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THE UNIVERSITY OF ALBERTA

FEDERAL EDUCATION GRANTS, 1945-1967: ECONOMIC DEVELOPMENT IN NEW BRUNSWICK

by

DOUGLAS JACKSON MOORHEAD

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

OF DOCTOR OF PHILOSOPHY

IN

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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 Equalization Grants on the Economic Development of New Brunswick" submitted by Dougl... Jackson Mahoney in partial fulfillment of the ... for the degree of Doctor of Philosophy in Economics.

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Supervisor

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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 fact influences the attainment of the economic objectives of equity, stabilization, efficiency, and growth.

In a discussion of federal-provincial financial arrangements for education, the two objectives, efficiency and growth, are most relevant. In terms of efficiency, expenditures will be sub-optimal if spillovers exist. Federal grants can thus be justified in overcoming this allocative inefficiency. Federal grants would also be justified if provincial growth can be shown to be stimulated by them.

The effects of federal contributions to education, [illegible] in public education [illegible] elementary [illegible]

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 correlations, the simpower needs, the returns-to-education, and the production approaches. The latter appeared most useful as a means of measuring the importance of federal funding of education as an input into the production process in New York. To further supplement the analysis, the data on federal education grants are drawn in a complete review of the historical development of the many different programs.

When the effect of federal funding of education on the gross product is examined, it appears that a positive relationship exists. On this basis, and until there is further evidence to the contrary, it would appear that the federal education grants are justifiable.

ACKNOWLEDGEMENTS

This writer owes a debt of gratitude to a number of people for their assistance with the study.

If it were not for the encouragement and stimulation from faculty members at the University of Windsor and the London School of Economics and Political Science, no study would have been undertaken. In this regard, special thanks are due to Dr. Zygmunt Pallenbuchl and to Dr. Maurice Peston.

At the University of Alberta where the formulation of the dissertation took place, the writer is indebted to many people. Professor John Delehanty, as a member of the supervisory committee, reviewed the early drafts and made many helpful comments. The greatest debt is to Dr. Eric Hanson, who showed much patience and without whose advice and encouragement this study would never have been completed.

Mrs. Doreen Wilkinson, as typist, faced numerous drafts with willingness and proficiency. At home, [illegible] put up with much of the frustration encountered in the study. [illegible] when it was most needed.

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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 1949 to 1957. While much attention is given to compiling the actual grants of the period, the writer theoretical considers the criteriency and growth. For our purposes, criteriency is defined as the degree to which the allocation of grants conform to community preferences, while growth is treated as the increase of output per capita.

Although additional grants are familiar devices in federal finance, they have been the object of considerable attention and criticism by the all federal systems. The

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 perceived its own responsibilities as isolated from those of the other levels.[8] However, increasing government responsibility in health, education, welfare, urban planning, consumer protection, stabilization, economic development, regional disparities, the environment, and other policy areas has brought to an end the view that the concerns of each level are fixed, identifiable, and clearly distinct. [illegible] resources are allocated [illegible] not perceived as permanent.

During the post-war period, [illegible] began to recognize the importance of education [illegible] [illegible] the importance

[illegible]

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-1). The British North America Act had restricted expenditures on education to the provincial governments.[4] Provincial revenue sources had also been restricted by the BNA Act, and these sources were limited further by the various federal-provincial tax agreements undertaken prior to 1941. As a result, the vast post-war growth in educational expenditures required considerable federal financial support.

[illegible] the characteristics of a "non-private" good in that it generates benefits from the point of view of the individual consumer (student) and the government as provider (province). Therefore, to [illegible] expenditures on education, provincial governments [illegible] compensation.[5]

[illegible]

[illegible]

[illegible]

TABLE 1-1

OPERATING COSTS OF PUBLIC SCHOOL BOARDS, CANADA, SELECTED YEARS, 1954-1967[a]
(Millions of Dollars)

Year	Total Costs
1954	$ 438.2
1957	606.8
1960	901.3
1964	1,458.1
1965	1,678.6
1966	1,927.5
1967	2,[illegible]

[a] The primary sources--Canada, Dominion Bureau of Statistics, Survey of Elementary and Secondary Education, and Survey of [illegible]--do not contain data [illegible] prior to 1954. No additional data [illegible] available in A Consolidation of [illegible].

Source: Canada, Economic Council of Canada, [illegible], Staff Study No. [illegible], by [illegible] and C. [illegible] (Ottawa: Information Canada, 1971), p. [illegible].

New Brunswick was selected as the data base for [illegible] [illegible] of the problems of the "poorer" provinces in [illegible] education expenditures. [illegible] considerable concern [illegible] educational service [illegible] [illegible]

[illegible]

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 [illegible] in the population.

The specific reason [illegible] that federal assistance to education [illegible] justified either if there are substantial spillovers depressing the level of expenditures on education below an

---

[6] [illegible]

[7] [illegible]

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 precludes consideration of New Brunswick alone and thus the analysis of spillovers is conducted on a cross-sectional basis. The second hypothesis, relating development to educational stock, is examined for New Brunswick.

To date, two types of arguments have been employed in Canada as justifications 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 [illegible] to education by the provinces would [illegible] some national benefits. An [illegible] by the poorer provinces would also [illegible] of the [illegible]. The [illegible] argument holds that [illegible] would [illegible] the opportunities [illegible] in poorer regions.

[illegible]

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 unconditional grants.[9]

Lastly, there has been much discussion in the literature as to whether it is better to proceed by developing each province without regard to national growth rates or to develop nationally without concern as to the location of growth. No attempt is made to discuss that question here because such a discussion is usually fruitless, there being arguments for both methods of proceeding.

Of the many issues associated with federal involvement in the educational process, the ones of special concern in this study are [illegible] growth and development.

2. Organization

There are many ways of organizing the material which makes up the remainder of the [illegible] and [illegible] the findings. The organization [illegible] topics.

[9]William [illegible]

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, there is a discussion of multi-level governments. When the two discussions are coupled, a justification for federal grants is derived.

The first set of hypotheses, is tested in Chapter IV on the basis of cross-sectional data for the [illegible]. Per pupil education expenditures are hypothesized [illegible] function of (a) spillovers measured by migration [illegible] by education levels, (b) federal grants, and (c) [illegible] by [illegible] of schooling and [illegible] percentage of population. [illegible] only data available are those found in the 1961 [illegible]

Chapter V 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 positives and negatives of each, the residual approach is chosen to test the second hypothesis.

In Chapter VI, the second hypothesis is tested. Here, a variation of a Denison-type model is estimated for the Province of New Brunswick. Output in the model is represented by gross provincial product while the inputs are labour, capital, and federal education assistance. Since all variables are not readily available as first differences, they are left in that form so that the parameters [illegible] physical productivities.

Chapter VII, which concludes the study, provides an opportunity [illegible] the policy implications [illegible] the study. Because the [illegible] period is only [illegible] [illegible]

[illegible]

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. Wheare 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 general 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 independent of the others."[10]

Another conception of federalism holds that federalism calls for [illegible] institutions, values, attitudes, and patterns of political action operate to give autonomous expression to a national political system and to regional political systems,[11] [illegible] each of these systems [illegible]

---

[10] [illegible]

[11] [illegible]

Another view is that of Riker, who interprets federalism in terms of bargaining theory. 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 clarification. The Bilingual Act uses education in a narrow sense. In this study, a broader definition is used, desirable because spillovers and growth effects may be not only from expenditures on formal schooling but also from expenditures on "on-the-job training" and other similar programs. It is desirable, therefore, to consider education as the "development of knowledge, skill, ability, or character by teaching, training, study, or experience."[13] However, because the

---

[12] William H. Riker, Federalism: Origin, Operation, Significance (Boston: Little, Brown and Company, 1964), p. 11.

[13] [illegible], "[illegible]," [illegible], p. [illegible].

[14] [illegible], p. [illegible].

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, "province" and "state" carry interchangeable meaning. "Province" is employed with predominant frequency in order to preserve linguistic continuity.

4. Conclusion

A study of federal grants can never be complete. There are always changes occurring in both federal-provincial arrangements and actual goals. Because this study examines education grants to the Province of New Brunswick for the years 1945 to 1967, it is confined in the [illegible] as well as [illegible] geography. Yet, the questions examined are broad ones, which are [illegible] important because of the [illegible] expansion of government responsibilities and the [illegible] allocation of [illegible] in a federal system. This study, hopefully, [illegible] in [illegible] of the [illegible] by a federation.

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 the 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 simultaneously with relative price stability) is a goal to which the efforts of the political and the economic must be turned. Hopefully, [illegible] public activities towards unemployment and price [illegible] behavior. Similarly, efforts for growth [illegible] combined with [illegible] on [illegible] but [illegible]

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 non-neutral 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 take account in the theory of the public sector to take into account the division of authority between levels of government.

In the case of Canada, and of British North America [illegible] allocation to the provincial governments [illegible] exclusive

---

[1] A discussion of the economic goals of a country [illegible]

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,"[2] and then 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 governments.

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 the remaining goals are assumed to have been established. This is partial equilibrium analysis, while in practical application all goals must be met simultaneously.[3]

1. Equity

Usually, in unitary states, equity discussions refer to [illegible] the burdens and benefits of government [illegible] between the rich and the poor. [illegible] [illegible] inequality [illegible] [illegible] [illegible].

[illegible]

[illegible]

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 performance, market size, social and cultural features, physical features, and administrative jurisdiction. This study uses provincial boundaries in defining a region, both

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[4] "Geographical distance, of course, is not the only factor [illegible] the [illegible] of a degree of independence by the [illegible] regions [illegible] country: there are also such factors [illegible] social [illegible], [illegible] structure and others, to be considered. [illegible] of the Republic of [illegible] may [illegible] this point." [illegible] [illegible]

[5] [illegible]

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 residuum.

i) The Principle of Federation as a Family

In classical public finance theory, the marginal social benefit (MSB) of an increment of government expenditure is stipulated to equal the marginal social cost (MSC), if there is to be an optimum allocation of resources in the economy. [illegible] extended to regional finance by Bhatia who made it applicable [illegible] distribution. The [illegible] would [illegible]:

[illegible]

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 expenditure 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 could equate [illegible] benefits.[8]

There are two basic disadvantages of the system advocated by Buchanan. First, the system of grants advocated would require the federation to have a social welfare function to weigh the [illegible] advantages of the various provinces.[9] Secondly, the system [illegible] [illegible] and [illegible].

[7] [illegible]

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 disbursed by the federal government). The nature of the federal programs will determine the degree and type of redistribution. The principle of derivation does not have much application as a means of equalizing incomes in various provinces by having [illegible] federal expenditures.

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 (revenues, etc.) are taken into account.

Objections to the principle of equalization are usually on the basis of the consequences such plans have for the achievement of economic efficiency. The objections in terms of economic efficiency are discussed later, but usually involve mobility of capital and/or labour, or the effects on provincial tax effort and/or accountability.

The principle of equalization is attractive in that [illegible] available [illegible].[12] [illegible] flexibility to the [illegible] plan [illegible] may be varied according to [illegible] plan to be equalized.

[illegible]

iv) The Principle of Equalization of the Fiscal Residuum

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

There are two ways in which the fiscal residuum might be equalized. The first would obligate 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 from administrative (for example, corporation [illegible]) and from legal-constitutional aspects. [illegible] problems.[14]

The second way in which the fiscal residuum can be equalized [illegible]

[illegible]

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 federations must deal with stabilization problems. For convenience, the literature can be divided into fiscal and monetary aspects.

1) Fiscal Policy

In the literature on fiscal policy in federations, provincial finance has been treated [illegible]

---

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.[17] Although there may be historical reasons to believe that provincial governments do not take account of the macro-economic consequences of their actions, it does not necessarily follow that the provinces are indifferent to the problem.

Coordination of fiscal policies (public expenditures [illegible]

[illegible]

[illegible]

having a part in the policy-making plans of other governments.[18]

ii) Monetary Policy

"Even though 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 'regional monetary policy'."[19] The literature on federal finance usually takes this centralization of monetary policy for granted. The problems of implementing regional monetary policy, if any, will not detain us here.[20]

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" appeared that he directed significant attention to resource allocation. In that article Buchanan comes to the conclusion that:

> Equalizing transfers carried out by the central government designed to relieve the misfortune of the low-income states . . . cannot be rejected on efficiency grounds. It has been shown that the tax-base coverage may vary from instance to instance, and presumptively applicable conclusions cannot be drawn.

Buchanan's argument [illegible] was primarily normative or [illegible]. After the [illegible] principal [illegible] is not, therefore, the problem [illegible].

[illegible]

[illegible]

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."[26] 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 Scott does not include reference to public goods which became part of the analytical framework in public finance following articles by Samuelson in the mid-1950's.[27] It is mainly for this reason that Scott and Buchanan were unable to [illegible] [illegible].

---

[25] [illegible] to Buchanan and [illegible]," [illegible], p. [illegible].

[26] [illegible]

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 optimum 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 has been referred to as dealing with equity and efficiency is really a debate on growth. Buchanan advocates capital movements [illegible] the

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[29] See C. M. Tiebout, "An Economic Theory of Fiscal Decentralization," in Public Finances: Needs, Sources and Utilization, Special Conference Series, [illegible] Economic Research, Vol. XII (Princeton: Princeton University Press, 1961), pp. 79-96, and "Comment" [illegible] in the same volume, pp. [illegible]; and Breton, "A Theory of Government Grants," [illegible] and Political Science, XXXI [illegible].

[30] Breton, "A Theory of Government 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 a 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 firms to gain from economies of scale. As well, the "spread" effect of trade to the poorer provinces may be greater, in fact, than the equalization payments made by the rich provinces to the poor provinces.[33] The latter benefits may be in the form of increased wages or increased primary labour force. The net effect is difficult to determine.

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[31] Grubel, International Econ.

[32] J. R. Hicks, "The Economics of Federation" in U. K. Hicks, ...

5. Conclusion

It is clear from the foregoing that there are strong connections between the four 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 education grants until further testing could determine whether other policies might stimulate growth more efficiently.

Education grants assist in the attainment of some goals more than others. For instance, education grants add to federal expenditures only if the federal government does not shift funds from other expenditures. In the whole economy, aggregate demand will be increased by education grants [illegible]

[illegible]

Spillovers (benefits accruing to individuals outside the government jurisdiction in which the expenditure is made) may infringe upon two goals: distributional equity and allocative efficiency.[34] In the first instance, equity considerations suggest that residents share in the costs 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 spillovers cause marginal social benefits to the region to be greater than marginal provincial benefits.[36] Expenditures on the activity would then be sub-optimal if marginal provincial benefits are equated to marginal provincial costs. Since allocative inefficiency can be [illegible], this question [illegible] in the next chapter.

[illegible]

[illegible]

Ibid., [illegible]

[illegible]

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.

---

[38] There has been an important debate as to whether a separation of the goals can lead to welfare maximization [illegible]. This debate started with the separation of branches by Musgrave, [illegible], pp. [illegible]. It continues in P. A. Samuelson, "Pure Theory of Public Expenditure and Taxation," in Public Economics, ed. by J. Margolis and H. Guitton (London: Macmillan, [illegible]), pp. [illegible]; R. A. Musgrave, "[illegible] for Social Goods," in Public Economics, ed. by J. Margolis and H. Guitton (London: Macmillan, [illegible]), pp. [illegible]. Other contributions to the debate include [illegible] "Efficiency and Equity in the [illegible] Supply of a Public Good," [illegible], No. 1 (February, [illegible]); [illegible]

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 stimu- [illegible] economic analysis of public expenditures in terms [illegible] than a Keynesian national income sense.[2] Even then, the reality of multi-level governments was not analyzed closely.

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

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[1]A good deal of work has been done in Europe and [illegible] from some of these contributions, by [illegible] Lindahl, [illegible], and Wicksell have been translated into English in [illegible] [illegible] (London: [illegible] Company, [illegible]).

[2]Samuelson, "[illegible] Pure Theory," and "[illegible] Expenditure."

[illegible]

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.

1. 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 paid for by [illegible] the police power of the state to raise funds. Others are left to the private sector. Without wishing to disparage the importance of the debate about the proper dividing line between private and public sectors, the fact is there is a large, relatively stable and broadly uncontroversial governmental "sector" of this economy and of every other economy in the world.[1]

What makes a good [illegible] public provision? [illegible]

[illegible]

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[1] [illegible]

individual, private goods are designated by 1, . . . , n and public goods are designated by n+1, . . . , n+m.[5]

For instance, it would be difficult to exclude one house (person) from protection against nuclear attack when a country sets up its defense system. In this case, houses (people) A and C receive protection in line with their consumer wants but B cannot be excluded.[6] If A and C want books, however, they can purchase them without B having to do so. In the first example, defense is indivisible, while in the second example, books (private goods) are divisible.

Two further properties are characteristic of public goods, the first of them is externalities, the other being a condition of decreasing costs. Externalities in consumption and/or production are, in themselves, necessary but not sufficient to make it a public good.[7] A similar comment could be made about the decreasing cost case.

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[5]Samuelson, "The Pure Theory," p. [illegible]. Cf. [illegible] [illegible]

[6][illegible] "[illegible] public [illegible]" [illegible]

[7][illegible]

"External economies" is a concept which is used extensively in later parts of the study and a complete understanding of it is necessary. An external economy (diseconomy) 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 air pollution than the old technique, the homes, offices, and manufacturing concerns in the surrounding area would be receiving a benefit which is external (based on the assumption that less pollution affects an individual's utility).

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 article on the subject, Head has shown that externalities and decreasing costs are special cases of Samuelson's public good concept, i.e., "jointness" or "indivisibility."[1] Arrow takes the argument further to show that externalities and indivisibilities [illegible] [illegible] [illegible] which develop [illegible] such [illegible] [illegible] the [illegible] [illegible].[2]

[1] J. G. Head, "Public Goods and Public Policy," [illegible] [illegible]

[2] K. J. Arrow, [illegible]

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 (Samuelson) 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.[1] Work on the private rates-of-return primarily involved determining a rate of discount by which a present value of the stream of [illegible] from additional [illegible]

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 neighbours, who may be affected favourably by the social values developed in children by the schools, and even by the quietness of the neighbourhood during school sessions. Schooling benefits employers who want a trained labour force; and it [illegible]

[illegible]

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 chosen to have no education system. The external benefits received by community B include lower provincial taxes (community A does not require as much provincial welfare and this decreases the total provincial budget) and lower [illegible] [illegible]

[illegible]

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] Head has pointed out that a given unit of a good, once produced, which can be made partially available to several individuals exhibits "indivisibility" of a less extreme nature than that used previously in this study.[15]

> The presence of public good elements in this sense is quite sufficient to cause the change in the Pareto-optimal conditions, and consequent failure in the market's [illegible] . . . . Modified in this way, the public good concept, and hence the theory of public policy based on it, thus becomes much more realistic and important.[16]

[illegible]

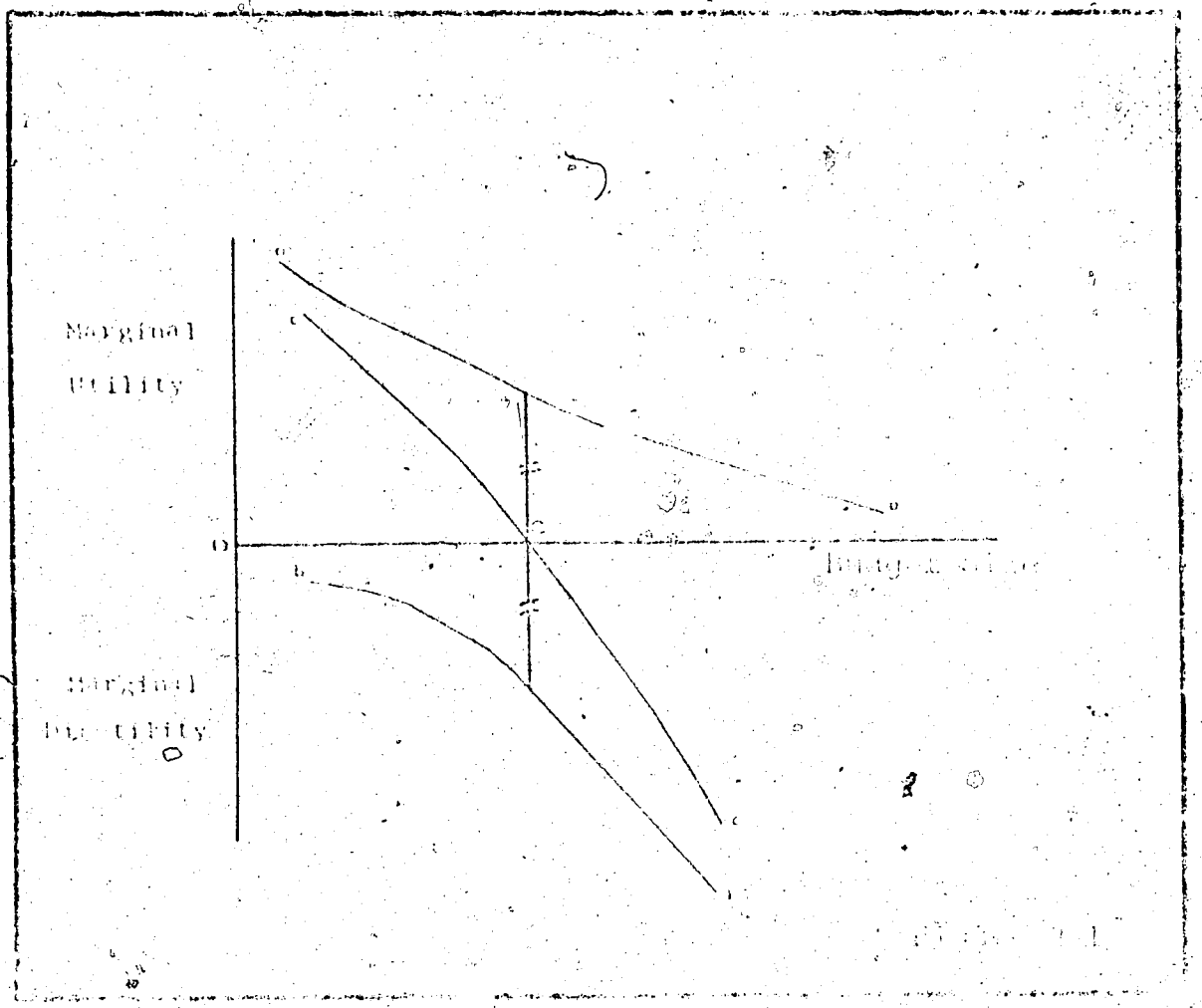
[illegible] Samuelson [illegible] [14] [illegible]

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 (OZ).

The one advantage of the Pigou-Lindahl approach is that the solution can be derived from community wants and sacrifices without regard to individual benefits and costs. These community wants can [illegible] distribution of income and to all wants which do not [illegible] individual preferences [illegible] definition of a public good.

on the immeasurable social utility of public services while bb 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

Early work on the determination of public expenditures and taxation by use of individual preferences was framed in terms of partial equilibrium.[22] Samuelson undertook to restate these earlier works in general-equilibrium terms. The general tenor of Samuelson's articles and those of Lindahl preceding him was the bargain between an individual and his government. Individual preferences [illegible] accepted as the proper basis for allocating resources [illegible] the production of public goods and services [illegible] and taxes.

[illegible]

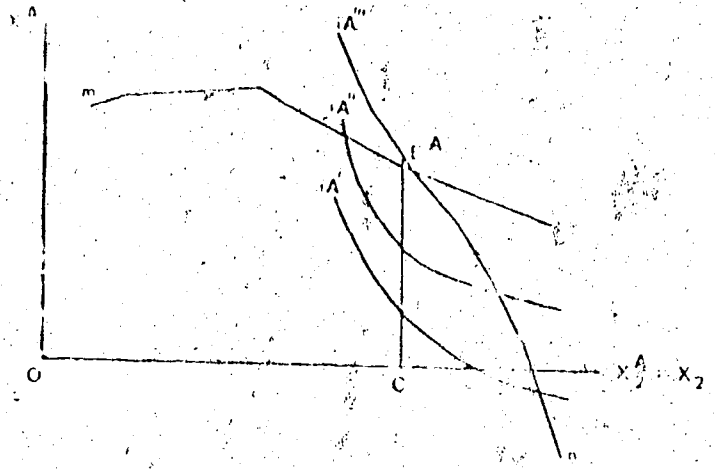


Figure 3-2a

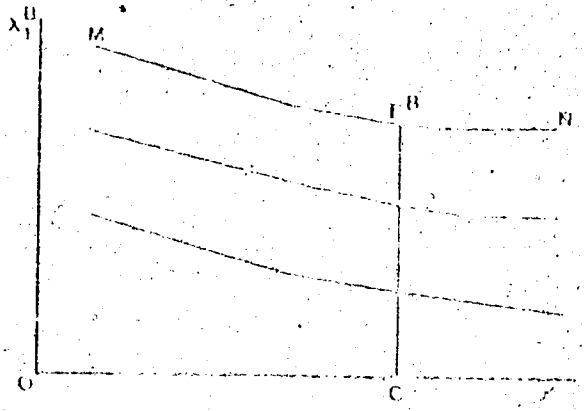
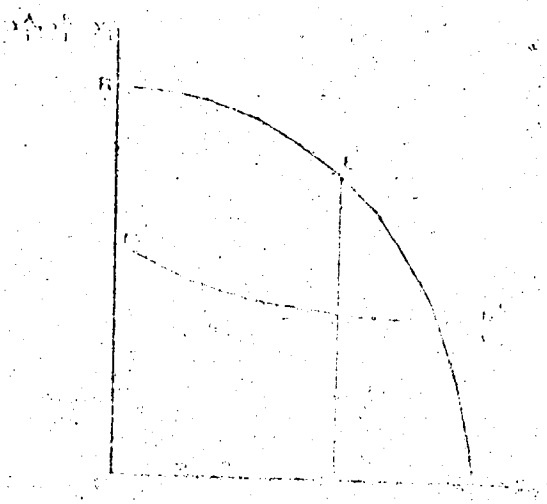


Figure 3-2b



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

In these three figures a special definition of a public good means that they are not independent. Each must have exactly the same horizontal scale. Each and every man must always be at the exact same longitudinal point such that $X_2 = X_2^B = X_2^A$. This restriction is not present for private goods and thus, in Figure 3-2c, the vertical axis is not equal but is the sum of the vertical axes in Figures 3-2a and 3-2b and is equal to $X_1^A + X_1^B$.

To locate the ideal state of the world for such an [illegible] ... private and public goods which is [illegible]. In [illegible] on this point, the major [illegible]

man B is held on indifference curve MN (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 amounts of the two goods physically available to man A. This difference is demonstrated by the curve $\underline{mn}$ in Figure 3-2c. I^A, where $\underline{mn}$ just touches the indifference contour I_A^{III} is the tangency point which makes man A best off.

This solution is thus established by locating an initial indifference curve for man B. There will be a new maximum or nimble tangency point for man A for each of an infinite number of initial indifference curves possible. Thus, there is an infinite number of Pareto-optimal points which comprise the complete welfare function. A move from one Pareto-optimal point to another will always have one man better off.

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.[20]

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

1) A unique social order must exist regardless of the manner in which individuals in the community order their alternative choices. Social choice must be transitive.

2) The choice of a community must not be rejected because some individuals have changed in relative ranking of alternative social states. The social welfare function must be [illegible].

3) Ranking in the social welfare function between two alternatives must not be dependent on individuals' ordering of [illegible].

20 [illegible] R. W. [illegible]

4) All alternatives must be permitted a free vote by individuals in the community. Social choices must be non-dictatorial.[26]

In Arrow's recent works, 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 problems to be faced, not as answered questions.[27]

This study does not pretend these difficulties. The purpose of the analysis presented in this study is that public goods in an analogous way to private goods are part of individual's preferences. There is no difference in the analysis for the multiple [illegible] and the [illegible] public policy.

1. Public [illegible]

The problem of selecting [illegible]

coordinate jurisdiction over other fields. In the case of Canada, the British North America Act allocates to the provincial governments 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 Legislatures of the Provinces,"[23] 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 is in the way public goods are defined. It has already been shown that not all goods are purely public or purely private. It is the case with this analysis that public expenditures on public goods in multi-level governments

[illegible]

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. 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 assumes that many "non-private" goods exhibit similar spatial characteristics. He is then able to label these clusters of goods in decreasing order of publicness as follows: "international goods, continental goods, national goods, regional goods, provincial goods, metropolitan goods, municipal and local goods."[20]

The same basic ranking can be obtained by using the theory of [illegible] economies. Those non-private goods with [illegible] benefits (i.e., [illegible] by on[illegible] [illegible] with differ[illegible]

[illegible]

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 paralleled 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 used) each government has sufficient taxing power to consider its own expenditures since all goods are used within the jurisdictional borders.[32] The literature, however, provides two valid reasons why benefit taxation is difficult to apply. The first and [illegible] that any person could benefit [illegible]. Secondly, the principle [illegible] to the person with [illegible]. This only applies [illegible]

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. 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 given to each of the smaller jurisdictions unconditional grants. Under this solution, if a smaller jurisdiction (i.e., province) needed more funds, it could increase taxation on services that alleviate the problem of one jurisdiction (province) having a greater quantity and a greater quality of services than another (province).

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 governmental 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 unconditional grants to the more junior levels of government. If there were some junior-level functions with external effects, conditional government grants would yield a Pareto-optimal allocation of resources even if the lower-level governments were using benefit taxation.[35]

The Canadian constitution approximates the pragmatic model but differs from it in some [illegible] respects. The [illegible] relatively rigid constitution which does not allow for the changing nature [illegible]

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 insignificant.

D. Education: A Conclusion

Earlier in the chapter, it was established that education was a good which demonstrated some of the characteristics of externalities. [illegible] It was also established that [illegible] of a "non-private" good. [illegible] multi-level government were discussed, it was [illegible] that goods which exhibit [illegible] should be provided by [illegible] and should be [illegible] by conditional grants [illegible] similar-level governments. [illegible]

[illegible]

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 expectations of net benefits. According to the hypothesis, the existence of spillover benefits to persons outside New Brunswick (or any province) are regarded as losses of potential benefits by decision-makers in the province. As a consequence, these spillover benefits would have some influence on the expenditure per pupil and provincial level of support for public education in a province.

Losses to the province from the migration of persons educated within the province are probably of some

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]

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[2] Preston, "Theory of Spillovers," p. 194.

[3] Weisbrod, "Geographical Spillover Effects," p. 199.

For efficiency of resource allocation and for equ[illegible] 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.[5]

[illegible] W. "[illegible]

1. Empirical Testing

A linear multiple regression model is used to examine the influences of a number of "independent" variables (including spill-ins and spill-outs) on per pupil education expenditures. The variables included are as follows:

i) Expenditures Per Pupil: [illegible]

The dependent variable, [illegible] measures the expenditures per pupil [illegible] elementary, secondary, and post-secondary [illegible] [illegible]

[illegible]

TABLE 4-1

[illegible] EXPENDITURES BY PROVINCE, 1961-62
([illegible] of Dollars)

Province	Total [illegible] (1)	[illegible] Contributions [illegible] (2)	Teacher Training [illegible] (3)	Provincial Expenditures on Higher Education (4)	Provincial Expenditures on Vocational Training (6)	Total Columns (2) to (6) (7)
[illegible]	$ [illegible]	$ [illegible]	$ [illegible]	$ 1.7	$ 1.2	$ 23.4
[illegible]	[illegible]	[illegible]	[illegible]	0.7	0.2	5.3
[illegible]	[illegible]	[illegible]	1.2	1.8	0.5	43.6
[illegible]	[illegible]	[illegible]	[illegible]	2.8	1.8	38.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]5.3	15.0	467.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible].0	[illegible].5
[illegible]	[illegible]	[illegible]	[illegible]	9.9	0.9	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.3	[illegible]7.9
[illegible]	[illegible]	[illegible]	[illegible]	1[illegible].4	0.5	[illegible].9
[illegible]	[illegible]	[illegible]	[illegible]	11.9	1.8	[illegible].6

[illegible] Canada, Dominion Bureau of Statistics, Survey of Education [illegible] Queen's Printer, [illegible], Table 8, and Survey of Education Finance, [illegible], Table [illegible]. [illegible] expenditures are assumed equal to the amount spent in the [illegible].

[illegible] Dominion Bureau of Statistics, Survey of Education Finance, 1961, Table 2.

Ibid., Table [illegible].

Ibid., Table [illegible].

Ibid., Table 15.

[illegible] rounding the columns do not necessarily add.

[illegible] significant.

expenditures are included.[1] Federal contributions are excluded. Thus, column (7) of Table 4-1 represents total expenditures on education out of taxes raised within provincial borders and out of funds borrowed outside the provincial boundaries by the provincial or local authorities. The numerator for calculating expenditures per pupil is thus found in column (7).

The denominator in the calculation of current expenditures per pupil is found in column ([illegible]) of Table [illegible], which is a summation of the enrolments in public and private elementary and secondary schools, post-secondary vocational schools, public trade courses for apprenticeship and pre-employment, universities, colleges and teachers' colleges.

Private enrolments are not included in the enrolment and expenditures figures, nor are Federal schools for Indians or Eskimos. The resulting [illegible] expenditures per pupil represent those [illegible] by provincial and local authorities on [illegible] largely make [illegible].

[illegible]

TABLE 4-2

SUMMARY OF PERFORMANCE AND EDUCATIONAL PROFILE, 1974-75

TABLE 4-3

PROVINCIAL EXPENDITURE PER PUPIL BY PROVINCE, 1961-62

Province (1)	Expenditure by Province and Local Government[a] (2)	Enrolment in Public Education[b] (3)	Expenditure Per Pupil[c] (2) ÷ (3) (4)
Newfoundland	$ 23.4	137.1	$171
Prince Edward Island	5.3	26.7	199
Nova Scotia	48.6	195.2	249
New Brunswick	36.[illegible]	16[illegible].8	222
Quebec	467.9	1,[illegible]	[illegible]
Ontario	62[illegible]	1,515.1	413
Manitoba	72.9	20[illegible].2	354
Saskatchewan	87.9	227.1	387
Alberta	[illegible]	[illegible]	[illegible]
British Columbia	149.8	[illegible]	41[illegible]

[a] Provincial figures expressed in millions of dollars.

[b] [illegible]

[c] [illegible]

[illegible]

ii) Federal Grants for Education as a Percentage of Educational Expenditures Made by the Province: X_1

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 largest. A negative sign would indicate the opposite.

A positive sign could then imply that grants induce expenditures per pupil to [illegible]. On the other hand, it could indicate that the provinces receiving the largest grants (as a percentage of their own expenditures) are those provinces which for some reason are able to afford large educational expenditures [illegible] large educational [illegible] [illegible]

A negative [illegible] could also be [illegible] interpreted in more than one way. [illegible]

[illegible]

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

Table 4-4 establishes the federal contributions, by province, for the year 1961 as a percentage of provincial and 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 rejected some types of grants in [illegible].[11]

(ii) Percentage of School-Age Population Enrolled in Publicly Supported Educational Institutions: X

The percentage of the school-age population enrolled in publicly-supported educational institutions is an indication of the attitudes of the people towards public education. [illegible] public education will send their [illegible] to private schools and this negative attitude will [illegible] this variable. [illegible]

[illegible]

TABLE 4-4

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

Province	Provincial and Local Expenditures	Federal Contributions	Federal Contributions as a Percentage of Provincial and Local Expenditures
Newfoundland	[illegible]	[illegible]	6.0
Prince Edward Island	[illegible]	[illegible]	[illegible]
Nova Scotia	[illegible]	[illegible]	[illegible]
New Brunswick	[illegible]	[illegible]	[illegible]
Quebec	[illegible]	[illegible]	[illegible]
Ontario	[illegible]	[illegible]	[illegible]
Manitoba	[illegible]	[illegible]	[illegible]
Saskatchewan	[illegible]	[illegible]	[illegible]
Alberta	[illegible]	[illegible]	[illegible]
British Columbia	[illegible]	[illegible]	[illegible]

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

Some difficulty is encountered in deciding the ages which constitute "school-age." Since for most provinces children enrol in kindergarten at age five and school attendance is controlled by law until age fifteen or sixteen, the population aged five to sixteen is relevant. If a student is to complete a four-year university degree beyond senior matriculation (which in Ontario is not granted until the completion of grade 13) his attendance would normally come at age twenty-two. [illegible] population [illegible] available [illegible] and [illegible] the population [illegible] twenty-[illegible] years [illegible].

Table [illegible] the [illegible] and [illegible] data [illegible]

[illegible]

TABLE 4-5

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

Province	Enrolment[a]	Population 5-24 Years Old[b]	Percentage Enrolled
Newfoundland	137.1	197.9	69.3
Prince Edward Island	26.7	39.7	67.3
Nova Scotia	195.3	278.6	70.1
New Brunswick	162.3	239.6	67.9
Quebec	1,[illegible]	2,029.2	[illegible]
Ontario	1,[illegible]	2,091.4	[illegible]
Manitoba	[illegible]	329.3	[illegible]
Saskatchewan	[illegible]	301.0	[illegible]
Alberta	[illegible]	[illegible]	[illegible]
British Columbia	[illegible]	[illegible]	[illegible]

iv) Percentage of Total Enrolment Registered in Post-Elementary Education: X_4

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 expenditures 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. "Need" rather than "attitude" may thus be represented by this variable.

TABLE 4-6

ENROLMENT BY LEVELS OF EDUCATION, 1961-62
(Thousands of Students)

Province	Total Enrolment[a]	Elementary Enrolment[b]	Enrolment in Secondary and Post-Secondary Schools	Percentage of Total Enrolment in Secondary and Post-Secondary Schools
(1)	(2)	(3)	(4)	(5)
Newfoundland	137.1	112.3	24.8	18.1
Prince Edward Island	26.7	20.8	5.9	22.1
Nova Scotia	195.2	153.4	41.8	21.4
New Brunswick	162.8	126.6	36.2	22.2
Quebec	1,228.9	904.7	324.2	26.4
Ontario	1,615.1	1,143.5	471.6	29.2
Manitoba	205.2	150.1	55.1	26.9
Saskatchewan	224.1	167.2	56.9	25.4
Alberta	322.5	229.5	93.0	28.9
British Columbia	463.2	332.2	131.0	28.3

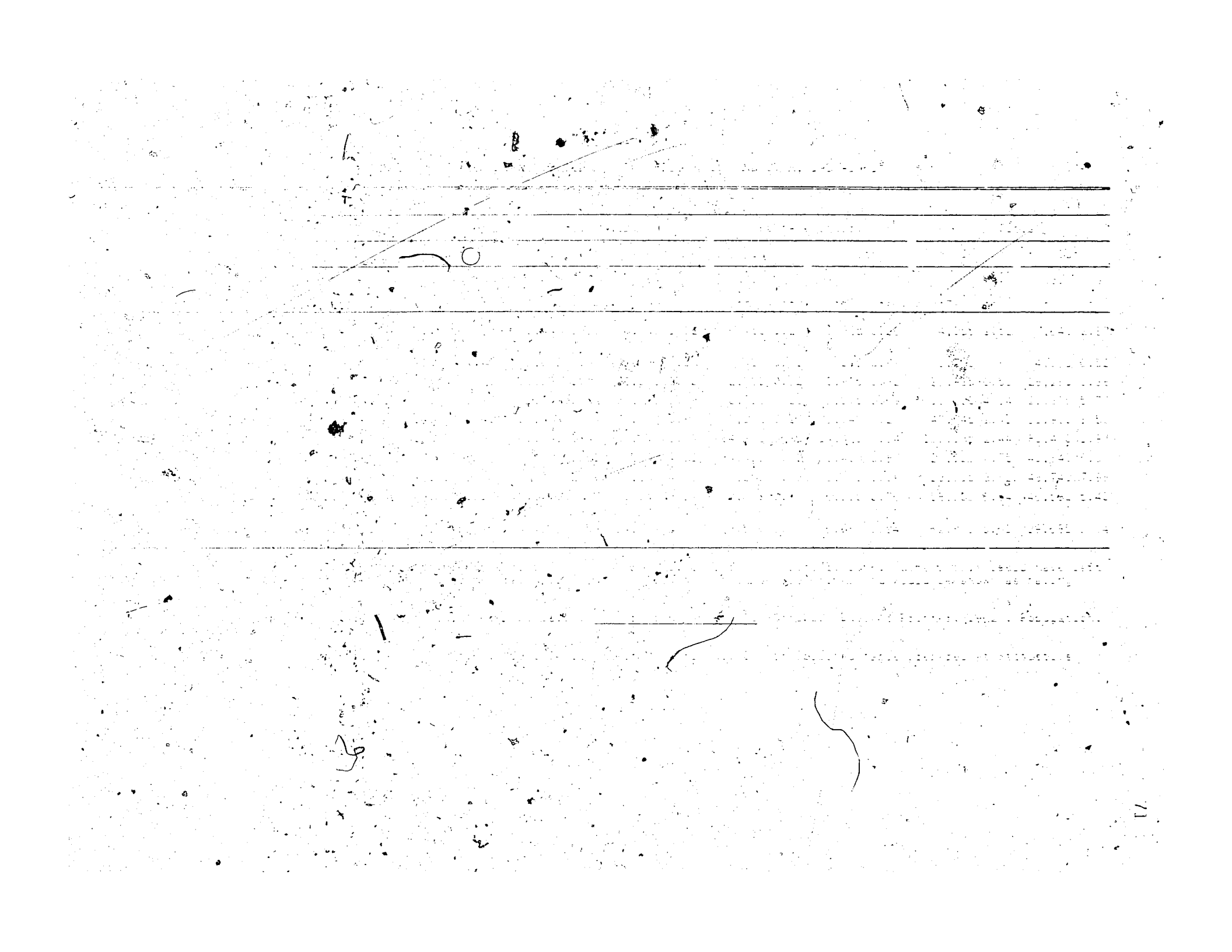
v) Population Change with Elementary-Level Education or Less: X_5

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 community benefits. In-migration results in an increase in expected benefits. Decision makers would then be expected to not spend as much per pupil in areas where out-migration is taking place and to spend more per pupil in areas where in-migration takes place. The predicted sign for the coefficient is thus positive.

Table 4-7 sets out the number for movers over fifteen years of age who moved into and out of each province between 1966 and 1971. This figure as a percentage of the total population over fifteen years of age can also be found in Table 4-7. The [illegible] data only [illegible] account of the place of residence on June 1, 1966 and June 1, 1971. Some people could have left a province and [illegible] counted as movers [illegible] [illegible]

Total population by province [illegible]

[illegible]



vi) Population Change with Secondary Level Education:

The variable, X[illegible], is the percentage of net movement in population with secondary school education. No distinctions are made between those who have completed high school and those who have completed only a part.

The comments which can be made about this variable are identical to the previous one. The expected sign of the regression coefficient [illegible] for X[illegible] [illegible] contain [illegible]

vii) [illegible]

[illegible]

attainment is designated as A_{g}. Data for this variable are found in Table 4-7.

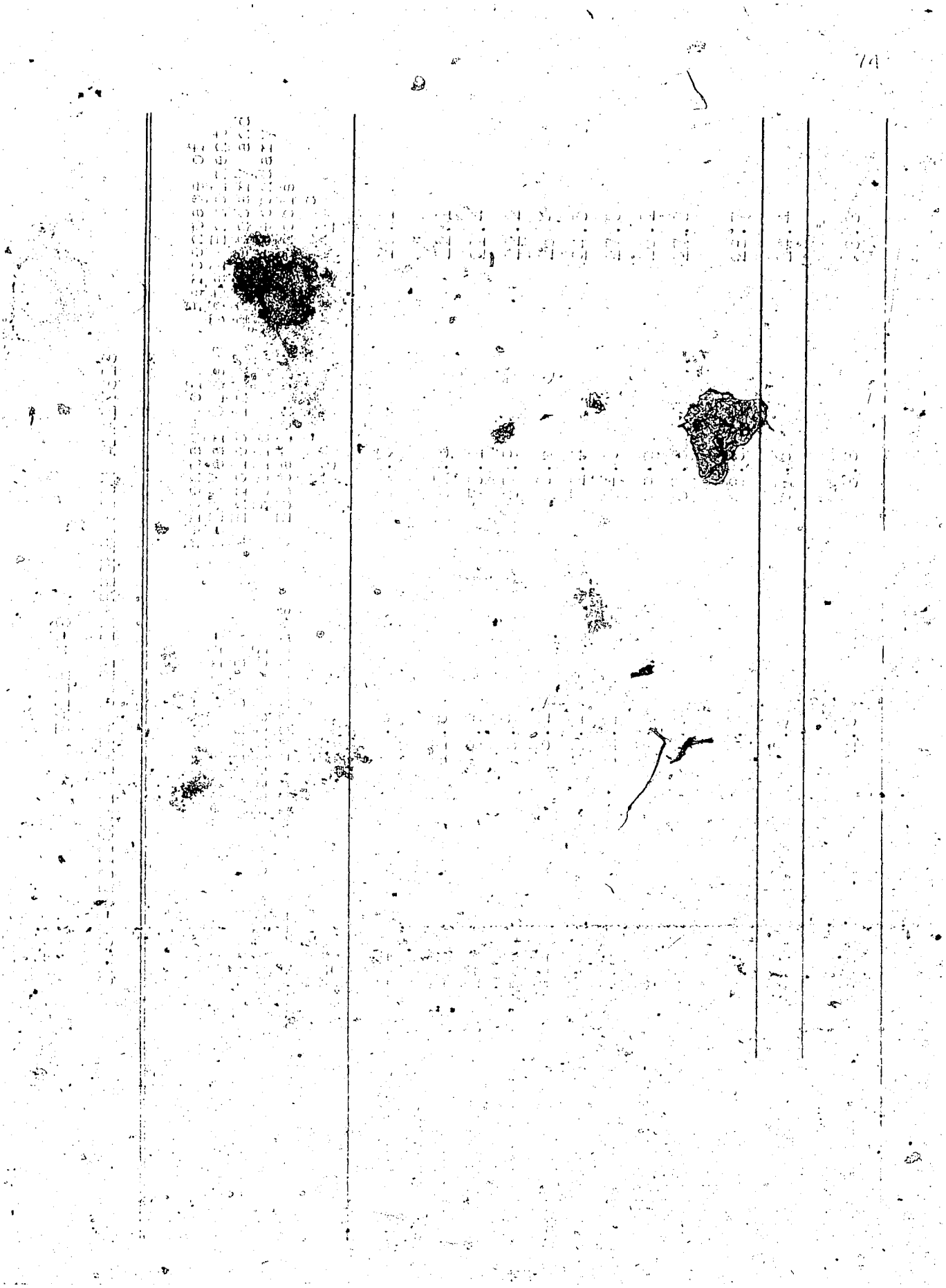
It is expected that if a province is losing any population it considers it to be a loss of human capital and for this reason would tend to invest less in human capital. The expected sign for this variable is positive.[12]

2. The Data

In this statistical test, the data used are those for the Canadian provinces in 1961, except that the migration data cover the period [illegible] to [illegible]. There are various definitions of the data of which the reader should be aware.

[illegible]

12 [illegible]



		Net Migration with Post-Censal Population as a Percentage of Post-Censal Population	Net Migration as a Percentage of 1950 Population
			-1.35
			-1.18
		-0.30	-2.35
			-1.63
			-0.12
		+0.02	+0.47
			-1.82
			-4.18
			-1.84
		+0.22	+2.07
			-0.92
		0.24	1.38

Comparable data for the Northwest Territories and Yukon would have been desirable, but it would not have increased the reliability of the statistical estimations significantly. The data available, however, are insufficient to include either territory in the regression analysis.

3. The Results

The welfare-maximization model predicts that in multiple regression analysis in which other significant policy [illegible] expenditures are held constant, the coefficient [illegible] and [illegible] in migration by the [illegible] positive. [illegible]

[illegible]

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

The regression equation obtained was as follows:[13]

$$X_1 = 1026.91 - \underset{(5.62)}{16.13}\,X_2 + \underset{(4.93)}{9.48}\,X_3 + \underset{(4.84)}{31.30}\,X_4$$

$$[illegible]\ \underset{(143.30)}{183.74}\,X_5 - \underset{(64.70)}{134.05}\,X_6 + \underset{(247.11)}{199.77}\,X_7$$

The standard errors are in parentheses. The coefficient of X_5 about which there was no a priori expectation is negative and significant at the 5 per cent level.[14] Above, two possible reasons for a negative regression coefficient are suggested.[15] It is difficult to say whether provinces actually [illegible]

[illegible]

The variables X_3 and X_4 both have the expected sign and are significant at better than the 10 per cent and 1/2 of 1 per cent level respectively.[16]

Attention can now be turned to the coefficients of the variables X_5 to X_7. The signs of the coefficients for X_5 and X_7 are as predicted but are not statistically significant. The sign of the coefficient for X_6 is not as predicted, nor is it significant at better than the 50 per cent level.[17] This suggests that decision makers do not [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

One of the problems with [illegible] [illegible] [illegible] [illegible] [illegible] regression analysis is the [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

regression equation obtained with this change was:[19]

$$X_1 = -99[illegible].03 + 1[illegible].53\ X_2 + 9.47\ X_{[illegible]} + 32.0[illegible]\ X_4 - 1[illegible].20\ X_{[illegible]}$$
$$(6.37) \qquad (4.31) \qquad (5.[illegible]) \qquad (9.39)$$

This time the coefficients of $X_{[illegible]}$ and X_4 are significant at close to the 10 per cent level and at better than the 1/2 of 1 per cent level respectively. The coefficient for $X_{[illegible]}$ is again negative and significant at the 10 per cent level. The coefficient of $X_{[illegible]}$ is not significantly different from zero.

4. [illegible]

[illegible]

attitude, the coefficients suggest that positive attitudes will be expressed in higher per capita education expenditures.

The migration variables do not seem to be significant in the determination of per pupil educational expenditures. This might suggest that education decision makers are influenced by some forces other than rate-of-return.[20] This conclusion does not correspond to the results of the study done by Weisbrod where the coefficient of in-migration proved to be not significantly different from zero, and the coefficient of the out-migration variable was negative and significant at the [illegible] per cent level. [illegible]

[illegible]

[illegible]

[illegible]

attempts in Canada to make the educational system consistent between provinces in terms of school-leaving age and even curriculum. Some of this consistency is a result of the active cooperation of the provinces through periodical ministerial-level meetings and through provincial standards which allow very little local autonomy. In Canada, as well, a larger percentage of school funds come from the senior (federal and provincial) governments than in the United States and a greater proportion is put into [illegible]

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 time-series basis. Secondly, Statistics Canada was kind enough to release their unpublished migration tables, but both they and this writer are aware of the rather significant problems of using these. Because these data are based on a statistical sample disaggregated by age, education, and province of residence in [illegible], [illegible] unreliable.

[26] [illegible]

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 elected boards at the local level but the degree of autonomy varies. In Ontario these boards [illegible] for establish-

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[27] Data for New Brunswick are supplied in Appendix A.

[28] Ibid., p. 64.

[29] One might refer here to R. A. Dahl, [illegible] (New York: [illegible], [illegible]), p. [illegible], for a discussion of the political process in [illegible].

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

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[30] For a recent description of the institutional arrangements, see Canadian Tax Foundation, [illegible] (Toronto: Canadian Tax Foundation, [illegible]). [illegible] appeared bi-annually prior to [illegible] as Provincial Finances.

[31] Alice M. Rivlin, [illegible] (Washington: The Brookings Institution, [illegible]).

private benefits."[52] 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. Schultz suggests that this neglect may be because policy has been of a laissez-faire nature.[53] 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.

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[52] *Ibid.*, p. [illegible].

[53] T. W. Schultz, ed., [illegible], Fiftieth Anniversary Colloquium, II (New York: National Bureau of Economic Research, [illegible]), p. [illegible]. Schultz goes on to point out that no matter how efficient private decisions may be they will not necessarily be socially efficient. Also, [illegible] laissez-faire because [illegible]

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:

1) the simple correlation approach;

2) the manpower needs (planning) approach;

3) the returns-to-education approach; and

4) the residual approach.

Each of these methods of evaluation of the contribution of education to development has its own advantages and disadvantages. In this chapter, each approach is examined in turn.

1. Simple Correlation Approach

A number of studies have attempted to correlate educational expenditures, education levels of the labour force, or enrolment ratios ([illegible] population) with the national growth [illegible] over time. [illegible]

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 consumer good on 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]

Inter-country correlations at a fixed point in time have shown that there is a positive relationship between

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[1] W. G. Bowen, "Education and Economic Growth," in [illegible], ed. by M. B. [illegible] (Chicago: [illegible]).

[2] It has been suggested that [illegible] who [illegible] be [illegible] Blaug, "Education and Economic Growth," p. 225.

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 [illegible] 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 "consuming" education in the way that individuals do.

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

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[3] C. Myers and F. Harbison, in *Education, Manpower and Economic Growth: Strategies of Human Resource Development* (New York: McGraw-Hill Book Company, 19[illegible]), find that there is a very high positive correlation of .[illegible] between a composite index of human resource development and GNP per capita expressed in U.S. dollars. See p. [illegible] of their book. The trend is confirmed by [illegible], [illegible], and [illegible] in "Targets for Education in Europe in 19[illegible]," *Policy [illegible] Economic Growth and Investment in Education* ([illegible] for Economic Cooperation and Development, 19[illegible]), pp. [illegible].

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.[4]

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 education on economic growth but

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[4] The reason is that inter-firm comparisons may be useful in the context of another manpower-requirements plan in that the need for more people in the future may become evident. See William G. Bowen, "Assessing the Economic Contribution of Education: An Appraisal of Alternative Approaches," in [illegible] ed. by Seymour E. Harris (Paris: [illegible] Co-operation and Development, 1964), p. 132, and Eric A. Hanushek, [illegible], (National Bureau of Economic Research, [illegible]), p. 21.

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 surveys;

2) projecting present manpower ratios;

3) comparisons with more developed countries;

4) ECON-trend method; and

5) Mediterranean Regional Project method.

The employer survey method is direct. It asks that employers specify the numbers of persons with specified kinds of qualifications they will require at a certain point of time in the future.[6]

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

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[5] [illegible] Employees (London: Allen and [illegible]), p. [illegible].

[6] [illegible] A. [illegible] Need for [illegible] [illegible]

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 ILOR-trend method (incremental labour-output ratio) forecasts the future demand for each occupational group by extrapolating a linear regression of the numbers in a particular occupation on national income. To accomplish this in a reliable manner, time series indicating output per man cross-classified by sector, occupation, and educational qualification must be available.[9]

The Mediterranean Regional Project (an OECD project to produce educational plans for Portugal, Spain, Italy, Greece, Yugoslavia, and Turkey) proceeded in stages. The project first estimated a target GNP and broke it down by major sectors. The second step involved applying average

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[7]Ibid., pp. [illegible].

[8]W. H. Knowles, [illegible]

[9][illegible]

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 benefits 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 developments and have failed to take account of the elasticity of substitution between capital and labour and between highly-trained manpower and less-trained manpower.[11]

3. [illegible]

There are two [illegible] in the literature [illegible] rate-of-return [illegible]

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10. [illegible]

11. [illegible] pp. [illegible]

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 netting taxes out can handle this problem. What is important to note is that it is a personal motive for education, not one on which public decisions [illegible].

The national productivity orientation looks at education-related earnings differentials as partial evidence of the effect of education on the output of the province (country), based on the premise that differences in earnings reflect differences in productivity. It is this orientation which is of interest in this study.

To [illegible] the problems associated with the approach [illegible] case against using [illegible] return-to-education [illegible]. [illegible] reasons for pursuing the topic [illegible].

[illegible]

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 alive neighbourhoods, healthier and less crime-prone populations, and so on. It is not impossible to have external costs, as well, although it is difficult to know of what orders of magnitude they are.[14]

Lastly, this approach projects rates-of-return based on the average rates for past periods. Renshaw and others have seen this as a difficulty because additional investment

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[12] Gary Becker, "Underinvestment in College Education," American Economic Review, [illegible] (May, 1960), [illegible], and the comments on [illegible] in Bowen, "Assessing the Contribution of Education," p. [illegible].

[13] For a discussion of [illegible], see Bowen, "Assessing the Contribution of Education," pp. [illegible] and [illegible].

[14] [illegible], "[illegible]," pp. [illegible].

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.

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[15] E. F. Renshaw, "Estimating the Returns to Education," Review of Economics and [illegible] (August, 1960), [illegible].

[16] H. P. Miller, "Annual and [illegible] Income in Relation to Education: 1939-1959," [illegible] (December, 1960), [illegible]; and Becker, "[illegible]," pp. [illegible].

[17] Bowen, "Assessing the [illegible] of Education," pp. [illegible] and 197. [illegible] Schultz, ed., [illegible], p. [illegible], suggests that "the interdependency of [illegible] and the critical strategy [illegible] capital must be an integral part of such investigations (extending knowledge about rates-of-return." [illegible]

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 Solow.[19]

The basic methodology used in the residual approach is to identify as much as possible of the total increase in economic outputs with measurable inputs, the usual ones being capital and labour. This leaves some of the increase

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18 E. F. Denison, The Sources of Economic Growth in the United States and the Alternatives Before Us, Supplementary Paper No. 13 (New York: Committee for Economic Development, 1962), p. 267.

19 John W. Kendrick, "Productivity Trends: Capital and Labour," Review of Economics and Statistics, XXXVI (August, 1957), 248-57, uses a broad concept of real input units to find output given standard efficiency which is less than actual output. The "residual" that productivity gains accounted for more than half of the 2.9 per cent average rate of growth in real product. Moses Abramovitz, in "Resource and Output Trends in the United States Since 1870," American Economic Review, Papers and Proceedings, XLVI (May, 1956), 5-23, was somewhat surprised to find that measured inputs only allowed a 15 per cent increase in national product while actually national product per capita and employment during the time period increased by 87 per cent. He attributed the difference to changes in productivity and specifically to technical education. Robert M. Solow, in "Technical Change and the Aggregate Production Function," Review of Economics and Statistics, XXXIX (August, 1957), 312-20, [illegible] of the [illegible] unexplained by [illegible] the largest [illegible] [illegible] [illegible]

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:

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

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:

$$\Delta O/O = \Delta A/A + b\,(\Delta L/L) + (1-b)\,(\Delta K/K) \qquad (5\text{-}2)$$

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

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[20] This type of analysis was pioneered by E. Denison, in his book, "Sources of Economic Growth in the United States and the Alternatives Before Us," Supplementary Paper No. 13, Committee for Economic Development, New York, 1962.

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

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

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 λq, $\Delta E/E = \Delta L/L + \lambda q$ and the Denison variation of the Cobb-Douglas production function becomes:

$$\Delta O/O = \Delta A^{*}/A^{*} + b\lambda q + b\,(\Delta L/L) + (1-b)\,(\Delta K/K) \qquad (5\text{-}4)$$

In this formulation $\Delta A^{*}/A^{*} + b\lambda q$ is the relative rate of

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[21] The 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:

$$O_t = A'_t Q_t^{b} J_t^{1-b}$$

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^{*}. The differentiated equation after logarithms have been taken would read:

$$\Delta O/O = \Delta A'/A' + b\lambda q + (1-b)\,\lambda k - (1-b)\,\lambda k \Delta \bar{a} + b\Delta L/L + (1-b)\,\Delta K/K$$

when $\Delta J/J = \Delta K/K + \lambda k - \lambda k \Delta \bar{a}$, where λk is the percentage per year improvement in the quality of new machines and $\bar{a}$ is the average age of capital.

[22] For a recent discussion of q, the quality index, see [illegible] Griliches, "Notes on the [illegible] Education in Production Functions and Growth Accounting," in [illegible], ed. by [illegible] Hansen, Studies in Income and Wealth, [illegible] (New York: National Bureau of Economic Research, 1970), pp. [illegible]. Griliches notes that the [illegible]

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

According to Nelson, Denison's λq is defined in terms of the [illegible] 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.[20]

5.[illegible] In Conclusion

Four major methods [illegible] examining the contribution of education to economic [illegible] have been examined in this chapter. [illegible] by various problems but these [illegible] with techniques rather than [illegible]. For [illegible] correlation approach [illegible] of the [illegible].

[illegible]

[illegible]

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.[24] 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.[25] It is, therefore, the residual approach that will be used in the next chapter to [illegible] the effect of education grants on the development of New Brunswick.

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[24] Schultz, ed., [illegible], p. 67, examines the ability of production [illegible] [illegible] [illegible] [illegible] [illegible].

[25] [illegible]

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 5-4) was presented.[1] 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 gross provincial product, labour stock, capital stock, and labour quality are necessary. While provincial product [illegible] the years [illegible] in Table 6-1,

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[1] Denison, p. [illegible]

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.

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

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[2] *Infra*, p. 247.

[3] These are calculated from Canada, Dominion Bureau of Statistics, Labour Division, *Employment and Average Weekly Wages and Salaries* (Ottawa: Queen's Printer, various years, 1946-67), and Canada, Dominion Bureau of Statistics, Labour Division, *Selected Analyses of Canadian Labour Statistics, 1964* (Ottawa: Queen's Printer, 1964). For the intervening years Canada, Dominion Bureau of Statistics, *Canadian Statistical Review: [illegible]* (Ottawa: Queen's Printer, various years, 1946-67), provides the necessary data.

[4] See Canada, Royal Commission on Canada's Economic Prospects, *Output, Labour and Capital in the Canadian Economy*, ed. by William C. Hood and Anthony Scott (Ottawa: Queen's Printer, 1957), particularly Chap. 6; K. Buckley, *Capital Formation in Canada*, Studies in Income and Wealth, Vol. [illegible] (New York: National Bureau of Economic Research, [illegible]); and E. H. Phelps-Brown and S. J. Handfield-Jones, "The Climacteric of the [illegible]: A Study in the Expanding Economy," *[illegible]*, [illegible]. [illegible]

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, 19[illegible]-19[illegible] (Ottawa: Queen's Printer, 19[illegible]), and an annual publication entitled *Outlook* [illegible] subsequent years. From 19[illegible], provincial data have been included with *Outlook* (the 19[illegible] publication includes material back to 19[illegible]).

[5] Denison, *The Sources*, p. 7[illegible].

[6] The *Census* in 19[illegible] did [illegible] educational [illegible] [illegible]

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 [illegible]. The data are in current dollars by year and represent [illegible] output. The first differences are shown in column (3) of Table [illegible].

ii) Change in the Employed Labour Force: ΔL

The change in the employed labour force (ΔL) [illegible]

[illegible]

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: ΔC

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 4-1.

The data for New Brunswick investment in 1946 and 1947, which appear in Table 4-1, 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 representativeness of the regression coefficient is increased, however, by use of estimated rather than actual data.

[illegible] in estimation of depreci- [illegible] It is assumed that depreci- [illegible]

TABLE 6-1

CAPITAL STOCK CHANGES, NEW BRUNSWICK, 1946-1967

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	1,564	34.6	93.6
1949	143.5	1,731	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	228.4	3,527	81.1	147.3
1956	249.4	4,020	92.5	156.9
1957	226.3	4,347	100.9	125.4
1958	246.0	4,391	100.5	145.5
1959	274.7	4,7[illegible]	108.6	166.1
1960	[illegible]4.8	5,0[illegible]	115.3	139.5
19[illegible]	247.9	5,1[illegible]	119.2	128.7
19[illegible]	[illegible]6.8	5,39[illegible]	125.7	131.[illegible]
1963	270.4	5,5[illegible]	132.8	132.[illegible]
1964	3[illegible]5.7	6,[illegible]	140.5	19[illegible]
1965	427.9	6,[illegible]	156.4	271.5
1966	4[illegible]	7,[illegible]	170.5	310.[illegible]
1967	4[illegible]	7,[illegible]	1[illegible]1.6	365.0

[a] Can. Dept. of Trade and Commerce and Dominion Bureau of Statistics, Private and Public Investment in Canada, Outlook [illegible]. Ottawa: Queen's Printer, various years, 1956-67. For 1966 and 1967, the data are estimated by Lindal Cowan.

[illegible]

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 Attributable to Federal Outlays for Capital Purposes: ΔE_t

A simple production function assumes an increase in the (constant-quality) quantity of the inputs labour and capital. In the last chapter, it was indicated that education may change the quality of labour in the production process. The change in education stock, then, is an indirect input which positively affects output by increasing labour quality. A positive sign on the regression coefficient is [illegible].[10]

[illegible]

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 1967 inclusive. Because the statistical test deals with first differences, there are twenty-one valid cases in the computations (two of which involve estimated data).

The change in the labour [illegible] is the only variable which has negative observations. Just because the changes in output, capital stock, and education stock are measured in current dollars and are positive in money terms, it would be incorrect to assume that they are positive in real terms.[12] For instance, an increase in output of $[illegible] million

[11] [illegible] statistical results [illegible] a one-year lag is used.

[12] [illegible]

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] (thousands)	Change in Employed Labour Force (thousands)	Change in Capital Stock[c] (millions)	Federal Education Grants[d] (thousands)
(1)	(2)	(3)	(4)	(5)	(6)
1946	. .	66.0	. .	$ 49.7	. .
1947	$ 25	70.2	4.2	60.3	$ 623.1
1948	41	70.8	0.6	93.6	1,703.4
1949	13	67.3	-2.5	104.1	1,161.4
1950	36	69.0	1.7	129.6	810.2
1951	48	73.4	4.4	125.3	910.6
1952	24	73.7	0.3	112.3	430.7
1953	13	68.2	-5.5	110.3	662.0
1954	3	65.8	-2.4	109.2	583.3
1955	29	69.3	3.5	147.3	568.3
1956	6	74.0	4.7	156.9	603.9
1957	14	70.5	-3.5	125.4	691.2
1958	7	66.0	-4.5	145.2	919.2
1959	54	68.4	2.4	166.1	1,[illegible]
1960	40	69.6	1.2	139.0	2,110.3
1961	12	69.9	0.3	153.7	1,916.1
1962	59	69.8	-0.1	121.8	2,022.9
1963	49	70.3	0.5	133.6	2,323.0
1964	99	73.1	2.8	198.2	3,264.1
1965	112	76.4	3.3	271.5	4,[illegible]
1966	92	80.5	4.1	320.0	5,[illegible]
1967	76	81.5	1.0	305.0	4,[illegible]

[a] Table B-21, p. 147.

[b] Computed as per n. 3, p. 103.

[c] Table 6-1.

[d] Table A-3, p. [illegible], [illegible] 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]

$$\Delta Q = -4.13 + 0.15\ \Delta C + 5.87\ \Delta L + 0.01\ \Delta E$$
$$\qquad\qquad (0.09) \qquad (1.11) \qquad (0.004)$$

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[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," *American Economic Review*, LII (March, 1962), 104-32.

[14] The coefficient of multiple determination, R^2, is 0.[illegible] and the adjusted coefficient, $\bar{R}^2$, is 0.79. This [illegible] which is considerably better than the [illegible] coefficients of partial correlation are:

$r_{\Delta Q, \Delta C} = 0.[illegible]$ $\qquad$ $r_{\Delta L, \Delta E} = .[illegible]$

$r_{\Delta Q, \Delta L} = 0.[illegible]$

[illegible] to [illegible] to 5%, and [illegible]

The standard errors are in parentheses. All parameters are significantly different from zero.[15]

There was an expectation that the three regression coefficients 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 [illegible]lculated 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 +0.4[illegible] which could be interpreted as suggesting that a 1 per cent increase in the labour force would result in a 0.41 per cent increase in gross provincial product.

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

[16] [illegible] as: the percentage change in [illegible] percentage change in labour which is [illegible]:

$$\frac{\Delta O}{\Delta L} \times \frac{\bar{L}}{\bar{O}} = [illegible]$$

$$= .[illegible]$$

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 assist the economic development of New Brunswick.

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

Some applications of the model are worth exploring. Let us suppose that the desired increment in output for 1961 had been $15 million instead of the actual $12 million. What increase in 1960 federal education grants would have brought about this desired increment in output (*ceteris paribus*)? It turns out that an increase in federal grants of [illegible] thousand ([illegible] per capita) would have been sufficient. This represents an increase in grants of approximately [illegible]

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[17] It was not possible to calculate [illegible] the value of [illegible] or education stock [illegible] calculated. [illegible] p. [illegible].

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.[18]

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 were not readily available in official statistics for New Brunswick. They were, however, estimated with some justification.[19] 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

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[18] There are two [illegible] of these results. On purely statistical grounds, one can only say whether Y responds to X or whether both variables are responding to some other influence.

[19] The purpose of Appendix A [illegible] to demonstrate how [illegible] in New Brunswick can be [illegible] [illegible] Canada, [illegible]

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.

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[20] The reference here is to the residual model which would have found the amount of decrease in the residual 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 in its respective autonomous jurisdiction. However, for the economist who is mainly concerned with the allocation of resources and the distribution of income, the structure [illegible] is of interest only to the extent that it [illegible] allocation and [illegible] distribution.

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 can also be justified if provincial growth can be shown to be stimulated by them. The existence of government [illegible] has given rise to the problem of attaining a balance in a federal system. As the number of responsibilities [illegible] and as the interdependence of expenditures on existing programs increases, the need for adjustments in the allocation of fiscal resources between levels of government increases. [illegible]

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

2. Education Expenditures

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 senior-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 5-24 year olds enrolled in public education, the percentage of total enrolment in post-secondary schools, and net migration by education level.

The most significant variable in the determination of per pupil education expenditures appears to be

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 age 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 include 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 programs.

Chapter V provides a review of the literature on the various methods of measuring the contribution of education to economic growth. After an examination of the simple correlation, the manpower needs, the [illegible] and [illegible]

[illegible]

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 as well for their existence, such as fiscal needs, geographical equity, political considerations, and other factors.

[illegible]. *Data*

Consistent series of data for many of the variables are unavailable. Statistics Canada has moved to correct this through the publication of its education division. [illegible] [illegible] [illegible], and [illegible] [illegible] grants, [illegible] [illegible] [illegible] with

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 Honourable E. J. Benson, when he was Minister of Finance, wrote that program planning and budgeting have been introduced by the federal government into Canada.[1] A proper conception of PPB is that it requires control and review by function within a program. Such can only be carried out when there are functional accounts. The accounting system used by some departments does not permit determination of the functional breakdown of programs.[2]

[illegible] part of this study. Appendix [illegible] review of [illegible]

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[1] The Honourable E. J. Benson, [illegible]

[2] [illegible]

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 spillovers depends on the availability of better migration data.

4. After 1967

In 1967 the basis for post-secondary education grants was changed. It was agreed that the federal government would [illegible] transfers to the provinces for post-secondary education [illegible] of the [illegible] per capita [illegible] At the same time, the method of payment [illegible]

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 [illegible]-four weeks' duration or more and requires junior matriculation for admission. Included in the agreement were a removal of the time limit for capital grants under the Technical and Vocational Training Assistance Act and an undertaking by the federal government to the full cost of adult training allowances and training programs. Other programs outlined in Appendix A, such as [illegible], veterans' allowances, and Canada Council payments, continued.

It would appear that the [illegible] are not a departure in principle from the method of federal funding for education. Rather the method of payment has changed so that the calculation of equalization payments for the purpose has to [illegible] advantages or disadvantages of this kind. [illegible] presently being considered to provide [illegible] payments with respect to the financing of post-secondary education is indicative of [illegible] shift in the [illegible].

TABLE 7-1

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

Year[a] (1)	Personal Income Tax Abatement (2)	Corporate Income Tax Abatement (3)	Cash Transfers (4)	Other Payments[b] (5)	Total Value of Transfer to Provinces[c] (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	648.9
1971	284.0	62.9	392.9	72.8	812.6
1972[d]	321.1	63.4	449.8	135.3	969.6
1973[e]	380.8	76.8	480.1	210.9	1,148.6
New Brunswick					
1968	$2.6	$0.8	$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	4.8	0.9	6.9	13.7	25.8
1972	4.9	1.0	8.2	15.0	29.1
1973	5.8	1.1	8.7	17.2	32.8

[a]Fiscal year ending March 31.

[b]Other payments include equalization payments plus for 1971 to 1973 other education subsidies [illegible] in *The National Finances* which are unavailable [illegible] 1970.

[c]It should be noted that New Brunswick is on the per capita arrangement.

[d]Estimated in July, 1971.

[e]Estimated in March, 1972.

Source: Canadian Tax Foundation, *The National Finances* (Toronto: Canadian Tax Foundation, various years, [illegible]) [illegible] Department [illegible] of State, "[illegible] Arrangements Act, 1967 and 1972," [illegible] tables, June [illegible], 1970.

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 million[4] 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 intentions 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 spillovers but the economic development of New Brunswick appears to have been assisted by these grants. Although both conclusions are tentative, it would appear that a continuation of federal support for education would be justified. Further analysis based on better and more complete data would be desirable. Federal

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[4] Ibid., p. 49, Table A-72.

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

SELECTED BIBLIOGRAPHY

Works Cited

i) Books and Pamphlets

Ackley, Gardner. Macroeconomic Theory. New York: Macmillan Company, 1961.

Arrow, K. J. Social Choice and Individual Values. 2nd ed. New York: John Wiley and Sons, Inc., 1963.

Becker, G. S. Human Capital: A Theoretical and Empirical Analysis, With Special Reference to Education. New York: National Bureau of Economic Research, 1964.

Bhargava, P. N. The Theory and Working of Union Finance in India. London: George Allen and Unwin Ltd., 1955.

Birch, A. H. Federalism, Finance and Social Legislation in Canada, Australia, and the United States. Oxford: Clarendon Press, 1955.

Blaug, Mark. An Introduction to the Economics of Education. London: Allen Lane, The Penguin Press, 1970.

Bowen, H. R. Toward Social Economy. New York: Rinehart and Co., Inc., 1948.

Brook, G. L. Intergovernmental Fiscal Relations in the United States. Washington: The Brookings Institution, 1957.

Brewis, T. N. Regional Economic Policies in Canada. Toronto: Macmillan Company of Canada Limited, 1969.

Buchanan, J. M., and Tullock, G. The Calculus of Consent. Ann Arbor: The University of Michigan Press, 1962.

Buckley, K. [illegible] Studies in Income and Wealth, Vol. [illegible]. New York: National Bureau of Economic Research, 1967.

Carter, [illegible]

Canadian Tax Foundation. Provincial and Municipal Finances, 1971. Toronto: Canadian Tax Foundation, 1971.

________. The National Finances. Toronto: Canadian Tax Foundation, various years, 1967-73.

Carter, George E. Canadian Conditional Grants Since World War II. Toronto: Canadian Tax Foundation, 1971.

Dahl, R. A., and Lindblom, C. E. Politics, Economics, and Welfare. New York: Harper and Bros., 1953.

Dalton, Hugh. Principles of Public Finance. London: Routledge and Kegan Paul Ltd., 1952.

Denison, E. F. The Sources of Economic Growth in the United States and the Alternatives Before Us. Supplementary Paper No. 13. New York: Committee for Economic Development, 1962.

Downs, Anthony. An Economic Theory of Democracy. New York: Harper and Bros., 1957.

Due, John F. Government Finance: The Economics of the Public Sector. [illegible] ed. Homewood: Richard D. Irwin, Inc., [illegible].

Friedman, Milton, and Kuznets, Simon. Income from Independent Professional Practice. New York: National Bureau of Economic Research, 194[illegible].

Gettys, Luella. The Administration of Canadian Conditional Grants. Chicago: Public Administration Service, 19[illegible].

Graham, J. F. Fiscal Adjustment and Economic Development: A Case Study of Nova Scotia. Toronto: University of Toronto Press, [illegible].

Hansen, A. H., and Perloff, H. Local Finance in the National Economy. New York: W. W. Norton and Company, Inc., [illegible].

[illegible]. [illegible] Toronto: Canadian Tax Foundation, [illegible].

________. [illegible]. Toronto: [illegible]

Harris, Seymour. The Market for College Graduates. Cambridge: Harvard University Press, 1949.

Heller, Walter W. New Dimensions of Political Economy. New York: W. W. Norton & Company, Inc., 1967.

Herber, Bernard P. Modern Public Finance: The Study of Public Sector Economics. Rev. ed. Homewood, Ill.: Richard D. Irwin, Inc., 1971.

Klaassen, L. H. Area Economic and Social Redevelopment: Guidelines for Programmes. Paris: Organization for Economic Co-operation and Development, 1965.

McKean, R. N. Public Spending. New York: McGraw-Hill Book Company, 1968.

Maxwell, J. A. Federal Grants and the Business Cycle. New York: National Bureau of Economic Research, Inc., 1952.

_____. Federal Subsidies to the Provincial Governments in Canada. Harvard Economic Studies, Vol. LVI. Cambridge: Harvard University Press, 1937.

_____. The Fiscal Impact of Federalism in the United States. Cambridge: Harvard University Press, 1946.

Millward, R. Public Expenditure Economics. London: McGraw-Hill, 1971.

Miner, Jerry. Social and Economic Factors in Spending for Public Education. Syracuse: Syracuse University Press, 1963.

Musgrave, Richard A. Fiscal Systems. New Haven: Yale University Press, 1969.

_____. The Theory of Public Finance. New York: McGraw-Hill Book Company, Inc., 1959.

_____, and Peacock, A. T., eds. Classics in the Theory of Public Finance. London: Macmillan and Company Ltd., 1958.

Myers, C., and Harbison, F. Education, Manpower and Economic Growth: Strategies of Human Resource Development. New York: McGraw-Hill Book Company, 1964.

Oates, Wallace E. Fiscal Federalism. New York: Harcourt, Brace, Jovanovich, Inc., 1972.

Parnes, H. S. Forecasting Educational Needs for Economic and Social Development. Paris: Organization for Economic Co-operation and Development, 1962.

Pigou, A. C. A Study in Public Finance. 3rd rev. ed. London: Macmillan and Co. Ltd., 1947.

Queen's University. Institute of Intergovernmental Relations. Report: Intergovernmental Liaison on Fiscal and Economic Matters. Ottawa: Queen's Printer, 1969.

Riker, William H. Federalism: Origin, Operation, Significance. Boston: Little, Brown and Company, 1964.

Rivlin, Alice. Systematic Thinking for Social Action. Washington: The Brookings Institution, 1971.

Rothenberg, J. F. The Measurement of Social Welfare. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1961.

Schultz, T. W., ed. Human Resources. Fiftieth Anniversary Colloquium VI. New York: National Bureau of Economic Research, 1972.

Smiley, D. V. Conditional Grants and Canadian Federalism. Toronto: Canadian Tax Foundation, 1963.

Thorndike-Barnhart Comprehensive Desk Dictionary. Edited by Clarence L. Barnhart. Garden City, New York: Doubleday and Company, Inc., 1965.

Watts, R. L. New Federations: Experiments in the Commonwealth. Oxford: Oxford University Press, 1966.

Weisbrod, Burton A. External Benefits of Public Education. Princeton: Industrial Relations Section, Department of Economics, Princeton University, 1964.

Wheare, K. C. Federal Government. 4th ed. London: Oxford University Press, 1963.

Wonnacott, T. H., and Wonnacott, R. J. Introductory Statistics. New York: John Wiley and Sons, Inc., 1969.

ii) Articles

Abramovitz, Moses. "Resource and Output Trends in the United States since 1870." American Economic Review, Papers and Proceedings, XLVI (May, 1956), 5-23.

Arrow, K. J. "Political and Economic Evaluation of Social Effects and Externalities." The Analysis of Public Output. Edited by J. Margolis. New York: National Bureau of Economic Research, 1970, pp. 1-23.

________. "The Organization of Economic Activity: Issues Pertinent to the Choice of Market Versus Nonmarket Allocation." Public Expenditures and Policy Analysis. Edited by R. H. Haveman and J. Margolis. Chicago: Markham Publishing Company, 1970, pp. 59-73.

Becker, Gary S. "Investment in Human Capital: A Theoretical Analysis." Journal of Political Economy, LXX, No. 5, Pt. 2, Supplement (October, 1962), 9-49.

________. "Underinvestment in College Education." American Economic Review, L (May, 1960), 346-54.

Benson, The Honourable E. J. "Budget Breakthrough: Adoption of PPB." Canadian Tax Journal, XVI (May-June, 1968), 161-67.

Bowen, William G. "Assessing the Economic Contribution of Education: An Appraisal of Alternative Approaches." Economic Aspects of Higher Education. Edited by Seymour E. Harris. Paris: Organization for Economic Co-operation and Development, 1964, pp. 177-200.

Breton, Albert. "A Theory of the Demand for Public Goods." Canadian Journal of Economics and Political Science, XXXII (1966), [illegible].

________. "A Theory of Government Grants." Canadian Journal of Economics and Political Science, XXXI (1965), [illegible].

[illegible] "Regional Economic Disparities and Policies." [illegible] Policies. [illegible] Company of Canada, 1970, pp. [illegible].

Buchanan, James M. "A Reply." Journal of Political Economy, LX (December, 1952), 536-38.

________. "Federal Grants and Resource Allocation." Journal of Political Economy, LX (June, 1952), 208-17.

________. "Federalism and Fiscal Equity." American Economic Review, XL (1950), 583-99.

________, and Wagner, R. E. "An Efficiency Basis for Federal Fiscal Equalization." The Analysis of Public Output. Edited by Julius Margolis. New York: Columbia University Press, 1970, pp. 139-58.

Chenery, H. B. "Development Policies for Southern Italy." Quarterly Journal of Economics, LXXVI (November, 1962), 515-47.

Colm, G. "Comments on Samuelson's Theory of Public Finance." Review of Economics and Statistics, XXXVIII (November, 1956), 408-12.

De Wolff, P. "Employment Forecasting Techniques in the Netherlands." Employment Forecasting. Paris: Organization for Economic Co-operation and Development, 1963.

Enke, S. "More on the Misuse of Mathematics in Economics: A Rejoinder." Review of Economics and Statistics, XXXVII (May, 1955), 131-[illegible]

Griliches, [illegible]. "Notes on the Role of Education in Production Functions and Growth Accounting." Education, Income, and Human Capital. Edited by W. Lee Hansen. Studies in Income and Wealth, Vol. XXXV. New York: National Bureau of Economic Research, 1970, pp. 71-115.

[illegible], M. A. "On Musgrave's Separation of the Tasks of the Public Household." [illegible] Journal, [illegible], No. [illegible] (September, 19[illegible]), [illegible].

H[illegible], [illegible]. "Public [illegible] and [illegible] Policy." Public [illegible], XVII (19[illegible]), [illegible].

________. "[illegible] of [illegible]." [illegible], No. [illegible] (19[illegible]), [illegible].

Hicks, J. R. "The Nature and Basis of Economic Growth." In U. K. Hicks, et al. Federalism and Economic Growth in Underdeveloped Countries. London: George Allen and Unwin Ltd., 1961, pp. 70-89.

Higgins, B. Review of Federalism and Economic Growth in Underdeveloped Countries, by U. K. Hicks, et al. Pacific Affairs (1963), pp. 460-63.

Hochman, H. M. "Professor Head on Equity and Efficiency: Comment and Addendum." Public Finance, XXV, No. 4 (1970), 536-45.

Houthakker, H. S. "Education and Income." Review of Economics and Statistics, XLI (February, 1959), 24-28.

Kendrick, John W. "Productivity Trends: Capital and Labour." Review of Economics and Statistics, XXXVIII (August, 1956), 248-57.

Knowles, W. H. "Manpower and Education in Puerto Rico." Manpower and Education: Country Studies in Economic Development. Edited by F. Harbison and C. A. Myers. New York: McGraw-Hill Book Company, 1965, pp. 10[illegible]-[illegible]9.

Livingstone, W. S. "A Note on the Nature of Federalism." Political Science Quarterly, LXVII (March, 1952), 81-95.

McGuire, M. C., and Aaron, H. "Efficiency and Equity in the Optimal Supply of a Public Good." Review of Economics and Statistics, LI, No. 1 (February, 1969), 31-39.

Margolis, J. "A Comment on the Pure Theory of Public Expenditure." Review of Economics and Statistics, XXXVII (November, 1955), [illegible].

Miller, H. P. "Annual and Lifetime Income in Relation to Education: 19[illegible]-1959." [illegible], L (December, 1960), [illegible].

[illegible], E. J. "The Postwar Literature on Externalities: An Interpretative Essay." [illegible], IX, No. 1 (March, [illegible]), [illegible].

[illegible], C. A., and Layard, P. R. G. "[illegible] the Need for Qualified Manpower in Britain." [illegible] of Education. [illegible] [illegible]: [illegible] Books, [illegible] pp. [illegible].

Musgrave, Richard A. "Approaches to a Fiscal Theory of Political Federalism." Public Finances: Needs, Sources and Utilization. Special Conference Series, National Bureau of Economic Research, Vol. XII. Princeton: Princeton University Press, 1961, pp. 97-129.

________. "Provision for Social Goods." Public Economics. Edited by J. Margolis and H. Guitton. London: Macmillan, 1969, pp. 124-44.

Nelson, Richard R. "Aggregate Production Functions and Medium-Range Growth Projections." American Economic Review, LIV (September, 1964), 575-606.

Nerlove, Marc. "On Tuition and the Costs of Higher Education: Prolegomena to a Conceptual Framework." Journal of Political Economy, LXXX, No. 3, Pt. II (May/June, 1972), S178-218.

Peston, Maurice. "The Theory of Spillovers and Its Connection with Education." Public Finance, XXI (1966), 184-205.

Phelps-Brown, E. H., and Handfield-Jones, S. J. "The Climacteric of the [illegible]: A Study in the Expanding Economy." Oxford Economic Papers, IV (October, 19[illegible]), [illegible].

Renshaw, Edward [illegible] "A Note on the Expenditure Effect of State Aid to Education." Journal of Political Economy, LXVIII (April, 1960), 170-7[illegible].

________. "Estimating the Returns to Education." Review of [illegible] XLII (August, 19[illegible]), [illegible].

[illegible] P. A. "Aspects of Public Expenditure Theories." [illegible] XL (November, 19[illegible]), [illegible].

________. "[illegible] Conditions for Joint [illegible] Goods." [illegible], [illegible], No. 1 (February, 19[illegible]), [illegible].

________. "[illegible] of a Theory of Public [illegible]." [illegible], [illegible] (19[illegible]), [illegible].

________. "[illegible] of Public [illegible] and Taxation." [illegible] Edited by J. Margolis [illegible] [illegible], 19[illegible], pp. [illegible].

________. "The Pure Theory of Public Expenditure." Review of Economics and Statistics, XXXVI (1954), 387-89.

Schultz, T. W. "Education and Economic Growth." Social Forces Influencing American Education. Edited by N. B. Henry. Chicago: University of Chicago Press, 1961, pp. 46-88.

Scott, Anthony D. "A Note on Grants in Federal Countries." Economica, XVII (November, 1950), 416-22.

________. "Federal Grants and Resource Allocation." Journal of Political Economy, LX (December, 1952), 534-36.

________. "The Economic Goals of Federal Finance." Public Finance, XIX (1964), 241-88.

Shapiro, Sherman. "Some Socioeconomic Determinants of Expenditures for Education: Southern and Other States Compared." Comparative Education Review, VI (October, 1962), 160-66.

Solow, Robert M. "Technical Change and the Aggregate Production Function." Review of Economics and Statistics, XXXIX (August, 1957), 312-20.

Steiner, P. O. "The Public Sector and the Public Interest." Public Expenditures and Policy Analysis. Edited by R. H. Haveman and J. Margolis. Chicago: Markham Publishing Company, 1970, pp. 21-58.

Suits, Daniel B. "Forecasting and Analysis with an Econometric Model." American Economic Review, LII (March, 1962), 104-32.

[illegible] "Targets for Education in Europe in 1970." Policy Conference on [illegible]. Paris: [illegible] Co-operation and Development, [illegible]

[illegible]

[illegible]

Weisbrod, Burton A. "Comments: Fiscal Theory of Political Federalism." Public Finances: Needs, Sources and Utilization. Special Conference Series, National Bureau of Economic Research, Vol. XII. Princeton: Princeton University Press, 1961, pp. 131-32.

_____. "Geographical Spillover Effects and the Allocation of Resources to Education." The Public Economy of Urban Communities. Edited by Julius Margolis. Baltimore: The Johns Hopkins Press, 1965, pp. 192-206.

Williamson, J. G. "Regional Inequality and the Process of National Development: A Description of the Patterns." Economic Development and Cultural Change, XIII (July, 1965), 1-84.

Winch, D. M. "Pareto, Public Goods and Politics." Canadian Journal of Economics, II, No. 4 (November, 1969), 494-504.

iii) Government Publications

Bertram, Gordon W. The Contribution of Education to Economic Growth. Staff Study 12, Economic Council of Canada. Ottawa: Queen's Printer, 1966.

Canada. Agricultural Rehabilitation and Development Act, 1961. 9-10 Eliz. II, Ch. 3.

_____. Agricultural Rehabilitation and Development Act, 1966. 14-15 Eliz. II, Ch. 3.

_____. Canada Council Act, 1957. 5-6 Eliz. II, Ch. 1.

_____. Canada Water Conservation Assistance Act, 1953. 1-2 Eliz. II, Ch. 29.

_____. Canadian Wheat Board Act, 1935. 25-26 Geo. V, Ch. 53.

_____. Fisheries Prices Support Act, 1944. 8 Geo. VI, Ch. 47.

_____. Fisheries Prices Support Act, 1953-54. 2-3 Eliz. II, Ch. 47.

_____. Fisheries Prices Support Act, 1956. 4-5 Eliz. II, Ch. 20.

_____. Fisheries Prices Support Act, 1960-61. 9-10 Eliz. II, Ch. 17.

_____. Technical and Vocational Training Assistance Act, 1961. 9 Eliz. II, ch. 6.

_____. Veterans Rehabilitation Act, 1945. 9 Geo. VI, ch. 33.

_____. The Vocational Training Co-ordination Act, 1942. 6 Geo. VI, ch. 34.

_____. Youth Training Act, 1939. 3 Geo. VI, ch. 35.

_____. Canada Council. Annual Report. Ottawa: Queen's Printer, various years, 1958-67.

_____. Department of Energy, Mines and Resources, Mineral Resources Division. Mineral Resources Development: Province of New Brunswick. Ottawa: Queen's Printer, 1967.

_____. Department of Finance. Canada Student Loans Plan: Annual Report. Ottawa: Queen's Printer, various years, 1964-67.

_____. Public Accounts. Ottawa: Queen's Printer, various years, 1958-67.

_____. Department of Forestry. Agricultural and Rural Development Act: Annual Report. Ottawa: Queen's Printer, various years, 1965-67.

_____. Department of Indian Affairs. Publications. Ottawa: Queen's Printer, various years, 1960-68.

_____. Department of National Health and Welfare. Annual Report. Ottawa: Queen's Printer, various years, 1958-68.

_____. Department of [illegible] Conservation Branch. [illegible] Ottawa: [illegible] 1967.

_____. [illegible] Ottawa: [illegible] various years, 1958-67.

_____. [illegible] Ottawa: [illegible] various years, 1958-67.

. Preliminary Statistics of Education. Ottawa: Queen's Printer, various years, 1962-64.

. Survey of Education Finance. Ottawa: Queen's Printer, various years, 1958-60.

. Survey of Elementary and Secondary Education, 1961-62. Ottawa: Queen's Printer, 1962.

. Survey of Higher Education. Ottawa: Queen's Printer, various years, 1951-61.

. Survey of Higher Education, 1961-1962. Ottawa: Queen's Printer, 1962.

. Survey of Production, 1961. Ottawa: Queen's Printer, 1962.

. Vital Statistics. Ottawa: Queen's Printer, [illegible].

. Census Division. Census of Canada, 1961. Ottawa: Queen's Printer.

. Census of Canada, 1956. Ottawa: Queen's Printer.

. Census of Canada, 1951. Ottawa: Queen's Printer.

. Census of Canada, 1941. Ottawa: Queen's Printer.

. Research Section. [illegible] regulations of Canada. Ottawa: Queen's Printer, various years, 1961-62.

. Labour Division. [illegible] Ottawa: Queen's Printer, various years, 1960-62.

. [illegible] Ottawa: [illegible]

. [illegible] Ottawa: [illegible]

. [illegible]

_____. Research Division. National Accounts: Income and Expenditure, 1926-1956. Ottawa: Queen's Printer, 1958.

_____. Economic Council of Canada. Economic Goals for Canada to 1970. First Annual Review. Ottawa: Queen's Printer, 1964.

_____. Some Economic Aspects of Provincial Educational Systems. Staff Study No. 27, by J. Cousin, J. P. Fortin and C. J. Wenaas. Ottawa: Information Canada, 1971.

_____. Towards Sustained and Balanced Economic Growth. Second Annual Review. Ottawa: Queen's Printer, 1965.

_____. National Research Council of Canada. Annual Report. Ottawa: Queen's Printer, various years, 1965-67.

_____. Royal Commission on Canada's Economic Prospects. Output, Labour and Capital in the Canadian Economy. Edited by William C. Hood and Anthony Scott. Ottawa: Queen's Printer, 1957.

_____. Royal Commission on National Development in the Arts, Letters and Sciences. Report. Ottawa: Queen's Printer, 1951.

Das Gupta, R. B. An Approach to a Social Accounting System for the Atlantic Provinces. Research Paper No. 4. Fredericton, N.B.: Research Centre, Atlantic Provinces Economic Council, 1966.

Denton, Frank T., and Ostry, Sylvia. An Analysis of Post-War Unemployment. Staff Study No. 3. Ottawa: Economic Council of Canada, 1964.

Great Britain. Laws, Statutes, etc. British North America Act, 1867. 30-31 Victoria, ch. 3.

Hirsch, Werner. Analysis of Urban Costs of Public Education. Study Paper No. 4, Joint Economic Committee, U.S. Congress. Washington, D.C.: Government Printing Office, 1968.

Rose, [illegible] "The Federal Government and Its Higher Education," in Economics of Higher Education. Edited by [illegible]. Washington, D.C.: U.S. Department of Health, Education and Welfare, Office of Education, 1962, pp. [illegible].

New Brunswick. Royal Commission on Finance and Municipal Taxation in New Brunswick. Report. Fredericton: Queen's Printer, 1963.

_____. Royal Commission on the Financing of Schools. Report. Fredericton: Queen's Printer, 1955.

_____. Royal Commission on Higher Education. Report. Fredericton: Queen's Printer, 1962.

Rivlin, Alice M. "Research in the Economics of Higher Education: Progress and Problems." Economics of Higher Education. Edited by Selma J. Mushkin. Washington, D.C.: U.S. Department of Health, Education and Welfare, Office of Education, 1962, pp. 357-83.

Simon, K. A., and Grant, W. V. Digest of Educational Statistics. U.S. Department of Health, Education, and Welfare, Office of Education. Washington, D.C.: Government Printing Office, 1967.

Wilkinson, Bruce W. Studies in the Economics of Education. Occasional Paper No. 4. Ottawa: Department of Labour, Economics and Research Branch, 1965.

iv) Unpublished Material

Association of Universities and Colleges of Canada. Unpublished tables for the years 1953-1967 inclusive.

Bastien, Richard. "Fiscal Federalism in Canada: Decentralization in the Modern State." Unpublished paper prepared for a meeting of the Society of Government Economists, December 28, 1972.

Canada. Department of Indian Affairs and Northern Development. Central Statistics Division. "Residential Distribution of Indians by Provinces." Various years, 1945-67. (Mimeographed.)

_____. Department of Manpower and Immigration. Program Support Branch. "Federal Expenditures for Vocational Training, Canadian Areas." Unpublished T.I.S. Note. Various years. (Mimeographed.)

_____. Department of National Health and Welfare. Hospital Services Section. "Summary and Evaluation of Provincial Financial Statistics." Various years. (Mimeographed.)

_____. Department of the Secretary of State. "Payments to Provinces under Established Programs Act, 1967 and 1972." Unpublished tables, various years.

———. Statistics Canada. Census Division. "1961 Basic Migration Table No. 19." Unpublished table prepared at Statistics Canada for research purposes only.

Hall, W. C., Jr. "Some Welfare Implications of Intergovernmental Fiscal Relations with Special Reference to Grants-in-Aid for Education." Unpublished Ph.D. dissertation, University of Illinois, 1964.

Stager, D. "Monetary Returns to Post-Secondary Education in Ontario." Unpublished Ph.D. dissertation, Princeton University, 1968.

v) Personal Correspondence

Berjevin, J. B. Assistant Deputy Minister, Department of Indian Affairs and Northern Development. September 11, 1970.

Kendall, C. K. H. Special Assistant to the Minister, Department of Veterans Affairs. June 8, 1970.

Neville, R. J. Chief, Excise Tax Audit, Department of National Revenue. December 17, 1970 and December 29, 1970.

Routledge, R. I. M. Rural Development Officer, Department of Agriculture and Rural Development. October 10, 1972.

Wright, Dorothy J. Executive Assistant to the President, Medical Research Council. August 17, 1969 and September 15, 1970.

———. F. A. Awards Office, National Research Council of Canada. April 10, 1969.

APPENDIX A

FEDERAL AID TO EDUCATION: 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 for each program accompanied by a table relating the amounts paid out under that program.[1]

1. Vocational Training Co-ordination Act

a) Vocational School Assistance

The largest grant received under the Vocational Training Co-ordination Act was for vocational school assistance. This grant was made for two purposes--capital expenditures and ordinary annual expenditures. Under the latter, each province received an annual grant of $10,000 per annum as well as a grant to be matched by the province, allocated among the provinces on the basis of 10-19 year olds in the province [illegible]. Originally, there was a ceiling of $1,000,000 [illegible] the program was to [illegible] for the years [illegible].

---

[1] [illegible]

TABLE A-1

PAYMENTS MADE UNDER THE VOCATIONAL TRAINING CO-ORDINATION ACT, 1946-1961

Year[a]	Receipts by N.B. Under the Vocational Training Co-ordination Act (in thousands of dollars)	On a Per Capita Basis	Payments by Canada Under the Vocational Training Co-ordination Act (in thousands of dollars)	On a Per Capita Basis
1946	520.2	$1.11	$ 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	240.8	0.45	4,960.3	0.34
1954	225.[illegible]	0.42	4,105.[illegible]	0.27
1955	247.1	0.45	4,031.7	0.26
1956	251.7	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	428.4	0.72	8,131.5	0.46
1961	995.3	1.68	8,452.7	0.47
[illegible]	[illegible]		$101,261.2	
Average		$0.79		$0.44

[illegible]

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 per cent 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 monies would be used. As well, some provinces claimed 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 19[illegible], 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 [illegible] million maximum. However, two one-year extensions were given while investigations were undertaken into needs.

On April 1, 1957 the Vocational and Technical Agreement No. [illegible] came into effect for a five-year period. This was to provide [illegible] million for [illegible] ([illegible]) in the [illegible] and capital [illegible] [illegible] and [illegible]

[illegible]

TABLE A-2

PERCENTAGE OF ANNUAL ALLOTMENTS CLAIMED TO MARCH 31, 1950
AND THE DISTRIBUTION OF CLAIMS BY FUNCTION, 1945-1950

Province	Annual Allotments 1949-50	Percentage of Claims Spent on				
		Maintenance & Operations	Administration	Buildings	Equipment	Bursaries
Newfoundland[a]	40.0	100.0	. .	. .	. .	. .
P.E.I.	50.0	24.0	1.7	74.0	0.3	. .
Nova Scotia	44.0	50.0	15.0	23.0	12.0	. .
N. Brunswick	50.0	80.0	2.0	5.0	. .	7.0
Quebec	100.0	54.0	2.0	25.0	8.0	11.0
Ontario	100.0	100.0	. .	. .	. .	. .
Manitoba	28.0	72.0	4.0	19.0	2.5	3.5
Saskatchewan	38.0	58.0	7.7	35.0	4.3	. .
Alberta	92.0	96.0	1.0	0.5	3.5	. .
B.C.	94.0	85.0	12.0	3.0	. .	. .

[a]Newfoundland figures are for the year 1949-50 only.

Source: Canada, Department of Labour, Annual Report, 1951 (Ottawa: Queen's Printer, 1951), p. 3.

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 1946, a special Dominion allotment of $10.0 million was made available for capital expenditures on building and equipment subject to a deadline of March 31, 1949. 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 equipment; consequently by [illegible] the time limit for expenditures under this program was extended to March 31, 1950 for all buildings and equipment grants approved by the Minister by March [illegible], 1949, regardless of when the work was completed or the equipment was placed.

[illegible]

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, 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 reallot 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 31, 1959, the provinces (other than Quebec) had capital projects planned or in progress which would require the full amount of federal assistance. Fifty-one per cent of these funds were allotted to institutes of technology, 17 per cent to combined institutes of technology and trades schools, 14 per cent to trade or vocational training centres, eight per cent to vocational high schools,

TABLE A-3

VOCATIONAL SCHOOL ASSISTANCE, 1946-1961
(In Thousands of Dollars)

Year[a]	Payments to New Brunswick			Payments by Canada		
	Annual	Building	Equipment	Annual	Building	Equipment
[illegible]	$ [illegible]	. .	. .	$ 627.5	. .	. .
[illegible]	[illegible]	. .	[illegible]	1,488.3	$ 416.4	$ 72.0
[illegible]	[illegible]	. .	. .	1,299.9	991.8	233.2
[illegible]	[illegible]	. .	. .	1,974.9	1,856.7	422.8
[illegible]	[illegible]	$ 324.8	$ 30.1	1,888.7	1,697.3	357.4
[illegible]	[illegible]	. .	17.9	2,082.9	796.8	358.1
[illegible]	[illegible]	. .	60.2	2,308.3	594.	262.9
[illegible]	[illegible]	. .	. .	2,120.2	913.0	221.0
[illegible]	[illegible]	. .	. .	2,088.6	100.0	185.8
[illegible]	[illegible]	. .	. .	2,029.5	219.2	73.1
[illegible]	[illegible]	. .	. .	2,151.7	. .	2.6
[illegible]	[illegible]	. .	. .	2,088.8	. .	. .
[illegible]	[illegible]	18.6	b	979.8	865.4	b
[illegible]	[illegible]	43.2	b	2,435.1	2,360.6	b
[illegible]	[illegible]	72.9	b	2,049.5	3,090.0	b
[illegible]	[illegible]	547.4	b	2,347.7	2,818.7	b
Total[c]	$1,617.9	$1,003.7[d]	$108.3	$30,548.5	$16,750.4[d]	$2,188.9

[a] Fiscal year ending March 31.

[b] Included in the figures for building.

[c] Because of rounding the figures do not necessarily add up.

[d] Part of which is for equipment.

Source: 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).

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]

ii) 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 agreement 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 facilities and equipment for such programs. Each will be examined in turn.

In 1950, for the purpose of training armed forces personnel with civilian [illegible]. No payments were made under this agreement between March 1, 1950 and the start of the Korean War on which [illegible] provided a small amount of training [illegible] was pre-enlistment training which [illegible] was provided [illegible]

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 classes. New Brunswick did not participate in either program after March 31, 1956.

In 1948-49, supervisory training was carried on as part of [illegible] K, but during that year the provincial governments were notified that after March 31, 1949, the Department of Labour would share approved costs on a 50-50 basis [illegible] training. The province of New Brunswick [illegible] this type of training.

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 was phased out in its entirety although payments were continued until [illegible] within the Department of Labour was evidenced in the following quotation:

> While [illegible] of veterans have been rehabilitated through vocational training in [illegible] C.V.T. schools and on the job [illegible] [illegible] schools, [illegible] slowly [illegible]

Finally, [illegible]

[illegible]

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	$ 98.6	$ 395.3
1947	. .	. .	667.4	5.8	168.5	841.6
1948	. .	. .	415.4	. .	51.9	467.3
1949	. .	. .	104.9	. .	5.1	109.9
1950	15.9	. .	10.4	. .	. .	26.3
1951	14.3	. .	1.8	. .	. .	16.0
1952	12.1	$13.0	. .	. .	. .	25.2
1953	12.6	19.5	. .	. .	. .	32.1
1954	5.9	9.1	. .	. .	. .	15.0
1955	5.0	2.5	. .	. .	. .	07.5
1956	4.7	. .	. .	. .	. .	4.7
1957	. .	. .	. .	. .	. .	. .
1958	. .	. .	. .	. .	. .	. .
1959	. .	. .	. .	. .	. .	. .
1960	. .	. .	. .	. .	. .	. .
1961	. .	. .	. .	. .	. .	. .
Total[f]	$104.7	$44.1	$1,458.4	$10.3	$324.0	$1,941.6

[a] Fiscal year ending March 31.

[b] Training for the Armed Forces.

[c] Training for defence industries.

[d] Training for ex-servicemen.

[e] Figures may not add to the totals because of rounding.

[f] Source: [illegible]

TABLE A-5

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

	Payments Made by Canada						
	K-1[a]	K-2[b]	[c]	Building	Equipment	Supervisory	Total[e]
	$ 756.6	. .	$ 3,[illegible]0.1	$179.3	$ 369.9	. .	$ 5,054.8
	. .	. .	12,[illegible]5.9	252.7	2,952.5	$ 12.1	12,809.8
	. .	. .	5,2[illegible]3.3	87.2	1,027.7	11.2	6,355.4
	. .	. .	9[illegible]3.5	1.6	98.6	9.6	1,078.3
	[illegible]0.2	. .	1[illegible]7.6	. .	. .	5.7	182.5
	[illegible]8.5	$ [illegible]0.6	. .	. .	. .	7.8	77.9
	[illegible]1.0	[illegible]2.[illegible]	. .	. .	. .	7.6	161.7
	[illegible]4.1	[illegible]2.[illegible]	. .	. .	. .	7.9	194.1
	[illegible]7.1	[illegible]2.[illegible]	. .	. .	. .	9.0	202.7
	[illegible]3.0	[illegible]2.[illegible]	. .	. .	. .	4.1	163.7
	[illegible]1.0	[illegible]2.[illegible]	. .	. .	. .	3.6	81.4
	[illegible]4.4	[illegible]2.[illegible]	. .	. .	. .	3.9	43.9
	[illegible]5.0	[illegible]2.[illegible]	. .	. .	. .	9.3	47.1
	[illegible]2.0	[illegible]2.[illegible]	. .	. .	. .	7.3	41.1
	[illegible]8.4	[illegible]2.[illegible]	. .	. .	. .	8.5	30.5
	[illegible]8.4	[illegible]2.[illegible]	. .	. .	. .	13.8	32.3
	$1,[illegible]84.2	$642.3	$2[illegible],660.0	$477.7	$3,548.7	$122.1	$26,565.3
to N.B.	7.4	12.9	7.1	2.2	9.1	0	7.3

[a] Fiscal year ending March 31.

[b] Training for the armed forces.

[c] Training for defence industries.

[d] Training for war veterans.

[e] Because of rounding the totals do not necessarily add.

Source: 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 bodys [sic];
b) for alterations to premises acquired for training; and
c) for the purchase of equipment from the War Assets Corporation and other bodys [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. By mid 1945 only four provinces reached agreement with the federal government to provide this type of training and they claimed only one thousand dollars of a $1.5 million allotment. The reason for this was that first priority was given to the training of former members of the forces.

Under the agreements, the federal government was to pay the training allowances of a weekly nature to the trainees, the federal government and the provinces sharing equally the capital expenditures for equipment. The all other expenditures [illegible] by the province, which [illegible]

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 dress-making, nursing-aides, and handicrafts.

In 1954-55, the schedule was divided into "Training for Unemployed Persons" (Schedule R) and "Training for Disabled Persons" (Schedule [illegible]). The latter was a recognition of the individual requirements of each trainee. Only people who were handicapped because of a continuing disability and who could be fitted for suitable self-support in employment qualified for grants.

During the years of heavy unemployment, 1960-61, the province was encouraged by the federal government to [illegible]

TABLE A-6

RETRAINING OF CIVILIAN WORKERS, 1946-1961
(In Thousands of Dollars)

Year[a]	Trainees	Paid Out by Canada			% to N.B.
	Under Agreement (Included in Total)[b]	Unemployed	Disabled	Total[c]	
1946		$ [illegible]	$	$ 1.[illegible]	[illegible]
1947		[illegible]	[illegible]	[illegible]	[illegible]
1948		39.5	[illegible]	39.[illegible]	16.7
1949		140.5	[illegible]	140.5	15.1
1950		232.3	[illegible]	232.3	14.9
1951		[illegible]	[illegible]	256.3	12.2
1952		[illegible]	[illegible]	233.9	16.5
1953		[illegible]	[illegible]	187.8	15.3
1954	[illegible]	[illegible]	[illegible]	275.5	13.5
1955	[illegible]	[illegible]	$ 20.0	315.9	13.0
1956	[illegible]	[illegible]	74.2	479.1	9.1
1957	[illegible]	[illegible]	174.3	543.5	9.0
1958	[illegible]	[illegible]	270.4	647.3	10.1
1959	[illegible]	[illegible]	285.9	775.4	10.9
1960	[illegible]	[illegible]	283.3	949.7	9.0
1961	[illegible]	991.9	329.6	1,320.5	9.4
Total	[illegible]	[illegible] 1714.4	$4,979.4	$1,419.4	$6,398.3	11.2

[a]Fiscal year ending March 31.

[b]Included in unemployed figures.

[c]Because of rounding the totals do not necessarily add.

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

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 related subjects as well as correspondence courses. For the training of civilians, the Department of Labour shared equally with the province in the following expenditures connected with class training:

a) salaries of instructors;

b) cost of materials, supplies, equipment, and hand tools;

c) weekly allowances and transportation costs of those [illegible]

d) cost of [illegible]

e) [illegible]

f) [illegible]

run by the provinces for apprenticeship classes. When the first agreements expired in 195[illegible], a new set of agreements covering all the areas previously included as well as designated administrative expenditures were established. As well, 195[illegible] saw the first payments to Newfoundland.

Under these agreements, payments were made only for indentured apprentices registered under the provisions of the provincial apprenticeship acts. Payments were not made for those apprentices who were being trained in industry by corporations and individual employers.

In the immediate post-war years, the federal Department of Labour bore the entire cost of apprenticeship training for veterans who were eligible under the federal rehabilitation legislation and approved by the Department of Veterans' Affairs. An exception was the payment of training allowances which were paid directly by the Department of Veterans' Affairs.

Table 7 shows the federal contributions to apprenticeship [illegible]. It should be noted that the [illegible]

TABLE A-7

APPRENTICE TRAINING, 1946-1961

	New Brunswick			Canada		
	Amount Allocated (000's)	Apprentices (000's)	Amount per Apprentice	Amount Allocated (000's)	Apprentices (000's)	Amount per Apprentice
1946				$ 48.1	$ 4.9	$ 9.77
1947				101.4	10.2	9.92
1948				106.0	11.9	9.91
1949				291.8	11.0	23.25
1950				359.3	c	c
1951				427.6	10.9	39.41
1952				494.4	11.0	44.81
1953				774.7	11.7	65.95
1954				853.2	12.9	66.03
1955				839.0	14.0	59.83
1956				841.3	15.3	55.14
1957				1,038.0	16.7	62.05
1958				1,381.7	17.5	78.95
1959				1,674.6	18.6	90.19
1960				1,750.8	20.0	89.69
1961				1,628.0	20.3	80.58
Total				$12,866.4		
Average			$61.89			$51.78

[a] Fiscal year ending March 31.

[b] Less than a significant number.

[c] The Department of Labour did not publish statistics for this year.

[d] Because of rounding totals do not necessarily add.

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

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 program consisted of a wide range of short-term classes (from a few days to several months) for young people sixteen to thirty years of age (the upper limit was removed in 195[illegible]-54). These classes were in various phases of agriculture, home-making, leadership, and [illegible] courses as farm mechanics, commercial work, nurses' aides, dressmaking, power sewing, diesel and auto mechanics, and courses for fishermen in [illegible] navigation, [illegible], nets and cording, and [illegible] fishing [illegible]. During the earlier years the fishing and agricultural programs took most of the funds.

Fifty per cent of funds expended on approved programs were paid by the federal government. As can be seen in Table A-[illegible], New Brunswick received [illegible] for the [illegible] in 19[illegible] and in 19[illegible]. [illegible]

TABLE A-8

YOUTH TRAINING AND STUDENT AID, 1946-1961
(In Thousands of Dollars)

Year[a]	Received by New Brunswick			Paid Out by Canada		
	Youth Training	Student Aid	Total[c]	Youth Training	Student Aid	Total[c]
1946	$ [illegible]	$ 15.1	$ 43.3	$ 257.7	$ 172.5	$ 430.2
1947	27.8	11.6	39.4	344.9	202.4	547.3
1948	[illegible]	b	25.2	385.6	b	385.6
1949	13.7	b	13.7	335.3	b	335.3
1950	34.1	b	34.1	367.4	b	367.4
1951	37.6	b	37.6	368.1	b	[illegible]
1952	[illegible]	b	[illegible]	[illegible]	b	[illegible]
1953	[illegible]	b	[illegible]	505.4	b	[illegible]
1954	43.2	b	[illegible]	515.5	b	[illegible]
1955	41.4	b	41.4	550.3	b	[illegible]
1956	27.7	[illegible]	[illegible]	132.8	[illegible]	[illegible]
1957	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1958	[illegible]	. . .	[illegible]	[illegible]	[illegible]	[illegible]
1959	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1960	[illegible]	[illegible][d]	[illegible]	[illegible]	[illegible]	[illegible]
1961	[illegible][e]	[illegible][d]	[illegible]	117.6	[illegible]	[illegible]
Total[e]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[a]Fiscal year ending March 31.

[b]Included with Youth Training.

[c][illegible]

[d][illegible]

[illegible]

The chief sub-schedule of youth training dealt with student aid. In each province, the funds expended un this schedule aided prospective teachers, nurses in tra n- ing, 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 province had discretion in this matter and in New Brunswick only [illegible] were used during the years examined.

It will be noted in Table A-5, that the funds for student aid decreased slightly during the period under review. The decrease in funds under this program was more than compensated for by the increased [illegible]

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 to non-residents of the province at the same [illegible]

TABLE A-9

OTHER PROGRAMS, 1946-1961
(In Thousands of Dollars)

Year[a]	Training for Government Departments (Canada)	Correspondence Courses in New Brunswick	Correspondence Courses in Canada
1946	. .	. .	. .
1947	. .	. .	. .
1948	. .	. .	. .
1949	. .	. .	. .
1950	. .	. .	. .
1951	. .	. .	$ 2.[illegible]
1952	. .	. .	4.6
1953	. .	. .	4.8
1954	. .	[illegible]	7.[illegible]
1955	[illegible].1	. .	. .
1956	[illegible]	. .	14.4
1957	[illegible]	. .	[illegible].9
1958	[illegible].1	. .	[illegible]
1959	. .	. .	[illegible]
1960	. .	[illegible]	[illegible]
1961	[illegible].7	. .	[illegible]
Total[b]	[illegible]	[illegible]	[illegible]

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 Expenditures Program and a Technical and Vocational Correspondence Courses Program. The Apprenticeship Training Agreement was a continuation of the [illegible] agreements for apprenticeship training only.

The amounts [illegible] Brunswick and paid out by Canada for the fiscal years ending March 31, 1961 to March 31, 1967, can be found in Tables A-10 and A-11 respectively. New Brunswick [illegible] million in the six year period [illegible] capita per year. [illegible] per year.

[illegible]

[illegible]	Administration (?)	Subsistence Allowance (?)	Capital Expenditure	Total
[illegible]	[illegible]	70.7 (?)	$ 319.0	$ 1,?12.4
[illegible]	52.7 (?)	[illegible]	1,?13.1	2,?22.9
[illegible]	60.8 (?)	[illegible]	1,???.0	2,25?.7
[illegible]	45.?	[illegible]	1,9?8.2	3,954.3
[illegible]	1??.?	[illegible]	?55.5	1,945.?
[illegible]	15?.?	[illegible]	?6.3	3,853.4
[illegible]	$???.?	?2.7	$7,??7.?	$12,140.7

[illegible]

... Federal Expenditures for Vocational Training, Cumula- ... [illegible]

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 $767.9 thousand or $1.26 per person for vocational high school training. This was 5.4 per cent of what Canada paid out during the same period ($4.74 per person).

ii) Technician Training Program [illegible]

The program establishing training for technicians was designed to assist in relieving a persistent shortage of technicians at the semi-professional level. Assistance was made available for post-secondary [illegible] training [illegible]

[illegible]

iii) Trades and Other Occupational Training Programs

To provide pre-employment training or retraining to persons over the compulsory school attendance age who have left elementary or secondary school, 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 release, or by correspondence courses.

Under [illegible], the federal government agreed to [illegible] 50 [illegible] all provincial expenditures. In Table A-10, it is seen that New Brunswick received [illegible] the six years under review [illegible] of the [illegible].

[illegible]

Programs [illegible]

2. Industrial apprenticeships.

3. Retraining of employees who would otherwise be displaced because of technological or other industrial changes.

During 19[illegible], the [illegible] Management Training Program was transferred to the Department of Labour (to come under this agreement) from the Department of Trade and Commerce. [illegible] really [illegible] before the provinces moved into a position of promoting this type of training. [illegible] in 19[illegible], twenty-five projects were approved while in 1954, thirty-[illegible] projects were approved in 19[illegible], and small [illegible]

[illegible]

chances of regular employment. In order to qualify for the 75 per cent contribution from the federal government a minimum number of days of training had to be given. This qualification was later eliminated. In 1964, a federal contribution of 50 per cent for living allowances started.

During the year 1961-62, New Brunswick received $1.4 million or 75 per cent of federal outlays for "Training for the Unemployed." During the same period New Brunswick had a 6.7 per cent greater rate of unemployment than the Canadian average.[10]

vi) Training for the Disadvantaged

of $190 thousand. That amounts to a payment by Canada of $.20 per capita or receipts for New Brunswick of $.31 per capita.

vii) Training of Vocational Teachers, Supervisors, and Administrators--Program 4

With the large increase in training facilities being promoted by the Technical and Vocational Training Agreement, it was feared that there would not be sufficient people to staff the facilities. The federal government agreed to pay the [illegible] [illegible] costs and trainee assistance for the training of occupationally competent persons as teachers. Under this agreement the federal government paid New Brunswick [illegible] [illegible] of [illegible] million ([illegible] per cent).

viii) [illegible]

[illegible]

ix) Student Aid Program

It was noted under the discussion of the Vocational Training Co-ordination Act that "Student Aid" was carried on as a continuation of earlier acts. Again, it was included under the Technical and Vocational Training Assistance Act, as before, aid was for university students in degree-granting courses other than theology, and to nurses-in-training who were taking approved professional courses. A provincial scholarship committee selected the candidates to receive outright grants, loans, or a combination of both.

xi) Apprenticeship Training

The "Apprenticeship Training Program" was started under the Vocational Training Co-ordination Act in 1964. Like the other programs that started under the 1967 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 1, 1966 (to terminate on March 31, 1967) when Prince Edward Island became part of the agreement. Meanwhile apprentice training in Quebec was shared by the federal government under "Training Occupational Training--Program" and "Training for Employment--Program." Under [illegible] for which the [illegible] were [illegible] data, courses [illegible] and under "Training in Co-operation with Industry--Programs" which also provided [illegible] for [illegible] apprenticeship.

[illegible] "[illegible]" [illegible]

xii) 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 75 per cent of approved capital expenditures incurred by March 31, 1963 (50 per cent after that date). This was also an attempt to create extra short-term employment in the construction industry during a period of high unemployment. In December, 1962 an amendment to the [illegible] provided for the federal government paying 75 per cent of approved capital expenditures until [illegible] for each person in the 15-19 [illegible] in the province [illegible] for the [illegible] [illegible] the federal government would [illegible]

[illegible]

3. Veterans Rehabilitation Act[12]

In the Veterans Rehabilitation Act, 1945, provision was made for "the Minister [of Veterans Affairs] to pay him [the veteran who meets certain qualifications] an allowance for the period during which he takes the said [undergraduate] course."[13] Similar provisions were made for the veteran continuing his education in post-graduate courses.

[illegible]

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

4. Children of Veterans Training Assistance Act

In 1950 the federal government made provision for the education of those children whose father had been killed while in the armed services. Payments for the total cost or part of the cost of education were made through the [illegible]

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

b) Fitness and Amateur Sport Act

The year 1961 was one of celebration for Canadian sports enthusiasts. President Kennedy was pushing physical fitness [illegible] to be leaving their [illegible] domination of that sport to others; and Olympic performances of Canadian athletes had been less than a creditable [illegible]

[illegible] Fitness and Amateur Sport [illegible]

TABLE A-[illegible]

PAYMENTS MADE FOR UNDERGRADUATE SCHOLARSHIPS AND BURSARIES, 1963-1967

Year[a]	Scholarships: N.B. No.	Scholarships: No. in Canada	Scholarships: N.B. as % of Canada	Bursaries: No. in N.B.	Bursaries: No. in Canada	Bursaries: N.B. as % of Canada	Money Received by N.B. Nominees (000's)	Paid Out by Federal Government (000's)	N.B. as % of Canada
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	$ 28.3	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	16	[illegible]	5.1	$ 6.6	114.7	5.8
[illegible]	2	[illegible]	[illegible]	[illegible]	403	3.5	6.5	126.3	5.1
[illegible]	[illegible]	[illegible]	[illegible]	21	[illegible]	4.4	9.3	149.2	6.6
[illegible]	[illegible]	[illegible]	4.9	23	[illegible]	4.4	7.2	154.0	4.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,895	4.0	$30.1	$572.[illegible]	5.3

[a] Fiscal year ending March 31.

Source: Canada, Department of National Health and Welfare, Fitness and Amateur Sport Division. "Summary and Types of Projects Financed by Province" various years, 1963-[illegible]. (Mimeographed.)

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, 1963-1967[a]

Year[b]	Amount Received by N.B. Residents ('000's)	Amount Spent by Canada ('000's)	New Brunswick as Percentage of Canada
1963	[illegible]	171.4	[illegible]
1964	2.0	135.9	1.5
1965	5.2	152.7	3.3
1966	[illegible]	203.0	2.5
1967	0.9	184.7	0.5
Total	31.3	847.7	1.7

[illegible] grant plans.

[illegible] year ending March 31.

Source: Canada, Department of National Health and Welfare, Annual Report for [illegible]: Queen's Printer, [illegible]. [illegible] Supply and Services Canada, [illegible].

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 assisted studies. The universities in New Brunswick did not provide graduate work in physics at the time so recipients had to leave that province. The Department of National Health and Welfare assisted in the preparation of Table A-14 by providing the names of students who had left New Brunswick at the time of their application.

$500 million [illegible]ivided so that $300 million was allocated to the provinces on a per capita basis, $25 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 forefront. The first project was approved in February and payments were started in March. By March 31 the federal government had [illegible] $4.7 million, of which [illegible] share was 380 thousand (New Brunswick medical education is taken at [illegible] and the [illegible] were allocated to a building on that campus).

7. [illegible]

In 19[illegible] the [illegible] of the Department of National Health and Welfare set up the administrative [illegible] [illegible]

[illegible]

TABLE A-15

FUNDS 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	$ 282.1	$ 21.2	9.1
1950	380.7	21.3	5.7
1951	458.9	21.1	4.7
1952	521.3	33.7	6.3
1953	801.9	34.1	4.0
1954	699.8	24.	3.5
1955	686.8	20.9	3.1
1956	626.2	19.	3.7
1957	515.0	19.9	3.7
1958	566.7	19.1	3.4
1959	617.4	19.0	3.1
1960	656.7	19.1	2.9
1961	1,290.5	71.7	5.6
1962	1,447.6	59.5	4.1
1963	1,911.7	65.	3.4
1964	1,763.9	49.	2.8
1965	1,931.4	60.	3.1
1966	1,994.1	69.1	3.5
1967	1,461.0	67.1	4.3
[illegible]	[illegible]	[illegible]	4.0

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

8. 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 funds for individuals who are studying for social work degrees and who agree to take employment with the granting provincial government and, as well, there is a fellowship and scholarship program on a nation-wide basis.[13]

Table 4.6 sets forth the payments made to the Province of New Brunswick and to institutions and individuals in New Brunswick as the various payments made by Canada. The New Brunswick figures for operating grants underestimate the value available to New Brunswick. That is, because the Maritime School of Social Work is situated in Nova Scotia, the total funds flowing to that institution are shown for Nova Scotia although the school could be considered a New Brunswick institution in the sense that it is a joint [illegible] the University of New Brunswick.

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[13] [illegible] Canada, Department [illegible], pp. 17 - 19.

TABLE A-16

FUNDS PAID OUT FOR SOCIAL WORK TRAINING, 1948-1967

Year	Amount received by New Brunswick ($000's)	Amount Paid Out by Canada ($000's)	N.B. Receipts as a Percentage of Total
1948		$ 50.0	
1949		50.0	
1950		52.5	
1951		55.1	
1952		60.0	
1953	19.2	95.2	9.6
1954	9.4	159.0	5.9
1955	9.7	300.1	3.2
1956	11.2	342.4	3.2
1957	11.7	410.4	2.8
Total	60.1.4	$1,677.1	3.1

Source: Can., Department of National Health and Welfare, Annual Report (Ottawa: Queen's Printer, various years, 1948-1967).

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.

Assistance 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 appears to explain the phenomenon;

> "This is undoubtedly a reflection of the fact that there are no medical schools in the province and students and faculty tend to have interest [illegible] therefore tend to be oriented toward fields other than health sciences."

The funds allocated by the Medical Research Council are shown along with those allocated by the National Research Council in Table A-17.

10. [illegible]

Originally established in 1916, the National Research Council has had [illegible] [illegible] in Canadian [illegible] [illegible]

[illegible]

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 (thousands)	Canada (millions)	New Brunswick (thousands)	Canada (millions)
1946	. .	. .	$ 0.9	$ 0.05
1947	. .	. .	1.5	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	. .	. .	38.3	2.1
1954	. .	. .	38.4	2.1
1955	. .	. .	40.3	2.2
1956	. .	. .	47.6	2.6
1957	. .	. .	67.7	3.7
1958	. .	. .	66.8	3.6
1959	. .	. .	111.6	6.1
1960	. .	. .	153.7	8.4
1961	. .	$ 0.4	172.0	9.4
1962	. .	3.3	153.3	8.7
1963	. .	4.2	184.2	10.4
1964	$ 0.0	5.1	218.5	12.6
1965	5.5	6.9	305.0	17.1
1966	9.9	12.3	381.1	21.9
1967	15.3	12.4	543.5	31.3

[redacted]ditional 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 programs offered in New Brunswick universities. The Council grants data appear in Table 7-17.

ii. Canada Council Act (1957)

The Canada Council was formed in the spring of 1957 [illegible] of the Canada Council Act.[21] That Act provided for "[illegible] and promoting the study and enjoyment of, and the production of works in, the arts, [illegible] and letters . . ."[22] which the Council interpreted in a very [illegible]. Programs were established [illegible]: (a) capital projects, (b) student [illegible], (c) research grants, and [illegible]. The first [illegible] with [illegible] to the assistance [illegible]

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 [illegible] "University Capital Grants Fund" was established with a [illegible] of $50 million to be paid out such as to not exceed:

> a) in the case of any particular project one-half of the total expenditures made in respect of the project; and
>
> b) in any province, an amount that is in the same proportion to the aggregate of the amounts credited 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 . . . .[24]

In August, 1951, the Council announced that under this division of the University Capital Grants Fund, New Brunswick would be eligible to receive $1.7 million.[25] Table A-1 [illegible] the grants received by New Brunswick and paid out by Canada. It will be noted that the total was greater than the allotment. The reason for this was the [illegible] division of payments on the basis of 1951 census [illegible]

TABLE A-13

CANADA COUNCIL 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	$ 422	$ 4,074	10.4
1959	710	8,732	8.1
1960	382	9,33[illegible]	4.1
1961	109	3,374	3.2
1962	128	6,444	2.0
1963	. .	6,995	. .
1964	192	15,[illegible]	1.2
1965	. .	2,035	. .
1966	140	1,[illegible]	[illegible]
1967	31	[illegible],746	0.4
Total	$2,[illegible]	$57,10[illegible]	3.15

[a]Fiscal year ending March 31.

Source: Canada, Canada Council, *Annual Report* (Ottawa: Queen's Printer, various years, 1958-67).

(i) Library [illegible]

The Council [illegible] [illegible] university and public [illegible] [illegible]

have been received by New Brunswick libraries. The values of such grants are set out in Table A-19.

iii) Scholarship and Fellowship Programs

The Council met with very heavy demand on its resources in the area of academic awards in the humanities and social sciences. Seventy-five per cent of the total funds allocated to scholarships, fellowships, and grants were allocated to programs such as Pre-Doctor's Degree Fellowships, Pre-Master's Degree Fellowships, and Grants-in-Aid of Research and Productive Scholarship. As the demand grew the programs changed. These were selected on the basis of merit "without regional consideration and regardless of whether they were French-speaking or English-speaking Canadians."

As time progressed, the demand became so great that the Council gradually had to narrow down its field of activity and [illegible] from what they considered a "multitude of [illegible]" those which [illegible] most important. By 1962-63 that [illegible] several categories (i.e., scholarships [illegible] lawyers, [illegible], and librarians) and reducing [illegible] Pre-Master's Degree Fellowships and [illegible] [illegible] Pre-Doctor's Degree Fel-[illegible] [illegible].

[illegible]

[illegible]

TABLE A-29

[illegible]

[illegible]	[illegible] N.B.	[illegible] Canada	Total N.B.	Total Canada	N.B. as a Percentage of Total
[illegible]	...	...	64	5,4?7	3.9
[illegible]	15	155	14	560	2.5
[illegible]	...	56	22	57?	3.9
[illegible]	3	[illegible]	33	782	4.2
[illegible]	1	[illegible]	18	875	2.1
[illegible]	[illegible]	[illegible]	37	9??	3.8
[illegible]	2	47	21	991	2.1
[illegible]	4	45	23	1,16?	2.0
[illegible]	[illegible]	53	66	2,516	2.6
[illegible]	...	[illegible]	121	5,??	2.4

Source: (Ottawa: Queen's Printer, various years, 1958-67(?)).

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 [illegible] allotted than they would have had they been allocat[illegible] 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 free study and research. They have involved a stipend, travel expenditures, and a small sum for research costs. This program also has evolved 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 again that these fellowships were granted on merit [illegible] than on region.

v) Research Grants

The Research Grants Program was started in the fall of [illegible] and [illegible] was small, but it increased rapidly so that in [illegible] close to [illegible] million was spent on [illegible] projects. The breakdown for this program can be [illegible] in Table A-19 and there [illegible] can be seen that [illegible], along with [illegible] [illegible].

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]"[28] and proved to be a very modest form of assistance. The breakdown can again be found in Table A-19.

12. Per Capita University Grants

In 1951, the Royal Commission on National Development in the Arts, Letters and Sciences[29] recommended that the federal government make annual contributions to operating budgets of universities on the basis of provincial population.[30] Almost immediately, the federal government started granting $.50 per capita to the provinces which distributed it to the universities on the basis of enrollment.

The per capita grant was raised to $1.00 per head in 1956-57. Because of the difficulties encountered by the federal Department of Finance in distributing these grants, the responsibility for distribution

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[28] R.S., 1973, c. 11.

TABLE A-20

GRANTS MADE BY THE FEDERAL GOVERNMENT FOR UNIVERSITY OPERATING EXPENDITURES, 1952-1967

(In Thousands of Dollars)

Year[a]	Paid Out by Canada[b]	Received by New Brunswick[c]	New Brunswick Receipts as a Percentage of Total Funds
1952	$ 6,99[illegible].0	$ 257.3	3.7
1953	9,[illegible].0	263.9	2.8
1954	9,[illegible].0	25[illegible].0	2.8
1955	9,77[illegible].0	27[illegible]	2.8
1956	10,04[illegible]	2[illegible].0	2.8
1957	16,0[illegible]	551.6	3.5
1958	16,[illegible].0	5[illegible].0	3.4
1959	[illegible]	[illegible]	3.4
1960	[illegible].0	[illegible]	3.1
1961	[illegible].0	[illegible]	3.7
1962	[illegible]	[illegible].7	3.3
1963	[illegible]	1,[illegible]	4.0
1964	[illegible]	1,[illegible].9	4.6
1965	[illegible]	1,[illegible]	4.5
1966	37,[illegible]	1,[illegible]	4.5
1967	[illegible]	[illegible],[illegible].0	4.3

[a] [illegible] year ending March [illegible].

[b] [illegible] Department of [illegible], Public Accounts (Ottawa: [illegible]) [illegible]

[c] [illegible]

was shifted to the Association of Universities and Colleges of Canada.

The per capita grants were raised in 1958-59 to $1.50 per head and again in 1962-63 to $2.50 per head. In 1966-67 an [illegible] supplementary grant of $0.00 per capita was approved (part of this being for out-of-province students). A record of the payments made by Canada and received by New Brunswick is found in Table A-50.

b. Other Items

There were a number of other grant provisions which provided capital subsidies from federal authorities. Some of these were in the nature of grants while others were [illegible] by the federal government.

$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. F. M. Routledge, Rural Development officer in New Brunswick, it was possible to get some estimate of the expenditures made in the 1966-67 fiscal year for education.[35] Interest was then calculated as a percentage of

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[33] Canada, Department of Forestry, Agricultural and Rural Development Act, Annual Report (Ottawa: Queen's

[34] Ibid., p. 2.

[35] The [illegible] limited to [illegible] what in retro-

total federal contributions to calculate the amount going towards education in 1967-68 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	Received by New Brunswick	Estimate of Amount to Education in New Brunswick
19[illegible]	$ [illegible]90.1	$ 62.1	. .
1964	[illegible],97[illegible].[illegible]	103.3	. .
19[illegible]	[illegible],[illegible]31.9	364.0	. .
19[illegible]	[illegible],[illegible]45.[illegible]	442.[illegible]	88[illegible].[illegible]
19[illegible]	[illegible],[illegible]2[illegible].[illegible]	580.6	76.5

[a]Fiscal year ending March 31.

Sources: Canada, Department of Finance, Public Accounts (Ottawa: Queen's Printer, 1964, 1965), and Canada, Department of Forestry, Agricultural and Rural Development Act: Annual Report (Ottawa: Queen's Printer, 1966, 1967, 1967).

[illegible] by footnote that the first agreement [illegible] federal or provincial function and, for [illegible] under the first agreement have [illegible] likelihood of [illegible] education. [illegible] [illegible] the following

2. Rural Development
3. Alternate Land Use
4. Community Pastures
5. Soil and Water

The data available are supplied in Table A-21 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 ARDA, there is no possibility of discovering whether a particular function (i.e., education) is contributing its share to the total project.

ii) [illegible]

The second "other" source of federal subsidy to education in New Brunswick was the Canada Student Loan Act, 1964.[24] Under this Act, the province could authorize loans in [illegible] up to an allocated [illegible] which was contained in the Act. The allocation was on the basis of population in the [illegible] age group. [illegible]

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[24] [illegible]

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, 1965-1967
(In Thousands)

Year	Number of Students to Whom Certificates were Issued	Loans	Provincial Allocations
1965	2.0	$1,[illegible].0	$1,[illegible].0
1966	...	[illegible]	[illegible]
1967	4.0	3,041.2	[illegible]

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 Departments[39] which have had the responsibility for Indian Affairs have not undertaken to do their accounting on a provincial basis. A method of estimating the expenditures for New Brunswick was, therefore, necessary.

The method used in Table A-13 was based on the percentage of Indians residing in New Brunswick which implies that Indian education costs the same per [illegible] in all parts of Canada. As well, there is an implicit assumption that the age

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[37] These factors would include the negative multiplier effect that the loss of [illegible] and income, and mobility, of the Indian population.

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	$ 2.1	$ 34.4
1946	2.3	36.5
1947	2.5	40.6
1948	3.5	57.6
1949	2.2	35.7
1950	3.7	$ 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	11.9	214.5
1959	15.0	287.2
1960	17.6	316.0
1961	19.9	358.8
1962	21.7	390.9
1963	23.1	415.8
1964	25.5	459.4
1965	24.9	520.3
1966	34.0	634.4
1967	40.8	734.0

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) <u>Customs and Excise Rebates</u>

In the Excise Tax Act,[40] section 47a states:

> Where materials have been purchased by or on behalf of
> a) a school, university or other similar educational institution for use exclusively in the construction of a building for that institution,
> b) any organization for use exclusively in the construction of a building for that organization that is to be used exclusively or mainly as a public library operated on or on behalf of the organization on a non-commercial basis, or
> c) a corporation wholly owned and controlled by Her Majesty in right of a province that is established for the sole purpose of providing residences for students of universities or other similar educational institutions, for use exclusively in the construction of such residences,
> and the tax imposed by Part [illegible] has been paid in respect of those materials, the Minister may, upon application by such institution, organization or corporation in [illegible]

[illegible]

TABLE A-24

REFUNDS TO EDUCATIONAL INSTITUTIONS OF EXCISE TAX, 1967-1970

Province	1967		1968		1969		1970	
	Thousands	%	Thousands	%	Thousands	%	Thousands	%
[illegible]	$ [illegible]	0.5	$ 620.2	2.4	$ 1,020.8	3.8	$ 153.8	0.6
[illegible]	[illegible]	0.2	141.3	0.6	80.3	0.3	103.4	0.4
[illegible]	288.3	1.1	814.2	3.9	1,036.4	3.9	1,298.9	4.8
[illegible]	402.8	2.2	618.9	2.4	699.7	2.6	1,103.8	4.1
[illegible]	[illegible]	12.2	3,156.1	12.2	3,332.0	12.4	5,296.2	19.5
[illegible]	[illegible]	63.6	9,977.3	47.6	14,732.3	55.0	12,826.0	47.3
[illegible]	131.7	0.8	187.4	0.7	153.8	0.6	183.5	0.7
[illegible]	[illegible]	5.4	1,422.9	6.8	1955.0	3.7	1,307.0	4.8
[illegible]	[illegible]	3.4	2,434.2	11.6	2,761.4	10.3	3,249.3	12.0
[illegible]	[illegible]	5.6	1,821.6	8.7	2,015.2	7.5	1,580.0	5.8
Canada	[illegible]	100.0	[illegible]	100.0	$26,866.9	100.0	$27,102.1	100.0

Source: Communication from R. J. Neville, Chief, 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.

v) 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. [illegible] there [illegible] schools adjacent to the [illegible] station, the Department prefers to have the service children attend that school. Fees are paid, based on per pupil [illegible] the Department of Finance makes an annual [illegible] grant [illegible] taxes. The Department of National Defence [illegible] in the [illegible] of new schools on the [illegible] children [illegible]

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	. .	. .	. .	. .	. .	. .
A-12	102.0	753.0	617.0	428.0	370.0	146.0
A-13	. .	. .	. .	. .	. .	. .
A-14	. .	. .	. .	. .	. .	. .
A-15	. .	. .	. .	21.2	21.8	21.2
A-16	. .	. .	. .	. .	. .	. .
A-17	0.9	1.5	16.5	20.1	29.3	32.9
A-18	. .	. .	. .	. .	. .	. .
A-19	. .	. .	. .	. .	. .	. .
A-20	. . ?	. .	. .	. .	. .	. .
A-21	. .	. .	. .	. .	. .	. .
A-22[c]	. .	. .	. .	. .	. .	. .
A-23[c]	30.6	40.5	57.6	35.7	54.5	113.1
A-24[c]	b	b	b	b	b	b
Total	$653.1	$1,709.4	$1,219.4	$846.1	$1,065.1	$543.6
Population[d]	475.0	488.0	495.0	505.0	512.0	515.0
Per Capita[e]	$1.30	$3.50	$2.45	$1.68	$2.08	$1.05
Additional[f]	$30.6	$40.5	$57.6	$35.7	$54.5	$113.1
D.B.S.	. .	. .	. .	. .	. .	. .

[a] Items which are not grants, but which contribute support to total education in New Brunswick.

[b] Data not available but program in operation.

[c] In thousands of people.

[d] In 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	. .	. .	. .	. .	. .	. .
A-12	67.0	22.0	32.0	23.0	29.0	31.0
A-13	. .	. .	. .	. .	. .	. .
A-14	. .	. .	. .	. .	. .	. .
A-15	32.7	24.1	24.2	20.0	19.6	18.9
A-16	. .	. .	. .	. .	. .	. .
A-17	32.9	38.4	38.4	40.3	47.6	67.7
A-18	. .	. .	. .	. .	. .	. .
A-19	. .	. .	. .	. .	. .	. .
A-20	257.8	263.0	248.0	273.5	279.0	564.6
A-21	. .	. .	. .	. .	. .	. .
A-23[a]	. .	. .	. .	. .	. .	. .
A-24[a]	87.0	106.7	114.0	130.0	156.9	194.0
A-24[a]	b	b	b	b	b	b
Total	$660.0	$504.3	$482.6	$530.9	$501.4	$919.3
Population[c]	535.0	553.0	540.0	547.0	555.0	562.0
Per Capita[d]	$1.23	$1.10	$1.09	$1.10	$1.03	$1.64
Additional[e]	$87.0	$106.7	$114.0	$130.0	$156.9	$194.0
Ibid	. .	. .	. .	. .	. .	. .

TABLE A-25--Continued

	1958	1959	1960	1961	1962
Table A-1	$ 27.	$ 359.3	$ 123.4	$ 992.3	
A-10					
A-12	25.0	37.0	31.0	46.0	$1,562.6
A-13					44.6
A-14					
A-15	19.1	19.0	19.1	71.7	59.3
A-16					
A-17	66.8	111.6	155.7	172.0	136.2
A-18	422.0	710.0	382.0	109.0	128.0
A-19	41.0	14.0	22.9	33.0	18.0
A-20	565.0	565.0	385.0	594.9	379.7
A-21					
A-25a					
A-25d	211.5				
A-25g			216.0	368.8	395.9
	b	b	b	b	b
Total	$1,[illegible]	$2,[illegible]	$[illegible]	$[illegible]	$[illegible]
Population	671.0	[illegible]	[illegible]	699.0	665.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE A-25--Continued

	1963	1964	1965	1966	1967
Table A-1	. .	. .	. .	. .	. .
A-10	$[illegible]	$2,[illegible]9.7	$3,9[illegible]	$1,848.0	$3,863.[illegible]
A-12	19.0	47.0	55.0	64.0	43.0
A-13	. .	6.6	6.5	9.8	7.2
A-14	. .	2.0	5.[illegible]	5.2	0.9
A-15	[illegible]	49.5	60.3	65.1	62.4
A-16	[illegible]	9.4	9.7	11.2	12.9
A-17	163.[illegible]	[illegible]	3[illegible].5	541.0	680.[illegible]
A-18	. .	192.0	. .	140.0	31.0
A-19	37.0	21.0	23.0	66.0	121.0
A-20	1,0[illegible]	1,[illegible]	1,[illegible]	1,[illegible]	3,704.0
A-21	. .	. .	. .	56.8	76.5
A-22	. .	. .	1,3[illegible].0	2,339.[illegible]	3,011.[illegible]
A-23	[illegible]	[illegible]	[illegible]	[illegible]	734.[illegible]
A-24	b	b	b	b	459.[illegible]
Total	[illegible]	[illegible]	[illegible]	$1,0[illegible].1	$[illegible]
Population	[illegible]	[illegible]	[illegible]	617.0	619.0
Per capita	[illegible]	[illegible]	[illegible]	$[illegible].57	$1[illegible]
Additional	[illegible]	[illegible]	[illegible]	$2,9[illegible].0	$4,235.[illegible]
[illegible]	$1,[illegible]	$[illegible]	$[illegible]	$2,[illegible].0	. .

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 programs which are not [illegible]ported by grants (tax rebates, loans, etc.) gained in imp[illegible]ance during the latter half of the period under review. This was particularly the case during the latter half of the period in which the Pearson government was in Ottawa. This change has become more significant since 1967 with the shift in university operating grants to a new basis involving tax rebates.

An examination of Table A-[illegible] does not readily indicate the complicated nature of [illegible] the figures. Many of the federal programs are accounted for only on a gross basis. For a government [illegible] interested in [illegible] implications of federal programs there should be an active push towards [illegible] both by function and by geographical area. This does not [illegible] [illegible] [illegible] present arrangements.[illegible] [illegible]

[illegible]

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-2b 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-2b.

The second aspect in which Statistics Canada data differs from Table A-2b is that Table A-2b consists of [illegible] education while Statistics Canada [illegible]

[illegible], pp. 11-17.

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 role 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 understate the federal role in education expenditures.

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 (4 per cent of basic individual income tax and 1 per cent of corporation taxable income) and a cash payment of $15 per capita (escalated annually according to the national growth rate of post-secondary education operating expenditures) or 50 per cent of post-secondary

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[44] Dominion Bureau of Statistics, Survey of [illegible], p. 14.

[45] Canada, [illegible] Arrangements Act (Part [illegible]

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 $800 per capita of the population aged fifteen to nineteen in 1961 in capital grants. As well, the federal government agreed to take over the full cost of training allowances and programs 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 [illegible]. What it does constitute is a movement away from strictly controlled conditions while maintaining one major condition--that the grants be adjusted according to increases in post-secondary education spending. The recent arrangements do not, therefore, change the basic direction of this study.

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[46] Post-secondary education [illegible] defined as "any course of [illegible] the attainment of [illegible] graduation, [illegible] . . ." and the [illegible] expenditures [illegible] to [illegible] capital expenditures, student financial aid, and certain [illegible].

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 resource 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

TABLE B-1

TOTAL POPULATION: NEW BRUNSWICK AND CANADA, 1946-1967
(In Thousands of People)

Year[a]	New Brunswick	Canada	New Brunswick as a Percentage of Canada
1946	478	12,292	3.9
1947	488	12,551	3.9
1948	498	12,823	3.9
1949	509	13,447	3.8
1950	512	13,712	3.7
1951	516	14,009	3.7
19[illegible]	526	14,459	3.6
19[illegible]	533	14,845	3.6
19[illegible]	540	15,287	3.5
19[illegible]	547	15,693	3.5
19[illegible]	555	16,041	3.5
19[illegible]	562	16,610	3.4
19[illegible]	571	17,030	3.3
19[illegible]	[illegible]	17,454	3.3
19[illegible]	589	17,870	3.3
19[illegible]	598	18,238	3.3
19[illegible]	608	18,583	3.3
19[illegible]	619	18,964	3.2
19[illegible]	[illegible]	19,290	3.2
19[illegible]	629	[illegible]	3.1
19[illegible]	617	20,015	3.1
1967	619	20,405	3.0

[illegible] for June 1.

[illegible]

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 1940 and 1967. One means of distributing grants would be to use a per capita base, which means that New Brunswick in 1967 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-2 and B-3 demonstrate the age breakdown in absolute and proportional terms for New Brunswick and Canada. A general examination of these tables shows that New Brunswick has a considerably smaller proportion of the population in the productive ages (20-64) than did Canada while at the same time it had a larger proportion of the population in the ages when schooling is usually demanded (5-19).

Of importance also is the geographical distribution of the population. The geographical distribution can be [illegible] and it will be noted there that [illegible] New Brunswick's population that comes [illegible] much smaller than for the [illegible] provinces [illegible] population [illegible]

TABLE 3-2

[illegible] OF NEW BRUNSWICK BY [illegible] FOR CERTAIN YEARS, [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	1911		1966	
[illegible]	[illegible]	[illegible]	[illegible]	Thousands	%	Thousands	%
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16.1	72.9	11.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	24.9	149.2	24.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9.0	65.6	10.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.3	42.8	6.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11.3	65.2	10.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11.7	66.7	10.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9.5	60.6	9.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.5	44.0	7.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.3	50.3	8.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	100.0	616.8	100.0

Source: Canada, Dominion Bureau of Statistics, Census Division, Census of Canada, [illegible] (Ottawa: Queen's Printer), Vol. I, Table 26; Canada, Dominion Bureau of Statistics, Census Division. Census of Canada, 1966 (Ottawa: Queen's Printer), Vol. I (1-10), Part 1: Table 1; Canada, Dominion Bureau of Statistics, Census Division, [illegible] of Canada, 1961 (Ottawa: Queen's Printer), Vol. I [illegible]; Canada, Dominion Bureau of Statistics, Census Division, [illegible] of Canada, 1956 (Ottawa: Queen's Printer), Vol. I (1-10), [illegible].

TABLE 5-3

POPULATION OF CANADA BY AGE GROUPS FOR CENSUS YEARS, CENSUS YEARS 1921-1966

1921		1931		1941		1966	
Thousands	%	Thousands	%	Thousands	%	Thousands	%
[illegible]	[illegible]	1,988.0	[illegible]	2,256.4	12.3	2,197.4	11.0
[illegible]	[illegible]	3,341.6	20.2	3,935.5	21.6	4,394.4	22.0
[illegible]	[illegible]	1,224.6	7.4	1,432.6	7.8	1,837.7	9.2
[illegible]	[illegible]	1,139.1	6.9	1,183.6	6.5	1,461.3	7.3
[illegible]	[illegible]	2,414.4	15.0	2,481.1	13.6	2,483.5	12.4
[illegible]	[illegible]	2,139.9	13.8	2,389.9	13.1	2,543.2	12.7
[illegible]	[illegible]	[illegible]	[illegible]	1,975.5	10.3	2,078.2	10.4
[illegible]	[illegible]	[illegible]	[illegible]	1,289.8	7.1	1,479.7	7.4
[illegible]	[illegible]	[illegible]	[illegible]	1,391.2	7.6	1,539.5	7.7
[illegible]	[illegible]	[illegible]	[illegible]	18,285.2	100.0	20,014.9	100.0

[illegible] Canada, Dominion Bureau of Statistics, Census Division, Census of Canada, [illegible] (Ottawa: Queen's Printer), Vol. I, Table 23; Canada, Dominion Bureau of Statistics, Census Division, Census of Canada, 1956 (Ottawa: Queen's Printer), Vol. I, Bulletin 3-3, Table 1; Canada, Dominion Bureau of Statistics, Census Division, [illegible] (Ottawa: Queen's Printer), Vol. I [illegible], Table 1A; and Canada, Dominion Bureau of Statistics, Census Division, [illegible] (Ottawa: Queen's Printer), Vol. I (1-10), Bulletin [illegible].

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	8,628.3	10,714.9	1[illegible],700.4	14,725.8
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
Counties				
Albert	. .	14.7	31.4	39.3
Carleton	[illegible]	23.1	22.7	[illegible]
Charlotte	40.9	[illegible]	34.1	34.2
Gloucester	[illegible]	[illegible]	19.9	33.3
Kent	[illegible]	[illegible]	10.9	14.1
Kings	[illegible]	[illegible]	19.2	[illegible]
Madawaska	[illegible]	[illegible]	[illegible]	[illegible]
Northumberland	[illegible]	[illegible]	30.1	[illegible]
Queens	. .	[illegible]	11.7	[illegible]
Restigouche	[illegible]	[illegible]	[illegible]	[illegible]
St. John	93.1	[illegible]	93.1	[illegible]
Sunbury	13.6	14.7	[illegible]	[illegible]
Victoria	20.1	[illegible]	[illegible]	61.3
Westmorland	57.1	[illegible]	60.9	[illegible]
York	[illegible]	[illegible]	54.0	[illegible]

[a] The definition of "urban" used by the [illegible]

[illegible]

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	175.3	257.7	293..
	Percentage of Population			
Canada	17.9	16.9	19.0	16.9
New Brunswick	28.1	31.6	43.1	41.0
Counties				
Albert	71.8	62.9	58.0	58.4
Carleton	34.2	37.4	50.5	50.4
Charlotte	44.6	52.4	60.7	60..
Gloucester	39.5	43.0	70.3	66..
Kent	59.7	62.5	65.4	65.6
Kings	34.9	27.7	58.4	50.5
Madawaska	35.3	36.4	39.2	42.1
Northumberland	39.9	47.0	61.6	62.5
Queens	65.1	69.9	74.0	59.6
Restigouche	27.1	29.9	46.0	29..
St. John	1.5	1.8	11.5	13.1
Sunbury	43.3	41.9	35.0	33.9
Victoria	41.6	38.2	52.7	51.2
Westmorland	22.5	22.4	31.2	28.9
York	26.7	23.3	21.5	31.7

[illegible] of the increase in rural-non-farm [illegible] can be accounted for by a change in definition of rural population. See Table B-6.

Source: [illegible]

TABLE B-6

RURAL FARM POPULATION: CANADA, NEW BRUNSWICK, NEW BRUNSWICK COUNTIES, CENSUS YEARS 1951-1966[a]

Place	1951	1956	1961	1966
	Thousands of People			
Canada	2,827.7	2,631.6	2,072.8	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
Counties				
Albert	28.2	22.3	10.6	7.4
Carleton	43.4	39.5	26.8	26.1
Charlotte	14.5	7.3	[illegible].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	5.0
Queens	36.9	24.8	17.4	16.3
Restigouche	27.4	24.6	8.6	8.0
St. John	0.3	. .	0.4	0.3
Sunbury	35.9	23.8	5.8	4.7
Victoria	38.2	35.1	20.7	17.4
Westmorland	20.1	15.0	7.9	5.7
York	25.0	19.7	10.5	7.5

[a]Prior to 1961 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 comprised: (i) 3 acres or more in size; (ii) 1 to 3 acres having agricultural products amounting to a market value of $250 or more in the previous year." In 1961, the definition of "farm" was changed to "a holding of one or more acres with sales of agricultural products of $50 or more."

Source: Calculated from Canada, Dominion Bureau of Statistics, Census Division, Census of Canada, 1951 (Ottawa: Queen's Printer), Vol. 2, Table 15; Canada, Dominion Bureau of Statistics, Census Division, Census of Canada, 1956 (Ottawa: Queen's Printer), Vol. II-7, Table 15; and Canada, Dominion Bureau of Statistics, Census Division, Census of Canada, 1961 (Ottawa: Queen's Printer), Vol. III-1 (1-6), Table 16.

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. 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 trend from rural to urban may or may not be the most beneficial to upgrade incomes and economic growth.

Socially and economically the distribution of the population by language may have more effect. This material is presented in Table 6-7. It will be noted that New Brunswick's population is largely bilingual while the counties are [illegible] by the predominance of one language or another.

[illegible]

TABLE B-7

LANGUAGE DISTRIBUTION, CANADA, NEW BRUNSWICK AND NEW BRUNSWICK COUNTIES, 1961
(Percentage of Population)

Place	English Only	English and French	French Only	Neither
Canada	67.4	12.2	19.1	1.3
New Brunswick	62.0	19.0	18.7	0.3
Counties				
Albert	97.4	2.1	0.[illegible]	[illegible]
Carleton	97.1	[illegible]	0	[illegible]
Charlotte	95.6	[illegible]	0.3	[illegible]
Gloucester	11.7	29.1	59.0	0.2
Kent	[illegible]	34.0	45.7	0.7
Kings	97.4	[illegible]	0.1	0.1
Madawaska	[illegible]	30.[illegible]	[illegible]	0.2
Northumberland	[illegible]	[illegible]	18.[illegible]	0.[illegible]
Queens	94.1	[illegible]	0.5	0.1
Restigouche	[illegible]	[illegible]	[illegible]	0.2
Saint John	[illegible]	[illegible]	0.7	0.2
Sunbury	[illegible]	11.1	1.[illegible]	0.3
Victoria	[illegible]	[illegible]	17.[illegible]	0.2
Westmorland	[illegible]	[illegible]	[illegible]	0.3
York	[illegible]	[illegible]	[illegible]	0.1

[illegible] ATTAINMENT OF POPULATION FIVE YEARS AND OVER, [illegible] NEW BRUNSWICK COUNTIES, 1961

	Percentage of Population Five Years and Up Having at Least						
	[illegible]		[illegible] School			Elementary School	
	[illegible]	[illegible]	[illegible]	[illegible] Years	1 Year	5 Years	Kindergarten
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	50.6	[illegible]	94.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.1
[illegible]							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	93.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	42.3	87.4	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	90.8	94.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	84.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	87.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	94.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	32.5	[illegible]	85.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	90.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	93.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	70.6	85.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	94.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	91.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	77.6	89.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44.2	[illegible]	93.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	89.0	94.3

[illegible]: [illegible] Canada, Dominion Bureau of Statistics, Census Division, [illegible] Ottawa: Queen's Printer, Bulletin 1.2-10, [illegible]

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 show the school attenders as a percentage of the population five years and over and as a percentage of the school-age (5-24) population. As well, the school attenders 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 present a proxy for drop-out rates for the population age groups as they vary. The tables also would suggest [illegible] the varied levels of school attendance.

[illegible]

TABLE 5-9

CANADA, NEW BRUNSWICK AND
CENSUS DIVISIONS, 1971

	Population 15 Years and Over Attending School, University, Canada	Percentage of Population 5-24 Attending School
Canada	0.4	55.0
New Brunswick	0.4	
Census Divisions		
1	0.3	
2	0.3	
3	0.2	
4	0.4	
5	0.4	
6	0.4	
7	0.2	
8	0.5	
9	0.5	
10	0.7	
11	0.3	
12	0.4	
13	0.3	
14	0.4	
15	0.4	
16	0.4	
17	0.4	
18	0.4	
19	0.4	
20	0.4	
21	0.4	
22	0.4	
23	0.4	
24	0.4	
25	0.4	
26	0.4	
27	0.4	
28	0.4	
29	0.4	
30	0.4	
31	0.4	
32	0.4	
33	0.4	
34	0.4	
35	0.4	
36	0.4	
37	0.4	
38	0.4	
39	0.4	
40	0.4	
41	0.4	
42	0.4	
43	0.4	
44	0.4	
45	0.4	
46	0.4	
47	0.4	
48	0.4	
49	0.4	
50	0.4	
51	0.4	
52	0.4	
53	0.4	
54	0.4	
55	0.4	
56	0.4	
57	0.4	
58	0.4	
59	0.4	
60	0.4	
61	0.4	
62	0.4	
63	0.4	
64	0.4	
65	0.4	
66	0.4	
67	0.4	
68	0.4	
69	0.4	
70	0.4	
71	0.4	
72	0.4	
73	0.4	
74	0.4	
75	0.4	
76	0.4	
77	0.4	
78	0.4	
79	0.4	
80	0.4	
81	0.4	
82	0.4	
83	0.4	
84	0.4	
85	0.4	
86	0.4	
87	0.4	
88	0.4	
89	0.4	
90	0.4	
91	0.4	
92	0.4	
93	0.4	
94	0.4	
95	0.4	
96	0.4	
97	0.4	
98	0.4	
99	0.4	
100	0.4	
101	0.4	
102	0.4	
103	0.4	
104	0.4	
105	0.4	
106	0.4	
107	0.4	
108	0.4	
109	0.4	
110	0.4	
111	0.4	
112	0.4	
113	0.4	
114	0.4	
115	0.4	
116	0.4	
117	0.4	
118	0.4	
119	0.4	
120	0.4	
121	0.4	
122	0.4	
123	0.4	
124	0.4	
125	0.4	
126	0.4	
127	0.4	
128	0.4	
129	0.4	
130	0.4	
131	0.4	
132	0.4	
133	0.4	
134	0.4	
135	0.4	
136	0.4	
137	0.4	
138	0.4	
139	0.4	
140	0.4	
141	0.4	
142	0.4	
143	0.4	
144	0.4	
145	0.4	
146	0.4	
147	0.4	
148	0.4	
149	0.4	
150	0.4	
151	0.4	
152	0.4	
153	0.4	
154	0.4	
155	0.4	
156	0.4	
157	0.4	
158	0.4	
159	0.4	
160	0.4	
161	0.4	
162	0.4	
163	0.4	
164	0.4	
165	0.4	
166	0.4	
167	0.4	
168	0.4	
169	0.4	
170	0.4	
171	0.4	
172	0.4	
173	0.4	
174	0.4	
175	0.4	
176	0.4	
177	0.4	
178	0.4	
179	0.4	
180	0.4	
181	0.4	
182	0.4	
183	0.4	
184	0.4	
185	0.4	
186	0.4	
187	0.4	
188	0.4	
189	0.4	
190	0.4	
191	0.4	
192	0.4	
193	0.4	
194	0.4	
195	0.4	
196	0.4	
197	0.4	
198	0.4	
199	0.4	
200	0.4	
201	0.4	
202	0.4	
203	0.4	
204	0.4	
205	0.4	
206	0.4	
207	0.4	
208	0.4	
209	0.4	
210	0.4	
211	0.4	
212	0.4	
213	0.4	
214	0.4	
215	0.4	
216	0.4	
217	0.4	
218	0.4	
219	0.4	
220	0.4	
221	0.4	
222	0.4	
223	0.4	
224	0.4	
225	0.4	
226	0.4	
227	0.4	
228	0.4	
229	0.4	
230	0.4	
231	0.4	
232	0.4	
233	0.4	
234	0.4	
235	0.4	
236	0.4	
237	0.4	
238	0.4	
239	0.4	
240	0.4	
241	0.4	
242	0.4	
243	0.4	
244	0.4	
245	0.4	
246	0.4	
247	0.4	
248	0.4	
249	0.4	
250	0.4	
251	0.4	
252	0.4	
253	0.4	
254	0.4	
255	0.4	
256	0.4	
257	0.4	
258	0.4	
259	0.4	
260	0.4	
261	0.4	
262	0.4	
263	0.4	
264	0.4	
265	0.4	
266	0.4	
267	0.4	
268	0.4	
269	0.4	
270	0.4	
271	0.4	
272	0.4	
273	0.4	
274	0.4	
275	0.4	
276	0.4	
277	0.4	
278	0.4	
279	0.4	
280	0.4	
281	0.4	
282	0.4	
283	0.4	
284	0.4	
285	0.4	
286	0.4	
287	0.4	
288	0.4	
289	0.4	
290	0.4	
291	0.4	
292	0.4	
293	0.4	
294	0.4	
295	0.4	
296	0.4	
297	0.4	
298	0.4	
299	0.4	
300	0.4	
301	0.4	
302	0.4	
303	0.4	
304	0.4	
305	0.4	
306	0.4	
307	0.4	
308	0.4	
309	0.4	
310	0.4	
311	0.4	
312	0.4	
313	0.4	
314	0.4	
315	0.4	
316	0.4	
317	0.4	
318	0.4	
319	0.4	
320	0.4	
321	0.4	
322	0.4	
323	0.4	
324	0.4	
325	0.4	
326	0.4	
327	0.4	
328	0.4	
329	0.4	
330	0.4	
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333	0.4	
334	0.4	
335	0.4	
336	0.4	
337	0.4	
338	0.4	
339	0.4	
340	0.4	
341	0.4	
342	0.4	
343	0.4	
344	0.4	
345	0.4	
346	0.4	
347	0.4	
348	0.4	
349	0.4	
350	0.4	
351	0.4	
352	0.4	
353	0.4	
354	0.4	
355	0.4	
356	0.4	
357	0.4	
358	0.4	
359	0.4	
360	0.4	
361	0.4	
362	0.4	
363	0.4	
364	0.4	
365	0.4	
366	0.4	
367	0.4	
368	0.4	
369	0.4	
370	0.4	
371	0.4	
372	0.4	
373	0.4	
374	0.4	
375	0.4	
376	0.4	
377	0.4	
378	0.4	
379	0.4	
380	0.4	
381	0.4	
382	0.4	
383	0.4	
384	0.4	
385	0.4	
386	0.4	
387	0.4	
388	0.4	
389	0.4	
390	0.4	
391	0.4	
392	0.4	
393	0.4	
394	0.4	
395	0.4	
396	0.4	
397	0.4	
398	0.4	
399	0.4	
400	0.4	
401	0.4	
402	0.4	
403	0.4	
404	0.4	
405	0.4	
406	0.4	
407	0.4	
408	0.4	
409	0.4	
410	0.4	
411	0.4	
412	0.4	
413	0.4	
414	0.4	
415	0.4	
416	0.4	
417	0.4	
418	0.4	
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442	0.4	
443	0.4	
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445	0.4	
446	0.4	
447	0.4	
448	0.4	
449	0.4	
450	0.4	
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452	0.4	
453	0.4	
454	0.4	
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456	0.4	
457	0.4	
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462	0.4	
463	0.4	
464	0.4	
465	0.4	
466	0.4	
467	0.4	
468	0.4	
469	0.4	
470	0.4	
471	0.4	
472	0.4	
473	0.4	
474	0.4	
475	0.4	
476	0.4	
477	0.4	
478	0.4	
479	0.4	
480	0.4	
481	0.4	
482	0.4	
483	0.4	
484	0.4	
485	0.4	
486	0.4	
487	0.4	
488	0.4	
489	0.4	
490	0.4	
491	0.4	
492	0.4	
493	0.4	
494	0.4	
495	0.4	
496	0.4	
497	0.4	
498	0.4	
499	0.4	
500	0.4	
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507	0.4	
508	0.4	
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531	0.4	
532	0.4	
533	0.4	
534	0.4	
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538	0.4	
539	0.4	
540	0.4	
541	0.4	
542	0.4	
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544	0.4	
545	0.4	
546	0.4	
547	0.4	
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635	0.4	
636	0.4	
637	0.4	
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668	0.4	
669	0.4	
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675	0.4	
676	0.4	
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681	0.4	
682	0.4	
683	0.4	
684	0.4	
685	0.4	
686	0.4	
687	0.4	
688	0.4	
689	0.4	
690	0.4	
691	0.4	
692	0.4	
693	0.4	
694	0.4	
695	0.4	
696	0.4	
697	0.4	
698	0.4	
699	0.4	
700	0.4	
701	0.4	
702	0.4	
703	0.4	
704	0.4	
705	0.4	
706	0.4	
707	0.4	
708	0.4	
709	0.4	
710	0.4	
711	0.4	
712	0.4	
713	0.4	
714	0.4	
715	0.4	
716	0.4	
717	0.4	
718	0.4	
719	0.4	
720	0.4	
721	0.4	
722	0.4	
723	0.4	
724	0.4	
725	0.4	
726	0.4	
727	0.4	
728	0.4	
729	0.4	
730	0.4	
731	0.4	
732	0.4	
733	0.4	
734	0.4	
735	0.4	
736	0.4	
737	0.4	
738	0.4	
739	0.4	
740	0.4	
741	0.4	
742	0.4	
743	0.4	
744	0.4	
745	0.4	
746	0.4	
747	0.4	
748	0.4	
749	0.4	
750	0.4	
751	0.4	
752	0.4	
753	0.4	
754	0.4	
755	0.4	
756	0.4	
757	0.4	
758	0.4	
759	0.4	
760	0.4	
761	0.4	
762	0.4	
763	0.4	
764	0.4	
765	0.4	
766	0.4	
767	0.4	
768	0.4	
769	0.4	
770	0.4	
771	0.4	
772	0.4	
773	0.4	
774	0.4	
775	0.4	
776	0.4	
777	0.4	
778	0.4	
779	0.4	
780	0.4	
781	0.4	
782	0.4	
783	0.4	
784	0.4	
785	0.4	
786	0.4	
787	0.4	
788	0.4	
789	0.4	
790	0.4	
791	0.4	
792	0.4	
793	0.4	
794	0.4	
795	0.4	
796	0.4	
797	0.4	
798	0.4	
799	0.4	
800	0.4	
801	0.4	
802	0.4	
803	0.4	
804	0.4	
805	0.4	
806	0.4	
807	0.4	
808	0.4	
809	0.4	
810	0.4	
811	0.4	
812	0.4	
813	0.4	
814	0.4	
815	0.4	
816	0.4	
817	0.4	
818	0.4	
819	0.4	
820	0.4	
821	0.4	
822	0.4	
823	0.4	
824	0.4	
825	0.4	
826	0.4	
827	0.4	
828	0.4	
829	0.4	
830	0.4	
831	0.4	
832	0.4	
833	0.4	
834	0.4	
835	0.4	
836	0.4	
837	0.4	
838	0.4	
839	0.4	
840	0.4	
841	0.4	
842	0.4	
843	0.4	
844	0.4	
845	0.4	
846	0.4	
847	0.4	
848	0.4	
849	0.4	
850	0.4	
851	0.4	
852	0.4	
853	0.4	
854	0.4	
855	0.4	
856	0.4	
857	0.4	
858	0.4	
859	0.4	
860	0.4	
861	0.4	
862	0.4	
863	0.4	
864	0.4	
865	0.4	
866	0.4	
867	0.4	
868	0.4	
869	0.4	
870	0.4	
871	0.4	
872	0.4	
873	0.4	
874	0.4	
875	0.4	
876	0.4	
877	0.4	
878	0.4	
879	0.4	
880	0.4	
881	0.4	
882	0.4	
883	0.4	
884	0.4	
885	0.4	
886	0.4	
887	0.4	
888	0.4	
889	0.4	
890	0.4	
891	0.4	
892	0.4	
893	0.4	
894	0.4	
895	0.4	
896	0.4	
897	0.4	
898	0.4	
899	0.4	
900	0.4	
901	0.4	
902	0.4	
903	0.4	
904	0.4	
905	0.4	
906	0.4	
907	0.4	
908	0.4	
909	0.4	
910	0.4	
911	0.4	
912	0.4	
913	0.4	
914	0.4	
915	0.4	
916	0.4	
917	0.4	
918	0.4	
919	0.4	
920	0.4	
921	0.4	
922	0.4	
923	0.4	
924	0.4	
925	0.4	
926	0.4	
927	0.4	
928	0.4	
929	0.4	
930	0.4	
931	0.4	
932	0.4	
933	0.4	
934	0.4	
935	0.4	
936	0.4	
937	0.4	
938	0.4	
939	0.4	
940	0.4	
941	0.4	
942	0.4	
943	0.4	
944	0.4	
945	0.4	
946	0.4	
947	0.4	
948	0.4	
949	0.4	
950	0.4	
951	0.4	
952	0.4	
953	0.4	
954	0.4	
955	0.4	
956	0.4	
957	0.4	
958	0.4	
959	0.4	
960	0.4	
961	0.4	
962	0.4	
963	0.4	
964	0.4	
965	0.4	
966	0.4	
967	0.4	
968	0.4	
969	0.4	
970	0.4	
971	0.4	
972	0.4	
973	0.4	
974	0.4	
975	0.4	
976	0.4	
977	0.4	
978	0.4	
979	0.4	
980	0.4	
981	0.4	
982	0.4	
983	0.4	
984	0.4	
985	0.4	
986	0.4	
987	0.4	
988	0.4	
989	0.4	
990	0.4	
991	0.4	
992	0.4	
993	0.4	
994	0.4	
995	0.4	
996	0.4	
997	0.4	
998	0.4	
999	0.4	
1000	0.4	

Source: Canada, Dominion Bureau of Statistics, Census Division, Census of Canada, 1961 (Ottawa: Queen's Printer), Bulletin 1.2-10, Table 74.

TABLE B-10

[illegible] ATTENDANCE, CANADA, PROVINCES, [illegible], 1911

	Percentage of Population [illegible] Years and Over Attending					Percentage of Population 5-24 Attending School
	[illegible]	Elementary	Secondary	Some University	Degree	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	65.6
Provinces						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1	65.2
[illegible]	[illegible]	[illegible]	[illegible]	0.5	0.1	68.4
[illegible]	[illegible]	[illegible]	[illegible]	0.5	0.2	67.5
[illegible]	[illegible]	[illegible]	[illegible]	0.4	0.1	65.0
[illegible]	[illegible]	[illegible]	[illegible]	0.6	0.2	61.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	68.9
[illegible]	[illegible]	[illegible]	[illegible]	0.7	0.2	66.6
[illegible]	[illegible]	20.7	[illegible]	0.6	0.1	66.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	65.6
[illegible]	[illegible]	[illegible]	[illegible]	0.3	0.2	67.9
[illegible]	[illegible]	[illegible]	[illegible]	0.3	0.1	49.2

Source: Canada, Dominion Bureau of Statistics, Census Division, Census of Canada, 1911 [illegible] Bulletin 1.2-10, Introduction and Table 74; Bulletin [illegible], Table [illegible].

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 [illegible] the highest participation rate [illegible] Atlantic Provinces, but the percentage was lower [illegible] other Canadian provinces.

Table B-12 divides the labour force into individual occupation categories. The differences are most striking in that low-education [illegible], fishing and trapping, and farming, account for a significantly larger part of the labour force in New Brunswick as compared with [illegible] the population as a whole [illegible].

TABLE D-11

LABOUR FORCE PARTICIPATION RATES, CANADA AND PROVINCES, 1951 AND 1961

	Labour Force as a Percentage of Total Population		Labour Force as a Percentage of Population Fifteen Years and Over			
			Males		Females	
	1951	1961	1951	1961	1951	1961
Canada	37.5	38.7	84.0	78.1	24.1	29.7
Provinces						
[illegible]	[illegible]	[illegible]	[illegible]	79.4	65.3	16.1	18.6
[illegible]	[illegible]	[illegible]	[illegible]	84.3	76.5	18.7	24.9
[illegible]	[illegible]	[illegible]	[illegible]	81.9	74.0	20.0	24.8
[illegible]	[illegible]	[illegible]	[illegible]	81.7	71.6	20.6	25.1
[illegible]	[illegible]	[illegible]	[illegible]	83.2	77.3	25.1	28.2
[illegible]	[illegible]	[illegible]	[illegible]	85.7	81.1	25.6	32.9
[illegible]	[illegible]	[illegible]	[illegible]	82.7	78.4	24.3	31.6
[illegible]	[illegible]	[illegible]	[illegible]	82.4	78.2	18.3	26.6
[illegible]	[illegible]	[illegible]	[illegible]	84.1	80.9	20.5	31.0
[illegible]	[illegible]	[illegible]	[illegible]	78.4	74.5	23.4	28.6

[illegible]

Source: Canada, Dominion Bureau of Statistics, Census Division, Census of Canada, [illegible]

Note: [illegible] Publication 7.1-1, Table II.

TABLE [illegible]

[illegible] CANADA AND NEW BRUNSWICK,
[illegible]

[illegible]	[illegible]				Female			
	[illegible]		[illegible]		1961		1961	
	[illegible]	New Brunswick	Canada	New Brunswick	Canada	New Brunswick	Canada	New Brunswick
[illegible]								
[illegible]	[illegible]	7.3	[illegible]	[illegible]	3.0	3.9	2.9	3.8
[illegible]	[illegible]	[illegible]	7.7	[illegible]	14.4	18.5	15.5	20.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	27.5	21.7	23.6	24.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.3	[illegible]
[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	. .	. .	. .	. .
[illegible]	[illegible]	[illegible]	1.7	[illegible]	. .	. .	. .	. .
[illegible] Quarrying	[illegible]	[illegible]	1.4	[illegible]	. .	. .	. .	. .
[illegible]								
[illegible]	[illegible]	[illegible]	18.4	[illegible]	[illegible]	9.4	9.9	5.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1	. .	0.1	. .
[illegible]	[illegible]	[illegible]	9.5	[illegible]	2.9	2.5	2.2	2.6
[illegible]	[illegible]	[illegible]	5.6	[illegible]	10.4	12.0	10.0	12.0
[illegible]	[illegible]	0.4	[illegible]	[illegible]	0.1	0.1	0.2	0.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.2	27.4	22.6	27.6
[illegible]	[illegible]	[illegible]	[illegible]	8.2	21.0	27.3	22.1	26.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.3	1.5	1.2	0.7
[illegible]	[illegible]	[illegible]	2.7	2.3	1.1	1.7	2.5	2.0

Source: Canada, Dominion Bureau of Statistics, Census Division, Census of Canada, 1961 (Ottawa: Queen's Printer), Bulletin 3.1-1, Table 3.

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 barriers to entry, -..., teaching, nursing, and housework, etc. It would appear, then, that the low percentage in some other occupations as compared with Canada may be due to [illegible]

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 1945). 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 reader an impression of the relative importance of various industries in providing employment in selected years. Those which gained in importance as an employer (relative to 19[illegible]) [illegible] has decreased in importance as an employer. Comparable figures for Canada [illegible] for comparison. The only industry in New Brunswick [illegible]

TABLE 1-1

NEW BRUNSWICK MINERAL COMMODITY-PRODUCING [illegible], 1965-1967

[illegible]	1965		1966		1967	
	Value[a]	%[b]	Value[a]	%[b]	Value[a]	%[b]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	27.2	5.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36.5	7.7
[illegible]	[illegible]	[illegible]	11.2	2.4	10.9	2.3
[illegible]	[illegible]	[illegible]	[illegible]	0.1	0.3	0.1
[illegible]	[illegible]	[illegible]	31.5	6.7	32.6	6.9
[illegible]	[illegible]	[illegible]	32.0	6.8	36.0	7.4

[a] Figures in millions of dollars.

[b] Percentage of total production of all commodities in New Brunswick.

Source: Canada, Department of Energy, Mines and Resources, Mineral Resources Division, Mineral Resources Information: Province of New Brunswick (Ottawa: [illegible] and Canada, Dominion Bureau of Statistics, Mineral Statistics Section, 1967- [illegible] Queen's Printer, 1970), p. 14.

TABLE B-14

INDEX OF EMPLOYMENT BY INDUSTRIES, NEW BRUNSWICK AND CANADA, SELECTED YEARS, 1947-1965
(1949 = 100)

[illegible]	1947		1950		1955		1960		1965	
	N.B.	Canada	N.B.	Canada	N.B.	Canada	N.B.	Canada	N.B.	Canada
[illegible]	a	[illegible]	a	[illegible]	a	112.7	a	120.1	a	123.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	147.7	102.9	132.2	134.0	120.4	.73.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.3	109.5	93.5	109.5	111.5	123.3
[illegible]	[illegible]	[illegible]	93.2	[illegible]	94.5	118.5	93.9	123.7	95.9	142.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	92.6	110.5	92.6	111.1	89.1	114.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	113.1	116.7	132.8	136.7	135.4	163.2
[illegible]	[illegible]	[illegible]	[illegible]	102.1	106.5	112.9	103.4	113.7	115.6	138.1

[illegible]

Canada, Department of Energy, Mines and Resources, Mineral Resources Division, [illegible]: Province of New Brunswick (Ottawa: [illegible] Printer, [illegible]), pp. [illegible].

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 its resources do not match those of, say, Ontario, Alberta, or British Columbia.

3. Income

[illegible]

TABLE B-15

MINERAL PRODUCTION, NEW BRUNSWICK, TEN MOST SIGNIFICANT MINERALS, 1946-1966
(In Millions of Dollars)

Year	Copper	Lead	Silver	Zinc	Cement	Clay Products	Peat Moss	Sand and Gravel	Stone	Coal	Total
1946	.	.	.	.	.	0.3	0.1	0.8	0.4	2.1	3.7
1947	.	.	.	.	.	0.4	0.1	1.3	0.4	2.3	4.5
1948	.	.	.	.	.	0.4	0.1	1.2	0.4	3.7	5.8
1949	.	.	.	.	.	0.5	0.2	1.1	0.5	3.9	6.2
1950	.	.	.	.	.	0.7	0.2	3.0	3.5	4.4	11.8
1951	.	.	.	.	.	0.4	0.2	2.2	0.7	4.8	8.6
1952	.	.	.	.	.	0.7	0.1	1.8	0.5	5.8	10.4
1953	.	.	.	.	.	0.6	0.2	1.3	0.7	5.6	10.7
1954	.	.	.	.	.	0.5	0.2	1.8	0.6	6.2	11.6
1955	a	0.2	a	.	.	0.6	0.2	2.4	1.3	7.1	14.7
1956	a	0.1	a	0.2	2.4	0.5	0.5	3.2	2.0	8.0	17.4
1957	2.3	0.5	0.3	0.3	2.5	0.8	0.8	3.7	1.5	8.2	22.3
1958	1.2	a	a	0.7	2.9	0.6	0.7	1.8	1.9	6.6	15.4
1959	.	.	.	.	2.6	0.7	0.8	2.9	2.0	8.3	17.3
1960	.	.	.	.	2.6	0.7	0.8	2.1	1.4	8.7	16.2
1961	.	.	.	.	2.6	0.7	1.2	2.3	3.2	7.5	18.2
1962	2.3	0.4	0.2	0.6	2.8	0.8	1.4	2.8	3.1	6.8	21.2
1963	3.5	0.4	0.2	2.9	2.7	0.6	1.1	2.7	4.1	7.2	27.6
1964	4.2	0.8	0.2	16.4	2.9	0.7	0.9	2.6	3.0	8.4	48.0
1965	7.1	13.5	3.8	37.3	2.9	0.7	1.5	2.6	2.9	8.6	81.4
1966b	5.9	14.0	4.2	44.2	4.3	0.6	1.4	3.1	2.9	7.8	86.7

[a] Production of less than 150 thousand in value.

[b] Preliminary data.

Source: Canada, Department of Energy, Mines and Resources, Mineral Resources Division, Mineral Resource Development: Province of New Brunswick (Ottawa: Queen's Printer, 1967), pp. 267-69.

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	23.81
1956	32.90
1957	41.14
1958	28.50
1959	31.16
1960	28.99
1961	31.45
1962	30.93
1963	40.16
1964	42.09
1965	151.65
1966	142.51

VALUE OF MINERALS, NEW BRUNSWICK, 1945-1967

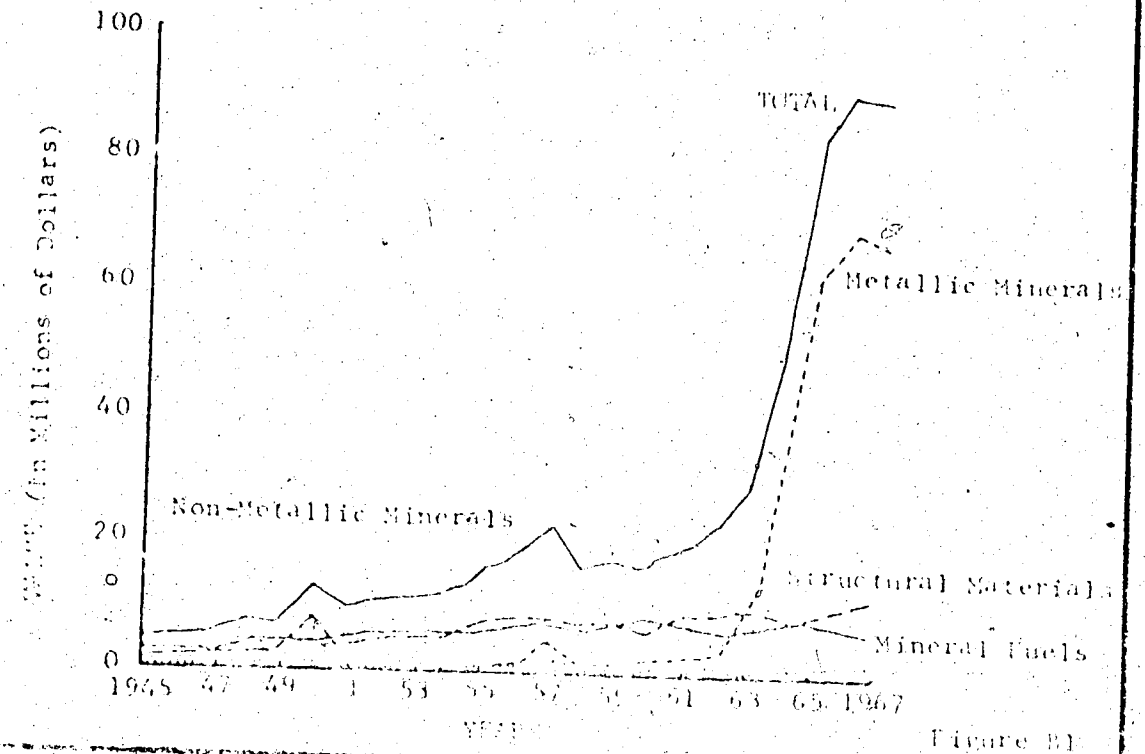

Figure 81

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. Thus, a better measure of economic well-being is desirable.

ii) Personal Income

Another measure of well-being which is available on a yearly basis is a series of personal income statistics. Personal income is the total income [illegible] by the household sector, including not only income originating from [illegible] activity [illegible] [illegible]. In [illegible], the

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	2,227	2,665	1,133	71.1	66.6	68.6
Prince Edward Island	2,187	2,887	1,061	69.8	71.7	64.3
Nova Scotia	2,497	3,188	1,243	79.8	79.7	75.3
New Brunswick	2,435	3,070	1,285	77.8	76.8	76.0
Quebec	3,123	3,870	1,703	99.7	96.8	103.2
Ontario	3,331	4,335	1,747	106.4	108.4	105.8
Manitoba	2,960	3,884	1,521	94.5	97.1	92.1
Saskatchewan	2,789	3,603	1,454	89.1	90.2	88.1
Alberta	3,223	4,160	1,664	103.0	104.0	100.8
British Columbia	3,203	4,177	1,652	102.3	104.5	100.1
Counties						
Albert	a	3,549	1,164	a	88.8	70.5
Carleton	a	2,376	1,023	a	59.3	62.3
Charlotte	a	3,145	1,100	a	78.6	66.6
Gloucester	a	2,422	938	a	60.6	56.8
Kent	a	1,803	747	a	45.3	45.2
Kings	a	3,319	1,239	a	82.9	75.0
Madawaska	a	2,917	1,156	a	73.1	70.0
Restigouche	a	2,397	1,095	a	60.0	66.4
Northumberland	a	2,568	911	a	64.0	55.2
Queens	a	2,917	1,140	a	73.1	69.0
Saint John	a	3,644	1,529	a	90.1	92.6
Victoria	a	3,000	1,173	a	75.1	71.2
Westmorland	a	2,729	1,046	a	68.5	63.5
York	a	3,405	1,359	a	85.1	82.1
Total	a	3,423	1,329	a	85.6	80.5

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. 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 24.8 per cent less than Canada's. By 1957, New Brunswick's personal income had fallen to 29.2 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.

(iii) Net and gross income

Tables B-19 and B-20 show provincial and national [illegible] and gross [illegible] respectively.

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1. [illegible]

2. [illegible]

TABLE B-13

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	979	69.5
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	1,341	66.8
1957	913	1,[illegible]	[illegible]
1958	917	1,[illegible]	[illegible]
1959	935	1,[illegible]	[illegible]
1960	1,049	1,[illegible]	[illegible]
1961	1,064	1,[illegible]	[illegible]
1962	1,114	1,[illegible]	[illegible]
1963	1,165	1,[illegible]	[illegible]
1964	1,272	1,[illegible]	[illegible]
1965	1,423	1,[illegible]	[illegible]
1966	1,523	2,[illegible]	[illegible]
1967	1,661	2,[illegible]	[illegible]

[a] Revised data for [illegible] are available in Canada, Dominion Bureau of Statistics, [illegible]

TABLE B-19

PER CAPITA NET INCOME AT FACTOR COST, NEW BRUNSWICK AND CANADA, 1946-1967

Year	New Brunswick Net Income at Factor Cost[a]	New Brunswick Population[b]	Per Capita Net Income at Factor Cost (1)÷(2)=(3)	Canada Net Income at Factor Cost[c]	Canada Population[b]	Per Capita Net Income at Factor Cost (4)÷(5)=(6)	New Brunswick as a Percentage of Canada $\frac{(3)}{(6)} \times 100$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
[illegible]	[illegible]	[illegible]	[illegible]	9,551	12,292	777	70.5
[illegible]	[illegible]	[illegible]	[illegible]	10,361	12,551	826	63.1
[illegible]	[illegible]	[illegible]	617	[illegible]	12,823	936	65.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13,447	900	65.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13,712	1,033	65.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14,009	1,184	62.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14,459	1,200	59.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14,845	1,300	58.4
[illegible]	[illegible]	[illegible]	[illegible]	19,132	15,287	1,245	62.7
[illegible]	[illegible]	[illegible]	[illegible]	20,737	15,698	1,321	60.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16,081	1,440	61.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16,610	1,446	60.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17,080	1,460	60.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17,483	1,526	60.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17,870	1,532	62.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18,238	1,549	61.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18,583	1,650	60.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18,931	1,735	60.7
[illegible]	[illegible]	[illegible]	[illegible]	35,397	19,290	1,835	63.3
[illegible]	[illegible]	[illegible]	[illegible]	38,919	19,644	1,981	65.4
[illegible]	[illegible]	[illegible]	[illegible]	43,306	20,015	2,164	64.9
1967	[illegible]	[illegible]	1,495	45,293	20,405	2,269	66.0

[a]Table B-21, column (6). In millions of dollars.

[b]Table B-1. In thousands of people.

[c]Canada, Dominion Bureau of Statistics, National Accounts Division, *National Accounts: Income and Expenditure* (Ottawa: Queen's Printer, various years, 1953-67), and Canada, Dominion Bureau of Statistics, Research Division, *National Accounts: Income and Expenditure* (Ottawa: Queen's Printer, 1958). In millions of dollars.

PROVINCIAL PRODUCT AT MARKET PRICES,
[illegible] CANADA, 1946-1967

[illegible]	[illegible]	[illegible] Provincial Product	[illegible] Provincial Product at Market Prices	Population[b]	Per Capita Gross National Product	New Brunswick as a Percentage of Canada
			(6)	(5)	(6) /	(7)
[illegible]	[illegible]	[illegible]	[illegible]	15,292	941	69.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,049	67.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,109	68.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,205	68.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	65.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	62.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	58.8
[illegible]	[illegible]	[illegible]	[illegible]	14,846	1,055	58.5
[illegible]	[illegible]	[illegible]	[illegible]	15,287	1,127	63.5
[illegible]	[illegible]	[illegible]	[illegible]	15,698	1,223	62.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,302	61.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,924	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	62.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,012	64.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,085	63.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,184	62.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,294	63.0
[illegible]	[illegible]	[illegible]	[illegible]	19,269	2,457	64.9
[illegible]	[illegible]	[illegible]	[illegible]	19,644	2,658	66.8
[illegible]	[illegible]	[illegible]	[illegible]	20,015	2,904	66.2
[illegible]	[illegible]	[illegible]	62,068	20,405	3,042	67.2

[a] Table B-21, column (9). In millions of dollars.

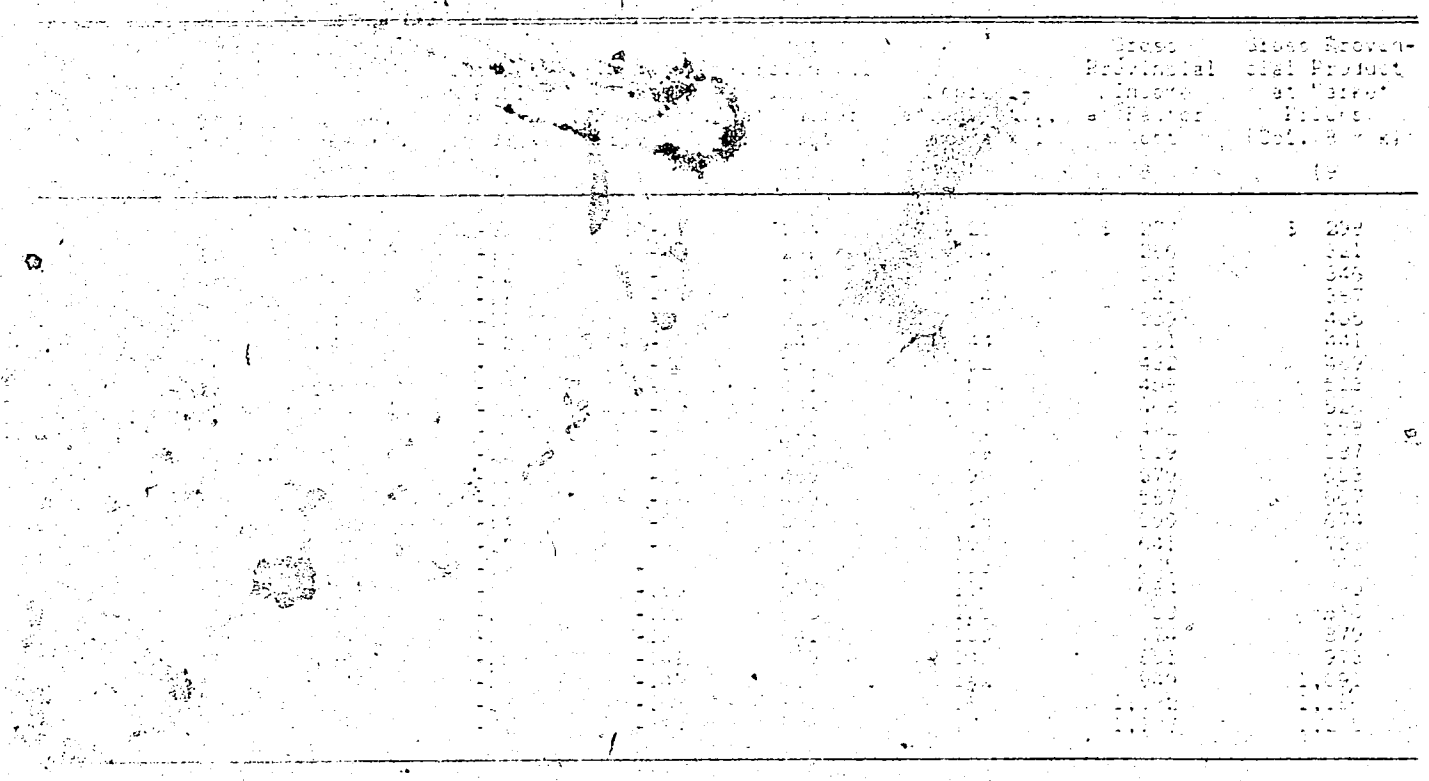
[b] Table B-1. In thousands of people.

[c] Canada, Dominion Bureau of Statistics, National Accounts Division, National [illegible] and Expenditure (Ottawa: Queen's Printer, various years, 1958-67), and [illegible] Bureau of Statistics, Research Division, National Accounts: Income and [illegible] (Ottawa: Queen's Printer, 1968). In millions of dollars.

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"[5] while gross product is "the output of 'true' final goods, plus the production of new capital goods."[6]

For New Brunswick, the calculations of net provincial income and gross provincial product are found in Table B-21.[7] 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.

An examination of Table B-19 shows that New Brunswick's [illegible] provincial product at market prices on a per capita basis increased by [illegible] per cent between 1926 and 1947 while [illegible] by the per cent over the period. [illegible] per capita personal income, New Brunswick



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 294 per cent while for Canada it was 434 per cent. This aggregate growth comparison makes the disparity between New Brunswick and Canada seem even greater.

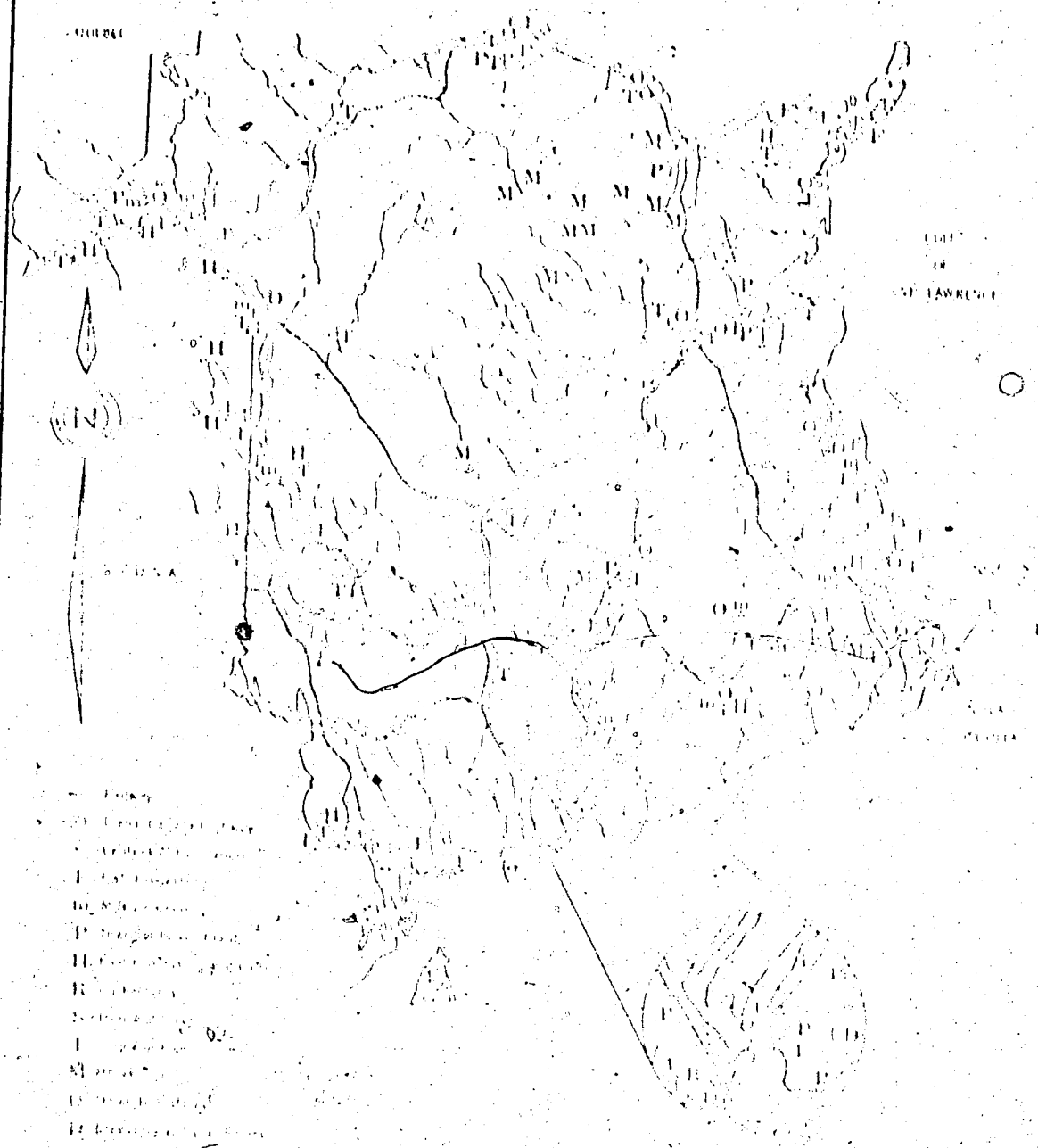
4. In Summary

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 numerous important attributes.

A summary of [illegible] activity within the province is included in the appendix. Figure 1-5 graphically [illegible] the location of the natural [illegible] and transporta- [illegible]

[illegible]

ECONOMIC ACTIVITY OF NEW BRUNSWICK



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-21. 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.