299, \$37,600,000 in 20299-20300, \$37,700,000 in 20300-20301, \$37,800,000 in 20301-20302, \$37,900,000 in 20302-20303, \$38,000,000 in 20303-20304, \$38,100,000 in 20304-20305, \$38,200,000 in 20305-20306, \$38,300,000 in 20306-20307, \$38,400,000 in 20307-20308, \$38,500,000 in 20308-20309, \$38,600,000 in 20309-20310, \$38,700,000 in 20310-20311, \$38,800,000 in 20311-20312, \$38,900,000 in 20312-20313, \$39,000,000 in 20313-20314, \$39,100,000 in 20314-20315, \$39,200,000 in 20315-20316, \$39,300,000 in 20316-20317, \$39,400,000 in 20317-20318, \$39,500,000 in 20318-20319, \$39,600,000 in 20319-20320, \$39,700,000 in 20320-20321, \$39,800,000 in 20321-20322, \$39,900,000 in 20322-20323, \$40,000,000 in 20323-20324, \$40,100,000 in 20324-20325, \$40,200,000 in 20325-20326, \$40,300,000 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20360-20361, \$43,800,000 in 20361-20362, \$43,900,000 in 20362-20363, \$44,000,000 in 20363-20364, \$44,100,000 in 20364-20365, \$44,200,000 in 20365-20366, \$44,300,000 in 20366-20367, \$44,400,000 in 20367-20368, \$44,500,000 in 20368-20369, \$44,600,000 in 20369-20370, \$44,700,000 in 20370-20371, \$44,800,000 in 20371-20372, \$44,900,000 in 20372-20373, \$45,000,000 in 20373-20374, \$45,100,000 in 20374-20375, \$45,200,000 in 20375-20376, \$45,300,000 in 20376-20377, \$45,400,000 in 20377-20378, \$45,500,000 in 20378-20379, \$45,600,000 in 20379-20380, \$45,700,000 in 20380-20381, \$45,800,000 in 20381-20382, \$45,900,000 in 20382-20383, \$46,000,000 in 20383-20384, \$46,100,000 in 20384-20385, \$46,200,000 in 20385-20386, \$46,300,000 in 20386-20387, \$46,400,000 in 20387-20388, \$46,500,000 in 20388-20389, \$46,600,000 in 20389-20390, \$46,700,000 in 20390-20391, \$46,800,000 in 20391-20392, \$46,900,000 in 20392-20393, \$47,000,000 in 20393-20394, \$47,100,000 in 20394-20395, \$47,200,000 in 20395-20396, \$47,300,000 in 20396-20397, \$47,400,000 in 20397-20398, \$47,500,000 in 20398-20399, \$

airport maintenance, machine operation, stationary engineering, naval architectural drafting, teletype operation, and varitype operation. The funds expended by the federal government on this type of training can be found in Table A-9.

It is evident in Table A-9 that New Brunswick received two payments totalling less than a thousand dollars for Vocational Correspondence Courses. These payments were made under an agreement with the federal government with a federal share of 50 per cent of the cost of preparing a vocational correspondence course (new or revised) on the condition that the province would make available any such course in non-teaching units of the province at the same charge as the federal government.

TABLE A-9
OTHER PROGRAMS, 1946-1971
(In Thousands of Dollars)*

Year ^a	Training for Government Employees (Canada)	Correspondence Courses in New Brunswick	Correspondence Courses in Canada
1946	1,000	1,000	1,000
1947	1,000	1,000	1,000
1948	1,000	1,000	1,000
1949	1,000	1,000	1,000
1950	1,000	1,000	1,000
1951	1,000	1,000	1,000
1952	1,000	1,000	1,000
1953	1,000	1,000	1,000
1954	1,000	1,000	1,000
1955	1,000	1,000	1,000
1956	1,000	1,000	1,000
1957	1,000	1,000	1,000
1958	1,000	1,000	1,000
1959	1,000	1,000	1,000
1960	1,000	1,000	1,000
1961	1,000	1,000	1,000
1962	1,000	1,000	1,000
1963	1,000	1,000	1,000
1964	1,000	1,000	1,000
1965	1,000	1,000	1,000
1966	1,000	1,000	1,000
1967	1,000	1,000	1,000
1968	1,000	1,000	1,000
1969	1,000	1,000	1,000
1970	1,000	1,000	1,000
1971	1,000	1,000	1,000

There were two agreements under the Act. These were the Technical and Vocational Training Agreement and the Apprenticeship Training Agreement. Under the former, there were provisions for ten programs as well as a Capital Expenditure Program and a Technical and Vocational Correspondence Courses Program. The Apprenticeship Training Agreement was a continuation of the agreements for apprenticeship training only.

The amounts received by Brunswick and paid out by Canada for apprenticeship training March 31, 1953, to March 31, 1957, can be found in Tables A-10 and A-11 respectively.

Riv. Brunswick, in 1957, will be in the six

Years budget of the national minimum wage and capital per year of training \$3,000.00, and a general provision of \$1,000.00 per year.

The following table shows the amount of money

which will be available for apprenticeship training in the six years budget.

It is estimated that the amount of money available for apprenticeship training in the six years budget will be approximately \$1,000,000.00.

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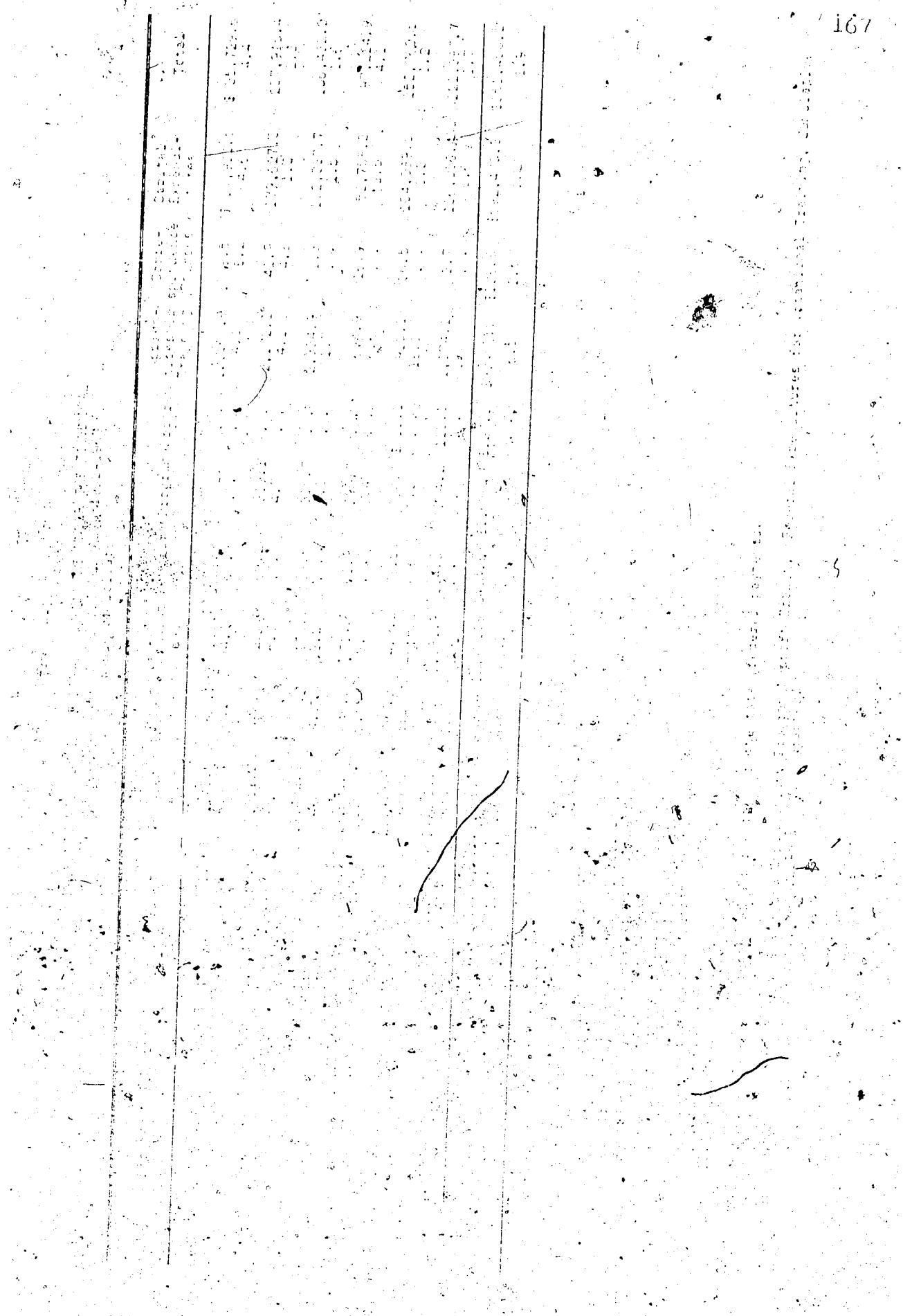
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basis of the ratio of the number of 15-19 year olds residing in each area to the total number of persons in that age group in Canada. These funds were not to provide in excess of 50 per cent of provincial costs.

Between 1961 and 1967, New Brunswick received \$677.9 thousand or \$1,25 per person for vocational high school training. This was 5.4 percent of what Canada paid out during the same period (\$11.74 per person).

(ii) Tetrahedral Interstitial Particles

(iii) Trade and Other Occupational Training

Program

To provide pre-employment training or retraining for persons over this compulsory school attendance age who have left elementary or secondary schools; this program was established to provide trade and occupational training. Instruction could be given in full-time, part-time, day or evening classes, by day or block periods, and correspondence courses.

In this connection, the Federal government agreed to finance 50 per cent of the proposed expenditure. In

July 1940, the Ministry of Reconstruction negotiated an agreement for the first year under which the federal government would contribute \$1,000,000 to the program.

The first year of operation was a success, and the program was expanded to include more than 100,000 students.

The second year of operation was also successful, and the program was expanded to include more than 150,000 students.

The third year of operation was also successful, and the program was expanded to include more than 200,000 students.

The fourth year of operation was also successful, and the program was expanded to include more than 250,000 students.

The fifth year of operation was also successful, and the program was expanded to include more than 300,000 students.

The sixth year of operation was also successful, and the program was expanded to include more than 350,000 students.

The seventh year of operation was also successful, and the program was expanded to include more than 400,000 students.

*2. Industrial apprenticeship

3. Retraining of employees who would otherwise be dismissed because of temporary lack of other industrial changes.

In July 1953, the 32nd Industrial apprenticeship training

Program was organized for the period of 1954 (to come) under the leadership of the Department of Trade and Com-

merce. At first, really three factors were involved in the organization of apprenticeship training:

1. The Ministry of Education and Science in July 1954,

2. The Ministry of Trade and Commerce, and

3. The Ministry of Finance. This program was organized by the Ministry of Education and Science, and the Ministry of Trade and Commerce.

This program was organized by the Ministry of Education and Science, and the Ministry of Trade and Commerce.

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chances of regular employment. In order to qualify for the

The percent contribution from the federal government, again,

minimum number of days of training had to be given. In this particular

14,000 acres taken off himmed up. In 1964, a Federal Court ruled

After a first 'Cent' of driving all logs were cut, started.

In the year 1961-62, Mr. Pieniewski received Dr.

which contained the first centripetal demand equation for "Training for

The Unfinished Story During The same period, New Brunswick had

and of per cent greater rate of increase than those

Classification according to the number of chromosomes

10. The author wishes to thank Dr. J. R. G. Williams for his help in the preparation of the manuscript.

and the following day, I will be up there again.

卷之三

1940-1941. The following year, he was appointed to the faculty of the University of Alberta.

卷之三

10. *Leucanthemum vulgare* L. (Lam.)

and the following day he was buried at the cemetery near his home.

and kept in the same condition as the original.

10. The following table gives the number of hours worked by each of the 100 workers.

10. The following table shows the number of hours worked by each employee.

10. The following table gives the number of hours worked by each of the 100 workers.

10. The following table gives the number of hours worked by each of the 1000 workers.

10. The following table shows the number of hours worked by each employee in a company.

10. The following table gives the number of hours per week spent by students in various activities.

10. The following table gives the number of hours worked by 1000 workers in a certain industry.

10. The following table shows the number of hours worked by each employee.

of \$190 thousand. That amounts to a payment by Canada of \$1.20 per capita or receipts for New Brunswick, or \$34 per capita.

vi) Technical and Vocational Training, Canada

With the large increase in training facilities being promoted by the Technical and Vocational Training Agreement, it was found that there would not be sufficient people to staff the facilities. The federal government agreed to pay the provincial stipend of \$100,000 annually to encourage attendance and facilitate the financing of occupational schools for the promotion of technical training. The agreement provided \$100,000 for New Brunswick, plus \$100,000 for the other provinces, a total of \$200,000 (one per cent).

Under the agreement, the provinces were to provide \$100,000 each for technical training, and the federal government would contribute \$100,000 for each province.

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Under the agreement, the provinces were to provide \$100,000 each for technical training, and the federal government would contribute \$100,000 for each province.

(ix) Student Assistance

It was noted under the discussion of the Vocational Training Co-ordination Act that "Student Aid" was carried over from the Canadian Constitution of earlier acts. Again, it was included under the Vocational and Vocational Training Assistance Act, which applies to university students in degree-granting courses other than theology, and to non-degree-granting students who were taking apprenticeship courses. The professional associations concerned had the candidates to receive special grants, locally, or at national level. Both the federal and the provincial governments paid out of their respective budgets, in addition to the amounts received by the associations, subsidies in aid of certain vocational apprenticeship courses. Canada also furnished a number of scholarships provided by the provinces. These funds were all intended for vocational training.

The Canadian government, however, did not provide any grants for vocational training. It did, however, provide a grant to the provinces for the purpose of vocational training. This grant was to be used for the purpose of vocational training. The Canadian government also provided a grant to the provinces for the purpose of vocational training. This grant was to be used for the purpose of vocational training.

The Canadian government also provided a grant to the provinces for the purpose of vocational training. This grant was to be used for the purpose of vocational training.

The Canadian government also provided a grant to the provinces for the purpose of vocational training. This grant was to be used for the purpose of vocational training.

The Canadian government also provided a grant to the provinces for the purpose of vocational training. This grant was to be used for the purpose of vocational training.

The Canadian government also provided a grant to the provinces for the purpose of vocational training. This grant was to be used for the purpose of vocational training.

xiv) Apprenticeship Training

The "Apprenticeship Training Program" was started under the Vocational Training Co-ordination Act in 1944. Like the other programs that started under the 1944 Act, few changes were made when the new Act was passed. Quebec and Prince Edward Island remained outside the agreement until a new agreement became effective on April 1st, 1964 (to terminate on March 31, 1967) when Prince Edward Island became part of the agreement. Meanwhile apprenticeship training in Quebec was altered by the federal government through "Training Co-ordination Programs" and "Training for Employment Programs". Under the latter the provinces of the Maritime Provinces signed a later, more formal, federal-provincial Training Agreement in cooperation with Industry Programs which also provided compensation for training given by apprenticeship.

In 1966 the federal government, through the Department of National Resources, began to offer apprenticeship training in the field of forestry. This program was designed to meet the demand for trained foresters in the timber industry. It was intended to provide training in the field of forestry, particularly in the areas of forest management, silviculture, and wood products processing. The program was open to individuals who had completed secondary school or equivalent education and had some experience in the field of forestry. The program included both classroom and practical training, and was designed to prepare individuals for entry into the forestry industry.

xiii) Capital Expenditure Program

Under the Capital Expenditure Program, the federal government agreed to aid in the provision of facilities for vocational training programs. Originally, the federal government agreed to reimburse the provinces for 70 per cent of approved capital expenditures incurred by March 31, 1962 (30 per cent after that date). This was also an attempt to meet part of the demand for employment in the construction industry during a period of high unemployment. In the end,

3. Veterans Rehabilitation Act

In the Veterans Rehabilitation Act, 1945, provision was made for "the Minister [of Veterans Affairs] to pay him [the veteran who receives certain rehabilitation training] a allowance for the period during which he takes the said [under specified courses]." Similar provisions were made for the veteran conditionality established in particularized clauses.

were paid to the universities under these supplementary grants which were the first large federal grants paid directly to the universities.

Children of the First Families
Auburn, N.Y.

In 1958 the Federal government made provision for the education of those children whose fathers had been killed while in the armed services. Responsibility for the initial cost of the part of the cost of education of dependant children who died during their time in the military services was given to the

October - Student's Printer, various.

Parcels, various
Linen, various

that New Brunswick had a ratio of small to large institutions that was not significantly different from the ratio in other provinces.

Editorial and Advertising Department

The year 1951 was one of expectation for Canadian sports enthusiasts. President Kennedy was pushing physical fitness, and the Royal Canadian Legion was leaving their contribution to fund sports, coaching, and athletic performances. Canadian athletes had been more than encouraged and had responded accordingly. The Royal Canadian Legion, Pittmead, and other sports organizations had decided to help the cause by holding a golf tournament.

GOVERNMENT OF CANADA SCHOLARSHIPS
FOR THE YEARS 1963-1967

Monetary Payments Received by N.B.
 as %
 of Federal Government
 of Canada (\$100,000's)

1

Monetary Payments Received by N.B.
 as %
 of Federal Government
 of Canada (\$100,000's)

Monetary Payments Received by N.B.
 as %
 of Provincial Government
 of Canada (\$100,000's)

Monetary Payments Received by N.B.
 as %
 of Provincial Government
 of Canada (\$100,000's)

will be noted that New Brunswick nominees for the years under review received about 5.3 per cent of federal funds spent on this function.

TABLE A-14

FUNDS SPENT BY THE FEDERAL GOVERNMENT FOR
POST-GRADUATE SCHOLARSHIPS AND FELLOWSHIPS IN PHYSICAL EDUCATION,
1953-1967^a

Year ^b	Amount Received By N.B. Residents (000's)	Amount Spent by Canada (000's)	New Brunswick as Percentage of Canada
1953	1.4	71.4	2.0
1954	3.9	135.9	1.5
1955	5.2	152.7	3.3
1956	3.9	201.0	2.5
1957	0.9	133.7	0.5
Total	13.4	872.7	1.5

^a Financial year ending March 31.

^b Nominees, in spite of national in both and West, were all from Quebec's right bank.

Source: Statistics Canada, Post-Graduate Scholarships and Fellowships in Physical Education, Ottawa, May 1968.

The following table compares the spending by provinces.

Source: Statistics Canada, Post-Graduate Scholarships and Fellowships in Physical Education, Ottawa, May 1968.

Leaders"¹⁷ through post-graduate scholarships and fellowships. Applications were reviewed, in this case, by the Scholarship Committee of the National Advisory Council and the awards were given on the understanding that the recipient would work at least two years in Canada or for a period of time equal to the duration of their selected studies.

The universities in New Brunswick did not provide graduate work in physical education so recipients had to leave the province. The Department of National Health and Welfare assisted in the preparation of Table K-1 by providing the figures for students who left New Brunswick by their residence at first year. The figures were as follows:

Number of Students	Number of Students
1946	1947
12	12
1947	1948
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1949	1950
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1950	1951
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1951	1952
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20214	20215
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20215	20216
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20216	20217
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20217	20218
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20218	20219
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20219	20220
12	12

\$500 million, divided so that \$300 million was allocated to the provinces on a per capita basis, \$75 million was allocated for joint Atlantic Province projects, and \$175 million was left undivided).

Because the Act was only proclaimed in July of 1966, the only figures relevant to this study are those from July, 1966 to March 31, 1967. During these first months, administrative details occupied the forefingers. The first project was approved in February and payments were started in March.

By March 31, the federal government had provided \$4.7 million, of which \$1.1 million (or \$4,130,000) went to the provinces for medical education (through the national and provincial governments, which were to be used for building and staff supplies).

On April 1, 1967, the first payment was made to the National Capital Commission by the Minister of National Health and Welfare, and upon this date, the NCC became responsible for the capital and general expenses of the Canadian National Institute for the Blind.

Having a difficult time finding a suitable name for the new organization, the Minister of National Health and Welfare, Mr. John Diefenbaker, suggested "Canadian National Institute for the Blind".

After some consideration, the name was accepted and the Canadian National Institute for the Blind was born. The name was chosen because it was felt that the word "Blind" would be more meaningful than "Handicapped".

The name "Canadian National Institute for the Blind" has been chosen to reflect the fact that the organization is a national one, and that it is a national concern. It is also a reminder that the organization is a national one, and that it is a national concern.

The name "Canadian National Institute for the Blind" has been chosen to reflect the fact that the organization is a national one, and that it is a national concern. It is also a reminder that the organization is a national one, and that it is a national concern.

TABLE A-15
FUND'S SPENT ON PROFESSIONAL TRAINING GRANTS,
1949-1967

Year	Paid Out By Federal Government (000's)	Received by New Brunswick (000's)	N.B. Receipts as a Percentage of Canadian Expenditures
1949	252.4	\$ 21.1	9.1
1950	380.4	21.3	5.7
1951	452.9	21.1	4.7
1952	511.4	21.7	6.3
1953	604.9	21.1	4.0
1954	659.8	34.2	3.5
1955	683.8	20.5	3.1
1956	625.8	19.7	3.1
1957	515.0	19.9	3.7
1958	561.7	19.1	3.4
1959	617.4	19.0	3.1
1960	656.7	19.21	2.9
1961	1,090.5	74.6	5.6
1962	1,317.6	59.4	4.1
1963	1,301.5	58.6	4.4
1964	1,712.9	49.5	2.8
1965	1,933.4	69.2	3.1
1966	1,591.1	65.1	5.1
1967	1,416.0	67.7	4.7

well as total Canadian payments from the program's inception in 1948.

3. Welfare Assistance

The Department of National Health and Welfare conducts one other type of program to assist education. It is administered by the Welfare Assistance and Services Branch and includes three types of aid: University Schools of Social Work receive operating grants; provinces receive grants for individuals who are studying for social work

with a view either to future employment with the provincial government, and, as well, there is a fellowship and scholarship program on a nation-wide basis. It is established along with the payments made to the Provinces and New Brunswick and to institutions and individuals in Nova Scotia as well as those grants made by Canada

to the Maritime provinces through the physiotherapy and dental services provided from operating grants underestimating

the actual payments made to New Brunswick. That is, because the Maritime School of Social Work is situated in Nova Scotia, the figures reflect, according to that institution, are shown after Nova Scotia although the school could be considered a

New Brunswick institution in the sense that it is a joint

program of the Nova Scotia University and the Maritime

College of Social Work. The figures for the Maritime

College of Social Work are included in the figures for Nova

Scotia, although the school is located in Halifax, Nova Scotia.

The figures for the Nova Scotia College of Social Work are

included in the figures for Nova Scotia, although the school is

located in Halifax, Nova Scotia. The figures for the Nova

Scotia College of Social Work are included in the figures for

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TABLE A-16

FUND PAID OUT FOR SOCIAL WORK TRAINING,
1948-1967

Amount Received by New Brunswick
by Canada (in thousands) as a Percentage
(000's) (000's) of Total

Year	Amount Paid Out	N.B. Receipts as a Percentage of Total
1948	\$50.0	
1949	50.0	
1950	52.5	
1951	55.5	
1952	60.0	
1953	95.2	9.6
1954	139.0	7.0
1955	300.4	3.2
1956	312.6	3.2
1957	314.6	2.9
1958	314.6	2.9
1959	314.6	2.9
1960	314.6	2.9
1961	314.6	2.9
1962	314.6	2.9
1963	314.6	2.9
1964	314.6	2.9
1965	314.6	2.9
1966	314.6	2.9
1967	314.6	2.9
Total	314.6	2.9

Source: Department of National Health and Welfare, Annual Report (Ottawa: Government Printer, various years).

A detailed history and compilation could be made by the National Archives of Canada of the financial support given to social work training in New Brunswick by the Canadian government.

A detailed history and compilation could be made by the National Archives of Canada of the financial support given to social work training in New Brunswick by the Canadian government.

A detailed history and compilation could be made by the National Archives of Canada of the financial support given to social work training in New Brunswick by the Canadian government.

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university researchers was assisted by the Council but most important for the purposes of this paper was the support given training in medical research for superior graduate students through the Medical Research Fellowship Program.

Lastly, the Council supported a number of full-time Medical Research Associates in Canadian universities.

An Associate was given on the basis of merit in the project, as opposed to any regional determinant. Very few of the funds went to New Brunswick individuals and institutions.

There are many reasons for this but the statement by the Executive Assistant to the President of the Council (¹⁷) appears to explain the phenomena:

"...it is undoubtedly a trifle easier of the foundations to attract the services of scholars in other provinces than it is to attract students and faculty members who interested in their own field to be attracted towards a field of study other than health sciences."

The funds allocated by the Medical Research Council were allocated with those allocated by the National Research Council in India and Australia.

IV. National Research Council

Originally established in 1916, the National Research Council has been the major Canadian research organization. It has had a long history of supporting basic research in all fields of science and technology. It has also been involved in the development of new technologies and the transfer of knowledge from basic research to practical applications.

The NRC has played a significant role in the development of Canada's scientific and technological capabilities. It has contributed to the advancement of knowledge in a wide range of fields, including physics, chemistry, biology, engineering, and social sciences. It has also been involved in the development of new technologies and the transfer of knowledge from basic research to practical applications.

The NRC has been instrumental in the development of Canada's scientific and technological capabilities. It has contributed to the advancement of knowledge in a wide range of fields, including physics, chemistry, biology, engineering, and social sciences. It has also been involved in the development of new technologies and the transfer of knowledge from basic research to practical applications.

TABLE A-17
GRANTS UNDER MEDICAL RESEARCH COUNCIL AND
NATIONAL RESEARCH COUNCIL, 1946-1967^a

Year ^b	Medical Research Council		National Research Council	
	New Brunswick	Canada	New Brunswick	Canada
	(thousands)	(millions)	(thousands)	(millions)
1946	•	•	•	\$ 0.05
1947	•	•	•	0.08
1948	•	•	16.5	0.9
1949	•	•	20.1	1.1
1950	•	•	29.3	1.6
1951	•	•	32.9	1.8
1952	•	•	32.9	1.8
1953	•	•	33.3	2.1
1954	•	•	33.4	2.1
1955	•	•	40.3	2.2
1956	•	•	47.6	2.6
1957	•	•	67.7	3.7
1958	•	•	65.8	3.6
1959	•	•	111.6	6.1
1960	•	•	166.7	8.4
1961	•	•	172.0	9.4
1962	•	•	333	18.7
1963	•	•	57.2	10.4
1964	•	•	215.6	12.6
1965	•	•	305.0	17.1
1966	•	•	361.1	21.9
1967	•	•	464.8	34.3

^a Excludes grants to universities. The National Research Council and the Medical Research Council receive grants and contributions from the Government of Canada, the provinces, and the Canadian Institutes of Health Research. The grants to universities come from the University Grants Commission.

^b The figures for 1946-1950 are estimates. The figures for 1951-1967 are based on the latest available information. The figures for 1967 are preliminary.

The figures for 1946-1950 are estimates. The figures for 1951-1967 are based on the latest available information. The figures for 1967 are preliminary.

The figures for 1946-1950 are estimates. The figures for 1951-1967 are based on the latest available information. The figures for 1967 are preliminary.

Additional changes have been made through amendments, the statute has remained as the Research Council Act.²⁰

Grants have been given on the basis of merit and have had no regional or geographic bias built into them. It will be noted that on a per capita basis, New Brunswick did not receive its full share of the grants, but that may be partly explained by the type of graduate program offered in New Brunswick universities. The Council grants data appear in Table A-IV.

III. Canada Council Act (1957)

The Canada Council was formed in the spring of 1957.

Under the heading of the Canada Council Act,²¹ that Act provided for the creation and promotion of the study,

and enjoyment, and the production of works in, the arts,

throughout Canada, in such fields as which the Council

from time to time may designate. Programs were to be

provided for the (a) applied projects, (b) student

activities, (c) fellowship grants, research grants, and

other forms of assistance to persons engaged in the production

of works in the arts, and (d) the maintenance of

the Canadian Institute for the Arts, and the Canadian

Centre for the Study of the Arts, and the Canadian

Centre for the Study of the English Language and

Literature, and the Canadian Centre for the Study of the French

Language and Literature, and the Canadian Centre for the Study

of the German Language and Literature, and the Canadian

Centre for the Study of the Italian Language and Literature, and

the Canadian Centre for the Study of the Spanish Language and

i) Capital Grants

The Act had allowed that the Council "make grants to universities and similar institutions of higher learning by way of capital assistance in respect of building construction projects."²³ Later in the same year, "University Capital Grants Fund" was established with a sum of 350 million to be paid out such as to not exceed:

- a) in the case of any particular project one-half of the total expenditure made in respect of the project; and
- b) in any province, an amount that is in the same proportion to the appropriate amount of credit given to the University Capital Grants Fund as the population of the province, according to the latest census, is to the aggregate population, according to such census.

In August, 1957, the Government announced that under this division of the University Capital Grants Fund, Newfoundland would be entitled to receive \$1.7 million.²⁴

Table A-1 shows the money received by Newfoundland and paid out by Canada. It will be noted that the total was approximately \$1.7 million. This amount was also divided up among the other provinces.

Table A-2 shows the amount received by Canada and paid out by Newfoundland. It will be noted that the total was approximately \$1.7 million. This amount was also divided up among the other provinces.

Table A-3 shows the amount received by Canada and paid out by Newfoundland. It will be noted that the total was approximately \$1.7 million. This amount was also divided up among the other provinces.

Table A-4 shows the amount received by Canada and paid out by Newfoundland. It will be noted that the total was approximately \$1.7 million. This amount was also divided up among the other provinces.

Table A-5 shows the amount received by Canada and paid out by Newfoundland. It will be noted that the total was approximately \$1.7 million. This amount was also divided up among the other provinces.

Table A-6 shows the amount received by Canada and paid out by Newfoundland. It will be noted that the total was approximately \$1.7 million. This amount was also divided up among the other provinces.

TABLE A-18

CANADA GOVERNMENT CAPITAL GRANTS, 1958-1967
(In Thousands of Dollars)

Year ^a	Amount Paid to New Brunswick	Amount Paid Out by Canada	N.B. Receipts as a Percentage of Canadian Payments
1958	\$1,422	\$4,074	10.4
1959	710	8,732	8.1
1960	382	9,352	4.1
1961	1091	13,374	8.1
1962	128	6,445	2.0
1963		6,905	
1964	192	15,562	1.2
1965		2,035	
1966	140	1,909	8.3
1967	31	30,746	0.4
Total	\$2,149	\$67,162	3.1

^a Fiscal year ending March 31.

SOURCE: Canadian Council of Aboriginal Peoples (Initial Report, "Quality of Life in Various Years, 1958-1967").

4) Library Collection Development

The Council recommended that each First Nations community establish a library collection and that both individuals and institutions be encouraged to contribute books to the collection.

But, as mentioned above, the financial resources available to the First Nations communities are limited. Consequently, the proposed library collections will be small, although they may grow over time.

It is recommended that the First Nations communities establish a library collection consisting of at least 1000 books, including 500 English language books and 500 French language books.

It is also recommended that the First Nations communities establish a library collection consisting of at least 1000 books, including 500 English language books and 500 French language books.

have been received by New Brunswick libraries. The values of such grants are set out in Table A-19.

iii) Scholarship and Fellowship Program

The Council met with very heavy demand on its resources in the area of academic awards in the humanities and social sciences. Seventy-five percent of the total funds allocated to scholarships, fellowships, and grants were allocated to programs such as Pre-Doctor's Degree Fellowship, Bio-Masters Degree Fellowships, and Grants-in-Aid for Research and Productive Scholarship. At the demand given, the programs changed. These were selected on the basis of merit, financial need, nation and regardless of what they were. In this period the Council was making

the Martinists could. The educated class did so great that
the church gradually had no more than its field of activity
and scope of action which they considered as "multitude of
things" of which the spiritual was the most important. By 1902-03 that
spiritual function was well organized (i.e., education in
theology, etc.), and Albarano and Federico
Gómez, etc., were the main leaders.

Period of Total Consumption	H.B. 2nd Percentage of Total Consumption	Total Consumption				
		1940	1941	1942	1943	1944
1940-41	5.9	5,477	5,477	5,477	5,477	5,477
1941-42	2.5	505	505	505	505	505
1942-43	3.9	502	502	502	502	502
1943-44	4.2	512	512	512	512	512
1944-45	2.1	503	503	503	503	503
1945-46	3.8	525	525	525	525	525
1946-47	2.6	566	566	566	566	566
1947-48	2.4	534	534	534	534	534

Estimated consumption of wheat flour, 1940-47.

The fellowship programs are set out in Table A-19 along with the library collection grants.

It will be noted that in both programs New Brunswick received a smaller share of the funds allotted than they would have had they been allocated by population. This is not surprising when the structure of post-graduate education in New Brunswick is examined.

(iv) Leave Fellowships

These fellowships are available to career scholars who obtain leaves from universities for periods of time for study and research. They have involved a stipend, travel expenses, and a grant for research costs. This program has expanded over the years of the Council's existence and the magnitude of the program can be found in Table A-19. It will be noted that these fellowships were concentrated on biology rather than on medicine.

(v) Research Grants

The Research Grants Program was initiated in the fall of 1947 and discontinued May, 1951, but it increased

markedly so that the first year the allocation was split on two projects. The breakdown of the program may be seen in Table A-19 and it will be noted that, although

the largest amount of money was spent on medical research, the largest number of grants were given to biological work.

It will be noted that the grants were given to individuals and institutions

and not to universities or other organizations. This was done to encourage individual research.

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vi) Visiting Scholars

The last major program which assists the educational system in New Brunswick is the Visiting Scholars Program.

It was designed to "bring eminent foreign scholars to do special work in their graduate schools [Canadian universities] and proved to be a very modest form of assistance.

The breakdown can again be found in Table A19.

12. Per Capita University Grant

In April 1961, the Royal Commission on National Development in the Arts, Letters and Sciences recommended that the federal government make annual contributions to operate the National Council of the Arts, based on provincial population.¹⁸³ A similar arrangement was made for the Canadian Film Board.

The per capita amount was fixed at £1.00 per head in
the first year, and increased by 10% every year thereafter. A
similar sum was given by the government to the provinces which
in turn distributed the amount among the districts on the basis of population.

The chapter ended by the author's departure from the city of Edinburgh, and his return to his old home at the University of the City of Glasgow.

18. 1. 1918. 7

10. The following is a list of all that I have at present
in my possession, which I have not sold or given away.

10. The following is a list of the names of the members of the Board of Education.

40

TABLE A-20

GRANTS MADE BY THE FEDERAL GOVERNMENT FOR
UNIVERSITY OPERATING EXPENDITURES,
1952-1957

(In Thousands of Dollars)

Year ^a	Paid Out by Government ^b	Received by New Brunswick ^c	New Brunswick Receipts as a Percentage of Total Funds
1952	\$ 6,991.0	267.8	3.7
1953	9,284.0	263.9	2.8
1954	9,514.0	254.0	2.8
1955	9,774.0	273.5	2.8
1956	10,043.0	270.0	2.3
1957	16,309.0	531.6	3.2
1958	16,500.0	563.0	3.5
1959	22,574.0	613.0	3.4
1960	10,112.0	363.0	3.4
1961	94,156.0	393.9	3.7
1962	104,211.0	674.7	3.3
1963	114,583.0	1,035.4	4.0
1964	120,720.0	1,027.9	4.0
1965	127,850.0	1,176.0	4.6
1966	127,450.0	1,380.0	4.0
1967	147,930.0	1,704.0	4.3

^aFor calendar year ending March 31.

^bFor all universities, public and private.

^cFor all universities, public and private, in Province of New Brunswick.

(Source: Department of National Education, Annual Report, 1957-1958, Appendix 1, Table 1, p. 187.)

was shifted to the Association of Universities and Colleges of Canada.

The per capita grants were raised in 1908-09 to \$11.00 per head and again in 1909-10 to \$12.00 per head. The 1906-07 annual supplementary grant of \$3.00 per capita was approved (part of this being top-out-of-province students). A record of the payment made by Canada and received by New Brunswick is found in Table A-10.

10. Other funds - The NGR has a number of other grants, principally which provided extra financial assistance from federal and state funds.

and the first were the last and so on until others were added.

10. *Leucanthemum vulgare* L. (Lam.)

and the other two were the same as the first, except that they had been written over by the author.

10. The following table gives the number of cases of smallpox in each of the 100 districts of the United States.

\$13 million was spent by the federal government on improved management and use of resources.³³ The second agreement shifted the emphasis to the social and economic needs of the people in rural areas. The second agreement was broken into eight parts, several of which might have included education. They were:³⁴

Part I: Research

Part II: Land Use and Farm Agreement

Part III: Rehabilitation

Part IV: Redevelopment Staff and Training Service

Part V: Rural Development Areas

Part VI: Special Rural Development Areas

Part VII: Public Information Service

Part VIII: Soil and Water Conservation

The classifications do not lend themselves to any

easy breakdown of the expenditures by function, but through correspondence with A. J. McRoetledge, Rural Development Office in New Brunswick, it was possible to get some estimate of the expenditures made in the 1965-66 fiscal year for rehabilitation. Thus, while they are calculated as a percentage of

the total budget, implementation of Research, Agricultural and Rural Development, Rehabilitation, Education, Health, Social Welfare, and other services, the percentages are as follows:

Research 1.5% Agricultural and Rural Development 1.5%

Education 1.5% Rehabilitation 1.5% Health 1.5%

Social Welfare 1.5% Other Services 1.5%

Implementation of Research, Agricultural and Rural Development, Rehabilitation, Education, Health, Social Welfare, and other services, the percentages are as follows:

total federal contributions to calculate the amount going towards education in 1963-64 under the second agreement.

TABLE A-21

PAYMENTS MADE TO NEW BRUNSWICK UNDER
ARDA AGREEMENTS, 1963-1967
(In Thousands of Dollars)

Year ^a	Paid out by Canada ^b	Received by New Brunswick	Estimated amount to education in New Brunswick ^c
1963	\$1,890,100	\$69,100	
1964	1,942,400	103,300	
1965	1,931,900	164,000	
1966	1,945,000	141,800	365,800
1967	1,946,000	190,600	76,500

^a Financial year ending March 31.
^b Department of Finance, Public Accounts (Government of Canada, 1963, 1964), and Canadian Department of Treasury, Annual Budget (Government of Canada, Auditor General, 1963, 1965, 1967).

^c Calculated by dividing the total amount paid out by Canada under the first agreement by the total amount paid out by Canada under the second agreement for educational function and, for each year, multiplying the result by the ratio between the total amount paid out by Canada under the first agreement and the total amount paid out by Canada under the second agreement.

The first agreement provided for a total amount of \$1,890,100 thousand for the first financial year. This amount was increased to \$1,942,400 thousand for the second financial year.

The first agreement provided for a total amount of \$1,931,900 thousand for the third financial year. This amount was increased to \$1,945,000 thousand for the fourth financial year.

The first agreement provided for a total amount of \$1,946,000 thousand for the fifth financial year. This amount was increased to \$1,946,000 thousand for the sixth financial year.

2. Rural Development
3. Alternate Land Use
4. Community Pastures
5. Soil and Water

The data available are supplied in Table A-2k where it

becomes evident that even with the large sums of money

committed to ARDA, the education system of New Brunswick

received only a small fraction of those funds. It also

becomes evident that for large commitments of money on a

broad social basis (such as ARDA), a better accounting of

expenditures should be required. In the present system used

for accounting by桂桂, there is no possibility of distinguishing

whether a particular function (i.e., education) is contributing

butting its share to the total project.

(ii) Student loans - This is another major source of federal subsidy to education.

The second "new" source of federal subsidy to education

came in the form of the "College student loan Act,"

passed in 1963. Under this Act, the provinces could establish a loan

and guarantee plan for the educational loans, provided that

certain conditions were met. These conditions were the following:

popularity of the loan scheme, financial status of

the participants, and mainly government participation in the

loan scheme. Now, although the Act was passed in 1963, it

was not until 1967 that the first loans were made available.

At present, there are four provinces which have

student loan programs: Quebec, Ontario, Alberta,

and Saskatchewan. The other provinces are in the process of

developing their own programs. The following table shows

grants in 1965-66 and 1966-67 as is noted in Table A-22.

Table A-22 does not show the subsidy value for New Brunswick education. The figures shown are loan values.

The real value of the subsidy is the payment of interest on the loan until after the graduation of the student. Because of the branch banking system in Canada, there is no way to allocate these interest payments as to their multiplier effect within a given province.

TABLE A-22
LOANS UNDER CANADA STUDENT LOAN ACT,
FOR NEW BRUNSWICK, Part I, 1967
(In Thousands)

Year	Number of Students to whom Certificates were issued	Province, Total	Federal	All other
1965	2,0	\$1,750,000	\$1,414,000	
1966	3,2	2,900,000	2,700,000	200,000
1967	4,0	3,041,000	2,707,000	334,000

expenditures). These effects are more likely to be felt within the province with various factors decreasing their effect.³⁷

iii) Indian Education

Since 1867, the federal government has had the responsibility for the provision of public goods for Indians.³⁸ This responsibility included the provision of schooling which in some areas involved residential schools where the population was sparse and widely spread geographically.

The departments³⁹ which have had the responsibility for Indian Affairs have not undertaken to do their account on a provincial basis. A method of estimating the expenditures for New Brunswick was, therefore, necessary.

The method used in Table A-26 was based on the percentage of Indians residing in New Brunswick which implies that since, notwithstanding the small proportion in all parts of Canada, there are implications that the above

three factors would dominate the negative shift. While this year was primarily a financial year, it is important to consider the possibility of an increased population.

It is difficult to estimate the number of Indians in New Brunswick. There is no official count of Indians in the province. The best estimate is that there are approximately 1,000 Indians in the province.

There are two main reasons for this lack of information. First, the Indians in New Brunswick are scattered throughout the province. Second, the Indians in New Brunswick are not a single group but are divided into several different groups.

There are three main groups of Indians in New Brunswick. The first group is the Micmac Indians who live in the northern part of the province. The second group is the Maliseet Indians who live in the eastern part of the province. The third group is the Mi'kmaq Indians who live in the southern part of the province.

TABLE A-23
AMOUNT OF FEDERAL PAYMENTS FOR
INDIAN EDUCATION, 1945-1967

Year ^a	Amount Spent by Federal Government ^b (millions)	Estimated Amount Spent in New Brunswick ^c (thousands)
1945	4.21	\$ 34.4
1946	4.23	36.5
1947	4.25	40.6
1948	4.35	57.6
1949	4.22	35.7
1950	3.75	58.5
1951	7.4	118.1
1952	5.4	87.0
1953	6.3	106.7
1954	6.7	114.0
1955	7.6	130.0
1956	9.3	158.9
1957	10.3	194.0
1958	12.9	214.5
1959	16.0	287.2
1960	17.6	316.0
1961	19.9	355.8
1962	21.7	390.9
1963	23.1	415.3
1964	25.5	459.4
1965	29.9	520.3
1966	34.6	613.4
1967	38.5	734.5

distribution of Indians is the same in all provinces? In spite of these implications, this method of estimation seemed most reasonable.

Table A-23 points out the large increase in expenditures on this function--a more than twentyfold expansion, half of this taking place in the last five years under review.

(iv) Custom and Excise Duties,

⁴⁰ In the Excise Tax Act, section 47a states:

Where materials have been purchased by or on behalf

- a) schools, university or other similar educational institution for the study, privately or by the contribution of a building, for the propagation of knowledge.
 - b) any organization for the exclusive benefit of the constitution of a building, for any organization that is to be used exclusively or mainly as a public library or open school or for any other organization on a large scale for the same purpose.

3) a typical formality exists and will follow by Her
Blessing, if you like.

¹ See also, for example, the discussion of the relationship between established and emerging forms of state power, particularly regarding national boundaries, formality, and

deals of the people, so that their estimation of his worth, as well as his influence, may be formed.

of the *Archaeopteryx*.
The author, in his paper, has

the first time, and the author has been unable to find any record of it.

¹ See also the discussion of the relationship between the two concepts in the introduction.

¹ See also the discussion of the relationship between the two in the section on "Theoretical Implications."

在這裏，我們可以說，當我們說「我」的時候，我們其實是在說「我們」。

1. The first step in the process of creating a new product is to identify a market need.

10. The following table shows the number of hours worked by each employee.

10. The following table gives the number of hours worked by each of the 100 workers.

10. The following table shows the number of hours worked by 1000 employees in a company.

EXCESSION TAX, 1967-1970

Year	GDP at market prices						GDP at factor cost	GDP at factor cost					
	Thousands	%	Thousands	%	Thousands	%		Thousands	%	Thousands	%	Thousands	%
1959	1,969	—	1,969	—	1,969	—	1,969	1,969	100.0	1,969	100.0	1,969	100.0
1960	2,082	5.2	2,082	5.2	2,082	5.2	2,082	2,082	100.0	2,082	100.0	2,082	100.0
1961	2,205	5.9	2,205	5.9	2,205	5.9	2,205	2,205	100.0	2,205	100.0	2,205	100.0
1962	2,328	5.3	2,328	5.3	2,328	5.3	2,328	2,328	100.0	2,328	100.0	2,328	100.0
1963	2,451	5.2	2,451	5.2	2,451	5.2	2,451	2,451	100.0	2,451	100.0	2,451	100.0
1964	2,574	4.7	2,574	4.7	2,574	4.7	2,574	2,574	100.0	2,574	100.0	2,574	100.0
1965	2,697	4.5	2,697	4.5	2,697	4.5	2,697	2,697	100.0	2,697	100.0	2,697	100.0
1966	2,820	4.2	2,820	4.2	2,820	4.2	2,820	2,820	100.0	2,820	100.0	2,820	100.0
1967	2,943	3.9	2,943	3.9	2,943	3.9	2,943	2,943	100.0	2,943	100.0	2,943	100.0
1968	3,066	3.4	3,066	3.4	3,066	3.4	3,066	3,066	100.0	3,066	100.0	3,066	100.0
1969	3,189	3.7	3,189	3.7	3,189	3.7	3,189	3,189	100.0	3,189	100.0	3,189	100.0
1970	3,312	3.9	3,312	3.9	3,312	3.9	3,312	3,312	100.0	3,312	100.0	3,312	100.0
1971	3,435	4.2	3,435	4.2	3,435	4.2	3,435	3,435	100.0	3,435	100.0	3,435	100.0
1972	3,558	4.1	3,558	4.1	3,558	4.1	3,558	3,558	100.0	3,558	100.0	3,558	100.0
1973	3,681	3.7	3,681	3.7	3,681	3.7	3,681	3,681	100.0	3,681	100.0	3,681	100.0
1974	3,804	3.6	3,804	3.6	3,804	3.6	3,804	3,804	100.0	3,804	100.0	3,804	100.0
1975	3,927	3.4	3,927	3.4	3,927	3.4	3,927	3,927	100.0	3,927	100.0	3,927	100.0
1976	4,050	3.6	4,050	3.6	4,050	3.6	4,050	4,050	100.0	4,050	100.0	4,050	100.0
1977	4,173	3.3	4,173	3.3	4,173	3.3	4,173	4,173	100.0	4,173	100.0	4,173	100.0
1978	4,296	3.2	4,296	3.2	4,296	3.2	4,296	4,296	100.0	4,296	100.0	4,296	100.0
1979	4,419	3.1	4,419	3.1	4,419	3.1	4,419	4,419	100.0	4,419	100.0	4,419	100.0
1980	4,542	3.0	4,542	3.0	4,542	3.0	4,542	4,542	100.0	4,542	100.0	4,542	100.0
1981	4,665	2.9	4,665	2.9	4,665	2.9	4,665	4,665	100.0	4,665	100.0	4,665	100.0
1982	4,788	2.8	4,788	2.8	4,788	2.8	4,788	4,788	100.0	4,788	100.0	4,788	100.0
1983	4,911	2.7	4,911	2.7	4,911	2.7	4,911	4,911	100.0	4,911	100.0	4,911	100.0
1984	5,034	2.6	5,034	2.6	5,034	2.6	5,034	5,034	100.0	5,034	100.0	5,034	100.0
1985	5,157	2.5	5,157	2.5	5,157	2.5	5,157	5,157	100.0	5,157	100.0	5,157	100.0
1986	5,280	2.4	5,280	2.4	5,280	2.4	5,280	5,280	100.0	5,280	100.0	5,280	100.0
1987	5,403	2.3	5,403	2.3	5,403	2.3	5,403	5,403	100.0	5,403	100.0	5,403	100.0
1988	5,526	2.2	5,526	2.2	5,526	2.2	5,526	5,526	100.0	5,526	100.0	5,526	100.0
1989	5,649	2.1	5,649	2.1	5,649	2.1	5,649	5,649	100.0	5,649	100.0	5,649	100.0
1990	5,772	2.0	5,772	2.0	5,772	2.0	5,772	5,772	100.0	5,772	100.0	5,772	100.0
1991	5,895	1.9	5,895	1.9	5,895	1.9	5,895	5,895	100.0	5,895	100.0	5,895	100.0
1992	6,018	1.8	6,018	1.8	6,018	1.8	6,018	6,018	100.0	6,018	100.0	6,018	100.0
1993	6,141	1.7	6,141	1.7	6,141	1.7	6,141	6,141	100.0	6,141	100.0	6,141	100.0
1994	6,264	1.6	6,264	1.6	6,264	1.6	6,264	6,264	100.0	6,264	100.0	6,264	100.0
1995	6,387	1.5	6,387	1.5	6,387	1.5	6,387	6,387	100.0	6,387	100.0	6,387	100.0
1996	6,510	1.4	6,510	1.4	6,510	1.4	6,510	6,510	100.0	6,510	100.0	6,510	100.0
1997	6,633	1.3	6,633	1.3	6,633	1.3	6,633	6,633	100.0	6,633	100.0	6,633	100.0
1998	6,756	1.2	6,756	1.2	6,756	1.2	6,756	6,756	100.0	6,756	100.0	6,756	100.0
1999	6,879	1.1	6,879	1.1	6,879	1.1	6,879	6,879	100.0	6,879	100.0	6,879	100.0
2000	7,002	1.0	7,002	1.0	7,002	1.0	7,002	7,002	100.0	7,002	100.0	7,002	100.0
2001	7,125	0.9	7,125	0.9	7,125	0.9	7,125	7,125	100.0	7,125	100.0	7,125	100.0
2002	7,248	0.8	7,248	0.8	7,248	0.8	7,248	7,248	100.0	7,248	100.0	7,248	100.0
2003	7,371	0.7	7,371	0.7	7,371	0.7	7,371	7,371	100.0	7,371	100.0	7,371	100.0
2004	7,494	0.6	7,494	0.6	7,494	0.6	7,494	7,494	100.0	7,494	100.0	7,494	100.0
2005	7,617	0.5	7,617	0.5	7,617	0.5	7,617	7,617	100.0	7,617	100.0	7,617	100.0
2006	7,740	0.4	7,740	0.4	7,740	0.4	7,740	7,740	100.0	7,740	100.0	7,740	100.0
2007	7,863	0.3	7,863	0.3	7,863	0.3	7,863	7,863	100.0	7,863	100.0	7,863	100.0
2008	7,986	0.2	7,986	0.2	7,986	0.2	7,986	7,986	100.0	7,986	100.0	7,986	100.0
2009	8,109	0.1	8,109	0.1	8,109	0.1	8,109	8,109	100.0	8,109	100.0	8,109	100.0
2010	8,232	0.0	8,232	0.0	8,232	0.0	8,232	8,232	100.0	8,232	100.0	8,232	100.0
2011	8,355	-	8,355	-	8,355	-	8,355	8,355	100.0	8,355	100.0	8,355	100.0
2012	8,478	-	8,478	-	8,478	-	8,478	8,478	100.0	8,478	100.0	8,478	100.0
2013	8,601	-	8,601	-	8,601	-	8,601	8,601	100.0	8,601	100.0	8,601	100.0
2014	8,724	-	8,724	-	8,724	-	8,724	8,724	100.0	8,724	100.0	8,724	100.0
2015	8,847	-	8,847	-	8,847	-	8,847	8,847	100.0	8,847	100.0	8,847	100.0
2016	8,970	-	8,970	-	8,970	-	8,970	8,970	100.0	8,970	100.0	8,970	100.0
2017	9,093	-	9,093	-	9,093	-	9,093	9,093	100.0	9,093	100.0	9,093	100.0
2018	9,216	-	9,216	-	9,216	-	9,216	9,216	100.0	9,216	100.0	9,216	100.0
2019	9,339	-	9,339	-	9,339	-	9,339	9,339	100.0	9,339	100.0	9,339	100.0
2020	9,462	-	9,462	-	9,462	-	9,462	9,462	100.0	9,462	100.0	9,462	100.0
2021	9,585	-	9,585	-	9,585	-	9,585	9,585	100.0	9,585	100.0	9,585	100.0
2022	9,708	-	9,708	-	9,708	-	9,708	9,708	100.0	9,708	100.0	9,708	100.0
2023	9,831	-	9,831	-	9,831	-	9,831	9,831	100.0	9,831	100.0	9,831	100.0
2024	9,954	-	9,954	-	9,954	-	9,954	9,954	100.0	9,954	100.0	9,954	100.0
2025	10,077	-	10,077	-	10,077	-	10,077	10,077	100.0	10,077	100.0	10,077	100.0
2026	10,200	-	10,200	-	10,200	-	10,200	10,200	100.0	10,200	100.0	10,200	100.0
2027	10,323	-	10,323	-	10,323	-	10,323	10,323	100.0	10,323	100.0	10,323	100.0
2028	10,446	-	10,446	-	10,446	-	10,446	10,446	100.0	10,446	100.0	10,446	100.0
2029	10,569	-	10,569	-	10,569	-	10,569	10,569	100.0	10,569	100.0	10,569	100.0
2030	10,692	-	10,692	-	10,692	-	10,692	10,692	100.0	10,692	100.0	10,692	100.0
2031	10,815	-	10,815	-	10,815	-	10,815	10,815	100.0	10,815	100.0	10,815	100.0
2032	10,938	-	10,938	-	10,938	-	10,938	10,938	100.0	10,938	100.0	10,938	100.0
2033	11,061	-	11,061	-	11,061	-	11,061	11,061	100.0	11,061	100.0	11,061	100.0
2034	11,184	-	11,184	-	11,184	-	11,184	11,184	100.0	11,184	100.0	11,184	100.0
2035	11,307	-	11,307	-	11,307	-	11,307	11,307	100.0	11,307	100.0	11,307	100.0
2036	11,430	-	11,430	-	11,430	-	11,430	11,430	100.0	11,430	100.0	11,430	100.0
2037	11,553	-	11,553	-	11,553	-	11,553	11,553	100.0	11,553	100.0	11,553	100.0
2038	11,676	-	11,676	-	11,676	-	11,676	11,676	100.0	11,676	100.0	11,676	100.0
2039	11,799	-	11,799	-	11,799	-	11,799	11,799	100.0	11,799	100.0	11,799	100.0
2040	11,922	-	11,922	-	11,922	-	11,922	11,922	100.0	11,922	100.0	11,922	100.0
2041	12,045	-	12,045	-	12,045	-	12,045	12,045	100.0	12,045	100.0	12,045	100.0
2042	12,168	-	12,168	-	12,168	-	12,168	12,168	100.0	12,168	100.0	12,168	100.0
2043	12,291	-	12,291	-	12,291	-	12,291	12,291	100.0	12,291	100.0	12,291	100.0
2044	12,414	-	12,414	-	12,414	-	12,414	12,414	100.0	12,414	100.0	12,414	100.0
2045	12,537	-	12,537	-	12,537	-	12,537	12,537	100.0	12,537	100.0	12,537	100.0
2046	12,660	-	12,660	-									

EXCISE TAX Audit, December 29,

discover the rebates to institutions in New Brunswick.

Because the payments decreased gross revenue, they are not specifically accounted for in the Public Accounts and therefore the Department itself was asked for figures. They were able to supply the figures shown in Table A-24.

(iv) Department of National Defence

The Department undertakes responsibility to provide for the education of dependents' children wherever the services member is stationed. In Canada, arrangements vary according to the circumstances. Where the defence station is not adjacent to any publicly-operated schools, schools are built and operated on the station by the Department. These schools follow the curriculum of the province in which they are situated. In another case, schools adjacent to the defence station, if by arrangement, agree to have the service children attend that school. Rebates paid, based on per capita population, are deducted or withheld, making an adjustment for the cost of the services. The Department of National Defence has no power to control the funds available in the public accounts in this regard, but it does have the power to make regulations specifying the amount of money to be paid to the schools.

Under the Education Act, the Department of National Defence is required to pay to each school a sum equivalent to the amount of money received by the school from the public accounts.

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TABLE A-25
SUMMARY OF FEDERAL GRANTS FOR EDUCATION
TO NEW BRUNSWICK, 1946-1967
(In Thousands of Dollars)

	1946	1947	1948	1949	1950	1951
Table A-1	\$520.2	953.9	527.9	\$341.1	\$589.5	\$230.4
A-10	b	b	b	b	b	b
A-12	102.0	753.0	617.0	423.0	270.0	146.0
A-13	b	b	b	b	b	b
A-14	b	b	b	b	b	b
A-15	b	b	b	b	21.2	21.8
A-16	b	b	b	b	b	b
A-17	0.9	1.5	16.5	20.1	29.3	32.9
A-18	b	b	b	b	b	b
A-19	b	b	b	b	b	b
A-20	b	b	b	b	b	b
A-21	b	b	b	b	b	b
A-22	b	b	b	b	b	b
A-23	56.6	40.2	37.6	35.7	34.5	113.1
A-24	b	b	b	b	b	b
Total	\$624.1	\$1,703.4	\$1,161.4	\$610.4	\$910.6	\$120.7
Population	475.0	488.0	496.6	505.0	512.0	514.0
Per Capita	\$1.30	\$3.50	\$2.26	\$1.60	\$1.75	\$0.35
Additional ^a	56.6	40.2	37.6	35.7	34.5	113.1

^a Grants which are not grants but which do not add up to support to total education in New Brunswick.

Data here available reflect program in operation.

Estimated in thousands of people.

Estimated in thousands of dollars.

TABLE A-25--Continued

	1952	1953	1954	1955	1956	1957
Table A-1	\$271.6	\$240.8	\$225.4	\$247.1	\$231.7	\$247.1
A-10	67.0	22.0	32.0	23.0	29.0	31.0
A-12	67.0	22.0	32.0	23.0	29.0	31.0
A-13	67.0	22.0	32.0	23.0	29.0	31.0
A-14	67.0	22.0	32.0	23.0	29.0	31.0
A-15	32.7	24.1	24.2	20.0	19.6	18.9
A-16	67.0	22.0	32.0	23.0	29.0	31.0
A-17	32.9	38.4	38.4	40.3	47.6	67.7
A-18	67.0	22.0	32.0	23.0	29.0	31.0
A-19	67.0	22.0	32.0	23.0	29.0	31.0
A-20	257.8	263.0	263.0	273.5	279.0	354.46
A-21	67.0	22.0	32.0	23.0	29.0	31.0
A-22	67.0	22.0	32.0	23.0	29.0	31.0
A-23	67.0	22.0	32.0	23.0	29.0	31.0
A-24	67.0	106.7	114.0	130.0	158.9	194.0
A-25	b	b	b	b	b	b
Total	\$667.0	\$633.8	\$631.7	\$606.9	\$601.4	\$5919.2
Population	535.0	533.0	530.0	537.0	555.0	562.0
Per Capita	\$1.50	\$1.10	\$1.00	\$1.10	\$1.00	\$1.04
Additional	\$671.0	\$1067.7	\$114.0	\$130.0	\$158.9	\$194.0
IPM	•	•	•	•	•	•

TABLE A-25--Continued

	1953	1959	1960	1961	1962
Table A-1	3.27	\$ 359.3	126.4	\$ 992.3	
A-10					
A-12	25.0	37.0	31.0	46.0	31,562.6
A-13					44.0
A-14					
A-15	19.1	19.0	19.1	17.7	59.3
A-16					
A-17	65.8	111.6	155.7	172.0	136.4
A-18	122.0	710.0	332.0	109.0	128.0
A-19	4.0	14.0	22.0	33.0	18.0
A-20	366.0	369.0	335.0	393.9	379.7
A-21					
A-22	214.5	212.0	166.0	233.8	390.5
A-23					
Total	361,777.1	1,654.4	56,761.2	16,722.9	3,679.0
Population	3,071.0	3,070.0	3,060.0	3,070.0	3,050.0
Per capita	118.4	541.4	184.4	5,244.7	1,186.7
Per square mile	114.1	117.0	106.8	100.6	114.1
Per acre	1,763.4	5,133.0	1,740.0	1,740.0	1,763.4

TABLE A-25--Continued

	1963	1964	1965	1966	1967
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Table A-1					
A-10	43,672.8	52,269.7	53,954.5	51,348.0	53,863.1
A-12	19.0	47.0	55.0	64.0	43.0
A-13	6.6	6.6	9.8	7.2	7.2
A-14	2.7	2.0	5.2	5.2	0.9
A-15	41.6	49.2	60.3	65.1	62.6
A-16	9.2	9.4	9.7	11.2	12.9
A-17	163.2	223.5	314.5	541.0	680.1
A-18	192.0	240.0	314.0	440.0	311.0
A-19	37.0	24.0	23.0	66.0	21.0
A-20	1,018.3	1,177.3	1,224.3	1,246.0	3,704.0
A-21	1.0	1.0	1.0	66.8	76.5
A-22	1.0	1.0	1,385.0	2,339.5	3,041.5
A-23	415.4	471.4	510.5	618.1	734.5
A-24	10.0	10.0	b	b	459.5
Total	10,164.1	11,153.0	11,559.8	11,003.1	10,609.8

Repayments	617.0	619.0			
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Interest paid	51.0	57.0			
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Additional principal	1,111.4	1,115.3	541.0	1,235.5	
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Total	1,168.2	1,224.3	541.0	1,235.5	
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From \$1.30 per capita to \$13.90 per capita is a large increase, demonstrating the increasing importance of education and the increasing participation of the federal government in the functions of education. It might be argued that because these figures are in current dollars, the figures overstate the increase in expenditures on education. In constant dollars the increase would be smaller.

Secondly, it is noted that the grants which are not reported by grants (tax-relating, loans, etc.) gained importance during the latter half of the period under review. This was particularly the case during the latter half of the period in which the Permanent Commission was in Ottawa. This change has been made significant, doubtless, with the shift in university operating grants to a new basis involving tax-relates.

All examinations of Table A-1 do not reflect individual characteristics of the population. Many of the federal programs are oriented toward specific populations, such as the elderly, the handicapped, or the unemployed. In addition, there are significant implications of federal programs on the individual, family, and past (and future) family formation and by geographic area. This document attempts to point many of these issues and problems that have been identified. Specifically, it presents the following:

program budgeting is supposed to be its usage in determination of how much each function contributes to the complete program.⁴³ The ARDA program is an excellent example of how PPB budgeting could be used more effectively. The programs outlined in the second agreement are broad while within each broad function, specific functions such as retraining (education) could be carried out. No analysis seems to have been done which would indicate the contribution of component functions to the total program purpose and in fact any analysis is stifled by the accounting system used for public purposes.

It will be noted that comparative data from Statistics Canada has been provided for the years in which that was available. Some differences will be noted. First, Table A-25 does not include expenditures for the Department of National Defence while Statistics Canada distributed these expenditures to the provinces in some years and includes them in a category "Overseas and Undistributed" in other years. The Department of National Defence does not account for their expenditures by province which explains their absence from Table A-25.

The second aspect in which Statistics Canada data differs from Table A-25 is that Table A-25 consists of a proportionational adjustment which makes it difficult to compare with the original data. See Table A-25, pp. 116-117.

defined their data to deal with "Formal Education" only, which they define as follows:

... all elementary and secondary education, teacher-training and higher education in universities and colleges. It accounts for all but 7 p.c. of total educational expenditure in Canada.⁴⁴

The broader definition used in Table A-25 is useful in discussing the rôle of the federal government in the total education picture for the federal government has tended to avoid interference in the "formal education" function, partly due to the BNA Act restrictions. The result is that the Statistics Canada figures have tended (particularly in recent years) to underestimate the federal rôle in education expenditure.

In 1967, the federal government changed the financing arrangements for post-secondary education in the Federal-Provincial Arrangements Act (Part II).⁴⁵ This Act provided for a fiscal transfer to each province of equalized tax abatements (5 per cent of basic individual income tax and 1 per cent of corporation taxable income), and a cash payment of 100 million per capita (escalated annually according to the national growth rate) for post-secondary education purposes specified by the provinces of post-secondary institutions.

Source: Department of National Education, Survey of Post-Secondary Institutions, p. 16.

Footnotes: See Part II of the Federal-Provincial Arrangements Act (Part II).

education operating expenditures incurred in the province.⁴⁶

Although conditional grants to the provinces under the Technical and Vocational Assistance Act, 1961 were scheduled to expire in 1967, interim arrangements were made to allow provinces to exhaust \$300 per capita of the population aged fifteen to nineteen in 1963 in capital grants.⁴⁷ As well, the federal government agreed to take over the full cost of training allowances and premiums for the occupational training of adults.

Although this review of recent arrangements is necessarily brief, it is indicative of the fact that the federal government did not feel free to abandon what had been established between 1945 and 1957 until it does constitute a significant change from existing conditions while maintaining major conditionality, the grants being justice according to arrangements in previous ordinary educational spending. The present arrangements do not, therefore, feature the basic difference in this regard.

⁴⁶ The Minister of National Education has also "every reasonable estimate" of the amount of money required for the fulfillment of his obligation to provide, but nothing has been done to make clear the responsibilities of the provinces to meet their obligations, and, indeed, to furnish the information required.

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APPENDIX B

NEW BRUNSWICK: A PROFILE

In order to gain a full understanding of the hypothesis advanced in this dissertation, it is necessary to bring together a number of economic and demographic characteristics of the Province of New Brunswick. Of primary importance are the people who live there. Several characteristics of the people will aid in understanding the province--including age profiles, educational attainments, occupational breakdowns, and a breakdown of industrial structure. Secondly, there is an interest in the geographical characteristics of the province, including natural resources and endowments (the distribution of the population within the province, etc.). Finally, of major importance is the income profile of New Brunswick as compared with other provinces.

1. The People

Demographic characteristics of the population, however, do not tell the whole story. In order to understand any discussion of national integration, one must understand the social and racial composition of the province. This section gives basic data on race and ethnicity and, further, identifies the principal racial minorities found in the province. It also discusses the religious composition of the population.

TABLE B-1

TOTAL POPULATION: NEW BRUNSWICK AND CANADA,
1946-1967
(In Thousands of People)

Year	New Brunswick	Canada	New Brunswick as a Percentage of Canada
1946	473	12,292	3.9
1947	483	12,551	3.9
1948	498	12,823	3.9
1949	508	13,447	3.8
1950	512	13,712	3.7
1951	516	14,009	3.7
1952	526	14,459	3.6
1953	533	14,845	3.6
1954	540	15,287	3.5
1955	547	15,693	3.5
1956	555	16,041	3.5
1957	562	16,410	3.4
1958	571	17,030	3.3
1959	580	17,463	3.3
1960	589	17,870	3.3
1961	598	18,235	3.3
1962	608	18,631	3.3
1963	609	18,955	3.2
1964	611	19,290	3.2
1965	615	19,644	3.1
1966	617	20,010	3.1
1967	619	20,400	3.0

The population statistics are for June 1.

Table B-1 sets out the population for New Brunswick, both in terms of absolute numbers and as a percentage of Canada's population. It will be noted that although the population in New Brunswick is growing, it declined relatively to that of Canada from 3.9 per cent to 3.0 per cent between 1946 and 1957. One means of distributing grants would be to use a per capita base, which means that New Brunswick in 1957 would have received 3.0 per cent of federal funds for education.

The age distribution of the population can indicate the fiscal needs of the province (it is one variable amongst many). Tables B-7 and B-8 demonstrate the age breakdown in absolute and proportional terms for New Brunswick and Canada. A quick examination of either table shows that New Brunswick has a considerably smaller proportion of the population in the productive ages (15-64) than did Canada at the same time; it had a larger proportion of the population in the ages when schooling is usually demanded (under 15).

Of importance also is the geographical distribution of the population. The geographical distribution can best be seen in Table B-9, and it will be noted there that

the population of New Brunswick is population that could be considered rural, and it was by smaller than for the

average Canadian, and even more pronounced than the average Canadian, in the rural population.

It is interesting to note that the rural population in New

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THE UNITED STATES.

Industry	1951	1956	Thousands		1956
			1951	1956	
1. Agriculture, forestry, fishing and mining	2,256.4	2,212.3	2,197.4	111.0	11.0
2. Construction	3,935.5	2,212.6	4,394.4	22.0	22.0
3. Manufacturing	20.2	2.432.5	7.8	1,837.7	9.2
4. Wholesale trade	2.2	153.5	5.5	1,461.3	7.3
5. Retail trade	10.0	424.1	13.6	12,483.5	12.4
6. Transportation, communications and public utilities	18.0	2,432.4	3.1	2,343.2	12.7
7. Finance, insurance and real estate	2.2	2,235.9	2.3	2,078.2	10.4
8. Business services	2.2	2,235.5	2.3	2,479.7	7.4
9. Professional, scientific, technical and auxiliary services	2.2	2,235.5	2.3	2,339.5	7.7
10. Personal, cultural and recreation services	2.2	2,235.2	2.7	2,212.2	100.0
11. Government	2.2	2,235.2	2.7	2,212.2	100.0

1951 Census of Canada, Census Division, Census of Canada, 1951, Canada, Dominion Bureau of Statistics, Ottawa: Queen's Printer, 1952.

TABLE B-4

URBAN POPULATION: CANADA, NEW BRUNSWICK,
NEW BRUNSWICK COUNTIES,
CENSUS YEARS 1951-1966^a

Place	1951	1956	1961	1966
Thousands of People				
Canada	8,623.3	10,714.9	11,700.4	14,726.8
New Brunswick	215.0	254.3	273.0	312.2
Percentage of Population				
Canada	61.4	66.9	69.6	73.6
New Brunswick	41.7	44.0	46.5	50.6
<u>Counties</u>				
Alberta	14.7	31.4	39.3	39.3
Cariboo	27.4	323.4	22.7	33.4
Chilliwack	40.9	40.8	34.1	34.2
Comox Valley	9.1	10.2	19.9	33.3
Kent	15.2	14.1	16.9	14.1
Kelowna	37.6	30.6	19.2	33.5
Middle Island	35.6	35.7	44.4	40.2
Moncton, N.B.	11.1	11.1	30.1	31.5
Quebec	19.1	19.1	11.7	21.1
Stratford	45.5	38.7	31.4	30.9
Sudbury	92.1	93.2	93.1	96.7
Toronto	13.6	14.7	59.4	61.3
Vancouver	90.1	90.2	90.1	89.4
Victoria	57.1	61.4	60.9	62.1
Winnipeg	24.8	22.0	54.0	60.8
Yukon	14.3	14.3	14.3	14.3

^a The definition of "urban" used by the Census Bureau includes incorporated urban areas, towns, and villages, and unincorporated urbanized communities. The definition of "rural" is the remainder of the country.

TABLE B-5
RURAL NON-FARM POPULATION: CANADA, NEW
BRUNSWICK, NEW BRUNSWICK COUNTIES,
CENSUS YEARS 1951-1966

Place	1951	1956	1961 ^a	1966
Thousands of People				
Canada	2,553.4	2,734.3	3,465.1	3,374.4
New Brunswick	154.9	176.3	257.7	253.2
Percentage of Population				
Canada	17.9	16.9	19.0	16.9
New Brunswick	23.1	31.6	43.1	41.0
<u>Counties</u>				
Albert	71.8	62.9	53.0	53.6
Carleton	34.2	37.1	50.5	50.2
Charlottetown	41.6	52.4	60.7	60.2
Gloucester	39.3	48.0	70.3	65.7
Kent	39.7	42.5	65.4	65.6
Kings	24.9	27.7	58.4	50.9
Madawaska	35.3	35.4	39.2	41.1
Miramichi	39.9	47.0	61.6	62.5
Quebec	68.1	65.9	74.0	69.6
Rideau	77.1	79.9	66.0	39.5
St. John	41.6	41.8	11.3	13.1
Simcoe	40.0	64.0	35.0	33.8
Victoria	41.6	48.2	52.7	54.2
Westmorland	32.8	32.3	31.2	33.9
York	38.7	33.3	31.3	31.7

^a Data for 1961, of the information furnished by municipalities and incorporated townships, do not include the 1961 census returns for the unincorporated parts of rural population.

Source: Calculated from Census population figures of 1951, 1956, 1961, 1966, and 1966, Table 1, "Population, by place of residence, sex, age group, and origin," of Statistics Canada, *Demographic Trends in Canada, 1951-1966*, Ottawa, 1967, pp. 12-13, 12-14, 12-15, 12-16, 12-17, 12-18, 12-19, 12-20, 12-21, 12-22, 12-23, 12-24, 12-25, 12-26, 12-27, 12-28, 12-29, 12-30, 12-31, 12-32, 12-33, 12-34, 12-35, 12-36, 12-37, 12-38, 12-39, 12-40, 12-41, 12-42, 12-43, 12-44, 12-45, 12-46, 12-47, 12-48, 12-49, 12-50, 12-51, 12-52, 12-53, 12-54, 12-55, 12-56, 12-57, 12-58, 12-59, 12-60, 12-61, 12-62, 12-63, 12-64, 12-65, 12-66, 12-67, 12-68, 12-69, 12-70, 12-71, 12-72, 12-73, 12-74, 12-75, 12-76, 12-77, 12-78, 12-79, 12-80, 12-81, 12-82, 12-83, 12-84, 12-85, 12-86, 12-87, 12-88, 12-89, 12-90, 12-91, 12-92, 12-93, 12-94, 12-95, 12-96, 12-97, 12-98, 12-99, 12-100, 12-101, 12-102, 12-103, 12-104, 12-105, 12-106, 12-107, 12-108, 12-109, 12-110, 12-111, 12-112, 12-113, 12-114, 12-115, 12-116, 12-117, 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TABLE B-6

RURAL FARM POPULATION: CANADA, NEW BRUNSWICK,
NEW BRUNSWICK COUNTIES,
CENSUS YEARS 1951-1966^a

Place	1931	1956	1961	1966
	Thousands of People			
Canada	2,827.7	2,631.6	2,072.3	1,913.7
New Brunswick	145.8	125.0	62.3	51.5
	Percentage of Population			
Canada	20.0	16.3	11.4	9.6
New Brunswick	28.3	22.5	10.4	8.4
<u>Counties</u>				
Albert	23.2	22.3	10.6	7.4
Carleton	43.4	39.5	26.8	26.1
Charlottetown	14.5	7.3	1.2	5.1
GloUCESTER	50.9	38.7	9.8	10.0
Kent	55.1	43.4	23.7	17.2
Kings	37.4	32.7	22.5	18.2
Madawaska	29.2	27.8	16.4	11.3
Northumberland	35.0	24.3	8.4	5.6
Queens	36.5	24.6	17.4	16.3
Restigouche	27.4	24.6	8.6	8.0
St. John's	0.3	—	0.4	0.3
Sunbury	35.9	23.3	5.8	4.7
Victoria	36.2	35.3	20.7	17.4
Westmorland	20.1	15.0	7.9	5.7
York	25.0	19.7	10.5	7.5

Prior to 1951 rural farm population was defined as comprising "all persons living on a farm defined as a holding on which agricultural operations are carried out and which comprises: (i) 3 acres or more in size; (ii) 1 to 3 acres having agricultural products amounting to a market value of \$300 or more in the previous year." In 1951, the definition of "rural" was changed to "a holding of one or more acres which yields agricultural products of \$300 or more."

the "rural non-farm population" table more meaningful.

While in 1966 only 16.9 per cent of the population of Canada was so classified, 41.0 per cent of New Brunswick's population was in this category.¹ No doubt some are professionals or urban workers with country estates; the majority would be rural or "hamlet" residents who derive their incomes locally through odd jobs, lumbering, small-town trades and retailing. Some possibly do farm but do not qualify as "farm population" by census definition because of insufficient sales of agricultural produce or insufficient land holdings. These are the very people who do not receive steady or large incomes.

There is a trend away from an agriculturally-dependent population towards greater "urbanization" and greater numbers of rural "non-farming" residents. However, this shift from rural to urban may or may not be the anticipated result of up-grades in technology and economic growth.

Socially and economically the distribution of the population by Lumberland may have some effect. The material is presented in Table 1-47. It will be noted that New Brunswick's population data in Table 1-47, Lumberland, the counties are added together, the population for each Lumberland unit being the sum of the populations of all the towns in the unit.

It should be noted that the population would be too great if the population of the administrative entities, i.e., the towns, were added together. This is because the same person may be counted in two or more towns. In addition, the population of the administrative entities, i.e., the towns, is not necessarily the same as the population of the Lumberland units. This is because the boundaries of the administrative entities, i.e., the towns, do not always coincide with the boundaries of the Lumberland units. For example, in Lumberland 12, the town of Fredericton is included in the Lumberland unit, but the town of Fredericton is not included in the administrative entity, i.e., the town of Fredericton.

TABLE B-7

LAKELAND DISTRIBUTION, CANADA, NEW BRUNSWICK,
AND NEW BRUNSWICK COUNTIES, 1961
(Percentage of Population)

Place of Birth English French
Only and French Only Neither

	67.4	12.7	19.1	1.3
New Brunswick	62.0	19.0	18.7	0.3

Place of Birth English French
Only and French Only Neither

	67.4	12.7	19.1	1.3
All Districts	67.4	12.7	19.1	1.3

	67.4	12.7	19.1	1.3
Charlottetown	87.1	4.7	8.2	0

	67.4	12.7	19.1	1.3
Montague	90.0	4.7	5.3	0.3

	67.4	12.7	19.1	1.3
Parkdale	91.7	4.7	3.6	0.1

	67.4	12.7	19.1	1.3
Kingsburg	89.6	4.7	5.7	0.1

	67.4	12.7	19.1	1.3
Shubenacadie	94.1	4.7	1.2	0.1

	67.4	12.7	19.1	1.3
Truro	91.1	4.7	4.2	0.2

	67.4	12.7	19.1	1.3
Sackville	91.1	4.7	4.2	0.2

	67.4	12.7	19.1	1.3
Moncton	90.5	4.7	4.8	0.1

	67.4	12.7	19.1	1.3
Fredericton	89.5	4.7	5.8	0.1

Least	More	Total	More	Least	Total	More	Least	Total
1	1	2	1	1	2	1	1	2
2	2	4	2	2	4	2	2	4
3	3	6	3	3	6	3	3	6
4	4	8	4	4	8	4	4	8
5	5	10	5	5	10	5	5	10
6	6	12	6	6	12	6	6	12
7	7	14	7	7	14	7	7	14
8	8	16	8	8	16	8	8	16
9	9	18	9	9	18	9	9	18
10	10	20	10	10	20	10	10	20
11	11	22	11	11	22	11	11	22
12	12	24	12	12	24	12	12	24
13	13	26	13	13	26	13	13	26
14	14	28	14	14	28	14	14	28
15	15	30	15	15	30	15	15	30
16	16	32	16	16	32	16	16	32
17	17	34	17	17	34	17	17	34
18	18	36	18	18	36	18	18	36
19	19	38	19	19	38	19	19	38
20	20	40	20	20	40	20	20	40
21	21	42	21	21	42	21	21	42
22	22	44	22	22	44	22	22	44
23	23	46	23	23	46	23	23	46
24	24	48	24	24	48	24	24	48
25	25	50	25	25	50	25	25	50
26	26	52	26	26	52	26	26	52
27	27	54	27	27	54	27	27	54
28	28	56	28	28	56	28	28	56
29	29	58	29	29	58	29	29	58
30	30	60	30	30	60	30	30	60
31	31	62	31	31	62	31	31	62
32	32	64	32	32	64	32	32	64
33	33	66	33	33	66	33	33	66
34	34	68	34	34	68	34	34	68
35	35	70	35	35	70	35	35	70
36	36	72	36	36	72	36	36	72
37	37	74	37	37	74	37	37	74
38	38	76	38	38	76	38	38	76
39	39	78	39	39	78	39	39	78
40	40	80	40	40	80	40	40	80
41	41	82	41	41	82	41	41	82
42	42	84	42	42	84	42	42	84
43	43	86	43	43	86	43	43	86
44	44	88	44	44	88	44	44	88
45	45	90	45	45	90	45	45	90
46	46	92	46	46	92	46	46	92
47	47	94	47	47	94	47	47	94
48	48	96	48	48	96	48	48	96
49	49	98	49	49	98	49	49	98
50	50	100	50	50	100	50	50	100

and over not presently (1961 census) attending school. This was done for Canada, New Brunswick, and each county in New Brunswick. It will be noted that 8.9 per cent of the New Brunswick population five years and over had had no schooling, and this is considerably greater than the 5.8 per cent of the Canadian population in this category. Some of the counties show evidence of up to 15.4 per cent of the population with no schooling.

In Table B-9, the figures for those attending school are set out. Here, a comparison with other provinces is also of interest. This will be found in Table B-10. The two tables showing school attendants as a percentage of the population five years and over and as a percentage of the school-age (5-14) population. As well, the school attendants are broken down by education level which gives some indication as to the relative fiscal requirements (given that the higher the level of education, the more costly it is to provide one child-year of education). It should be noted that the tables do not represent a picture of drop-out rates for the population, as an estimate may vary. The tables also avoid any attempt to standardize levels of education, as this is necessarily left to the provinces to determine and adapt to their own needs. In Table B-9, the figures are given for all students in primary and secondary schools, as well as for those in post-secondary institutions.

Canada, Dominion Bureau of Statistics, Census Division, Census of Canada, 1921, Ottawa, Government Printer, Table 74.

	Total Population	Population of 14 years and over	Population of 14 years and over in school	Percentage of population of 14 years and over in school
Quebec	4,200,000	3,200,000	650,000	20.3
Ontario	5,000,000	4,000,000	800,000	20.0
Manitoba	600,000	500,000	100,000	20.0
Saskatchewan	500,000	400,000	80,000	20.0
Alberta	400,000	300,000	70,000	23.3
British Columbia	300,000	200,000	50,000	25.0
Nova Scotia	400,000	300,000	70,000	23.3
New Brunswick	300,000	200,000	50,000	25.0
P.E.I.	100,000	80,000	20,000	25.0
Yukon	10,000	8,000	2,000	25.0
N.W.T.	10,000	8,000	2,000	25.0
Arctic	10,000	8,000	2,000	25.0
Total	11,900,000	9,000,000	2,000,000	22.2

Since they are based on the population fifteen years of age and over, many who are in school or retired are included in the base, and normally a student would not be considered underemployed. It is possible, therefore, to observe that the participation rates, while measuring the employment of human resources, also measure other things.¹

Table B-11 sets out the labour force participation rates for all provinces and Canada, both as a percentage of total population and as a percentage of the population fifteen years of age and over. In both ways, New Brunswick has lower rates than most other provinces (Newfoundland is notably lower than New Brunswick). As a percentage of the population fifteen years and over New Brunswick leads only the British Columbia participation rate among Atlantic provinces, but the percentage was lower than in every Canadian province.

Table B-12 divides the budget forces into individually
or collectively responsible. The differences are not so striking
that it is difficult to distinguish between them. The
difference in responsibility of a client and his wife part of the
same household is small by comparison with the difference
between the husband and his wife and the wife's parents.
The wife's parents are clearly more responsible than the
husband for the wife's consumption and her husband's consumption.

THE LABOUR FORCE IN CANADA AND PROVINCES.

Labour Force as a Percent-
age of Population Fifteen
Years and Over

	Males		Females	
	1951	1954	1951	1954
Alberta	56.7	56.7	34.0	33.1
British Columbia	57.3	57.3	34.7	34.1
Manitoba	56.7	56.7	34.0	33.1
New Brunswick	56.7	56.7	34.0	33.1
Newfoundland	56.7	56.7	34.0	33.1
Nova Scotia	56.7	56.7	34.0	33.1
Ontario	56.7	56.7	34.0	33.1
P.E.I.	56.7	56.7	34.0	33.1
Quebec	56.7	56.7	34.0	33.1
Saskatchewan	56.7	56.7	34.0	33.1
Territories	56.7	56.7	34.0	33.1
Yukon	56.7	56.7	34.0	33.1
United States	56.7	56.7	34.0	33.1
Canada	56.7	56.7	34.0	33.1
World	56.7	56.7	34.0	33.1
Europe	56.7	56.7	34.0	33.1
America	56.7	56.7	34.0	33.1
North America	56.7	56.7	34.0	33.1
South America	56.7	56.7	34.0	33.1
Asia	56.7	56.7	34.0	33.1
Africa	56.7	56.7	34.0	33.1
Oceania	56.7	56.7	34.0	33.1
Middle East	56.7	56.7	34.0	33.1
Total	56.7	56.7	34.0	33.1
1951	56.7	56.7	34.0	33.1
1954	56.7	56.7	34.0	33.1

Source: Statistics Canada, Census Division, Table 7.1-1, Table 1.

smaller part of the New Brunswick male labour force as compared with Canada.

When the female labour force distribution is examined, there at first appears to be no connection between educational background and occupational distribution. In fact, the two occupational groupings which attract a significantly larger percentage of women in New Brunswick than in Canada (professional and service) are ones where women

experience low participation (nursing, teaching, and housework, etc.). It would appear, then, that the few professional people (other occupations being comprised with mind) may be those who did not attend school, or did very little back in the days of their youth. This is probably due to the fact that the majority of the mothers in New Brunswick are married, and therefore do not have the time or inclination

to go to college or university. This is not to say that there are no women in New Brunswick who have attended university, but it is to say that they are few in number. There are also many women in New Brunswick who have attended college, but again, they are few in number. This is probably due to the fact that the cost of attending college or university is quite high, and many women in New Brunswick do not have the financial resources to pay for it.

There are also many women in New Brunswick who have attended vocational schools, such as nursing schools, teacher training schools, and so on. These schools are usually less expensive than college or university, and many women in New Brunswick can afford to pay for them. However, there are still many women in New Brunswick who do not have the financial resources to pay for vocational schools.

There are also many women in New Brunswick who have attended trade schools, such as carpentry schools, welding schools, and so on. These schools are usually less expensive than college or university, and many women in New Brunswick can afford to pay for them. However, there are still many women in New Brunswick who do not have the financial resources to pay for trade schools.

awareness amongst Canadian economists of the importance of the natural resources in the development of an economy.

In Table B-13, the value of production in primary industries for selected years is set out. Here it is noted that New Brunswick became increasingly less dependent on its primary industries. In 1967, only 30 per cent of commodity production was of a primary nature (compared with 45 per cent in 1948). The two industries which had the greatest relative decrease in the percentage of production value were agriculture and forestry (the value of agriculture in current dollars was down as well). The industry which increased its percentage of production value (electric power) is closely allied with secondary industry and service industry, both of which became more important in terms of value of output.

Table B-14 gives the general unemployment rate and relative importance of various industries in providing employment. In 1967, approximately 17,000 gainfully employed individuals (aged 16 to 64) were in non-farm domestic enterprises as an employee, the average age being 40.6 years. There is a significant difference between the employment rates of the only gainfully employed man and woman, the former being 66.6% and the latter 41.6%. This is also true of the other industries, with the exception of agriculture, forestry and fisheries where the male and female employment rates are very similar.

the first time, the author has been able to collect a series of specimens from the same locality, and to compare them with those from other localities. The author wishes to thank Dr. J. C. Merriam for his valuable assistance in this work.

THE INFLUENCE OF HABITAT ON THE SALT TOLERANCE OF PLANTS IN THE EMBARRACK.

The author wishes to thank Dr. J. C. Merriam for his valuable assistance in this work.

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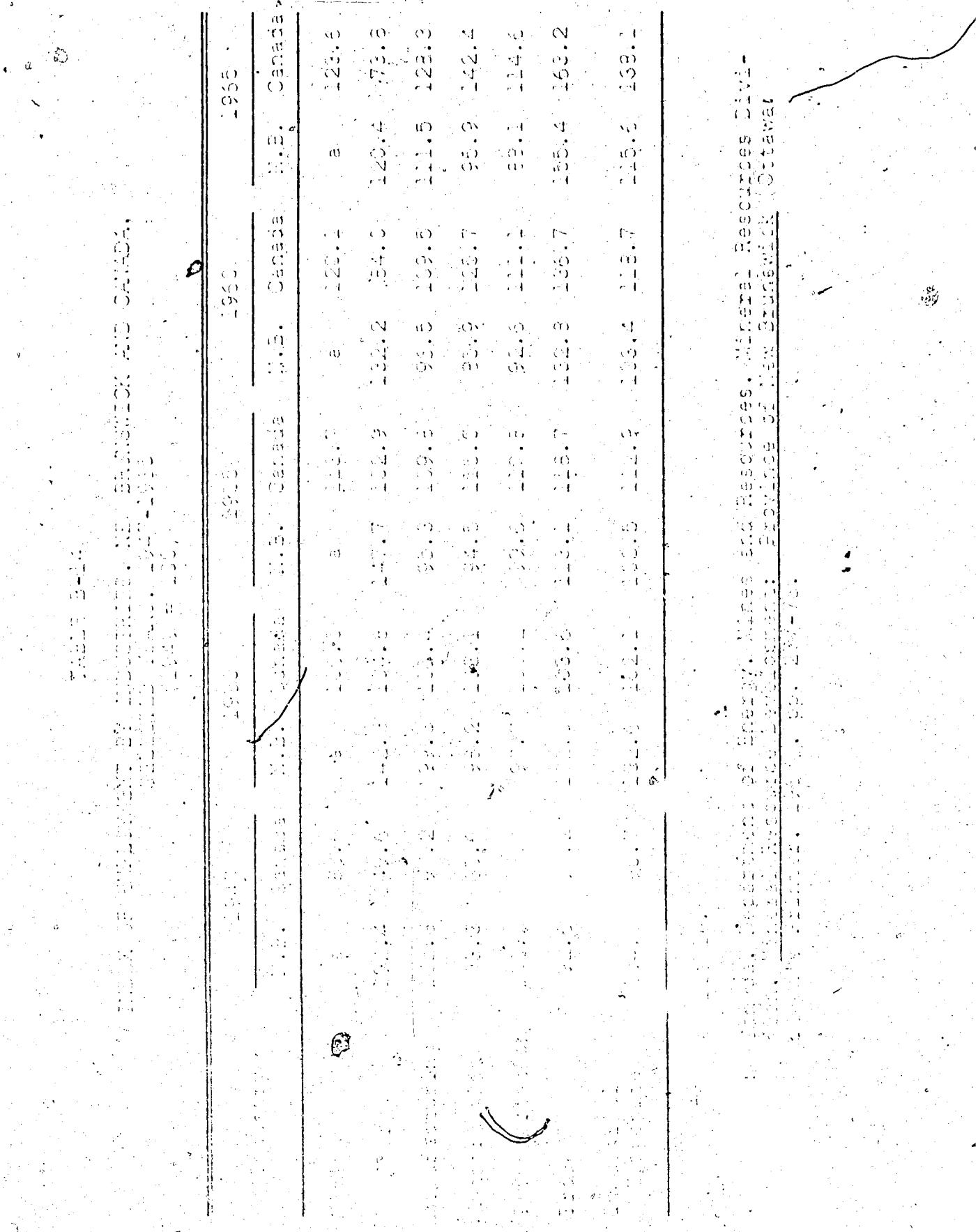
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various industries. Technological change allows for a change in the capital-labour ratio and an increase in total production. Thus, while the index of a particular industry as an employer decreases there may be an increase in production value.

Tables B-15, B-16 and Figures B-1 and B-2 show data for the mineral industry. In Table B-15, it is evident that mineral production became much more significant in the decade of the 1950's. This was particularly true for lead and zinc. In Table B-16, the per capita value of mineral production in the province shows the increasing output of the industry. Figure B-2 shows the relative importance of various types of minerals.

From these two tables and the figures, it becomes evident that New Brunswick has increased its mineral output, but the resources do not match those of, say, Ontario, Alberta, or British Columbia.

3. Industrial Statistics

Industrial statistics are intended to measure the economic welfare of a system in terms of the output produced.

Industrial statistics are divided into three main categories: (1) industrial output, (2) employment, and (3) productivity.

It is important that the examination have of

output, employment, and productivity will determine the most effective way to

improve the economy of the province.

Exposition of 1865, and 150 thousand in value.

TABLE B-16

PER CAPITA VALUE OF MINERAL PRODUCTION,
PROVINCE OF NEW BRUNSWICK,
1946-1966

Year	Value
1946	\$ 10.07
1947	11.91
1948	14.06
1949	14.04
1950	24.92
1951	18.54
1952	21.48
1953	21.88
1954	23.09
1955	23.31
1956	32.90
1957	41.14
1958	28.50
1959	31.16
1960	23.99
1961	31.46
1962	30.98
1963	46.36
1964	75.70
1965	111.85
1966	142.35

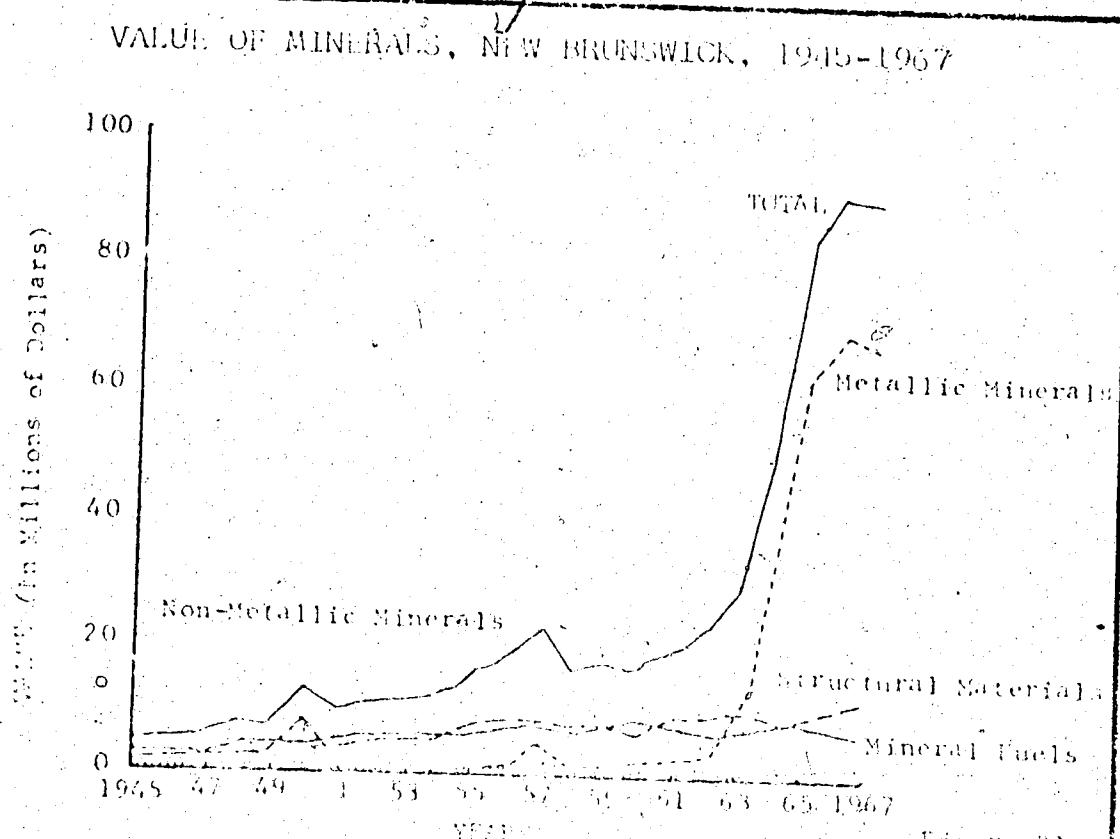
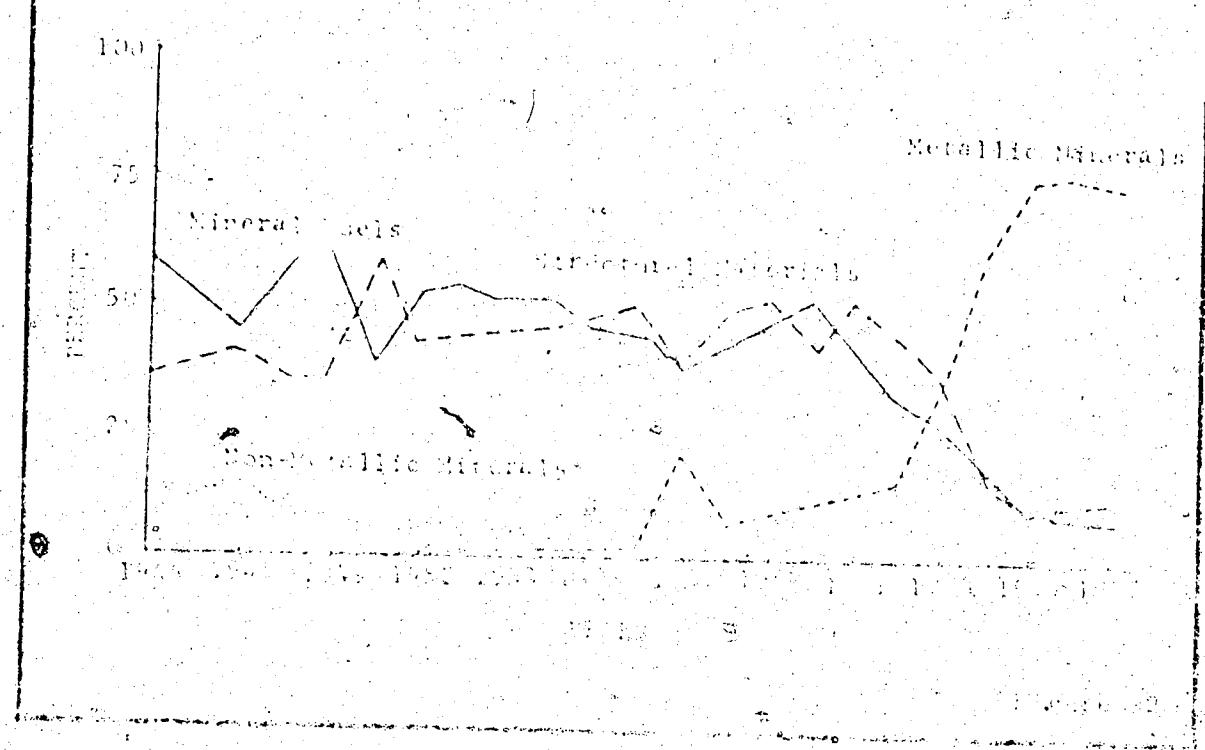


Figure B1



i) Average Income

The Census of Canada develops a series of statistics showing average incomes for the non-farm population aged fifteen and over.

These statistics are meaningless for interprovincial comparisons if the occupational or age distribution is distorted between provinces. As well, although income is defined so as to include earnings from work,

investment returns and transfer payments, it is unlikely that the respondents would reply with the same degree of accuracy.

In the 1961 Census of Canada, a 20 per cent sample of the population was surveyed for a number of variables.

Non-farm incomes were calculated from the data collected in the Sample. Table B-17 shows the available information.

The data in Table B-17 do not represent true average incomes for farm incomes are excluded and in calculating the averages those people showing no income have been eliminated. At this, a better measure of economic well-being is derivable.

ii) Personal Income

Another measure of well-being which is available on a monthly basis is a series of personal incomes estimated by the Bureau. This is the total income from wages and salaries, self-employed, including not only wages or earnings from one's own business, but also from part-time employment, the receipt of alimony or child support payments, and rents.

For example, in the first quarter of 1961, the personal income of the non-farm population aged fifteen and over was \$1,125.00 per month. This figure includes all forms of income, including investment returns and transfer payments.

TABLE B-17

AVERAGE INCOMES FOR THE NON-FARM POPULATION
AGED FIFTEEN YEARS AND OVER; CANADA,
PROVINCES, AND NEW BRUNSWICK
COUNTIES, 1961

Place	Dollars			Index, Canada = 100		
	Total	Male	Female	Total	Male	Female
Canada	3,130	3,999	1,651	100.0	100.0	100.0
Provinces						
Newfoundland	2,927	2,665	1,133	71.1	66.6	68.6
Prince Edward Island	2,137	2,367	1,064	69.8	71.7	64.3
Nova Scotia	2,497	3,139	1,243	79.8	79.7	75.3
New Brunswick	2,435	3,070	1,225	77.8	76.3	76.0
Quebec	3,123	3,370	1,703	99.7	96.8	103.2
Ontario	3,331	4,305	1,747	106.4	103.4	105.8
Manitoba	2,950	3,531	1,551	94.5	97.1	92.1
Saskatchewan	2,759	3,003	1,454	89.1	90.2	88.1
Alberta	3,721	4,160	1,604	103.0	101.0	100.3
British Columbia	3,711	4,177	1,602	102.3	104.5	100.1
Counties						
All counties	3,547	4,162	1,624	88.6	70.5	80.5
Cariboo	2,378	2,023	1,025	59.3	62.3	56.3
Chilliwack	3,135	3,100	1,100	78.6	66.6	80.6
Coquitlam	2,426	2,935	1,031	60.6	55.6	65.6
Kent	1,805	1,747	728	46.3	45.2	47.3
Kings	3,315	3,259	1,259	82.9	75.0	80.0
Middlesex	2,947	3,046	1,161	73.7	70.0	77.0
Northland	2,392	2,089	1,089	60.0	66.4	53.6
Okanagan	2,537	2,941	1,141	64.0	55.2	72.8
Peace River	2,947	2,140	1,040	73.7	69.0	77.0
Port Coquitlam	3,004	3,100	1,100	80.1	92.2	68.0
Shuswap	3,105	3,104	1,104	80.7	74.2	86.0
Similkameen	2,397	2,036	1,036	61.5	60.6	62.5
Strathcona	3,475	3,475	1,175	80.3	81.1	79.5
Tamworth	2,712	2,712	1,052	74.8	74.8	74.8
West Kootenay	2,947	2,947	1,147	73.7	73.7	73.7

latter accounted for 18 per cent of New Brunswick's personal income and only 10 per cent of Ontario's.² Undistributed corporation profits are not included in personal income.³

Personal income is thus directly measurable and differs from average income in that social insurance contributions are deducted and farm incomes are included.

Table B-18 shows the per capita personal income data for both New Brunswick and Canada on an annual basis for the years 1946 to 1957. It is noted that New Brunswick's relative position did not improve in the twenty-two years under review. In 1946, New Brunswick had a per capita personal income which was 24.9 per cent less than Canada's. By 1957, New Brunswick's personal income had fallen to 23.2 per cent behind Canada's although it had increased in dollar terms.

While personal income data are one measure of economic well-being, they do not represent a measure of economic activity. For this reason, attention is now turned to measures of net and gross income.

Net Income.
Tables B-19 and B-20 show per capita provincial and national net income for 1946 and 1957 respectively.

Over the period 1946-57, New Brunswick's per capita net income

² See *Review of Canadian Income Tax Statistics*, 1957, pp. 11-12.

³ See *Review of Canadian Income Tax Statistics*, 1957, pp. 11-12.

TABLE B-18
PERSONAL INCOME PER CAPITA, NEW BRUNSWICK
AND CANADA, 1946-1957^a

Year	New Brunswick	Canada	New Brunswick as a Percentage of Canada
1946	\$ 594	\$ 791	75.1
1947	596	827	72.1
1948	637	928	68.6
1949	646	940	68.7
1950	680	970	69.6
1951	742	1,130	65.7
1952	772	1,203	64.2
1953	777	1,235	62.9
1954	806	1,205	66.9
1955	823	1,257	65.5
1956	895	1,361	65.8
1957	913	1,361	67.8
1958	947	1,415	67.6
1959	935	1,427	66.2
1960	1,048	1,531	68.6
1961	1,064	1,564	68.9
1962	1,114	1,607	69.1
1963	1,163	1,640	71.3
1964	1,272	1,821	70.8
1965	1,423	1,938	73.3
1966	1,553	2,151	71.8
1967	1,663	2,244	74.1

^a Revised data for Canada and preliminary data for New Brunswick. Revised data for Canada and preliminary data for New Brunswick.

^b Estimated data for 1957. The 1957 personal income figures for Canada and New Brunswick were estimated by the Department of Finance, Ottawa, from the 1957 Census of Population. Personal income is defined as the total amount received by individuals from all sources, less taxes deducted at source.

**NET CAPITAL COSTS AT FACTOR COST,
ADJUSTED FOR CANADA, 1946-1967**

Year	Canada	Net Capital Cost at Factor Cost ^a in thousands of dollars	Net Capital Cost at Factor Cost ^b in thousands of dollars	Net Capital Cost at Factor Cost ^c in thousands of dollars	New Brunswick as a Percentage of Canada $(\frac{1}{3}) \times 100$
1946	777	70.5	68.4	68.4	65.9
1947	826	65.7	65.7	65.7	65.7
1948	936	62.9	62.9	62.9	62.9
1949	969	61.9	61.9	61.9	61.9
1950	1,020	61.2	61.2	61.2	61.2
1951	1,045	60.9	60.9	60.9	60.9
1952	1,070	60.6	60.6	60.6	60.6
1953	1,100	60.4	60.4	60.4	60.4
1954	1,125	60.2	60.2	60.2	60.2
1955	1,145	60.1	60.1	60.1	60.1
1956	1,165	60.0	60.0	60.0	60.0
1957	1,185	59.9	59.9	59.9	59.9
1958	1,205	59.9	59.9	59.9	59.9
1959	1,225	59.9	59.9	59.9	59.9
1960	1,245	59.9	59.9	59.9	59.9
1961	1,265	59.9	59.9	59.9	59.9
1962	1,285	59.9	59.9	59.9	59.9
1963	1,305	59.9	59.9	59.9	59.9
1964	1,325	59.9	59.9	59.9	59.9
1965	1,345	59.9	59.9	59.9	59.9
1966	1,365	59.9	59.9	59.9	59.9
1967	1,385	59.9	59.9	59.9	59.9
1968	1,405	59.9	59.9	59.9	59.9
1969	1,425	59.9	59.9	59.9	59.9
1970	1,445	59.9	59.9	59.9	59.9
1971	1,465	59.9	59.9	59.9	59.9
1972	1,485	59.9	59.9	59.9	59.9
1973	1,505	59.9	59.9	59.9	59.9
1974	1,525	59.9	59.9	59.9	59.9
1975	1,545	59.9	59.9	59.9	59.9
1976	1,565	59.9	59.9	59.9	59.9
1977	1,585	59.9	59.9	59.9	59.9
1978	1,605	59.9	59.9	59.9	59.9
1979	1,625	59.9	59.9	59.9	59.9
1980	1,645	59.9	59.9	59.9	59.9
1981	1,665	59.9	59.9	59.9	59.9
1982	1,685	59.9	59.9	59.9	59.9
1983	1,705	59.9	59.9	59.9	59.9
1984	1,725	59.9	59.9	59.9	59.9
1985	1,745	59.9	59.9	59.9	59.9
1986	1,765	59.9	59.9	59.9	59.9
1987	1,785	59.9	59.9	59.9	59.9
1988	1,805	59.9	59.9	59.9	59.9
1989	1,825	59.9	59.9	59.9	59.9
1990	1,845	59.9	59.9	59.9	59.9
1991	1,865	59.9	59.9	59.9	59.9
1992	1,885	59.9	59.9	59.9	59.9
1993	1,905	59.9	59.9	59.9	59.9
1994	1,925	59.9	59.9	59.9	59.9
1995	1,945	59.9	59.9	59.9	59.9
1996	1,965	59.9	59.9	59.9	59.9
1997	1,985	59.9	59.9	59.9	59.9
1998	2,005	59.9	59.9	59.9	59.9
1999	2,025	59.9	59.9	59.9	59.9
2000	2,045	59.9	59.9	59.9	59.9
2001	2,065	59.9	59.9	59.9	59.9
2002	2,085	59.9	59.9	59.9	59.9
2003	2,105	59.9	59.9	59.9	59.9
2004	2,125	59.9	59.9	59.9	59.9
2005	2,145	59.9	59.9	59.9	59.9
2006	2,165	59.9	59.9	59.9	59.9
2007	2,185	59.9	59.9	59.9	59.9
2008	2,205	59.9	59.9	59.9	59.9
2009	2,225	59.9	59.9	59.9	59.9
2010	2,245	59.9	59.9	59.9	59.9
2011	2,265	59.9	59.9	59.9	59.9
2012	2,285	59.9	59.9	59.9	59.9
2013	2,305	59.9	59.9	59.9	59.9
2014	2,325	59.9	59.9	59.9	59.9
2015	2,345	59.9	59.9	59.9	59.9
2016	2,365	59.9	59.9	59.9	59.9
2017	2,385	59.9	59.9	59.9	59.9
2018	2,405	59.9	59.9	59.9	59.9
2019	2,425	59.9	59.9	59.9	59.9
2020	2,445	59.9	59.9	59.9	59.9
2021	2,465	59.9	59.9	59.9	59.9
2022	2,485	59.9	59.9	59.9	59.9
2023	2,505	59.9	59.9	59.9	59.9
2024	2,525	59.9	59.9	59.9	59.9
2025	2,545	59.9	59.9	59.9	59.9
2026	2,565	59.9	59.9	59.9	59.9
2027	2,585	59.9	59.9	59.9	59.9
2028	2,605	59.9	59.9	59.9	59.9
2029	2,625	59.9	59.9	59.9	59.9
2030	2,645	59.9	59.9	59.9	59.9
2031	2,665	59.9	59.9	59.9	59.9
2032	2,685	59.9	59.9	59.9	59.9
2033	2,705	59.9	59.9	59.9	59.9
2034	2,725	59.9	59.9	59.9	59.9
2035	2,745	59.9	59.9	59.9	59.9
2036	2,765	59.9	59.9	59.9	59.9
2037	2,785	59.9	59.9	59.9	59.9
2038	2,805	59.9	59.9	59.9	59.9
2039	2,825	59.9	59.9	59.9	59.9
2040	2,845	59.9	59.9	59.9	59.9
2041	2,865	59.9	59.9	59.9	59.9
2042	2,885	59.9	59.9	59.9	59.9
2043	2,905	59.9	59.9	59.9	59.9
2044	2,925	59.9	59.9	59.9	59.9
2045	2,945	59.9	59.9	59.9	59.9
2046	2,965	59.9	59.9	59.9	59.9
2047	2,985	59.9	59.9	59.9	59.9
2048	3,005	59.9	59.9	59.9	59.9
2049	3,025	59.9	59.9	59.9	59.9
2050	3,045	59.9	59.9	59.9	59.9
2051	3,065	59.9	59.9	59.9	59.9
2052	3,085	59.9	59.9	59.9	59.9
2053	3,105	59.9	59.9	59.9	59.9
2054	3,125	59.9	59.9	59.9	59.9
2055	3,145	59.9	59.9	59.9	59.9
2056	3,165	59.9	59.9	59.9	59.9
2057	3,185	59.9	59.9	59.9	59.9
2058	3,205	59.9	59.9	59.9	59.9
2059	3,225	59.9	59.9	59.9	59.9
2060	3,245	59.9	59.9	59.9	59.9
2061	3,265	59.9	59.9	59.9	59.9
2062	3,285	59.9	59.9	59.9	59.9
2063	3,305	59.9	59.9	59.9	59.9
2064	3,325	59.9	59.9	59.9	59.9
2065	3,345	59.9	59.9	59.9	59.9
2066	3,365	59.9	59.9	59.9	59.9
2067	3,385	59.9	59.9	59.9	59.9
2068	3,405	59.9	59.9	59.9	59.9
2069	3,425	59.9	59.9	59.9	59.9
2070	3,445	59.9	59.9	59.9	59.9
2071	3,465	59.9	59.9	59.9	59.9
2072	3,485	59.9	59.9	59.9	59.9
2073	3,505	59.9	59.9	59.9	59.9
2074	3,525	59.9	59.9	59.9	59.9
2075	3,545	59.9	59.9	59.9	59.9
2076	3,565	59.9	59.9	59.9	59.9
2077	3,585	59.9	59.9	59.9	59.9
2078	3,605	59.9	59.9	59.9	59.9
2079	3,625	59.9	59.9	59.9	59.9
2080	3,645	59.9	59.9	59.9	59.9
2081	3,665	59.9	59.9	59.9	59.9
2082	3,685	59.9	59.9	59.9	59.9
2083	3,705	59.9	59.9	59.9	59.9
2084	3,725	59.9	59.9	59.9	59.9
2085	3,745	59.9	59.9	59.9	59.9
2086	3,765	59.9	59.9	59.9	59.9
2087	3,785	59.9	59.9	59.9	59.9
2088	3,805	59.9	59.9	59.9	59.9
2089	3,825	59.9	59.9	59.9	59.9
2090	3,845	59.9	59.9	59.9	59.9
2091	3,865	59.9	59.9	59.9	59.9
2092	3,885	59.9	59.9	59.9	59.9
2093	3,905	59.9	59.9	59.9	59.9
2094	3,925	59.9	59.9	59.9	59.9
2095	3,945	59.9	59.9	59.9	59.9
2096	3,965	59.9	59.9	59.9	59.9
2097	3,985	59.9	59.9	59.9	59.9
2098	4,005	59.9	59.9	59.9	59.9
2099	4,025	59.9	59.9	59.9	59.9
2000	4,045	59.9	59.9	59.9	59.9
2001	4,065	59.9	59.9	59.9	59.9
2002	4,085	59.9	59.9	59.9	59.9
2003	4,105	59.9	59.9	59.9	59.9
2004	4,125	59.9	59.9	59.9	59.9
2005	4,145	59.9	59.9	59.9	59.9
2006	4,165	59.9	59.9	59.9	59.9
2007	4,185	59.9	59.9	59.9	59.9
2008	4,205	59.9	59.9	59.9	59.9
2009	4,225	59.9	59.9	59.9	59.9
2010	4,245	59.9	59.9	59.9	59.9
2011	4,265	59.9	59.9	59.9	59.9
2012	4,285	59.9	59.9	59.9	59.9
2013	4,305	59.9	59.9	59.9	59.9
2014	4,325	59.9	59.9	59.9	59.9
2015	4,345	59.9	59.9	59.9	59.9
2016	4,365	59.9	59.9	59.9	59.9
2017	4,385	59.9	59.9	59.9	59.9
2018	4,405	59.9	59.9	59.9	59.9
2019	4,425	59.9	59.9	59.9	59.9
2020	4,445	59.9	59.9	59.9	59.9
2021	4,465	59.9	59.9	59.9	59.9
2022	4,485	59.9	59.9	59.9	59.9
2023	4,505	59.9	59.9	59.9	59.9
2024	4,525	59.9	59.9	59.9	59.9
2025	4,545	59.9	59.9	59.9	59.9
2026	4,565	59.9	59.9	59.9	59.9
2027	4,585	59.9	59.9	59.9	59.9
2028	4,605	59.9	59.9	59.9	59.9
2029	4,625	59.9	59.9		

THE
LAW
OF
NATURE
AND
NATURAL
RIGHTS,
BY
JOHN
STUART
MILTON,
LONDON,
1809.

Commission Board of Statistics, National Accounts Division, National
Statistical Bureau, Government Printer, Various Years, 1956-57, and
1957-58, Research Division, Economic Accounts, Directorate of Economics and
Statistics, Government of India, 1958, Directorate of Economics and
Statistics, Government of India, 1959.

The difference between the two is depreciation.⁴ Thus, net product is "the output of consumer and government goods, plus the net increase in [the] stock of capital goods--new production of capital goods in excess of replacement," while gross product is "the output of 'true' final goods, plus the production of new capital goods."⁵

For New Brunswick, the calculations of net provincial income and gross provincial product are found in Table B-PE.⁶ Since these figures are the only ones available, they are the ones that have been used to calculate the per capita data in Tables B-19 and B-20.

According to the figures in Table B-18, shows that New Brunswick's real gross provincial product increased at a per capita rate of 2.1% between 1947 and 1977.

With the exception of the first year, the growth rates have declined.

The difference between the two series is depreciation. The data in Table B-18 show that the rate of depreciation has been declining over time. This is due to the fact that the rate of depreciation is calculated as a percentage of the previous year's value.

The data in Table B-18 also show that the rate of depreciation has been declining over time. This is due to the fact that the rate of depreciation is calculated as a percentage of the previous year's value.

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10. *Constitutive* *proteins* *in* *the* *cell* *cycle* *and* *cell* *division*

did not maintain its position with respect to Canada. If the percentage increase in gross product is considered (not on a per capita basis) the increase for New Brunswick was 29.1 per cent while for Canada it was 42.4 per cent. This aggregate growth comparison makes the disparity between New Brunswick and Canada seem even greater.

4. In Summary

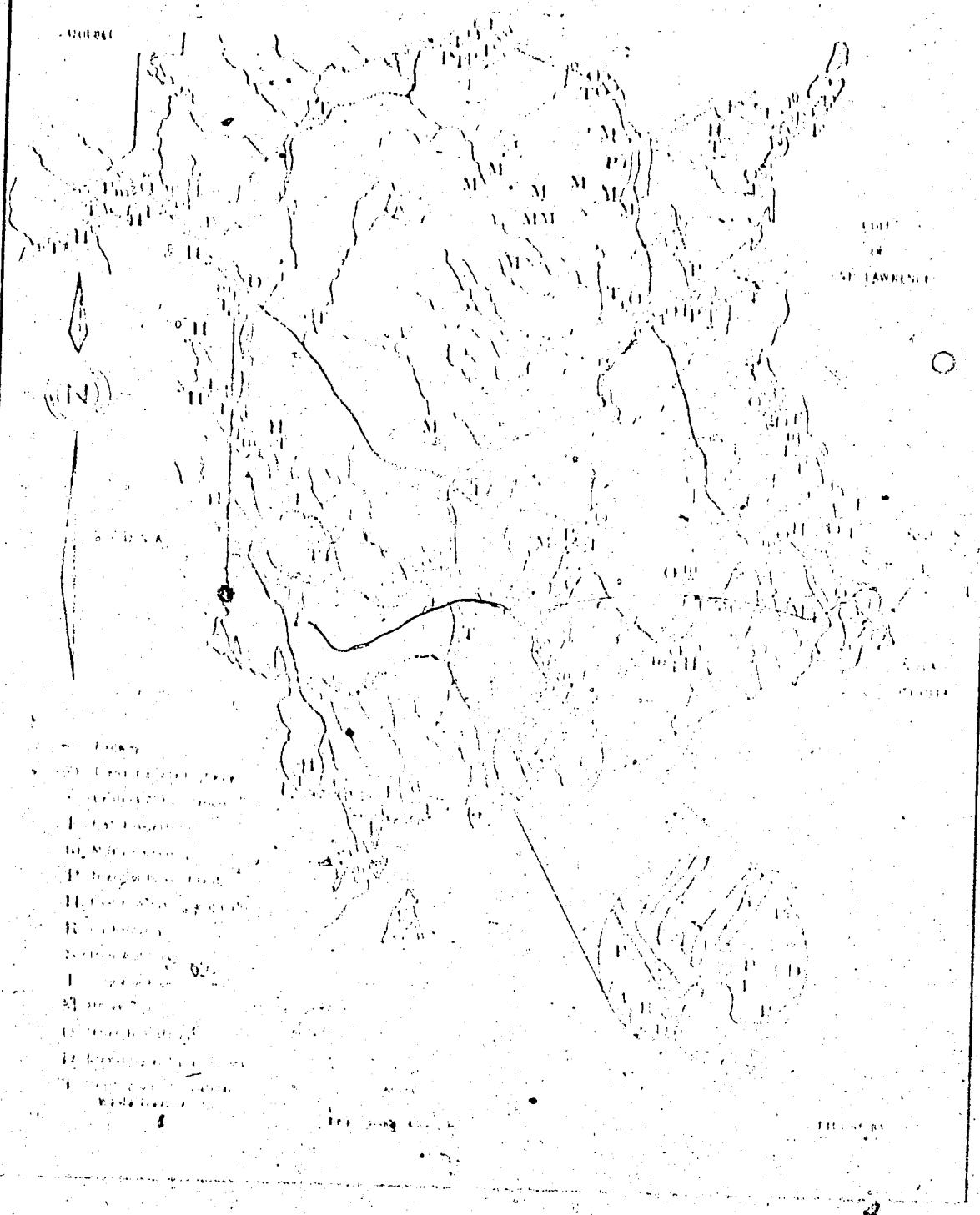
The basic purpose of this appendix is to examine various aspects of the attributes which contribute to the economy of New Brunswick. The main picture has been one of deterioration when compared with Canada in industrial importance and agricultural output. The picture of economic activity within the province is also not encouraging.

Indeed in this appendix figures 1-5 graphically emphasize the location of the natural resources and transportation facilities. For example, the location of the natural resources in the province and the extent of energy and mineral reserves are shown in figure 1. The location of the major transportation facilities in the province is shown in figure 2. The location of the major industrial centers in the province is shown in figure 3. The location of the major urban centers in the province is shown in figure 4. The location of the major agricultural areas in the province is shown in figure 5.

It is apparent from these figures that the natural resources and transportation facilities are concentrated in the southern part of the province. The major industrial centers are also located in the southern part of the province. The major urban centers are also located in the southern part of the province. The major agricultural areas are also located in the southern part of the province. This concentration of resources, transportation facilities, industry, urban centers and agriculture in the southern part of the province suggests that the economy of New Brunswick is heavily dependent upon the southern part of the province. This dependence is likely to continue in the future.

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for production, they are valid for comparisons of standards of living and consumption capabilities. As well, economic growth will be evidenced by an increasing level of personal income. The most important measure of output, however, remains the gross national (provincial) product which is found in Table B-11. There are several factors not considered in calculating gross products, but only when these factors vary between regions or receive varying treatment in calculations do they become a problem when making comparisons. Thus, the data provided here permit an examination of growth, although they are subject to ambiguities.