FOREIGN INVESTMENT AND THE THEORY OF ECONOMIC GROWTH

Examined within the framework of Canadian Economic Development

by Peter Hampton

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CURRICULUM STUDIORUM

Peter Hampton was born February 29, 1936, in Kaitangata, New Zealand. He received the Bachelor of Arts degree in Economics and Geography from Victoria University of Wellington, New Zealand, in 1958, and the Master of Arts degree in Economics from the same institution in 1961. The title of his thesis was Some Aspects of the General Agreement on Tariffs and Trade as it affects New Zealand.

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INTRODUCTION

The purpose of this thesis is to provide a theoretical framework within which a study could be made of the effects of foreign investment on the process of economic growth in an advanced, industrialized economy and to provide quantitative and qualitative data from Canada's historical experience in a form illustrating the basic theoretical relationships.

Statistically, there exists a large and growing volume of knowledge on the type, magnitude and source of foreign investment funds which have come into Canada since Confederation. Theoretically there exist systematic appraisals of the factors causing and reflecting economic growth, although no truly general theory of economic growth has, as yet, been developed. It is an essential part of the study to endeavour to bring these two generally independently pursued fields of study,into closer relationship.

The existing state of theoretical knowledge on growth and foreign investment is examined first, and methods by which quantitative expression can be given to measurement and classification of foreign investment inflows are considered. In the Canadian context the foreign investment flows have been of such magnitude as to impinge on most facets of aggregative domestic economic activity. A simplified

model of the Canadian economy illustrating broad interrelationships between key growth variables, has been set up.

The examination of the quantitative evidence relating growth to foreign investment provides a guide to the appropriateness of the theoretical analysis. The evidence of growing North American economic integration and rising living standards, is examined over a period of close to a century. Quantitative evidence is supported by consideration of qualitative and institutional factors which have influenced the source and disposition of domestic savings.

Finally, sub-periods from Confederation to the present day have been delineated. These periods provide a framework into which has been fitted an analysis of the interrelationships between growth and foreign investment inflows at varying stages in the development of Canada into a wealthy industrialized nation. A broad historical approach, principally within the National Accounts framework, has been the major tool of analysis.

Throughout the study emphasis has been placed on an endeavour to establish principles and methods of approach which will lead to a more thorough understanding of the role of foreign capital flows as a primary facet of international growth transmission.

CHAPTER I

THE THEORETICAL BACKGROUND

1. The Requirements for a General Theory Relating Foreign Investment to the Process of Economic Growth

At the present time there exists no general theory of economic growth. "By a theory we mean a statement of testable relations among empirically identifiable factors, such relations having been found relatively invariant in time and space"[1]. By economic growth is meant the rates of change in time of economic variables. Rates of change, their pattern over time, and the differential rates of change that occur within and between the populations affected by the total change in economic variables, form the substance of economic growth.

The principal factors that a general theory of economic growth must explain have been formulated by Kuznets[2] as:

(a) the factors behind the development of the more industrially advanced nations, and an examination of the possibilities of secular stagnation;

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[1] S. S. Kuznets, "Towards a General Theory of Economic Growth", in National Policy for Economic Welfare at Home and Abroad, ed. Robert Lekachman, New York, Russell and Russell, 1961, p. 14.

[2] Op. cit., p. 13.

(b) an illumination of the obstacles to growth in underdeveloped countries, thus providing a basis for intelligent development policies;

(c) an analysis of the operation of the theory in both centrally planned and private enterprise economies; and

(d) an analysis of the operations of the theory in periods of both war and peace.

(i) Partial Theories of Economic Growth.

What has developed is a series of partial theories, each containing their interpretation of the forces of economic growth and economic activity associated with this growth. Each theory has concentrated on certain aspects and features of economic growth and thus doesnot provide a long-time and wide-space perspective of the growth process.

W. A. Lewis[3] has perhaps come the nearest of any writer to creating a general theory. He attempted to create a framework for the study of economic development, but he does not present a truly general theory. Rather he deals with different theories of economic growth, which help to explain economic growth. He ranges over fields that go beyond economics, including social, cultural, religious and anthropological considerations. A major contribution made by Lewis was the stress that he laid on the importance of

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[3] W. A. Lewis, The Theory of Economic Growth, Homewood, Illinois, R.D. Irwin, 1955.

"economic activity" defined as "effort directed towards increasing the yield of a given effort or resource, or towards reducing the cost of a given yield"[4], in the growth process. The striving for optimum proportionality between resource inputs and final outputs is the fundamental definition of the term 'economy'.

(ii) Causes of Economic Growth.

Despite the lack of a general theory of economic growth, there is substantial agreement as to what are the main causal factors behind economic growth. Benjamin Higgins has put forward four fundamental causes of economic growth[5], namely,

(a) The accumulation of capital,

(b) Population growth,

(c) Discoveries of new resources,

(d) Technological progress.

These four factors are interrelated and most theories of economic development differ mainly because they place different emphasis on the interrelationships among these four factors. To these four factors could be added,

(e) The extent to which new resources, and previously discovered resources, are utilized,

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[4] W. A. Lewis, Op. cit., p. 23.

[5] Benjamin Higgins, Economic Development, Principles, Problems and Policies, New York, Norton, 1959, p. 239.

and the efficiency with which production is undertaken.

(f) The terms of trade. The volume of imports obtainable from a given volume of exports can vary markedly within short periods, particularly when the prices of exports are largely determined by world supply and demand conditions.

(g) Institutional and qualitative factors. These include the political factors which influence the 'climate' in which growth may develop, the attitudes towards work and enterprise, and the cultural backgrounds of nations.

(iii) The accumulation of capital.

The accumulation of capital as one component of national product, either net or gross of current consumption of durable capital, is an important cause of economic growth. Within the framework of the national accounts capital formation is measured (net or gross) by,

(a) additions to the stock of residential and non-residential construction,

(b) the new additions to the machinery and equipment of producers,

(c) net additions to business and farm inventories,

(d) Net Foreign Balances, i.e. net claims against, or net liabilities to, foreign countries.

It is this net foreign balance, that over the long run, is a basic measure of the foreign capital inflow affecting the domestic economy. Table I, within the framework of the national accounts, brings out the interrelationship between changes in the net foreign balance and other key aggregates for Canada covering the period 1957-1961.[5a]

The stock of capital is not the only strategic factor in the process of development. For continuous economic expansion to occur, many factors must operate favourably so as to produce a steady rate of capital accumulation. Perhaps most important among these associated factors are the improvements in the technical ability and scientific knowledge of the people who comprise a nation's labour force. Again, technological progress permits large additions to output with only minor additions to reproducible physical capital.

(iv) The International Character of Economic Growth.

Economic growth involves a sustained increase in population and product per capita of a nation. Economic growth can be defined as, "a perceptible increase in total and per capita income, widely diffused among income and social classes, continuing for at least two generations and becoming

5a 1957-1961 has been chosen as representing a homogeneous period of relatively slow economic growth.

TABLE I

Calculation of the Growth of Real Product in Relation to Net Foreign Balance, Canada, 1957-1961

($ million)

	1957	1961
Gross Domestic Expenditure (current $)	33,331	37,793
Export Receipts (current $)	6,391	7,578
Import Payments (current $)	7,813	8,487
Index of G.D.E. (1935-39 = 100)	224	238
Index of Exports (1935-39 = 100)	232	239
Index of Imports (1935-39 = 100)	231	244
Deflated G.D.E.	14,898	15,894
Deflated Export Receipts	2,758	3,168
Deflated Import Payments	3,377	3,486
Real Product (1935-39 constant $)	14,279	15,576
Net Foreign Balance (N.F.B.) (1935-39 constant $)	619	318
Index of Real Product	281	306
Index of Net Foreign Balance	415	213
Index of Real Product per person working	194	200
Index of Net Foreign Balance per person working	288	140

Source: Appendix 2.

cumulative"[6]. It is important to realize the international character of the growth process thus defined.

The flows of scientific knowledge, inventions, innovations, technical knowhow, and managerial and marketing ability, all transcend purely national barriers and act on the passive money flows, representing savings. These money flows, from domestic or foreign sources, are transformed under the impact of foreign enterprise.

It is the interrelationships between international capital movements and the other causal variables in the process of economic growth, that are the concern of this study. Orientation of the user amongst economic data is a primary task of economic theory and it is to this more limited end that a researcher may hope to proceed.

2. The Construction Techniques for a General Theory

There are four principal approaches an economist can take in endeavouring to establish economic laws covering want satisfying activities.

(a) A deductive approach, which consists of a process of reasoning whereby generalizations are made from assumptions which are taken to be true.

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[6] Benjamin Higgins, Op. cit., p. 199.

(b) An inductive or empirical approach, whereby general propositions are derived from particular cases.

(c) A statistical approach in which causal relationships between two or more sets of data on economic phenomena are indicated.

(d) A method of gradual approximations. Economic problems, being complex, are often best approached by eliminating certain cause and effect variables and thus making mental abstractions to provide a simplified model. Later the originally neglected factors may be introduced.

The technique of model building utilizes all these approaches. Model building can be approached from both a descriptive and mathematical viewpoint, but in either case there are certain characteristics of a good model which need to be considered.

(i) Characteristics of a Model.

A model consists of endogenous variables, to be explained within the system, and exogenous variables to be determined outside the system. A realistic model will incorporate the institutional framework into the model structure. In a nation like Canada, where foreign trade plays such an important role and export prices are largely determined by world supply and demand conditions, it is realistic to treat the volume of exports as determined outside the system.

The functional relationships that are analyzed in the

model represent convenient abstractions of the real world. The real world is too complex to discuss all causal relationships, but it is the test of a good model that the key relationships between the variables should be illuminated. The system should illustrate how the variables interact with each other to determine the behaviour of the system over time. If the theoretical relationships embodied in the equations prove consistent with behaviour in the real world it proves only, however, that the particular theories are not inconsistent with the workings of the economy.

All growth models should be dynamic in that variables at different points of time are considered to be functionally related. In descriptive studies the use of long, medium and short term analysis is useful. Economists find the study of dynamics a vital tool in presenting a reasonably realistic description of such phenomena as speculation, cyclical fluctuations and secular growth. In addition, dynamic analysis is a flexible mode of thought, both for pursuing the implications of various hypotheses and for investigating new possibilities. In actual fact, it can prove too flexible, for the number of conceivable models is literally infinite. The final test of a model, e.g. in a model endeavouring the illuminate theoretical relationships between growth rates and foreign investment, lies in its ability to orientate the researcher amongst statistical data.

(ii) The Macro-Historical Approach

Theoretical relationships embodied in economic models need to be tested against the historical experience of a nation. A model must be supplemented by interpretation, and the descriptive-historical approach exemplified in the work of Schumpeter[7] and Rostow[8] provides a broad perspective on data given for long historical periods. The analysis of Rostow, in which the stages through which nations have passed as their development has occurred are presented, represents a partial theory of economic history. Such a wide perspective complements the numerical accuracy given to quantitative relationships, by a mathematical model.

Statistics relating to Canada's balance of payments and international investment situation are available for a period of nearly one hundred years[9]. Table II presents statistics on the capital inflows into Canada 1900-1913

7 J. A. Schumpeter, The Theory of Economic Development, an Enquiry into Profits, Capital, Credit, Interest and the Business Cycle, New Edition, New York, O.U.P., 1961.

8 W.W. Rostow, The Stages of Economic Growth: a Non-Communist Manifesto, London, Cambridge University Press, 1960.

9 The chief contributors to this body of statistical knowledge are (i) O.J. Firestone, Canada's Economic Development, 1867-1953, London, Bowes and Bowes, 1958; (ii) Penelope Hartland, "The Canadian Balance of Payments since 1868", in Studies in Income and Wealth, Vol. 24, Princeton, Princeton University Press, 1961; (iii) F. A. Knox, Dominion Monetary Policy, A Study Prepared for the Royal Commission on Dominion-Provincial Relations, Ottawa, King's Printer, 1939. (iv) Jacob Viner, Canada's Balance of International Indebtedness, 1900-1913, Cambridge, Harvard University Press, 1924.

TABLE II

Capital Inflow into Canada by Type
1900-1913

($ million)

Amounts of foreign exchange required to	
(1) Meet deficit on commodity trade	1181.2
(2) Pay net interest and dividend imbalance	872.4
(3) Pay net imbalance on other current account items	184.8
(4) Allow {a build-up inflow of short term capital	203.0
(5) Errors and omissions	54.2
Amounts of foreign exchange acquired by	
(6) Direct investment inflow	678.1
(7) Portfolio capital inflow	1817.5

Source: Appendix I

and illustrates the detail available for this early period. Given this statistical background, historical analysis of foreign investment inflows into Canada is facilitated to a significant degree. Statistics on Canada's international investment position have become more comprehensive with the passing of each decade. Table III gives some of the results from a penetrating, modern study, initiated by the U.S. Department of Commerce, on the source and disposition of funds by U.S. direct investment companies in Canada[10].

3. The Partial Theories Relating Economic Growth to Foreign Investment

The partial theories of economic growth that exist at the present time present facets of the growth process. Emphasis here must be placed on theories which relate investment expenditures to the process of economic growth. These theories must in turn be reinterpreted in the light of a particular component of investment expenditures, namely the foreign investment component.

International Economics is concerned with commercial movements between nations which can take the form of movement

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10 The results of these surveys, published in the Surveys of Current Business, U.S.D.C., Vol. 41, No. 9 and Vol. 42, No. 9, issues of Sept. 1961 and 1962 respectively, are analyzed in Chapter III, Section 1. These statistics are not covered by the official balance of payments presentations.

TABLE III

Sources and Uses of Funds of U.S. Direct-Investment Enterprises in Canada, Selected Industries, 1961
(In Millions of Dollars)

ITEM	Selected Industries			
	Mining and Smelting	Petro-leum	Manufac-turing	Total Selected Industries
Sources of Funds				
Net Income	161	199	400	760
Funds from U.S.	9	99	127	235
Funds borrowed in Canada or in Third Countries	140	20	60	220
Depreciation and Depln.	80	217	340	637
TOTAL	390	535	927	1,852
Use of Funds				
Property, Plant & Equipment	165	340	361	866
Inventories Additions	51	10	60	121
Receivables Additions	40	27	126	193
Other Assets	48	36	100	184
Sub-total Investment	304	413	647	1,364
Income Paid Out	86	122	280	488
TOTAL	390	535	927	1,852

Source: "Financing U.S. Direct Foreign Investment Capital Outlays", Survey of Current Business, U.S. Dept. of Commerce, September, 1962.

SUMMARY: U.S. Direct Investment Enterprises 1961

Funds from Canada ($ million) (Source (i))	$1,129
Funds from U.S.A. ($ million)	235
TOTAL ($million)	1,364
U.S. Funds as a Percent of Total:	17.4

(i) Includes a small amount borrowed from countries other than the United States.

across international frontiers of good, services, men, money and ideas. These flows between nations can be represented in an integrated conceptual framework reflecting international economic transactions called the balance of payments. The balance of payments can in turn be integrated into the framework of the National Accounts, the latter accounts providing the basic measurements of growth aggregates in the Canadian economy[11].

Countries tend to specialize in the production of those commodities requiring relatively large amounts of their abundant factors. Differences in factor proportions and prices as between nations provide the fundamental reason for trade and specialization between nations. Nations will export domestically produced commodities and import those, the technical production requirements of which, best fit the factor supplies and prices of other countries. Ohlin[12] believed that trade, by equalizing prices everywhere, subject to transport costs, would tend to equalize factor prices in all countries. The important point is that capital with its associated technological and managerial benefits, has proved relatively mobile as between nations. The object of increasing

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11 The D.B.S. publication, National Accounts, Income and Expenditure, 1926-1956, Queen's Printer, 1958, p. 109, gives the integration between the balance on current account as per official balance of payments statistics and the net foreign balance.

12 Bertil Ohlin, Interregional and International Trade, Cambridge, Massachusetts, Harvard University Press, 1933.

material abundance has been pursued by nations, by endeavouring to make capital plentiful relative to land and labour, and importing foreign capital.

(i) The Savings-Investment Theory.

The Savings-Investment theory developed by Keynes[13] provides the theoretical framework for a theory linking foreign investment and the growth process. In this theory Gross Domestic Investment is the sum of two components, gross domestic savings plus the net foreign balance. Within this framework foreign investment flows can be given precise measurement. In this way the extent to which a country has drawn on the resources of the rest of the world to finance her capital development can be measured[14]. Another measurement of the extent to which foreign savings have supplemented domestic savings is to measure the percentage of the capital stock owned by foreign interests, in certain sectors of the economy. Book value valuations for certain sectors of the Canadian economy are given in Table IV[15].

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13 J.M. Keynes, The General Theory of Employment, Interest and Money, London, MacMillan, New York, St. Martins 1936, reprint 1960, presents the original framework.

14 Such an approach is discussed in Chapter III, Section 1. The Keynesian Savings-Investment relationship is discussed in Chapter IV.

15 The problems involved in estimating the capital stocks of a nation are numerous, (see Wm.C. Hood and Anthony Scott, Output, Labour and Capital in the Canadian Economy, Ottawa, Queen's Printer, February 1957, p. 231-245) and book value figures give approximations only.

TABLE IV

Total Capital Employed and Foreign Investment Component
in Certain Sectors of the Canadian Economy
Year ends 1926-1959

Book Values $ (billions)

	1926		1939		1948		1954		1959	
Sector (i) Total capital employed (ii) Non-resident owned capital	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)
Manufacturing	3.1	1.2	3.5	1.5	5.7	2.4	8.3	3.9	11.7	6.0
Petroleum and natural gas	0.6	0.2	0.8	0.3	1.1	0.4	2.5	1.5	5.5	3.5
Other mining and smelting							1.9	1.0	3.0	1.8
Railways	3.5	1.9	3.4	1.9	3.4	1.5	4.1	1.4	5.2	1.4
Other utilities	1.3	0.4	2.1	0.6	2.6	0.5	5.3	0.7	8 .8	1.3
Construction & Merchandising	2.1	0.2	2.1	0.2	3.2	0.3	6.1	0.6	9.5	0.9
TOTAL	10.6	3.9	11.9	4.5	16.0	5.1	28.2	9.1	43.7	14.8

Sources: The Canadian Balance of Payments (1958 and 1960) and
International Investment Position.

These two measurements, however, tend to hide the essential differences that may exist between foreign and domestic investment as generators of economic growth. The less the degree of substitutability between the two types of investment, the greater the need to qualify the savings-investment approach.

(ii) Schumpeterian Analysis.

Schumpeter[16] saw growth as a by-product of innovation and technological advances. In a fundamental sense his theory runs in terms of an endogenous self-perpetuating process, a process inherent in the inner structure of a private enterprise economy, in which the impelling force is the innovating entrepreneur. Innovations may be defined as the setting up of new production functions. These innovations appear at irregular intervals and provide the initial shock which sets up the periodic movements in economic aggregates. These movements provide the fundamental characteristics of the business cycle. Innovation requires capital investment, which accordingly appears 'en-masse' at intervals. Exogenous factors, e.g. the development of the railroad, are important with respect to the secular trends against the background of which the regular business cycle unfolds.

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16 J. A. Schumpeter, Op. cit.

The analysis of Schumpeter has critical importance in the explanation of foreign investment flows between Canada and the more developed U.S. economy. "A nation as large and wealthy as the U.S. is naturally an important source of saving for the entire world.... Its advanced technology invites emulation abroad, and the profitability of duplicating American technology draws American savers and investors beyond domestic borders. Its need for foreign resources to supply American production attracts private U.S. development capital"[17].

The technological advantages enjoyed by the U.S. provide one explanation for the flow of investment funds from the U.S. to Canada. They also partially explain the rather low degree of substitutability between Canadian savings and foreign investment inflows[18].

(iii) The Dual Economy Thesis.

Hla Myint[19] developed the thesis that the intrusion of foreign investment into an underdeveloped economy tended to fossilize the earnings of domestic factors of production at their low initial levels. Assuming that a backward country

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17 The Annual Report of the Council of Economic Advisers, to the President of the U.S., U.S. Government Printing Office, Washington, 1963, p. 93-94.

18 Chapter III, Section 3, develops this point.

19 Hla Myint, "The Gains from Trade and Backward Countries", in the Review of Economic Studies, Vol. 22, No.58, issue of 1954-55, p. 129-142.

begins to specialize in the production of an export commodity which requires more relative capital to labour than its domestic industries, it is logical to assume that profits and interest will rise relatively to wages. This, however, assumes that the resources of the country are given and that it can increase export production only by withdrawing resources from domestic industries. If the net additions to the country's output are due, not to the utilization of domestic resources, but due to an influx of foreign capital for which there is no adequate domestic substitute, then the earnings of the domestic factors of production will tend to remain at their previous levels or be depressed even further.

The bulk of the new production for export may take the form of net additions to output made possible by the utilization of new resources under the impetus of foreign capital. A dual economy thus develops with the foreign investment concentrating in the most productive sectors of the economy.

(iii) The Harrod-Domar Analysis.

The logical follow-up to a theory which postulates that foreign investment is a basic generator of additional output, is to analyse the volume of the incremental output in relation to final demand existing and the incomes generated in the productive process.

It was the contribution of Harrod[20] and Domar[21] to stress the dual nature of the investment process. Investment creates both additional productive capacity and additional income. Foreign investment disturbs the circular flow of economic goods and services in two ways. A substantial portion of the income generated is either remitted or ploughed back into the foreign controlled enterprises, which increases the potential remittance and repatriation problem. Secondly, a large portion of the final output of the industries into which the foreign investment flows is often sold on a world market, where price is very dependent on world supply and demand conditions. Under such conditions the value of the final output can vary markedly over time. Because of both these influences the possibility of divergences between income generated and output created is enhanced. Unsold output can in turn lead to the development of substantial excess capacity.

(iv) The 'Frontier' Analysis.

The development of excess capacity is one aspect of the stagnation thesis. This theory, which has its chief

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20 R. F. Harrod, Towards a Dynamic Economics, London, MacMillan; New York, St. Martins, 1961.

21 Evsey D. Domar, "Expansion and Employment", in the American Economic Review, Vol. 37, No. 1, issue of March 1947.

exponent in Hansen[22], foresees the gradual drying up of private investment opportunities. "The theory attributes stagnation to four sub-trends, the expansion of personal and corporate savings, the declining rate of population growth, the disappearance of geographical frontiers and the tendency for inventions to become capital-saving rather than capital absorbing"[23].

The motives for foreign capital movements include, the discovery of new resources or lower cost supplies of old resources, the desire to improve overall firm profits by gaining access to domestic markets, and political reasons, e.g. to ensure continuity in essential strategic raw material supplies. The spread of technology and skills associated with the money flow is one means of finding new frontiers which provide profitable opportunities for private investment.

When capacity in the capital exporting nations is fully utilized and capital for domestic investment is in heavy demand, high profitability will tend to keep capital within the exporting country. Conversely, unutilized capacity, declining profit margins and high unemployment levels will tend to encourage the outflow of capital. In many cases,

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22 Alvin H. Hansen, Fiscal Policy and Business Cycles, New York, Norton, 1941, presents this thesis in a clear manner.

23 Benjamin Higgins, "Concepts and Criteria of Secular Stagnation", in Income, Employment and Public Policy, ed. L. A. Metzler, New York, Norton, 1948, p. 90.

however, a slowing down in growth rates in the major capital exporting nations of the world is transmitted, via the network of world trade, to the capital importing nations. These latter countries thereby lose some of their attractiveness to foreign investors.

One of the frontiers that is being met in the industrially advanced nations of the world is the 'public sector' frontier. As nations become wealthier the preoccupation with material wants diminishes and many of the goods produced may satisfy only a 'second class' of wants not directly related to the primary biological necessities of food, shelter and clothing. In such a situation there may be a case for more extensive government participation and/or influence over processes of distribution, production and consumption. It is with this situation that the following section is largely concerned.

4. The Institutional Framework for Foreign Investment

"More rapid economic growth raises living standards, enhances job opportunities and permits satisfaction of many needs now beyond our reach -- in short it improves the quality of our lives"[24]. Thus economic growth is desired

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24 The Annual Report of the Council of Economic Advisers, 1963, p. 42-43.

for the multitude of attendant benefits that it brings including higher living standards and greater economic security for the individual and the nation.

The question as to whether the public sector in the basically private enterprise economies should expand in order to ensure maximum rates of economic growth, is a crucial question[25]. Economic development in many emerging nations has been provided by public capital as well as private capital and the question arises as to whether or not the institutional structures, which include governments at various levels, in both lending and borrowing countries, could facilitate the growth producing characteristics of international capital flows.

(i) Public needs and private wants.

The flow of long-term capital between advanced industrialized nations usually takes the form of private capital flows. From the point of view of the lending country the direct investment flows carry with them control elements and they are thus extending the sphere of influence of the financial interests in the lending country. From the point of view of the borrowing country these capital flows often bring with them associated benefits in the form of assured

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25 Private Wants and Public Needs, ed. Edmunds S. Phelps, New York, Norton, 1962, poses this crucial issue.

markets for the final output, technological advantages and many other growth promoting benefits not found in association with domestic capital formation. Thus it may not be possible for the government of the country in receipt of the foreign investment, to supplant foreign by domestic savings despite an adequate supply of domestic savings in aggregate value terms.

The Galbraithian thesis[26] considers that in advanced, relatively wealthy countries, and particularly in the U.S., the rate of growth of productivity in the private sector has tended to outstrip the growth of wants. Wants[27] have been artificially created via advertising and salesmanship, and the result has been a proliferation of trivia in the form of consumer goods. Galbraith argues that the reallocation of resources to the public sector, into the fields of public housing, education, health and other social services, would significantly increase the welfare of the nation.

When foreign investment flows enter a country in the form of direct investment, they do not offer the recipient country a choice of alternative uses for the funds. The direct investment funds are geared to the private enterprise sector of the economy of the lending country. Whether

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26 Presented most cogently in The Affluent Society, Boston, Houghton Mifflin, Cambridge, Riverside Press, 1956.

27 For further discussion of the concept of "wants" see Chapter III, Section 3.

the expenditures in social fields should increase or not is not a relevant area of policy discussion when the direction of foreign controlled investment is being examined. This is particularly true in the short-run when domestic savings provide no real substitute for a significant percentage of the foreign capital.

(ii) Attitudes towards Investment and Consumption.

The allocation of the output of a nation is of crucial importance in determining the direction and speed of a nation's development. The 'horizons' of a nation may be limited by a lack of physical capital, a lack of cultural capital, habits and taboos, and by ignorance. In such cases, consumption desires will be limited[28]. But foreign investment often brings with it the material standards of living associated with the more advanced technological state of the capital exporting nation. In this case the horizons of the domestic consumers may be 'expanded' by the contact with outside technology.

The capital flows are usually from nations with high per capita incomes to those with lower per capita incomes and they may expand or limit the horizons of the population. In the case of capital flows between Canada and the U.S. there

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28 W. A. Lewis, Op. cit., p. 29-30 discusses the concept of 'limited horizons'.

has been a tendency for these flows to expand the horizons of the Canadian consumer by introducing new, high quality products.

(iii) Qualitative Aspects of Economic Growth.

The qualitative aspect of economic growth, embodied within the institutional structure of a nation, is of considerable importance. The natural resources which offer remunerative possibilities for economic activity, are fundamental determinants of a country's ability to attract foreign capital and of the ability of this capital to promote economic growth. But also fundamental determinants are the political, social, economic, fiscal and administrative institutions and conditions, which may or may not provide inducement to the secure and remunerative conduct of business[29].

Domestic enterprise, capital and labour differ in their willingness and ability to co-operate with foreign enterprise and to use foreign capital and skills. Where a community of interests is promoted between foreign investors and domestic business, the less is the risk of policies of foreign investors running counter to national policies. Policies directed towards the training of local employees, the

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29 A thorough analysis of the institutional climate most conducive to foreign investment and domestic equity participation is given in Conditions of Private Foreign Investment, published for the League of Nations, Princeton, Princeton University Press, 1946, 48 pages.

engaging of local executives and technicians and the encouragement of local equity participation, all promote this harmony of interests.

Foreign capital flows can, therefore, affect income distribution, they can bring about an improvement in the quality of material goods and services and they can lead to the provision of a greater quantity of leisure time by improving the productivity of the labour input. It is these facets of the growth process that distinguish the modern concept of economic growth, from the concept conceived by the classical economists[30]. Adam Smith and his followers made the broad ethical assumption the quantities of satisfaction were proportional to quantities of physical output. To Adam Smith[31] the nature of a nation's wealth was the sum of the current output of the comforts, conveniences and necessities of life, in modern terms real gross national product per capita. Little stress was laid on the distribution of the final output or on the intangible aspects of economic growth such as environmental factors, political developments, or cultural progress.

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30 The three main writers were Adam Smith, David Ricardo and J. S. Mill.

31 e.g. Adam Smith, An Enquiry into the Nature and Causes of the Wealth of Nations, New York, Random House, 1937, ed. E. Cannan, p. 1-30.

(iv) Savings Institutions.

The savings institutions are one media through which domestic savings are channelled towards capital formation. The act of saving does not automatically ensure a corresponding act of investment. This study is concerned with the Canadian historical experience and it is interesting, in building up a theoretical framework, to use an inductive approach. From the viewpoint of Canada, perhaps the most significant fact in illuminating the close connection between institutional factors and foreign capital inflows, has been the traditional reluctance of the institutional savers to invest in equities. This is partly the result of law and custom[32] and has left an important gap in the Canadian investment scene which has been largely filled by U.S. direct investments.

Some generalizations can be made based on the experience of Canada, in an endeavour to find general laws governing institutional behaviour in countries in receipt of capital inflows and such an assessment is made in this thesis in Chapter IV.

(v) Conclusions.

Foreign capital flows perform three main functions. They "balance" a countries' international accounts, "expand"

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[32] See Chapter IV.

the output of the recipient country and "allocate" domestic and foreign resources into new areas of activity[33]. In these processes, economic growth, in both its quantitative and qualitative aspects, is affected. An examination of the role of foreign capital in carrying out these functions in Canada, an examination of the possibilities of discovering general laws governing the relationship between the two variables growth and foreign investment, and an outline for a methodological approach, form the subject matter of the remainder of this thesis.

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33 D. B. Marsh, World-Trade and Investment, the Economics of Interdependence, New York, Harcourt-Brace, 1951, p. 68, uses these terms.

CHAPTER II

ALTERNATIVE ECONOMIC MODELS

1. Relationships in a Two-Country World

The relatively free movement of domestic factors of production internally will tend to equalize the earnings of factors of production in various occupations. It is also a fundamental proposition of international economics that factor mobility between nations will have a similar balancing effect. The greater the degree of contact between nations, the more marked will be this balancing effect.

The main hypothesis then, is that the rates of growth between nations are not independent of one another. The wider the range of contacts between nations the more equal will growth rates tend to be. The forces making for the adjustment of growth rates and levels of income between nations operate through the balance of payments. The specific force of interest in this study is the flow of international investment. This latter force is, however, often associated with movements of debts, ideas, persons and merchandise.

"The main grounds for this presumption (that even when the contacts between economies are restricted, the rates of growth of income and income per head will be related to

each other and not independent) is that equilibrium in the balance of payments of each country must be established as part of the general equilibrium of the international economy, and this means that the values of exports and imports of each country must be equated at a rate of exchange that is not perpetually changing in one direction"[1].

(i) The Classical and Keynesian Trading Worlds

In the classical model, monetary systems operated to automatically bring balance of payments into equilibrium. Under the gold standard mechanism, a change in the quantity of money was held to affect demand and demand to affect costs and prices rather than output and employment.

In the Keynesian model balance of payments adjustments took place via induced movements in income and employment. This approach sharpened the conflict between external and internal stability. Income and employment were at stake rather than price stability. Equilibrium in the balance of payments could be at a high or low level of trade and incomes. In a world of relatively stable levels of income and employment, exchange rate and internal price adjustments would be of vital importance despite their uncertain effects[2].

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1 W. C. Hood and Amthony Scott, Output, Labour and Capital in the Canadian Economy, Ottawa, Queen's Printer, 1957, p. 111-112.

2 The savings investment approach is fully dealt with in Chapter IV.

(ii) Growth and Allocation

Two ~~distinct problems arise~~. The problem is to examine the effects of a change in foreign investment flows on two factors.

(a) On the levels of employment and real income and on the balance of payments. What effects do such changes have on the problems of preserving a balance in the financial payments between nations and at the same time maintaining domestic full employment? Maximum utilization of all resources is a prerequisite for maximum economic growth.

(b) On the efficient allocation of the world's resources and the distribution of income between nations. Efficient allocation of scarce resources among competing ends is another fundamental factor involved in the process of economic development[3].

The approach to the problem is one of comparative statics. Into the mechanism of international trade, disturbances are introduced. In this case they are flows of international capital of various types. The effects which these changes have on growth rates, levels of income and other key variables, can be divided into primary and secondary effects. The changes themselves may be brought about through government action, private individuals in search of profit, or a number

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[3] In this present section the allocative aspects are given less weight in the analysis.

of other causes. The rigid initial assumptions are gradually relaxed[4].

The principal factors which will affect capital movements between nations may be briefly summarized.

(a) The supply of loanable funds (savings) in relation to demand.

This is crucially affected by the level of real income, and the propensity to consume

(b) The relative profitability of domestic and foreign investment outlets.

(c) Expectations regarding the rate of exchange.

(d) Relative rates of interest at home and abroad, and exchange controls.

(e) Taxation policies.

(f) Risks inherent in the institutional framework. It is the interrelationships between these factors that will be considered.

It is important to note that the size of the change in the inflow of foreign capital relative to the existing stock of capital and to total foreign investment already undertaken, will have important bearing on the result. Analysis based essentially on marginal adjustments becomes more appropriate the smaller are both the above ratios. Given that,

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[4] The following analysis is based largely on the treatment of J. E. Meade, The Balance of Payments, London, Oxford University Press, 1954, xvi-432 p.

within a relatively short period, capital inflows form a relatively large proportion of the total increment to the capital stock or of total domestic savings, the less appropriate will be the ceteris paribus assumptions involved; the more widespread will be the repercussions throughout the economy.

One way of expressing the objectives which foreign capital must contribute to is to express them as a desire to maintain simultaneous internal and external balance. Two very good definitions of these concepts are given by T. W. Swan[5].

> I. Internal Balance. Maintenance of a balance between the effective aggregate supply of and demand for goods and services produced by domestic resources, corresponding to some definition of 'full employment without inflationary pressures'.
>
> II. External Balance. Maintenance of a balance between effective aggregate supply of exports and demand for imports, corresponding (after allowing for the terms of trade and for financial transfers) with some definition of 'balance of payments equilibrium'[6].

(iii) The Income Effect of Foreign Investment

The assumptions are:

(a) Two countries, A and B.

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5 T. W. Swan, "Economic Control in a Dependent Economy", in the Economic Record, No. 73, Vol. 36, issue of March 1960, p. 52.

6 Both 'full employment' and 'balance of payments equilibrium' are considered in detail later.

(b) Two broad groups of products, A's products, B's products. Within each group prices move up or down in the same magnitude and direction.

(c) Constant fiscal policy in both countries, i.e. no direct changes in government demand for goods and services or in tax structures as a result of deliberate government action.

(d) Constant levels of interest rates.

(e) Constant money wage rates.

(f) A constant rate of exchange.

(g) No changes in trade barriers, or changes in restrictions on international payments.

Into such a hypothetical world we assume that increased opportunities arise for profitable investment in country A. This may be the result of new discoveries or new production techniques. This leads to an inflow of foreign investment funds. It is also likely to cause, at the constant rates of interest, an increase in domestic expenditure on capital development in A. The effects of this latter change will usually be to increase Income (Y), Employment (N) and Output (O) in A (and to a lesser extent in B), to cause an unfavourable movement in A's balance of trade (and probably in her balance of payments) and to lead to a movement in the real terms of trade in A's favour (causing a net shift in

expenditure from A's to B's products)[7].

The effects of an increase in domestic expenditure in A (on our above assumptions) can be explained under:

(a) Income Effects (following Keynes)

(b) Price Effects (following classical thought)

(a) Income Effects -

(1) A familiar multiplier process in A with leakages to domestic sources and to imports.

(2) A multiplier process in B, due to A's increased expenditure on B's exports. The rise in B's Y, N and O, is likely to be less than A's.

(3) The balance of trade moves in B's favour.

(4) The effect of disparate changes in Y on the flow of international capital are uncertain. On balance the movement is likely to be in either direction; depending on the extent to which A's greater proportionate rise in Y has lead to a greater supply of domestic saving, and to changes in profitability in each country, e.g. growth in A may be accompanied by increased productivity thus encouraging a capital inflow from B.

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[7] The mechanism through which these changes occur and the assumptions under which they hold true are of vital importance to the following development. They are explained under 'Income' and 'price' Effects in the immediately following paragraphs.

(b) Price Effects -

In the usual case A's prices are likely to rise more than B's, i.e. the real terms of trade are likely to move in A's favour. The conditions under which this will hold are

(1) Elasticities of supply in A and B are less than infinite (i.e. increased demand will lead to some rise in prices) and elasticities of supply are approximately equal in both countries.

(2) The rise in domestic expenditure in A causes a larger proportionate increase in demand for A's products than for B's (i.e. the marginal propensity to import is less than the ratio between B's output and total world output).

Such a change in relative prices will tend to cause a shift in favour of B's cheaper products if the sum of the elasticities of demand for imports in A and B is high. Usually the sum of these elasticities is greater than unity and large enough to bring about the above result.

These results are not automatic. An increase in domestic expenditure in A may result in a larger proportionate increase in demand for B's products, which, with identical elasticities of supply means that B's prices rise more than A's, e.g. domestic investment may bring a heavy demand for B's products. This latter result may be particularly applicable in the case of Canada-United States trading relations.

Of more direct importance is the impact of the increased foreign investment. The increased investment may take the form of B's residents purchasing securities on A's capital market rather than their own or it may take the form of direct investment. In either case, provided that the funds are used to finance current real investment, the immediate results will be an improvement in A's balance of payments due to the inflow, an increase in expenditure in A and a decrease in expenditure in B. We assume that if these funds were not invested in A, at least a part of them would have been spent in B.

Suppose B's investors decide to increase investment in A by $120 million. If the opportunity for profitable investment had not arisen in A then only $80 million of this would have been spent; the remaining $40 million being saved. This would appear to be a realistic assumption in the case say of investment financed out of retained earnings. In this latter case the profits might otherwise have been remitted to shareholders who would have saved a certain proportion. The entire $120 million flowing to A represents initial expenditure on goods and services.

With certain assumptions regarding the size of A and B's marginal propensities to import, the initial impact can be set out in tabular form. This table shows the interplay of the increase in domestic expenditure in A and the decrease

in B which, considered separately, would have repercussions similar to the case of an increase or decrease in domestic expenditure considered earlier. One possible result is given in Table V.

In case (1) B's domestic expenditure is reduced by $80 million of which $16 million is a reduction in imports from A, $64 million a decrease in demand for B's products. But this is more than compensated for by a rise in A's spending on B's products due to A's high marginal propensity to import. The balance of trade will move in B's favour, almost to the extent of accounting for the initial overseas investment of $120 million. Both A and B's national incomes are higher.

In case (2) the results are similar although of a lesser magnitude. A's national income rises more than in the previous case and the adverse movement in her balance of trade is less.

Assuming case (2) to be more appropriate, it is seen that A's Y will rise, B's Y will remain almost constant. This rise in A's income will set up secondary effects which will include, as we analyzed earlier, rising output in A, a further worsening of A's balance of trade due to income and price effects, some movement upward in B's Y and a movement of the real terms of trade in B's favour.

This analysis by no means exhausts the possible

TABLE V

The Effect of Incremental Foreign Investment from Retained Earnings

Initial Effect of an Increase in B's Investment in A (1) (2)

Marginal Propensity to Import in A 0.7 0.5

" " " " " B 0.2 0.2

Receiving Countries :	Spending Countries : A (1)	A (2)	B (1)	B (2)	National Income (1)	National Income (2)
A	38	60	-16	-16	22	44
B	82	60	-64	-64	18	- 4
Domestic Expenditure (1)	120	120	−80	−80		
Domestic Expenditure (2)	120	120	−80	−80		

The balance of trade moves (1) (82 + 16) = 98 in B's favour

The balance of trade moves (2) (60 + 16) = 76 in B's favour

repercussions. The change could reduce the prospects of profitable exploitation of competing products in other parts of the world (in our case B). This development in turn could cause a shift in export patterns with countries producing machinery and equipment for foreign industries made relatively less profitable by the development of the new industry, finding a shrinking volume of exports.

More important, however, is the fact that a new discovery or invention will probably reduce the cost of production in country A relatively to country B. Thus adjustments will have to be made as comparative costs, the basic cause of trade, move into new patterns. In the long run this adjustment is likely to be particularly important and it merits detailed consideration.

The lowering of the cost of production in A will be equivalent to an increase in productivity in A. If A were a closed economy the probable outcome would be that all commodity prices and the volume of employment would fall in proportion to the increase in productivity (remembering the monetary and fiscal policies, the exchange rate and money wage rates are constant). With constant money wages such an increase in productivity would be equivalent to a fall in costs of production. Determination of prices being largely through costs, prices will fall with less labour being employed to produce the same output. Aggregate demand remains unchanged.

But with an open economy, the lowering of A's prices relatively to B's will, as explained earlier, probably cause a net shift in expenditure from B's relatively more expensive products, on to A's relatively cheaper products. Deflationary pressures will appear in B and inflationary pressures in A. A's balance of trade is likely to improve with the initial shift and worsen with the secondary movements in incomes. But, in the case of these repercussions, very much will depend on marginal propensities to import and on supply elasticities. If supply is inelastic in B the shift in demand from B to A's products, brought about by the change in relative prices, is likely to cause a rapid decline in B's prices, (leading) i.e. to a rapid adjustment of B's prices. Secondary repercussions are likely to be small.

A crucial assumption on which the analysis is based is that there is no change in trade barriers in response to A's increased competitiveness.

Certain points in the above analysis are of importance. The question that arises is: to what extent will the multiplier process be in real terms? With full employment, the rises in national income will be in monetary terms and the price effect will be dominant.

An important quantitative relationship to be considered is the extent to which output will rise with the increase in foreign investment. Rises in the capital stock

of a nation will increase the rate of increase in output, the size of the rise depending on the capital-output ratios in the particular sectors. The output creating, as well as the demand increasing aspects of foreign investment, are important.

To summarize the results of the capital inflow on the initial assumptions, Table VI has been constructed.

(iv) Foreign Investment and the Exchange Rate.

The next step in the analysis is to remove the assumption that the general level of prices in either country is not affected by the two most direct regulators of the level of money prices and costs, namely the exchange rate and the level of money wages. It will be assumed that the exchange rate is now freed but that money wages remain constant (which is not too unrealistic in view of institutional rigidities). In the previous analysis we have seen that the balance of payments has moved more favourably to A, despite a probable adverse movement in the balance of trade. The growth of income, bringing with it additional imports, has been more than compensated for by the capital inflow and the increasing productivity.

A's exports then are high relative to imports and the tendency will be for the price of A's goods to rise relative to B's prices, i.e. for an appreciation of the exchange rate from the point of view of country A, i.e. A's prices rise

TABLE VI

The Effects of Foreign Investment on Growth Aggregates

	Income		Balance of Trade		Balance of Payments		Terms of Trade	
	A	B	A	B	A	B	A	B
1) Initial Increase in A's domestic expenditure	R	r	F	R	f	f	r	f
2) Capital Inflow into A	r	-	f	R	r	f	f	r
3) Productivity Increase in A	r	F	r	f	r	f	R	F
4) Final Result	R	f	F	r	r	F	R	F

Results.

Rise or favourable movement: R, r

Fall or unfavourable movement: F, f

a) Income rises in A and falls slightly in B.

b) The balance of trade moves against A quite sharply.

c) The balance of payments moves slightly in A's favour.

d) The terms of trade move in favour of A to a moderate degree.

relatively to B's. It has been seen that provided the elasticities of demand for imports in A and B are sufficiently high (and normally they are), a fall in the price of B's products relatively to A's will cause purchasers in A and B to shift extensively from A to B's products, thus causing an improvement in B's balance of trade. It will also cause an increase in demand for B's products relatively to their costs of production and cause incomes to rise in B. It will decrease the demand for A's products and have a deflationary effect in A.

Starting from the position where the national incomes in A and B were in balance prior to the initial capital movements, i.e. there was no deflation or inflation in either country. The capital movement has caused incomes to rise in A, incomes to fall in B and a movement of the balance of payments in A's favour.

The movement in the exchange rate will

(a) Tend to restore equilibrium in the balance of payments.

(b) Reduce the inflationary pressures in A.

(c) Raise incomes in B, i.e. tend to counteract the deflationary pressures.

Internal and external balance will have been attained in both countries at the same time as equilibrium in the balance of payments is achieved.

The growth of exports has been enhanced in country B and there has been a substitution of domestically produced goods for imports. These increased demands on country B's output may have the effect of diverting more output from investment; depending on the possibilities of investment flowing from A and increasing loanable funds from domestic sources. This will act to restrain the rise in the capital stock and hence to restrain the growth of output in B. This secondary impact will tend to reduce the initial favourable movement in B's income. In B the average ratio of imports to real income will fall and hence the elasticity of demand for imports will rise unless the marginal ratio falls in the same proportion. As argued earlier the higher the sum of these elasticities in A and B, the more will expenditure be diverted to B following the depreciation. This will intensify the rise in income in B. Opposite results will occur in A.

It must be emphasized that such a development, whereby freely floating exchange rates bring about internal and external balance, is purely fortuitous. If the flow of capital from B to A had caused incomes in A to fall and in B to rise, at the same time as improving A's balance of payments, then the movement in the exchange rate would intensify the deflation in A and the inflation in B[8]. External balance

[8] The terms 'deflation' and 'inflation' are being used rather loosely. Deflation is regarded as a general

would have been achieved at the expense of internal balance. It is, therefore, important to consider the possible repercussions of government intervention in the model world. It becomes particularly important in a world of fixed exchange rates.

(v) The Intrusion of Monetary and Fiscal Policy

Monetary and fiscal policies are usually undertaken to affect the level of aggregate demand. Assuming for the moment that exchange rates are fixed, an expansion of aggregate demand by either method will lead to an increase in domestic expenditure in the country adopting such a policy. As argued earlier this will cause a rise in both A and B's national income, of lesser proportions in the latter (the non-initiating country). It will also cause a movement in the balance of trade (and probably in the balance of payments) against A. In the case of monetary policy a change in the level of interest rates may cause a significant shift in capital funds between A and B, affecting the balance of payments problem. In the case of fiscal policy, changes in relative tax rates on foreign and home investment may have significant repercussions.

Both monetary and fiscal policies are aggregates of measures, each measure with its own characteristics and

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lowering of domestic demand leading to falling employment levels, incomes and prices. Inflation has the opposite connotations.

effects. Starting from the position where B's productivity has risen more sharply than A's over a period of time and given a fixed exchange rate and no government intervention, the results should be

a) A fall in A's national income. Income in B relatively constant.

b) A movement in the balance of trade and payments in B's favour.

c) Some movement of the terms of trade in A's favour.

The government in A must then decide whether to

a) Increase aggregate demand and thus maintain domestic full employment and worsen the balance of payments position,

b) Decrease aggregate demand, thus curing the balance of payments deficit but reducing the level of the domestic income.

Let us suppose that the government in A decides that external balance is more important than domestic full employment and the government reduces the money supply and brings about a generally raising of the level of interest rates. This represents an additional incentive on the part of A's borrowers to borrow the funds they need in B rather than A. There will also be a tendency for existing holders of capital in B to shift their funds from B. to A. This tendency will reduce the amount of deflation necessary to maintain internal

balance in A. From B's point of view, the effect of such capital transfers has already been examined. Two points need to be noted.

(a) The more unresponsive domestic investment is to interest rate changes, the more will the rate have to be lowered to encourage domestic expenditure and consequently the greater will be the effect on international capital movements.

(b) A distinction between short-run and long-run capital movements. The former may be quite large in the initial period.

Suppose at the same time the government increases taxes as the fiscal measure to reduce demand. If the increase in tax rates in A covers the income from property situated in A but accruing to owners in B there will be less tax-free income from property to be transferred from A to B. This will ease the strain on A's balance of payments but the discouragement given to the inflow of new capital funds will increase the strain.

(vi) Exchange Rate Flexibility Combined with Control of Aggregate Demand

Starting from the position where the two country trading world is in initial balance, internally and externally, an examination can be made of the effect of increased foreign capital flows, on the assumption that exchange rates and monetary and fiscal policies can be varied.

The immediate effect of an increased transfer of capital funds from B to A is to increase the demand of B's residents for A's currency, i.e. the value of B's currency in terms of A's currency depreciates. This will cause A's balance of trade to deteriorate in the normal case, thus helping to restore external balance.

The diversion of expenditure from A's to B's products will cause deflation in A, inflation in B. The governments lower interest rates in A and raise them in B. The incentive to lend from B to A will be reduced. This is a second factor tending to restore external balance.

Given positive marginal propensities to import the reduction in expenditure in B, through government policy, will reduce B's demand for A's exports. The opposite policy occurs in A. These are factors working towards the restoration of external balance.

We have already analyzed the effects of an increase of expenditure in A and a reduction in B on certain assumptions regarding the marginal propensities to import. Essentially a rise in expenditure in A accompanied by an approximately equal decrease in B's expenditure will improve B's balance of payments, cause a net decrease in the demand for B's products and a net increase in demand for A's products. These tendencies will restore external and internal balance in A and B.

By a combination of fiscal and monetary policies and exchange rate variations it is possible to simultaneously obtain external and internal balance in both countries, despite the changes in growth and development brought about by international flows of capital[9]. But when rigidities develop in the economic environment such an adjustment may be impossible.

(vii) Fixed Money Debts

It has been argued throughout that an essential condition for effective price adjustments is that the sum of the elasticities of demand for imports should be high. Interest and dividends payable from A to B on capital previously invested by residents of B are usually treated as a current payment by residents of A for the current use of B's capital, i.e. from A's point of view they are essentially import payments. The higher the elasticity of demand for these imports and the greater the proportion of total import payments that they represent, the easier will price adjustments be.

Dividends payable on equity capital will be equivalent to a demand for imports with an elasticity of unity. Irrespective of what happens to the exchange rate, importers of the services of B's capital into A contrive to spend the same total amount in terms of A's products on the purchase of the

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[9] Meade's scheme of policies designed to restore internal balance is given in his Balance of Payments, p. 78-232.

service of B's capital.

With debts fixed in terms of money, the position is very different. If the interest payments are fixed in terms of B's currency there will be a constant purchasing power over B's products and it will, therefore, be equivalent to an elasticity of demand for imports in A of zero.

In the model world under discussion we may tentatively conclude that price adjustments will be facilitated by international investment in the form of equity capital with dividends being paid out of money profits, and retarded by fixed money debts in terms of the creditor's currency. In the case of fixed money debts, there will be a constant purchasing power over B's products and it will, therefore, be equivalent to an elasticity of demand for imports in A of zero.

(viii) Capital Movement in a Multi-Commodity World

The removal of the assumption that A and B's products are single homogeneous groups of goods adds realism. We assume that both countries produce consumer and capital goods of various types. In each country there are three basic types of goods, i.e. products which are not in competition with foreign products because of transportation difficulties; products which enter directly into the export trade, and import competing products. (Domestically traded products; exports; import competing). The latter two types represent

foreign traded goods.

The two main factors determining the balance of trade and payments between the two countries are the rates of growth of real incomes and the elasticities of demand for imports[10]. Given a rapid rate of growth of income in A relatively to B and stable elasticities of demand for imports in both countries, the movement of the balance of trade will be in B's favour. To preserve equilibrium in the exchange market then A's exchange rate will fall, i.e. imports will become more expensive in terms of the domestic currency of A.

But with the introduction of capital movements between countries the position may alter significantly. The position may arise in which country A is experiencing a domestic boom. Associated with the rising levels of income are capital flows from B, going mainly into export sectors, but also into some import competing lines. The capital flows are a contributory factor in the rapid rate of growth in A. They result in a balance of payments surplus for A, despite an unfavourable balance of trade. To maintain equilibrium in the exchange market a gradual appreciation of A's currency is necessary.

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10 "More technically equilibrium in the exchange market implies that the product of the income elasticity of demand for imports and the rate of growth of income be the same for both countries (A & B)". Wm. C. Hood & Anthony Scott, Op. cit., p. 74.

The results of this appreciation will be:

a) The price in A of all foreign trade products will tend to fall relatively to that of home trade products, because the imports from B will be cheaper in terms of A's currency and will thus lower the price of A's import competing products, and the demand in B for A's exports (whose price will have risen in B's currency) will have fallen off, so that the price in A's currency for A's export products, will decline. The opposite result occurs in B.

b) The general tendency will be for the fall in the price of foreign trade, relatively to that of home-trade products, to cause a shift of demand on to the former type of goods. Exports from A will fall and imports of both capital and consumer goods will rise. At the same time producers in A will shift from the production of foreign trade to that of home trade products, i.e. away from the production of export and import competing products. If it is not possible for producers in A to shift resources easily to the production of domestically consumed commodities, more of the nations output may be devoted to capital formation which may supplement the foreign capital inflows and contribute to stimulating the growth of total output (and thus further stimulate imports). Thus equilibrium is restored in the balance of payments. Opposite results will occur in B.

c) It is the degree of substitutability of resources

as between sectors, and the direction of the demand shifts, that will determine what the final equilibrium will be.

The two major factors in the process are then the rate of growth of income and the demand for imports. Growth brought about by foreign investment may have the perverse effect of reducing the demand for imports. At the same time the slower rate of growth in B due to capital decumulation may stimulate the demand for imports, i.e. for A's exports. Thus the need for currency depreciation will be reinforced. In this section of the analysis, "... it is useful to distinguish initially between the effects of such growth on consumption and production, and to classify the effects into three types -- pro-trade biased, neutral and anti-trade biased, according to whether they tend to increase the demand for imports (supply of exports) more than proportionately, proportionately, or less than proportionately to the supply of output"[11].

2. An Equational Model of the Canadian Economy [12]

In building a simplified model of the Canadian economy the approach adopted was to use annual 1949 constant dollar statistics to fit values to a system conceived within the

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[11] H. G. Johnson, International Trade and Economic Growth, London, Allen and Unwin, 1958, p. 73.

[12] A detailed explanation of the techniques and data utilized is given in Appendix 4, part (iv).

framework of the national accounts. The sensitivity analysis of the following section illustrates the repercussions within the model of disturbances that might be expected to accompany or follow an increase in foreign investment. Mathematical analysis can be applied as a check and as a supplement to the descriptive analysis of the two country case.

The Canadian economy was divided into two sectors. Firstly, a sector producing mainly for export markets and including approximately one third of the agricultural sector, the primary manufacturing sector, the resource sector and certain industries in the secondary manufacturing sector. This constitutes the 'export orientated' sector (X). The remainder of the economy was included in the 'import competing' sector, i.e. a sector catering largely for the domestic market and competing with imports (M). The former sector is designated by the subscript 'x', the latter by the subscript 'm'.

The reasons for deciding on such a subdivision were the facts that foreign direct investment inflows into Canada have been concentrated heavily in two areas, the resource industries and certain secondary manufacturing industries, and that the capital stock in the X sector is composed of a much greater proportion of direct investment than the capital stock in the M sector. The public utility sector is included in the M sector. It was into this utility sub-sector that

a large portion of U.K. portfolio investments in the post-World War I period flowed.

The variables considered in the model are:

Y = G.N.E. = G.N.P.

N = Employment in man years.

K = Total capital stock in the economy. This was calculated by estimating the gross stock of capital for 1949 and subtracting or adding annual gross capital formation.

I = Business gross fixed capital formation as per the national accounts.

C = Personal expenditure on consumer goods and services.

G = Government expenditure on goods and services.

H = Value of physical change in inventories.

E = Exports of goods and services.

M = Imports of goods and services.

P = (Corporation profits before taxes) plus (Rent, interest and miscellaneous investment income) plus (Accrued net income of farm operators from farm production) plus (Net income of non-farm unincorporated business).

I.V.A.= Inventory valuation adjustment.

Ti = Indirect taxes.

Ts = Subsidies.

D = Capital consumption allowances and miscellaneous valuation adjustments.

Wl = (Wages, salaries and supplementary labour income) plus (military pay and allowances).

Rl, R2 = Residual errors of estimates.

$W = \frac{Wl}{N}$ = Annual wage rate.

The unknowns in the system to be determined endogenously were Y, Yx, Ym, N, Nx, Nm, K, Kx, Km, I, Ix, Im, W, Wx, Wm, Wl, Wlx, Wlm, M, C, H, P, Px, Pm.

To be determined exogenously were X, D, Rl, R2, G, Ti, Ts, I.V.A. and all lagged variables.

The equational system fitted was as follows[13]:

$$Yx = -.12 + 1.13\,Nx + .26Kx \qquad (1)$$

$$Ym = -.19 + 2.45\,Nm + .21\,Km \qquad (2)$$

$$Y = Yx + Ym \qquad (3)$$

These equations represent production functions relating inputs to outputs. The outputs in the model represent a breakdown of G.N.E., the inputs labour and capital. Production functions are best related to the production of an individual producing unit and such functions have been considered

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[13] The forms of all the equations fitted were linear. The equations were fitted by the method of Least Squares. Table VII sets out (i) the errors involved in the coefficients, (ii) the standard error of the observed from the computed value of the independent variable, (iii) the variance of the observed from the computed value of the independent variable. The system developed is simplified in the following section, i.e. in the sensitivity analysis.

TABLE VII

The Goodness of Fit of the Model

Equation No.	Maximum Error of Constants				Standard Error of Dependent Variable	Variance of Dependent Variable
	a_0	a_1	a_2	a_3		
(1)	-.12 ± .08	1.73 ± 1.21	.26 ± .09	-	.34	.11
(2)	-.19 ± .11	2.45 ± 1.01	.21 ± .14	-	.88	.77
(7)	-	.89 ± .12	.07 ± .04	.05 ± .03	.05	.003
(8)	-	.88 ± .10	.16 ± .11	-	.22	.05
(10)	1.03 ± .81	.58 ± .04	-	-	.80	.65
(11)	-	.93 ± .04	.08 ± 1.1	.04 ± .04	.06	.003
(12)	-	.90 ± .12	.13 ± .14	.08 ± .07	.18	.03
(14)	-.26 ± .21	.22 ± .12	.46 ± .03	-	.07	.005
(15)	-	.11 ± .06	.47 ± .04	-	.04	.002
(20)	-	.12 ± .11	.18 ± .07	-	.76	.61
(21)	-	.31 ± .14	.22 ± .21	-	.61	.37

Note: - indicates that either the constants were not considered in these equations or that the computed constants were not significant to two decimal places.

extensively in economic literature[14]. "The production function is the name given to the relationship between the rates of input of productive services and the rate of output of product. It is the economist's summary of technological knowledge"[15]. In the present aggregative context the production function conceals a wide range of technological conditions.

$$Kx(t) = 0.95\ Kx(t-1) + Ix(t) \qquad (4)$$

$$Km(t) = 0.95\ Km(t-1) + Im(t) \qquad (5)$$

$$K = Kx + Km \qquad (6)$$

Depreciation allowances are at the rate of 5 per cent per annum for both sectors. These equations provide estimates of the capital stock of Canada at a given time.

$$Ix(t) = 0.89\ Ix(t-1) + .07\ Px(t-1) + .05\ Px(t-2) \qquad (7)$$

$$Im(t) = 0.88\ Im(t-1) + 0.16\ Pm\ (t-1) \qquad (8)$$

$$I = Ix + Im \qquad (9)$$

Modern theories of cyclical fluctuations rely heavily on the acceleration principle, which regards the volume of new investment as a function of the rate of increase of output[16]. "The acceleration principle as applied to induced

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14 See F. Zeuthen, Economic Theory and Method, London, Longmans, Green and Co., 1955, p. 58-67; p. 110-126.

15 G. J. Stigler, The Theory of Price, New York, MacMillan, 1956, p. 106.

16 e.g. N. Kaldor, "A model of the Trade Cycle", in the Economic Journal, Vol. 50, issue of March 1940, p. 78-92.

Cont'd...

investment... may be stated rigorously and without qualification.

$$I(t) = K(t) - K(t-1) = S[O(t) - O(t-1)]$$

Output of capital goods | Increase in the stock of capital goods | Increase in final output times the accelerator "17

Criticisms have been made of this principle. Commenting on the Hicksian real cycle, A. F. Burns commented, ".... a fixed link between past and current outputs, if it exists at all, is no more a property of the economy of modern England than of Adam and Eve"18. All that can really be said is that changes in the demand for and the production of, finished goods, tend to give rise to greater changes in the demand for and production of goods, which are used in their production19.

... J. R. Hicks, A Contribution to the Theory of the Trade Cycle, Oxford, Clarendon, 1951, vii-201 p.
R.C.O. Matthews, "Capital Stock Adjustment Theories of the Trade Cycle and the Problem of Policy", in Post-Keynesian Economics, Ed. K.K. Kurihara, New Brunswick, N.J., Rutgers University Press, 1954, p. 170-191.

17 F. A. Knox, "The Acceleration Principle and the Theory of Investment, A Survey", in Economica, Vol. 19, issue of August 1952, p. 269-297.

18 A. F. Burns, "Hicks and the Real Cycle", in The Journal of Political Economy, Vol. 60, issue of February 1952, p. 1-24.

19 This is clearly put in G. Haberler, Prosperity and Depression, 3 edition, New York, Lake Success, United Nations, 1946, p. 88-105.

In the model being considered the acceleration principle is largely discarded. Investment projects, once started, are not easily halted and for this reason one independent variable is the investment of the immediately preceding year. The profit variables reflect the basic underlying motive for investment in a basically private enterprise economy.

$$C(t) = 1.03 + 0.58\ Y(t) \qquad (10)$$

The consumption function is of the form traditional since the time of Keynes. "... the aggregate income, measured in terms of the wage unit is the principal variable upon which the consumption constituent of aggregate demand will depend"[20].

Many writers since the time of Keynes have qualified the simple relationship between consumption and income. J.S. Duesenberry suggested that a key independent variable may be the level of current income in relation to the highest level of income previously achieved[21]. R. Tobin, drawing of post-war United States experience, puts forward the hypothesis that the liquidity structure of the assets of the consuming

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[20] J. M. Keynes, The General Theory of Employment, Interest and Money, London, MacMillan, 1960, p. 96.

[21] J. S. Duesenberry, "Income Consumption Relations and their Implications", in Income, Employment and Public Policy, ed. L. A. Metzler, New York, Norton, 1948, p. 55-81.

units, is the major determinants of consumption levels[22].

Despite all qualifications, the simple relationship in the model between current income and consumption, gave the best fit in the model.

$$Nx(t) = .93\ Nx(t-1) + .08\ Wx(t) + .04\ \frac{Yx}{Nx}\ (t-1) \qquad (11)$$

$$Nm(t) = .90\ Nm(t-1) + .13\ Wm(t) + .08\ \frac{Ym}{Nm}\ (t-1) \qquad (12)$$

$$N = Nx + Nm \qquad (13)$$

Keynes[23] was responsible for concentrating attention on the twin forces influencing employment levels, namely aggregate demand and aggregate supply. In these equations the lagged employment level and the current wage rate represent demand aspects. The productivity variable represents a major supply factor.

$$Wx(t) = -.26 + .22\ Wm(t-1) + .46\ \frac{Yx}{Nx}(t-1) \qquad (14)$$

$$Wm(t) = .11\ Wx(t-1) + .47\ \frac{Ym}{Nm}\ (t-1) \qquad (15)$$

In the model Wx and Wm represent annual wage rates. The modern theory of wage determination, and indeed, of the determination of all factor prices, centres on the marginal productivity of the factor concerned[24]. In the above

22 R. Tobin, "Asset Holdings and Spending Decisions", in the American Economic Review, Vol. 42, issue of May, 1952, p. 109-123.

23 Op. cit., p. 23-34.

24 A clear exposition of the marginal approach to factor pricing is found in Joan Robinson, The Economics of Imperfect Competition, London, Macmillan, 1933, xii-352 p.

equations Y/N is an average productivity measure. Labour is also a factor with a fair degree of mobility, and wage differentials as between sectors will cause labour movement. For this reason Wm and Wx, lagged one period, are considered important independent variables.

$$Wlx = Wx.Nx \qquad (16)$$

$$Wlm = Wm.Nm \qquad (17)$$

$$Wl = Wlx + Wlm \qquad (18)$$

$$W = \frac{Wl}{N} \qquad (19)$$

These equations involve no statistical fitting, being derived from previous equations[25].

$$M = .12\ I(t) + .18\ Y(t) \qquad (20)$$

The simplest form of import function relates the level of imports to G.N.P.[26]. Nearly 40 per cent of Canada's expenditures on the new machinery and equipment component of Gross Domestic Expenditure consist of import payments and for this reason current investment is included in the equation.

$$Pm = .31\ C(t) + .22\ I(t) \qquad (21)$$

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25 These equations could involve non-linearities, but a simplified model is considered in the following section.

26 See D. W. Slater, Canada's Imports, A study prepared for the Royal Commission on Canada's Economic Prospects, Ottawa, Queen's Printer, January, 1957, p. 88-92.

This profit function demonstrates the dependence of profits, widely defined, on the levels of final demand in the community.

$$Px = G.N.P. - [Wlx + Wlm + Pm + Ti - Ts + I.V.A. + D + R2] \quad (22)$$

$$P = Px + Pm \quad (23)$$

$$H = G.N.E. - [C + G + I + E + M + Rl] \quad (24)$$

These equations determine the remaining unknowns in the system. The addition of a function determining the exchange rate would add analytical power to the model but in the Canadian context the exchange rate must be regarded as being determined partly by exogenous factors.

This is the model of the Canadian economy that has been developed and it must be applied to the problem of foreign investment inflows and domestic growth rates.

3. Sensitivity Analysis of the Model

The purposes of the equational model developed are:

(a) to give precision to key functional relationships in the economy in order to aid the quantitative analysis of later chapters, and

(b) to provide a model within which the effects of changes in exogenous factors, in particular foreign capital inflows, can be analyzed.

(i) Adaptation of the model.

Foreign capital does not enter the model as a separate variable. The technique used was to treat Ix and Im as exogenous variables and then to calculate multipliers for them with respect to the endogenous variables in the system.

The twenty-four equations in the original model were reduced to twenty-one by regarding Ix, Im, and hence I as exogenous. These twenty-one equations were reduced further to an intermediate sub-system suitable for analysis. The endogenous variables left at this stage were Yx, Ym, Kx, Km, Nx, Nm, Wx, Wm, C, Pm and M. All lagged values of the variables were treated as exogenous. The intermediate system was, therefore, as follows:

$$Yx = -.12 + 1.73\ Nx + .26\ Kx$$

$$Ym = -.19 + 2.45\ Nm + .21\ Km$$

$$Kx = 0.95\ Kx(t-1) + Ix$$

$$Km = 0.95\ Km(t-1) + Im$$

$$C = 1.03 + 0.58\ Y$$

$$Nx = .93\ Nx(t-1) + .08\ Wx + .04\ \frac{Yx}{Nx}(t-1)$$

$$Nm = .90\ Nm(t-1) + .13\ Wm + .08\ \frac{Ym}{Nm}(t-1)$$

$$Wx = -.26 + .22\ Wm(t-1) + .46\ \frac{Yx}{Nx}(t-1)$$

$$Wm = .11\ Wx(t-1) + .47\ \frac{Ym}{Nm}(t-1)$$

$$M = .12\ I + .18\ Y$$

$$Pm = .31C + .22\ I$$

This simple system is recursive and it could be solved completely without inversion techniques, but to illustrate the analytical approach, Table VIII presents these equations in matrix form. Denoting the endogenous variables by

$$(Y1, Y2, \ldots, Yg) = Y$$

the exogenous variables by

$$(Z1, Z2, \ldots, Zs) = Z$$

and the error variables by

$$(U1, U2, \ldots, Ug) = U$$

then the r-th equation may be written

$$Br1\ Y_1 + Br2\ Y2 + \ldots + Brg\ Yg = Cr1\ Z_1 + Cr2\ Z2 + \ldots + CrsZs + Ur.$$

The system can therefore be written in the form

$$BY^1 = CZ^1 + U^1$$

with

$$B = \begin{bmatrix} B_{11} & \ldots & B_{1g} \\ \vdots & & \vdots \\ B_{g1} & \ldots & B_{gg} \end{bmatrix}$$

and

$$C = \begin{bmatrix} C_{11} & \ldots & C_{1s} \\ \vdots & & \vdots \\ C_{g1} & \ldots & C_{gs} \end{bmatrix}$$

$$BY^1 = CZ^1 + U^1$$

$$\therefore\ Y^1 = B^{-1}\ CZ^1 + B^{-1}\ U^1$$

TABLE VIII

The Model in Matrix Fo

$$BY^1 = CZ^1 + U^1$$

$$\begin{bmatrix} 1 & 0 & -.26 & 0 & -1.73 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & -.21 & 0 & -2.45 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & -.08 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & -.13 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\ -.58 & -.58 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ -.18 & -.18 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -.31 & 0 & 1 \end{bmatrix} \begin{bmatrix} Yx \\ Ym \\ Kx \\ Km \\ Nx \\ Nm \\ Wx \\ Wm \\ C \\ M \\ Pm \end{bmatrix} = \begin{bmatrix} -.12 \\ -.19 \\ 0 \\ 0 \\ 0 \\ 0 \\ -.26 \\ 0 \\ 1.03 \\ 0 \\ 0 \end{bmatrix}$$

$$
\begin{bmatrix}
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & .95 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
1 & 0 & .95 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & .93 & 0 & .04 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & .90 & 0 & .08 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & .46 & 0 & .22 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & .47 & 0 & .11 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
.12 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
.22 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{bmatrix}
\begin{bmatrix}
1 \\
Ix \\
Im \\
Kx(t-1) \\
Km(t-1) \\
Nx(t-1) \\
Nm(t-1) \\
Yx/Nx(t-1) \\
Ym/Nm(t-1) \\
Wm(t-1) \\
Wx(t-1)
\end{bmatrix}
$$

Denoting expected values by, E,

$$E(Y^1) = E(B^{-1} CZ^1) - E(B^{-1} U^1)$$

$$= B^{-1} C E(Z^1) - B^{-1} E(U^1)$$

Assume $E(Ur) = 0$,

then

$$E(Y^1) = PZ^1 = B^{-1} CZ^1$$

The r-th row, s-th column element of P, namely Prs, gives the Zs multiplier for the Yr variable. P is known as the 'Reduced Form Structure'.

The definition of a multiplier is that coefficient by which the increment in the exogenous variable is multiplied to make it equal to the increment in endogenous variable. The best known example is the Keynesian multiplier 'K', where

$$dY = KdI$$

with

I = exogenous variable, investment

Y = endogenous variable, income

K = $\frac{1}{1}$-marginal propensity to consume.

The information that could have been obtained from the reduced form structure was more easily obtained by direct solution of the equations. After solution the system produced the following multipliers presented in Table IX.

The equations were tested for identification. "A necessary condition for the identification of the j-th

TABLE IX

The Multiplier Coefficients in the Linear Model

Endogenous Variables	Exogenous Variables									
	Nx(t-1)	Nm(t-1)	$\frac{Yx}{Nx}$(t-1)	$\frac{Ym}{Nm}$(t-1)	Wm(t-1)	Wx(t-1)	Kx(t-1)	Km(t-1)	Ix	Im
Yx	1.61		.13		.03		.25		.26	
Ym		2.20		.35		.04		.20		.21
C	.93	1.28	.08	.20	.02	.02	.15	.12	.15	.12
M	.29	.40	.03	.06	.01	.01	.05	.05	.17	.16
Pm	.29	.40	.02	.06	.01	.01	.05	.03	.27	.26
Nx	.93		.06		.02					
Nm		.90		.14		.01				
Kx							.95		1	
Km								.95		1
Wx			.46		.22					
Wm				.47		.11				

equation in a linear system is that the number of variables in the entire complete system minus the number of variables appearing in the j-th equation be at least as great as the number of equations in the system less one"[27].

(ii) Analysis of the Model

The model presented represents a highly damped system which has some basic distinguishing features.

(a) An increment to investment in the 'X' sector will raise income by a greater amount than an increment to capital stock in the 'M' sector. The exact multipliers being .26 and .21 respectively. The statistics on which the model is based reveal a higher capital output ratio for the 'M' sector.

(b) The import requirements following from an increase in investment are greater in the 'X' sector than in the 'M' sector. The basic variables in the determination of the level of imports are the levels of Yx and Ym and these are more responsive to a change in Ix. Total import requirements, as a percentage of Y, are relatively high.

(c) Consumption expenditures stemming from an increase in investment in the 'X' sector are greater than those resulting from an increase in investment in the 'M' sector.

(d) Although Ix and Im are the only 'policy variables'

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27 L. Klein, Economic Fluctuations in the United States, New York, Longmans, 1952, p. 187.

among the exogenous variables, the results of variations in productivity (Y/N) and employment (N)inperiod (t-1) are theoretically interesting. An increase in productivity in the period (t-1) in the 'M' sector would have caused a greater rise in Y, than would have an equivalent productivity increase in the 'X' sector. The reasons for this lie in the larger numerical value of the coefficients of Nm in the production function, Wm in the employment function and Ym/Nm in the employment function, as compared with the corresponding values of Nx, Wx and Ym/Nm.

(e) Finally, any increase in Nm(t-1) that may have occurred would have a greater multiplier effect on Y than would have an increase in Nx(t-1). This can be explained by the numerically larger coefficient of Nm in the production function determining Ym, than the corresponding coefficient of Nx[28].

The accuracy of the model is examined in the chapters that follow.

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[28] Table IX shows all the multipliers in the system. For example, any increase in Wm(t-1) would have raised Yx, C, M, Pm, Nx, Wx; the exact multipliers being .03, .02, .01, .01, .02, .22 respectively.

CHAPTER III

QUANTITATIVE ANALYSIS OF THE CANADIAN EXPERIENCE

1. Ownership and Control Aspects

One major simplification that has been made in the model is the treatment of capital formation in aggregate terms. Foreign capital inflows can be of many types, and each type has a different economic impact. One of the commonly used distinctions is between direct and portfolio capital and this distinction largely turns on the question of control. Generally direct investment includes "...investment in Canadian concerns which are known to have 50 per cent or more of their voting stock held in one country outside Canada. In addition a few instances of concerns are included where it is known that effective control is held by a parent firm with less than 50 per cent of the stock"[1].

(i) The Meaning of Control

The concept of control as used above is not clear-cut. The definition used relates to potential control and not actual control. For the purposes of estimating the

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[1] D.B.S., Canada's International Investment Position, 1926-1954, Ottawa, Queen's Printer, 1956, p. 24. Table X gives ownership and control ratios in selected Canadian industries on the D.B.S. measure.

TABLE X

Non-Resident Control as a Percentage of Selected Canadian Industries, Selected Year Ends, 1926-1959

Industry Classification	1926 (i)	1926 (ii)	1930 (i)	1930 (ii)	1939 (i)	1939 (ii)	1948 (i)	1948 (ii)	1959 (i)	1959 (ii)
Percentage of total control by (i) All non-residents, and (ii) U.S. residents:										
Manufacturing	35	30	36	31	38	32	43	39	57	44
Petroleum and natural gas	-	-	-	-	-	-	-	-	75	69
Mining and smelting	38	32	47	42	42	38	40	37	61	53
Railways	3	3	3	3	3	3	3	3	2	2
Other utilities	20	20	29	29	26	26	24	24	5	4
Total of above industries and merchandising	17	15	20	18	21	19	25	22	32	26

Source: Canada's Balance of International Payments, 1960, p. 81.

extent of control in statistical terms, the entire book value of a firm, including all minority interests, is attributed to the country where control is held. Ownership ratios, on the other hand, include in the numerator capital invested by both controlling interests and minority participants. Both direct and portfolio investments include debt as well as equity holdings. Since the turn of the century equity holdings have become proportionately more important as a component of long-term investment inflows into Canada.

The concept of actual control is, however, more relevant to economic development than the concept of statistical or potential control. Control may be exercised over price and output policies, over the rate of capital formation, or over the rate of resource inputs. This may alter the rates of growth in important sectors of the economy. Direct investments have been an important medium for the introduction of advanced industrial techniques into Canada and where this has been the case, there has often been less scope for innovation or the improvement of production techniques on the part of the subsidiary.

(ii) The Development of Excess Capacity

Particularly since World War II, Canada has had difficulty in maintaining unemployment at levels below 5 per

cent of the labour force[2], and there have been periods when significant excess capital capacity has developed in key sectors of the economy. Excess capacity has appeared more particularly in the resource sectors of the economy and certain heavy manufacturing industries, into which large quantities of direct investment with associated control, have gone.

The development of excess capacity which has to be worked off before a large and expansionary investment program may be undertaken, is a key factor in the theoretical explanations of the length, severity and amplitude of the business cycle[3]. From a longer term point of view, considering the close to a century that has elapsed since Confederation, excess capacity has been the result of a necessary series of adjustments which have had to be made within the economic structure.

(a) The adjustment that has had to be made to reconcile demand and supply elements diverging because of the changing ratio of the labour force to total population. When the labour force has grown faster than total population, the

---

[2] This is on an annual basis using seasonally adjusted figures. Canada experiences substantial seasonal fluctuations in employment during the year. For example, the ratio varied between 4 and 12 per cent in terms of persons unemployed to the labour force, in 1962, with an annual average of 6 per cent. (All figures are rounded)

[3] In particular, J. R. Hicks, A Contribution to the Theory of the Trade Cycle, Oxford, Clarendon Press, 1951.

supply of goods and services has grown at a faster rate than demand, resulting in a tendency towards over-capacity. This adjustment may be described as a 'derived demand' adjustment.

(b) Adjustments that have had to be made to basic structural shifts in the economy. One such structural shift has been the trend in Canada away from an agriculturally orientated economy, to an economy where manufacturing surpassed agriculture percentagewise as an employer of labour and as a contributor to total National Income, and finally to an economy where the service sector predominates.

(c) Another important long-term shift has been the dependence on changing sectors of the economy to earn foreign exchange in sufficient amounts to allow a large total and per capita importation of goods and services not able to be manufactured competitively in Canada. The resource boom since World War II represents the latest phase in this development of new export sectors[4]. As these sectors have emerged a proportion of the labour force has had to develop new skills and learn new techniques. These adjustments may be termed 'structural' adjustments.

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[4] Richard Caves and Richard H. Holton, The Canadian Economy, Prospect and Retrospect, Cambridge, Harvard University Press, 1959, p. 41-47, deals fully with the 'Staple Theory' of economic development.

(d) An adjustment has had to be made to cope with varying factor proportions, necessitated by the introduction of new products and new techniques of production. An adequate volume of new investment working in conjunction with labour, provides an important requirement for the productive and near-full employment of the labour force. This represents an adjustment among 'co-operating factors'.

Given these adjustments which must be successfully met before a full or near-full utilization of resources is possible, the question arises as to how the existence and exercise of foreign control has affected these adjustments.

(iii) The Policies of Foreign Controlled Firms

From the point of view of long-term economic growth, direct investments have made perhaps their largest contribution to improving rates of economic growth by assisting in surmounting the aggregate shortage of funds for new investment that has existed in Canada. By adding to aggregate domestic savings, foreign capital has assisted in overcoming the adjustment to co-operating factors[5]. This is particularly important when it is considered that the direct investment inflows have mainly entered those sectors with expanding capital requirements. Table XVIII, p.101 , shows capital output ratios for

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[5] It must be emphasized that the problem does not simply revolve around the adequacy of aggregate domestic savings. Part (iv) of this section deals with the problem of maximum control being obtained with minimum investment.

the two sectors of the Canadian economy distinguished in the model. The 'X' sector has received proportionately more direct investment than portfolio investment, in comparison with the 'M' sector and, at least since 1926, it has had a greater percentage of its total capital requirements financed from foreign sources.

One explanation for this increasing capital output ratio in the 'X' sector revolves around the declining importance of the labour input in this sector. Between 1926-1962 the employed labour force in the 'X' sector remained relatively constant, but output increased substantially[6]. This was in large part due to the increase in the capital stock in the sector.

From a long-term point of view, foreign capital inflows have aided the overcoming of transitional adjustments made necessary because of structural changes. Foreign capital has made it possible to develop more fully the natural resources which Canada possesses. In a dynamic world, maximum growth rates would not be approached if full advantage was not taken of the possibilities of substitution and alternative uses of domestic resources for both foreign and domestic production. Domestically this takes the form of shifts of resources from low to high productivity industries.

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6 See Appendix 3, Tables XXXIX and XLV.

Internationally it takes the form of increased export sales and/or diminished reliance on foreign sources for imports. One of the main impediments to sustained growth that arises from the exercise of controlling power by foreign controlled companies, arises in the shorter period of the business cycle. There have been instances of attempts by subsidiaries to sell materials to parent companies at prices below the costs of production and to the treatment of subsidiaries as marginal suppliers to the output of the foreign parent company. The latter company although often a higher cost producer is thus protected from the worst fluctuations in total demand over the business cycle[7]. The policies pursued by foreign interests exercising control in Canada, have not always been directed towards ensuring a stable demand for the output of the subsidiary.

One possible approach to the problems presented by U.S. direct investment would be continental integration on a selective industry basis. It would be to Canada's advantage if those resources were developed, which, in line with comparative cost theory, could best cater for the combined growth of the North American Continent and in which Canada had a cost advantage. However, the continental approach carried out

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7 Irving Brecher and S. S. Reisman, Canada-United States Economic Relations, Ottawa, Queen's Printer, 1957, Chapter 8, discusses these practices. The practice of selling to the parent company at below costs of production has been largely eliminated by the National Revenue authorities.

over a wide range of Canadian secondary industries would, in all probability, lead to large scale immigration to the U.S. where secondary manufacturing, by virtue of locational and scale advantages, tends to be more productive than in Canada, and hence offers greater returns to managers, workers and investors alike.

In the case of the largely portfolio capital inflows from the U.K. in the fifty years following Confederation, the problem was not so acute. The portfolio capital did not bring with it control. The sectors into which it flowed were largely social capital fields. One driving motive was undoubtedly the desire by the U.K. to obtain basic raw materials and foodstuffs at a lower cost and thus to turn the terms of trade in her favour. But the lack of control power by the lenders and the general free trade policies being pursued, precluded any wide fluctuations of demand for Canada's resource output through deliberate trade policy, although such fluctuations did take place due to other causes.

In the case of foreign investment in the secondary manufacturing sector, the demand emanating from the domestic sector becomes more important. In an important sense foreign investment in this area has been dictated by structural changes over time. Table XI illustrates the fact that, since 1926, Canada has become more dependent on imports of fully or chiefly manufactured articles and has made little progress

TABLE XI

Domestic Exports to and Imports from All Countries by Degree of Manufacture

Degree of Manufacture	Annual Averages, Selected Periods, 1926-1954				Annual Averages, 1955-1960					
	Fiscal Years		Calendar Years		Calendar Years					
	1926-29	1936-39	1946-49	1951-54	1955	1956	1957	1958	1959	1960
	Percentage		Percentage		Percentage					
				DOMESTIC EXPORTS						
Raw Materials	46.7	32.2	27.2	30.5	26.3	30.6	32.4	35.2	34.0	31.4
Partially Manufactured	14.8	25.0	24.9	30.6	35.4	32.4	30.7	27.4	29.0	31.2
Fully or Chiefly Manufactured	38.5	42.8	47.9	38.9	38.3	37.0	36.9	37.4	37.0	37.4
				IMPORTS						
Raw Materials	25.2	28.3	25.9	20.9	18.4	17.5	17.9	17.9	17.0	18.0
Partially Manufactured	9.4	9.5	6.8	5.8	5.2	5.3	5.3	5.0	5.6	5.0
Fully or Chiefly Manufactured	65.4	62.2	67.3	73.3	76.4	76.8	76.8	77.1	77.4	77.0

Source: Trade of Canada: Annual Issues.

towards becoming more competitive on world markets in these products. To supplement exports to Canada, foreign companies have extended their operations into Canada where they can obtain equal access to domestic consumers and equal locational advantages in competition with domestic industry.

Canadian manufacturers have had equivalent locational advantages and equal access to similar sized markets for labour and other factors of production, but the foreign capital has usually brought with it lower priced capital equipment, technological advantages and highly skilled management. All three factors have accompanied the capital inflow. These accompanying benefits, which can be termed 'entrepreneurial' advantages, are a key factor in the investment process. Canadian manufacturing has considerable 'depth' as measured by the Canadian content of key manufacturing sectors, (see Table XII) and it is thus largely Canadian factors of production that are combined in the production process. Any price or quality advantage accruing to foreign controlled firms is due mainly to superior management, lower capital costs, and innovation in the technological sense[8].

(iv) 'Maximum' Control with 'Minimum' Capital

The Dominion Bureau of Statistics computes in two ways the extent to which foreigners have financed domestic

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8 The benefits accompanying the direct investment inflows and the possibility of duplicating these benefits domestically are discussed in section 3 of this Chapter.

TABLE XII

Canadian Content of Total Output in Canadian Manufacturing
1949

Sector	Canadian Content of Total Output (%)
Food, beverages and tobacco	94
Clothing and household goods	84
Forest products	97
Metal products	89
Electrical apparatus and supplies	90
Mineral products	79
Miscellaneous manufacturing	93

Source: Richard Caves and Richard H. Holton, The Canadian Economy, Prospect and Retrospect, Cambridge, Harvard University Press, 1959, p. 68.

investment in Canada, and these measures give an indication of the extent to which aggregate domestic savings fall short of total domestic investment expenditures. One of the measures gives a measure of the extent to which Canada has, on balance, drawn on the resources of the rest of the world for the savings used for all types of physical investment in Canada. The second approach disregards outflows of capital from Canada and measures the extent to which non-residents have directly financed Canadian investment.

Table XIII presents the two D.B.S. measures of the extent of foreign financing. It is interesting to note that the overall place of foreign financing in Canada's total investment expansion since World War II, has been less than in previous periods of heavy investment. "In effect, there has been a very considerable increase since the turn of the century in the capacity of the country to generate the savings required to finance its investment programme"[9]. Since 1950, however, over 25 per cent of gross capital formation has been directly financed by non-residents.

Of crucial importance in a deeper analysis of Canadian experience, is the source of funds used by foreign controlled companies to expand capital facilities. The figures published by the D.B.S. give estimates of the retained

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[9] Irving Brecher and S. S. Reisman, Op. cit., p. 97.

TABLE XIII

Non-Resident Financing of Canadian Investment (%)

	1926-1930	1946-1949	1950-1955	1956-1960
Net use of Foreign Resources as a per cent of				
Gross Capital formation	..	..	17	27
Net Capital Formation	25	-11	19	35
Direct Foreign Financing of				
Gross Capital Formation	..	19	25	33
Net Capital Formation	50	24	33	45

Source: (i) Canadian Balance of International Payments and International Investment Position, 1960, p. 49.

(ii) 1926-1930 figures from Irving Brecher and S. S. Reisman, Canada-U.S. Trading Relations, p. 96.

profits of foreign direct investments in Canada, but these are not supplemented by other sources of funds such as depreciation and depletion allowances, or proceeds from the sale of portfolio stock sold in Canada. Tables XIV and XV give the results of annual surveys of the source and disposition of funds by U.S. direct investment companies, initiated by the U.S. Department of Commerce in 1957. The main facts that emerge are:

(a) The general tendency for U.S. direct investments to obtain maximum control with a minimal expenditure of foreign generated savings;

(b) The particularly heavy reliance of the manufacturing sector on internally generated savings, particularly retained earnings and depreciation allowances; the U.S. appears to be as interested in controlling certain sectors of manufacturing industries as it is in controlling the newer resource sectors; and

(c) The willingness of the U.S. direct investment companies to plough back a substantial proportion of their net earnings in most years. This willingness can partly be explained by the fact that the investments have either been made in highly productive sectors of the economy, e.g. in the most rapidly growing industries in the secondary manufacturing sector, or in industries where the major concern is with supplying the parent company with raw materials not available elsewhere at a comparable cost.

TABLE XIV

Sources and Uses of Funds of U.S. Direct-Investment Enterprises in Canada, Selected Industries, 1958-1960
($000,000)

1. 1958 2. 1959 3. 1960

ITEM	Selected Industries											
	Mining and Smelting			Petroleum			Manufacturing			Total Selected Industries		
Sources of Funds												
	1	2	3	1	2	3	1	2	3	1	2	3
Net Income	62	112	157	76	99	159	403	500	470	541	711	786
Funds from U.S.	78	121	202	234	112	138	111	143	31	423	376	371
Funds Borrowed in Canada or in Third Countries	35	95	13	103	41	45	97	66	-80	235	202	-22
Depreciation and Depln.	50	67	75	178	189	207	280	300	320	508	556	602
TOTAL	225	395	447	591	441	549	891	1009	741	1707	1845	1737
Use of Funds												
	1	2	3	1	2	3	1	2	3	1	2	3
Property, Plant & Equipment	115	240	290	430	380	360	533	389	384	1128	1009	1034
Inventories Additions	-5	18	58	-22	- 4	5	-65	150	30	-92	164	93
Receivables Additions	1	26	-10	56	12	25	35	80	45	92	118	60
Other Assets	5	50	25	57	-5	60	173	157	75	235	202	160
Sub-total Investment	166	334	363	521	383	450	676	876	534	1363	1493	1347
Income Paid Out	59	61	84	70	58	99	215	233	207	344	352	390
TOTAL	225	395	447	591	441	549	891	1009	741	1707	1845	1737

Sources: (1) F. Cutler and C. Douty, p. 18-24 (n.22), Survey of Current Business, Vol. 41, No.9 Foreign Capital Outlays and Sales of U.S. Companies, U.S.D.C., September, 1961.
(2) As above. F. Cutler, Financing U.S. Direct Foreign Investment, Vol. 42, No. 9, Issue of September 1962, p. 17-23.

TABLE XV

Summary of Sources and Uses of Funds of U.S. Direct Investment Enterprises in Canada, 1958-1961
($000,000)

Year	Funds from Canada*	Funds from U.S.A.	Total	U.S.A. Funds as a percentage of Total
1958	940	423	1363	31.1
1959	1117	376	1493	24.8
1960	976	371	1347	27.2
1961	1129	235	1364	17.4

Source: Tables III and XIV

* Includes a small amount borrowed from countries outside the U.S.

(v) Conclusions

The model world that has been set up basically over-simplifies the investment pattern in the Canadian economy, because it regards investment in aggregate terms. The traditional distinction between direct and portfolio investment is important because it brings to the forefront the economic impact of non-resident, actual and potential, control powers. The process of gaining control power is a cumulative one and in the Canadian setting it has been accelerated by the technique of utilizing heavily domestically generated savings for investment purposes.

2. Productivity Changes and Capital Imports

The model of the economy utilizes a measure of productivity, namely Y/N, to determine the level of wages and the level of employment. There was a significant correlation between the level of real wages, the level of employment and productivity in preceding periods. In the sub-system set up from the model of the economy, increases in investment were found to increase productivity to a degree depending on the increase in the level of real income.

From the point of view of obtaining a broad historical perspective, however, the model gives only limited guidance. The question that arises is to the relationship between capital imports, domestic productivity variations and the

stages of economic development that Canada has passed through since Confederation.

(i) Measurement Techniques

The basic measure of the flow of capital imports into Canada has been taken as the Net Foreign Balance, i.e. Gross Domestic Expenditure minus Real Product[10]. The justification for this technique is based on the expectation that in order to avoid serious balance of payments difficulties over longer periods of time, current account deficits should be matched by long term capital inflows of approximately the same size. Over a period of say a decade there should be no great build up of short term capital inflows, which, when the flow is reversed, would represent an added strain on the foreign exchange position of the country.

The productivity measure that has been chosen is real income per person working or per head of total population per year. There are three different approaches adopted to the measurement of both the productivity change and the variation in the net foreign balance. All measures are made within the framework of the National Accounts.

One of the important underlying assumptions made is that the years since Confederation that have been chosen as

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[10] Appendix 2 gives the details and definitions involved in the approach.

significant points to measure change between, represent approximately similar phases of the business cycle. All the years selected represent years of relatively high economic activity and the single year comparisons are reasonably accurate indicators of long term economic growth.

(ii) The Productivity Lag.

A close analysis of the data given in Tables XVI and XVII reveals the existence of a significant lag between improvements in the rates of productivity increase and improvements in the Net Foreign Balance. This lag becomes apparent on consideration of the data by decades or by twenty-year periods. Between 1890-1910 the average annual rate of productivity increase was of the order of 1-1 1/4 per cent, nearly double that of the period 1870-1890. Between 1910-1920, average annual rates of productivity increase were very small, but there was a marked improvement in the Net Foreign Balance which improved at a rate approaching 12 per cent per annum[11].

Between 1920-1929 an improvement in the level of output per man year occurred, accompanied by a growing deficit on current account. These high productivity levels were reflected in an improved Net Foreign Balance between 1929-1939, despite very small productivity increases. The

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11 When measured by either of the first two methods given in Appendix 2.

TABLE XVI

Growth of Real Product in Relation to Changes in Net Foreign Balance
1870-1961

(Percentage change 1935-39 base)[1]

	Real Product			Real Product - Real G.D.E.[2]			Annual Average Rate of Growth of Real Product			Average Rate of Growth of N.F.B.[2]		
	1	2	3	1	2	3	1	2	3	1	2	3
1870-1890	11	10	12	- 37	- 53	- 36	0.55	0.5	0.6	- 1.85	- 2.65	- 1.
1890-1910	38	35	30	-147	-198	-673	1.9	1.75	1.5	- 7.35	- 9.9	-38.
1910-1920	12	13	0	+114	+142	-344	1.2	1.3	0	+11.4	+14.2	-34.
1920-1929	27	28	45	-114	- 99	+667	2.7	2.8	4.5	-11.4	- 9.9	+66.
1929-1939	5	9	16	+287	+343	+899	0.5	0.9	1.6	+28.0	+34.0	+89.
1939-1945	68	67	61	+259	+207	- 4	11.3	11.1	10.1	+43.0	+35.0	- 0.
1945-1957	103	98	103	-784	-774	-1070	9	8	9	-65	-64	- 8
1957-1961	25	22	33	+202	+ 69	+589	6.3	5.5	6.6	+40	+12.8	+11
				ROSTOW'S PERIODS								
1870-1890	11	10	12	- 37	- 53	- 36	0.55	0.5	0.6	- 1.85	- 2.65	- 1.
1890-1910	38	35	30	-147	-198	-673	1.9	1.75	1.5	- 7.35	- 9.9	-38.
1910-1945	112	117	122	+546	+593	+1218	3.2	3.2	3.5	+15.6	+16.9	+34.
1910-1957	215	215	225	-238	-181	+148	14.6	4.6	4.9	- 5.1	- 3.8	+ 3.
1945-1961	128	120	136	-582	-705	-481	8.0	7.5	8.5	-36.4	-44	-30.
1957-1961	25	22	33	+202	+ 69	+589	6.3	5.5	6.6	+40	+12.8	+11

[1] 1 = Method 1
2 = Method 2
3 = Method 3

[2] A minus sign denotes an increase in the deficit, i.e. increase in the capital inflow first approx. or a decrease in the surplus.
A plus sign denotes a decrease in the deficit or increase in the surplus.

Source Appendix 2.

TABLE XVII

Capital Imports and Productivity Changes, 1870-1961.

(1935-1939 base)[1]

Period	Productivity p.pw. % Increase (Decrease)			Average Annual Rate of Productivity Increase (%) p.a.			N.F.B. p.pw. % (+or -) 2			Average Annual Rate of Change in N.F.B.p. (%) p.a. 2		
	1	2	3	1	2	3	1	2	3	1	2	3
1870-1890	13	11	17	0.6	0.5	0.8	- 98	131	94	- 4.9	- 6.7	4.7
1890-1910	24	22	20	1.2	1.1	1.0	-186	227	-532	- 9.3	-11.4	-12.6
1910-1920	2	5	-12	0.2	0.5	-1.2	181	229	-358	18.1	22.9	-35.8
1920-1929	12	11	37	1.4	1.2	3.9	-106	- 80	957	-11.7	- 8.9	106.3
1929-1939	- 2	2	8	-0.2	0.2	0.8	289	345	904	28.9	34.5	90.4
1939-1945	53	52	47	8.9	8.7	7.9	220	177	- 28	36.7	29.4	- 4.7
1945-1957	34	31	35	2.8	2.6	2.9	-614	-587	-783	-51.2	-49	-65.3
1957-1961	6	2	4	1.3	0.5	1.0	148	62	422	37	5.3	35.2
				ROSTOW'S PERIODS								
1870-1890	13	11	17	0.6	0.5	0.8	- 98	-131	94	- 4.9	- 6.7	4.7
1890-1910	24	22	20	1.2	1.1	1.0	-186	-227	-532	- 9.3	-11.4	-12.6
1910-1945	65	70	80	1.7	2.0	2.6	584	671	1475	72.0	77.9	156.2
1910-1957	99	101	115	2.1	2.2	2.4	- 30	84	692	20.8	28.9	90.9
1945-1961	40	33	39	2.5	2.0	2.4	-466	-525	-361	-14.2	-43.7	-30.1
1957-1961	6	2	4	1.5	0.5	1.0	148	62	422	37	5.3	35.2

[1] 1 = Method 1
2 = Method 2
3 = Method 3

[2] A minus sign denotes an increase in the deficit, i.e. increase in the capital inflow first approx. or a decrease in the surplus.
A plus sign denotes a decrease in the deficit or increase in the surplus.

Source Appendix 2.

advent of World War II, with its great stimulus to manufacturing development and productivity, prevented the slow growth rates found in the 1930's from increasing the net foreign imbalance. The substantial increases in productivity that occurred during World War II did not, however, prevent a very large increase in foreign capital inflows into Canada between 1946-1957 as the previous experience would suggest should have occurred. The reason for this divergent trend can be explained largely in terms of the rapid rates of productivity increases that took place between 1946-1957.

The 2-3 per cent average annual productivity increase between 1945-1957 represented a rate of growth approximately twice as great as that of any comparable peacetime period. The capital inflows were in part a cause of this rapid growth rate and in part in response to it. The lagged pattern outlined above can be re-interpreted as a pattern in which increases in capital inflows accompany increases in productivity. Considering three major periods of accelerated growth rates, namely 1890-1910, 1920-1929 and 1945-1957, an approximately proportional pattern emerges between increases in productivity and increases in the volume of capital which has been imported. Between 1890-1910 the average annual rate of productivity increase was 1.2 per cent while the Net Foreign Balance worsened at a rate of 9.3 per cent per annum. The comparable figures for the period 1920-1929 are

1.4 per cent and 11.7 per cent, and for the period 1945-1957 the figures are 2.6 per cent and 51.2 per cent.

Since 1957 there has been a relative improvement in Canada's net foreign imbalance, but considering the very slow rates of productivity increases that occurred between 1957 and 1961, this could be only a temporary phenomenon.

(iii) Capital Imports and Rostow's Periods

W. W. Rostow has applied a macro-historical approach to economics and delineated five stages through which nations may pass in the course of their economic development[12]. Canada would appear to fit into four of these stages for the purpose of analysis.

(a) Prior to 1890, Canada appears to have been in the stage where the pre-conditions for Take-off were being developed. These pre-conditions involve, in the Rostow scheme, a radical shift in societies' effective attitudes towards fundamental and applied science, towards the initiation of change in productive techniques, towards the taking of risk and towards conditions and methods of work. The main pre-conditions established in Canada were probably the development of a unified national state and the development of a factory system in the manufacturing sector.

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12 W. W. Rostow, The Stages of Economic Growth; a non Communist Manifesto, London, Cambridge University Press, 1960.

(b) Between 1890-1910 Canada was experiencing 'Take-off', defined by Rostow as "the interval when the old blocks and resistances to steady growth are finally overcome"[13]. In this period a higher proportion of potential innovations are accepted in a more or less regular flow. The three related conditions necessary for successful completion of this period are, a rise in productive investment to at least 10 per cent of National Income, the development of a substantial manufacturing sector with rapid growth rates, and a favourable institutional environment.

"Foreign capital was notably useful when the construction of railways or other large overhead capital items with a long period of gestation played an important role in the Take-off or the late Pre-condition period"[14]. In these latter two periods, a substantial portion of the supply of loanable funds available for investment purposes in Canada, came from capital imports. Table XVII shows the increase in capital imports, measured through changes in the net foreign balance, that occurred between 1870-1890 and between 1890-1910.

Between 1890-1910 there were increases in agricultural productivity, marked development of railways and other social overhead facilities and an expansion of export industries,

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[13] Rostow, Op. cit., p. 8.

[14] Rostow, Op. cit., p. 49.

all of which Rostow considers characteristic of the Take-off period.

(c) The 'Drive to Maturity', which is defined as the period when a society has effectively applied the range of modern technology to the bulk of its resources, appears to have taken place in Canada between 1910-1945 or, perhaps more appropriately, between 1910-1957. Maturity has been formally defined as "the stage in which an economy demonstrates the capacity to move beyond the original industries which powered its Take-off and to absorb and apply efficiently over a very wide range of its resources, if not the whole range, the most advanced fruits of modern technology"[15].

Between 1910-1957 productivity rose by over 2 per cent per annum, while there was an overall improvement in the net foreign balance of payments. The period 1945-1957, however, saw a large increase in capital inflows in the form of direct investments, which brought with them advanced technology and managerial expertise not able to be duplicated in Canada. Canada demonstrated a capacity to absorb and apply technology in the period 1945-1957, but a high proportion of the technology came in association with capital imports from the United States.

(d) The years 1957-1961 are too short a period to

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[15] Rostow, Op. cit., p. 10.

assess their special characteristics. They thus do not quite fit Rostow's description of the 'Age of High Mass Consumption'. Between 1957-1961 real product per head of total population actually fell (Table XVII, Method 1), although product per person working rose slightly due to the relatively high level of unemployment. Consumption levels remained at an absolutely high level of approximately $1400 per capita (1949 constant dollars), but the rate of increase was small. During the period the dependence on foreign sources of capital was reduced from the very high level existing in 1957[16]. Currently it is the service sector of the balance of payments which is the basic cause of the large remaining deficit on current account, and this deficit has been met by inflows of long term capital. The high levels of consumption existing in Canada, coupled with heavy expenditures on foreign travel and foreign services, point to a directional emphasis inherent in Canada's age of high mass consumption, away from domestic sources onto foreign sources.

(iv) Conclusions

In broad historical perspective there is evidence of a positive correlation between increases in capital imports and increases in productivity. This is analagous to the results

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16 The Net Foreign Balance was minus 1182 million dollars in 1957, minus 583 million dollars in 1961. Both figures are in 1949 constant dollars.

predicted by both the descriptive and mathematical models. In periods following rapid productivity increases, Canada's dependence on capital imports has diminished in relative terms[17], partly as a result of past productivity increases which have made Canada more competitive on world markets and partly associated with low current productivity increases which do not attract foreign investment.

3. Income Generation and Output Creation

The equations which determine the level of income in the model have the key variables determining output as the level of employment and the size of the capital stock. The descriptive model concluded that an increase in capital inflows, coupled with increases in domestic expenditures and domestic productivity, would cause a multiple expansion of income in the recipient country. The mathematical system, when disturbed by an increase in investment expenditures, resulted in a larger proportionate increase in the income of the 'X' sector than in the income of the 'M' sector. In the light of Canadian experience how adequate are the subdivisions of the economy chosen and how meaningful are the analytical implications of the model?

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17 That is, the rate of increase of imports of goods and services was slower than the rate of increase in exports of goods and services.

(i) The 'Dual Economy' Thesis

Hla Myint put forward the view that the people of 'backward' countries often obtain a smaller share of the gains accruing from international trade than can be satisfactorily accounted for in terms of initial social and economic conditions or in terms of the effectiveness of the domestic factors of production as compared with foreign factors of production. "....the dynamic pressures of the need to expand export production rapidly, acting on the institutional rigidities of the internal economic structure, fossilize the earnings and efficiency of the domestic factors at their low initial levels or sometimes depressing them even lower"[18].

The distinction that has been made in the model between an 'export orientated' and an 'import competing' sector, serves to illustrate the relevance of Myint's thesis to Canada, which is an advanced, wealthy and industrialized society. Tables XVIII and XIX present the capital output and the output per person working ratios for the two sectors utilized in the model, between 1926-1962. The significant points that emerge from the statistics are:

(a) The higher capital output ratio existing in the 'M' sector, and the stability of this ratio over the thirty

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18 Hla Myint, "The Gains from Trade and Backward Countries", in The Review of Economic Studies, Vol. 22, No. 8, 1954-1955, p. 141.

TABLE XVIII

Capital Output Ratios in the
Two Sector Canadian Economy
1926-1962

Year	S_x	S_m	St	Year	S_x	S_m	S_t
1926	2.51	3.72	3.51	1945	3.00	3.21	3.18
1927	2.53	3.56	3.39	1946	2.81	3.47	3.36
1928	2.36	3.49	3.29	1947	2.87	3.60	3.48
1929	2.80	3.63	3.51	1948	2.94	3.73	3.59
1930	3.29	3.93	3.84	1949	3.21	3.72	3.64
1931	4.52	4.56	4.55	1950	3.03	3.70	3.58
1932	5.02	5.18	5.16	1951	2.87	3.70	3.56
1933	4.94	5.72	5.59	1952	3.12	3.54	3.47
1934	3.89	5.30	5.07	1953	3.42	3.55	3.53
1935	3.59	5.04	4.80	1954	3.69	3.83	3.71
1936	3.42	4.97	4.70	1955	3.57	3.72	3.70
1937	3.05	4.71	4.40	1956			3.65
1938	3.34	4.74	4.49	1957			3.78
1939	3.08	4.56	4.29	1958			3.93
1940	2.82	4.11	3.87	1959			3.97
1941	2.82	3.66	3.52	1960			4.06
1942	2.65	3.15	3.07	1961			4.12
1943	2.88	3.08	3.05	1962			4.03
1944	2.92	3.03	3.01				

Source: Appendix 3, Tables I and V. Num^r. = Gross Fixed Capital Formation; Denominator = G.N.P.

Note on this Table:

S_x = 'Export Oriented' Sector

S_m = 'Import Competing' Sector

St = ($S_x + S_m$) i.e. the total economy

TABLE XIX

Productivity in the Two Sector
Canadian Economy
1926 - 1962

(G.N.P./Employed Labour force) i.e. Output per man year

Constant (000's) 1949 $

Year	S_x	S_m	S_t	Year	S_x	S_m	S_t
1926	1.46	2.50	2.23	1945	2.40	3.17	2.60
1927	1.50	2.62	2.34	1946	2.71	3.20	2.60
1928	1.65	2.72	2.45	1947	2.97	3.21	2.63
1929	1.50	2.64	2.37	1948	3.05	3.22	2.66
1930	1.41	2.62	2.33	1949	2.99	3.33	2.76
1931	1.18	2.56	2.25	1950	3.34	3.48	3.46
1932	1.14	2.28	2.03	1951	3.68	3.55	3.58
1933	1.15	2.15	1.88	1952	3.75	3.80	3.80
1934	1.38	2.16	1.99	1953	3.73	3.91	3.89
1935	1.53	2.21	2.06	1954	3.49	3.86	3.81
1936	1.62	2.23	2.09	1955	3.75	4.08	4.03
1937	1.78	2.32	2.20	1956	3.93	4.17	4.13
1938	1.70	2.42	2.26	1957	3.83	4.18	4.13
1939	1.88	2.54	2.39	1958	3.93	4.24	4.19
1940	2.09	2.73	2.58	1959	4.10	4.24	4.22
1941	2.16	3.01	2.82	1960	4.36	4.23	4.25
1942	2.42	3.23	3.07	1961	4.26	4.29	4.29
1943	2.34	3.15	2.56	1962	4.32	4.09	4.44
1944	2.36	3.20	2.62				

Source: Appendix 3, Tables I and VII

S_x, S_m, St have same meaning as in Table XVIII

year period. One of the factors contributing to the higher capital output ratio appears to be the inclusion in the 'M' sector of the basic public utility, and the transport and communications sectors of the economy, both of which are capital extensive in nature. It was into these latter sectors that the majority of the portfolio investments from the U.K. flowed between Confederation and World War I. If comparable data were available for the period 1870-1920 they would, in all probability, disclose a significant increase in the capital output ratio in the 'M' sector[19].

(b) A substantial rise in the capital output ratio in the 'X' sector. Between 1953-1955 it approached the level of the ratio in the 'M' sector. In the 'X' sector are included the resource and primary manufacturing industries, which have undergone rapid growth since 1926 and particularly since World War II. These industries are capital ~~ex~~intensive in nature and have proved an attractive field for U.S. direct investment. U.S. direct investment has flowed in large quantities into the secondary manufacturing sector, the majority of which is included in the 'M' sector. But the effects are disguised by the initial capital stock that existed prior to their accelerated flow. In the 'X' sector the effects of the upsurge in U.S. direct investments can be more clearly seen.

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[19] The development of such estimates represents a task for future research.

(c) The gains in productivity that have been made by both sectors of the economy since 1926, but particularly the significant increase in the 'X' sector which shows a 250 per cent increase in productivity between 1926-1962 and which has now surpassed the 'M' sector. The reasons for this spectacular gain in the productivity of the 'X' sector include: a relative decline in the low productivity agricultural industry which has a heavier weight in the 'X' sector than in the 'M' sector, a decline in labour relative to capital inputs in the 'X' sector[20], and the receipt of increasing direct investment inflows which brought with them significant advances in technology and managerial and marketing expertise.

The increases in productivity that have occurred in the 'X' sector have enabled Canada to maintain a volume of merchandise exports sufficient to cover increases that have occurred in the volume of merchandise imports which compete with the production of the 'M' sector with its slower rate of productivity increase. They have not proved sufficient to meet increases that have occurred in service imports.

Foreign investment inflows of the direct investment type have tended to encourage the development of a dual economy. They have accelerated a trend towards the development of capital extensive industries; they have been

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[20] Of importance in this context is the growing proportion of the labour force employed in the tertiary or service industries as a nation grows wealthier. These industries are included in the 'M' sector.

concentrated in those sectors of the economy where productivity increases have been fastest and they have expanded into those areas of secondary manufacturing, within the 'M' sector, which have grown most rapidly since World War II. (See Table XX).

(ii) 'Supplementary' and 'Entity' Capital

Given the basic premise that foreign capital has extended foreign ownership into many of the most productive and rapidly growing sectors of the Canadian economy, the question that arises is, to what extent could domestic savings have replaced foreign savings and what effect would this have had on output, employment, management and on the productivity of labour and capital?

For economic growth, physical capital accumulation is an important pre-condition, but Kuznets regards only a certain minimum as essential. "Far more important in retrospect are the economic and social characteristics that reside in the capacities and skills of an economy's population, determine the efficiency of the institutions that direct the use of the accumulated physical capital, and guide the current product into the proper channels of consumption and capital investment"[21].

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21 S. S. Kuznets, "Towards a General Theory of Economic Growth", in National Policy for Economic Welfare at Home and Abroad, ed. Robert Lekachman, New York, Russell and Russell, 1961, p. 42.

TABLE XX

Manufacturing Operations of Selected U.S. Controlled Establishments as a Proportion of Total Manufacturing Operations, 1953

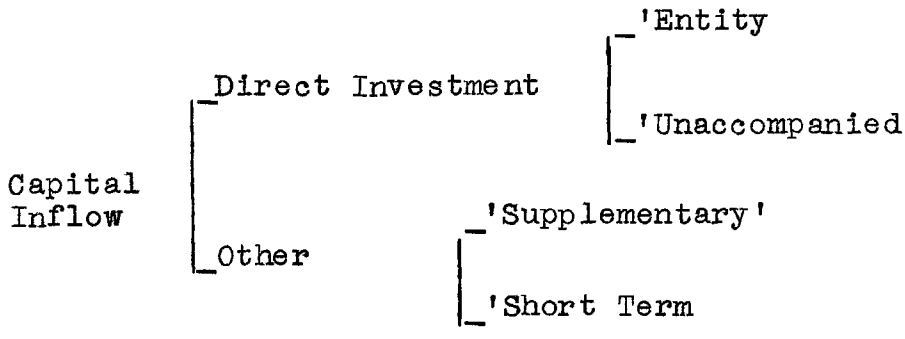
Industry Group	Selected U.S. Controlled Establishments as a % of all Canadian Establishments				% Increase 1946-1953 in all Factory Shipments
	Employees	Salaries and Wages	Value Added by Manufacture	Establishments	
Non-ferrous metals	50	52	60	8.8	191
Non-metallic minerals	27	31	31	3.7	176
Iron and steel products	28	30	33	4.2	198
Chemicals and allied products	37	39	42	1.1	135
Vegetable products	20	24	29	2.0	70
Miscellaneous manufactures	16	20	22	1.3	131
Wood and paper products	11	15	17	9.2	126
Animal products	9	11	12	1.6	52
Textiles	5	6	8	8.7	75
All manufacturing	21	25	29	2.0	121

Source: Irving Boecher and S. S. Reisman, Canada - U.S. Economic Relations. A study prepared for the Royal Commission on Canada's Economic Prospects, Ottawa, Queen's Printer, 1957, p. 107.

In the Canadian economy, the foreign entrepreneur has been a dynamic energizing element in the growth process. In the endeavour to adapt the Canadian economic structure to its growth potential, foreign controlled enterprise has had a major influence in the choice of factor combinations. The international character of the entrepreneurial function has provided Canada with elements accelerating growth which could not have been provided from purely domestic sources. A proportion of the direct investment coming into Canada has brought with it knowhow, assured markets for the final output, the results of fundamental scientific research, technological improvements and managerial competence and ability. Many of these elements cannot be duplicated from domestic sources, or can only be duplicated at a considerably higher cost. These associated benefits represent corollary growth stimuli brought in from abroad. The assured markets provided by a group of American steel companies for the final output of the Quebec-Labrador iron ore development, is a classic example of an accompanying benefit associated with a direct investment inflow, which has made a positive contribution to Canadian economic development.

Direct investment, accompanied by associated benefits which cannot be duplicated adequately or economically in the domestic economy, may be called 'entity' direct investment. Such capital comes to Canada as a complete package of money

and associated benefits. The remainder of the direct investment inflow may be termed 'unaccompanied' direct investment.



Considering the direct investment inflows, there have been two trends impinging on the circular flow of goods and services in the economy. First the addition to the total capital stock, in a real sense a flow from domestic as well as foreign sources to the foreign entrepreneur. Retained earnings, depreciation allowances and borrowing Canadian financial institutions have provided important sources of funds for foreign controlled companies. The foreign controlled enterprises have combined these savings with technical expertise, technological know-how and other factors. The resultant capital investment has been injected into the economy to increase output and incomes which provide the savings for the following periods.

In contrast to the direct investment inflows of the last thirty years, a large part of Canadian development in the period between Confederation and World War I, was financed by a capital inflow largely taking the form of bonded

debt guaranteed by the Government of Canada. This portfolio capital came mainly from the U.K. and was largely used to finance railway development and to provide services ancillary to the expansion of prairie wheat production. Such capital merely added to the aggregate domestic savings available and did not bring with it benefits of the type associated with the 'entity' capital inflows. It simply supplemented domestic savings and it can be designated as 'supplementary' capital. 'Supplementary' capital flows still enter Canada in large quantities but their relative importance has diminished.

(iii) Income and Output Divergences

The important contribution of Domar[22] and Harrod[23] to the theory of economic growth was the stress laid on the dual role of investment. Increases in investment raise income and concurrently increase the productive capacity of a country. The general level of output at any one time is limited by both the availability of resources and by the level of effective demand. Foreign investment inflows into Canada have created both incomes and capacity and they have given substance to the view that divergences may arise bet-

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[22] Evsey D. Domar, "Expansion and Employment", in the American Economic Review, Vol. 37, No. 1, March 1947, p. 34-55.

[23] R. F. Harrod, Towards a Dynamic Economics, London MacMillan, New York, St. Martin's Press, 1956.

ween the rate of growth of income, which has to absorb the output of the created capacity, and the investment desires of the business community.

From the point of view of the theory of economic growth, the following facts connect foreign investment with the Harrod-Domar analysis.

(a) The foreign capital flows have helped increase the capital extensiveness of the Canadian economy. A given increment to the total capital stock has increased output by a smaller amount as time has passed, while at the same time therehas been a steady increase in the real incomes generated and paid to the factors of production.

(b) The direct investment inflows have tended to be concentrated in sectors where the labour input has been rising slowly in relation to other sectors of the economy. As a result, the income generated by rising productivity has tended to go to non-labour factors, in particular to enterprise and capital which come under foreign control. The foreign controlled company has a choice of either remitting the net income or reinvesting it domestically. If the former course is chosen and the income generated is remitted, the effect is to increase income and employment levels abroad when the remitted money is spent on foreign consumption or investment goods.

(c) When foreign investment is concentrated in export orientated sectors, or in building overhead facilities to support export industries, the direct and indirect returns will be affected by world supply and demand conditions which are more prone to fluctuation than domestic supply and demand conditions. Excess capacity may develop whenever world demand falls or world supply increases. Significant excess capacity developed in the petroleum and base metal producing sectors of the Canadian economy between 1957 and 1961.

These three factors all make the achievement of a balance between income generated and capacity created, more difficult. They help to explain the wider fluctuations that have occurred in the output of the 'X' sector than in the output of the 'M' sector. Between 1928-1932 the output of the 'X' sector fell from $1545 million to $870 million[24], a fall of 82 per cent. The figures for the 'M' sector show a fall of only 32 per cent. Between 1945-1955, a period in which world demand for the output of the resource sectors of the Canadian economy was buoyant and when a significant portion of the net earnings on direct investments were ploughed back, Yx rose from $2,239 million to $3,272 million, a rise of 46 per cent. The corresponding figures for Ym are $13,313 million, $18,619 million and 42 per cent, at a time when labour input in the X sector was relatively constant.

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[24] In 1949 constant $dollars.

The theses of Galbraith are in some ways an extension of the Harrod-Domar analysis[25]. His central thesis was that divergences could occur between the rate of productivity increase and the rate of growth of wants in a wealthy society. "As a society becomes more affluent, wants are increasingly created by the process by which they are satisfied"[26]. In order to ensure that the progressively rising output coming onto the market following investment increases, is fully matched by effective demand, wants must constantly expand. The term 'wants' is difficult to define. To quote Alfred Marshall, however, "desires (wants) cannot be measured directly but only indirectly by the outward phenomena to which they give rise; and that in those cases with which economics is chiefly concerned, the measure is found in the price which a person is willing to pay for the fulfillment or satisfaction of his desire"[27].

One outward expression of wants is therefore seen in the level of real consumption expenditures per capita. The increasing real output per capita which is a long term feature of wealthy industrial societies,can be absorbed by

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25 J. K. Galbraith, The Affluent Society, Boston, Houghton and Mifflin, 1958.

26 J. K. Galbraith, Op. cit., p. 158.

27 Alfred Marshall, Principles of Economics, London, MacMillan, 6 edition, 1938, p. 92.

(a) increasing consumption expenditures, or

(b) increasing the rate of current investment.

The Galbraithian theses express concern, with the type of consumption expenditures, reflecting wants, that have developed to match output increases. His theses are extensions of the under and over-consumption theories in that they elaborate the problems involved in allocating final demand between the public and the private sector and between various sub-sectors within the private sector.

The previous analysis indicates that foreign investment has made a contribution to increasing productivity levels in the Canadian economy. But in many instances there has been no automatic mechanism to ensure parallel increases in wants or demands. The primary manufacturing and resource sectors do not produce consumer goods and services for which demand can be induced to rise parallel to output, and these are sectors into which a substantial proportion of the direct investment inflows have gone.

In considering the elasticity of wants, it is necessary to distinguish between the short and the long run. In the long run the expansibility of wants for the products of the basic resource industries in Canada, is probably of small magnitude, particularly considering the alternative sources of supply available and the possibilities that exist for substituting other energy sources. Wants in the rapidly

developing secondary manufacturing sectors are likely to prove more elastic in the long run, and foreign capital directed towards these sectors of the Canadian economy should create less problems of possible divergencies between rates of productivity growth and want creation. "To understand how wants become more elastic we must understand how knowledge of new goods is spread... The process is one of imitation"[28]. The secondary manufacturing fields into which foreign investment has flowed, e.g. the automobile, electrical equipment and chemical industries,provide Canadians with the satisfaction of wants, derived originally from a desire to emulate consumption levels in the United States.

One very important class of want, the desire for increased leisure, is not adequately allowed for when foreign investment inflows enter and control those sectors of the economy where productivity increases are most rapid. Canadians, since 1926, have increasingly taken the opportunity of raising their real income in the form of increased leisure, rather than in the form of increased consumption of goods and services. Canadians appear to have reached the point where they appear to value leisure just about as much as the total value of consumer goods and services which they are able to

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28 Arthur Lewis, The Theory of Economic Growth, Homewood, Illinois, R. D. Irwin, 1955, p. 31.

produce as a result of the work they are doing[29].

Given that Canadians no longer control certain key sectors of the economy, where productivity increases are rapid, where domestically generated savings are appropriated by foreign interests and where labour input is becoming a smaller and smaller percentage of total input, the area in which a choice between more consumer goods and services or more leisure can be made, is narrowed. Productivity advances occurring in Canada, should result in maximization of returns to domestic factors, in order to widen the area of effective choice open to Canadians.

(iv) Domestic Substitutes for Foreign Capital

A large part of the foreign investment in Canada is concentrated in the resource and in the heavy manufacturing industries, in subsidiary companies controlled by non-residents. These represent industries which can be expected to continue to grow at a faster rate than the economy as a whole. Given the policies of substantial retention of earnings to finance expansion of the foreign controlled sectors, the growth of existing companies may continue to be rapid, irrespective of new capital inflows. A fundamental question that arises is: to what extent is domestic capital

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29 This is shown in Wm. C. Hood and Anthony Scott, Output, Labour and Capital in the Canadian Economy, Ottawa, Queen's Printer, Feb. 1957, p. 24-28. 'Weekly leisure hours rose from 22.9 in 1926 to 34.3 in 1953.

a substitute for foreign capital and in what way can the potential dangers inherent in non-resident control in key sectors, be avoided or minimized?

(a) An important point is that it is the composition of the capital inflow into Canada that is of fundamental concern, as well as its absolute volume. "Canada has never been able to provide enough capital from its own resources to finance the growth and development of the country.... The growth of the country, at any stage in its history, would have been much slower without large supplies of capital from foreign countries... Canada has always been a debtor nation"[30]. What is of concern is the control and influence that the foreign controlled companies exert on domestic sources of saving and over policy decisions affecting economic growth rates.

(b) There appears to be no adequate domestic substitute for the foreign 'entity' capital inflows, at least in the short run. Capital in the form of money flows, is not sufficient by itself to ensure a rapid rate of economic development. Many Canadian investment undertakings require not only substantial capital outlays, but also advanced technology, assured markets for the final output, access to research facilities,and other associated benefits. Foreign

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[30] Royal Commission on Canada's Economic Prospects, Final Report, Ottawa, Queen's Printer, Nov. 1957, p. 380.

direct investment since World War II has shown a preference for what Hansen has termed "autonomous" investment fields[31]. Such investment is the dynamic element in the theory of economic growth put forward by Hansen and is a function of exogenous factors such as technological progress, the rise of new industries, the discovery of new resources or the growth of population. These investment fields require the associated benefits accompanying the 'entity' capital inflows for the maximum rate of development to be attained. In Canada the oil and natural gas industries provide examples of this type of development.

(c) The absolute volume of savings available from the U.S. economy, relative to the Canadian economy, is a basic factor imparting advantages to U.S. capital inflows relative to Canadian capital formation. Canada, because of her smaller total population and lower per capita income, just does not have enough capital available in pools, to finance many large developments, particularly those on which the immediate return is low[32].

(d) In many cases the U.S. market is as close to the newly developed resources as is the Canadian market. The

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31 Alvin H. Hansen, Fiscal Policy and Business Cycles, New York, Norton, 1941, p. 346-347.

32 For example, the Peace River and Columbia River hydro developments in British Columbia. Another example is the development of Canada's northern frontier, e.g. Labrador iron ore, which also required very large concentrations of capital.

basic natural resources have been situated in Canada but the general free trade in the products stemming from the resource industries and the absence of locational barriers, have meant that U.S. 'entity' capital has had a competitive advantage over Canadian capital. The petroleum industry, located in the prairies, is one example of this situation.

Over time, the foreign capital inflows have become associated more and more with what may loosely be termed 'entrepreneurial ability'. This has resulted in domestic capital becoming less and less substitutable for foreign capital. In a sense, this quality associated with capital inflows can be likened to the innovation of Schumpeter who made growth and instability a by-product of technology and innovation.[33] Any attempt to quantify the innovation component of foreign investment is difficult, but the business services item appearing under 'miscellaneous current transactions' in the Canadian balance of payments gives an indication of its magnitude. Large elements of cost for initial foreign investment represent fees for non-resident design, engineering, consulting and other services for industrial techniques and processes[34].

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[33] J. A. Schumpeter, The Theory of Economic Development, New York, Oxford University Press, 1961, p. 74.

[34] This item amounted to $127 million in 1960.

This last measure suggests one method of attack to help domestic capital to become more substitutable for foreign capital. An extension of domestic controlled capital into the areas now dominated by 'entity' capital would require substantial payments to non-residents for 'business services'. However, these payments are already being made. If these payments were coupled with a re-organization of the domestic institutional structure to enable the institutional savers to invest more heavily in equity fields[35], and thus enable greater pools of equity investments to be gathered, progress could possibly be made in reducing Canada's dependence on foreign 'entity' capital.

(v) Conclusions

The models set up were able to forecast correctly the direction of the major changes in output and income levels associated with an increase in foreign investment. They were, however, inadequate to analyze the significant quantitative differences found between domestic and foreign capital, and between varying types of foreign capital.

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[35] See Chapter IV.

4. Implications of Relative Inflation and Factor Price Differentials

Ohlin provided a general framework within which both domestic and international factor pricing could be explained[36]. Differences in factor proportions and prices provide the fundamental reason for trade and specialization between nations. Canada, in particular, has pursued the object of increasing her material wealth by importing capital, and thus making capital more plentiful than it would have been relative to land, labour and enterprise. Given that factor proportions and prices have varied between Canada and her trading partners the questions arise as to:

(a) the extent to which the capital inflows were in response to factor price differentials and the extent to which they tended to equalize such differentials, and

(b) if such relationships exist, what effect did the factor price and proportion variations have on the key determinants of economic growth within Canada?

The mathematical model provides little insight into these matters. It was conceived in real terms, i.e. price level variations were neglected, and there was no equation

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36 Bertil Ohlin, Interregional and International Trade, Cambridge, Massachusetts, Harvard University Press, 1933.

developed to explain exchange rate variations[37]. This conceals the important connections between domestic price movements relative to foreign price movements and between growth rates in the respective countries.

(i) Overall Price Cost Relationships

The effect of foreign capital inflows on domestic demand must be considered in terms of the aggregates in the economy. Foreign capital inflows are reflected in corresponding flows of goods and services, unless the foreign capital is used to

(a) gain ownership and thus utilization of existing assets, or to

(b) repatriate foreign owned assets.

Foreign capital inflows, therefore, add to domestic aggregate demand by creating new goods and services domestically and/or add to the supply of goods and services being imported into Canada. Usually, if foreign capital is a contributory factor to domestic demand plus export earnings being greater than domestic production plus imports, then it contributes to inflationary pressures. Conversely, if foreign capital is a contributory factor to domestic demand plus export earnings being less than domestic production plus imports, then it contributes to deflationary pressures.

37 The main reason for this was the difficulty in obtaining meaningful annual data on exchange rate variations to gain comparability with the other equations.

The extent to which an economy utilizes its resources is an important factor in analysing the impact of the investment inflows. Foreign capital inflows by creating new goods and services domestically will increase the employment of domestic labour and other factors of production. At the same time it will increase the total supply of goods and services and thus price rises will be minimized[38]. If there were full employment of resources, however, demand would be increased without a corresponding increase in aggregate supply and the probable result would be rising prices.

The exchange rates between Canada and her trading partners, considered both as the prices of foreign exchange and the adjusting mechanisms between price levels in domestic and foreign markets, are key regulators in the above processes. The movement in the exchange rate would be upward or downward, depending on whether the increase in imports was greater or less than the increase in the investment inflow. The likely result of an investment inflow, following from the analysis of the two-country world[39], would be for the balance of merchandise trade to move unfavourably, but for the overall balance of payments to show an improvement. Thus the rate of exchange should rise. The problem that appears to be facing

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38 This applies to a situation of "demand pull" inflation, but not to "cost-push" type pressures on cost and price levels.

39 See Chapter II, Table VI.

Canada at the present time is not a new problem but it is more pressing than at any other time in Canada's history. Further its solution can only be devised over the long term.

Over a long period foreign capital has aided Canada to expand domestic demand plus export earnings at a rate comparable to the expansion of domestic production plus imports. In particular it has enabled the importation of a large volume of ~~imported~~ capital equipment and consumer goods to add to domestic production. The costs of servicing foreign capital invested in Canada has, however, been a major contributory factor in the development of a large and growing deficit on 'invisible' items in the current account. This deficit has tended to absorb a large proportion of the new capital inflows leaving an inadequate proportion to finance merchandise imports. A long-term solution to the problem is to expand export earnings, but a short term expedient is to alter the exchange rate downward. Exchange rate adjustment has been the most recent expedient attempted in Canada.

Canada's experience is thus rather different from that faced by many of the underdeveloped nations of the world. In many of these countries foreign capital has initially added to domestic demand which was already high relative to the supply of goods and services available. The capital inflow has done little to increase the domestic production of new goods and services or to increase existing social capital facilities.

The inflation, reinforced by the capital inflow, simply encourages a continuous depreciation of the exchange rate and an outflow of domestic saving which will be converted into holdings of 'hard' currencies[40].

The direct foreign investment inflows into Canada have had as motivating forces four major desires:

(a) a desire to ensure continuous and low cost raw material supplies to the parent company,

(b) a desire to introduce a commodity or service to the Canadian market as an extension of the parent company's operations,

(c) a desire to take advantage of the opportunity for profitable investment compared with alternative investment opportunities,both in the U.S. and in other countries,

(d) a desire to take advantage of the very hospitable

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[40] Latin American countries provide classic examples of this type of situation. The Brazilian National Income Statistics record a rise of G.N.P. from 216 billion cruzeiros in 1949 to 820 billion in 1959. In the same period the wholesale price index rose from 58 to 305 (1953 base). A large part of this increase in output was, however, concentrated in those industries which, towards the end of the period, could only compete against foreign producers with the protection of an import exchange rate of up to 600 cruzeiros per U.S dollar, while the output of the export industries were valued on the basis of competition with foreigners at a rate of between 100 and 200 cruzeiros per U.S. dollar.

Between 1952-1958, private residents of Cuba, Argentina, Brazil, Chile and Columbia, faced with similar inflationary situations, acquired on the average, almost $40 M per year of short term U.S. assets. In total there were larger than total I.B.R.D. loans to these areas.

climate for foreign investment which Canada has offered. Dividends and interest have generally been freely remitted until the last two or three years.

Foreign investment flows into developing nations have had a fifth broad motive, that of taking advantage of domestic inflation and high and rising barriers to imports, to secure a high percentage rate of return on capital invested. In addition domestic inflation, relative to trading partners, provides a heavy complementary import demand.

Foreign capital inflows have not contributed to inflationary conditions in Canada over time. In part, this can be explained in terms of the significant unused productivity capacity that has existed in Canada at many periods. Since 1926, the only period when unemployment fell to below 4 per cent of the labour force was between 1943-1953 when the World War and its aftermath maintained high employment levels. (See Appendix 3, Table XXIII)

(ii) Interest Rate Differentials

Tables XXI and XXII illustrate the fact that long-term interest rates have traditionally been lower in the U.S. (and the U.K. between 1900-1913), than in the Canadian capital market. Canada, traditionally a debtor nation, has attracted large quantities of bond and debenture capital, and within this broad framework there appears to be a relationship between these interest differentials and the rate

TABLE XXI

Comparative Interest Rates Between Canada and the U.K. (%)
1900-1913

Year	Government of Canada Average Rate of Interest Paid on Bonded Debt	Average Rate of Return on Large Colonial Investments Issued (in Great Britain) to Pay a Fixed Rate of Interest	Average Rate of Interest Yielded by Foreign Investments in Canada
1900	4.03	3.20	3.67
1901	4.05	3.40	3.67
1902	4.05	3.21	3.67
1903	4.15	3.21	3.67
1904	4.17	3.78	3.63
1905	4.08	3.78	3.63
1906	4.15	3.85	3.66
1907	4.33	3.99	3.57
1908	4.37	4.04	3.56
1909	4.16	3.96	3.56
1910	4.18	4.19	3.53
1911	4.18	4.03	3.49
1912	4.24	4.30	3.47
1913	4.45	4.44	3.43

Source: Jacob Viner, Canada's Balance of International Indebtedness, 1900-1913, Cambridge, Harvard University Press, 1926, p. 96 and 98.

TABLE XXII

Comparative
Long-Term Bond Yields Between
Canada and the U.S., 1936-1944 (%)

Year	U.S.[1]	Canada[2]
1936	2.69	2.97
1937	2.74	3.17
1938	2.61	3.09
1939	2.41	3.16
1940	2.26	3.28
1941	2.05	3.10
1942	2.09	3.06
1943	1.98	3.01
1944	1.92	2.99

1. Source: Federal Reserve Bulletin, May 1945, p. 483. The "average of yields on all outstanding partially tax exempt government bonds due or callable after 15 years from 1935 to date".

2. Source: Bank of Canada, Statistical Summary - Supplement 1950, p. 19. This is a theoretical yield on a 15 year government of Canada bond. This series has since been discontinued.

of bond and debenture inflow. The wider the differential, the greater the pressure for Canadian borrowers to seek out foreign sources of capital. "While there is in evidence a relationship between new issues contracted and yield differentials, the correlation is far from precise. It may be conjectured that the magnitude of the financing involved and the possible saturation of the Canadian market, the relative standings in Canadian and foreign markets of various borrowers and their relationship to the markets, as well as the type of industry involved, may be among the additional factors determining the source of capital"[41].

Treasury Bill rates between the U.S. and Canada do not show such a consistent pattern. Table XXIII shows a comparison of tender rates of three-month Treasury Bills between the two countries. It appears that since 1956 there has been a tendency for the Canadian rate to exceed the U.S. rate. This is partly the result of the increasing growth in depth of the Canadian short-term money market. Prior to this time a higher rate had to exist, at most times, on U.S. bills, which were part of an established and sound short-term money market.

From a study of Canadian experience, three significant points emerge.

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41 D.B.S. Canada's Balance of International Payments and International Investment Position, 1960, p. 39.

TABLE XXIII

Weighted Average of Tender Rates
on Three Months Treasury Bills
(Tender Rate Nearest June 15 - Percentage Yield)

Year	Canada	U.S.	U.K.
1946	.393	.375	.505
1947	.407	.376	.506
1948	.412	.997	.507
1949	.506	1.158	.524
1950	.51	1.18	.51
1951	.76	1.47	.51
1952	1.08	1.63	2.43
1953	1.70	2.23	2.37
1954	1.60	0.63	1.58
1955	1.34	1.51	3.97
1956	2.67	2.58	5.02
1957	3.79	3.26	3.86
1958	1.78	0.95	4.29
1959	5.22	3.28	3.47
1960	2.71	2.29	4.68
1961	2.60	2.30	4.50

Sources: Bank of Canada: Financial Supplements to Statistical Summaries, 1954, p. 50-56, 1960, p. 42-45 and 76-79, 1961, p. 44-45 and 82-83.

(a) The basic changes in the type of foreign investment have been from portfolio to direct investment and from 'supplementary' to 'entity' capital. As these changes have taken place, interest rate differentials have lost a measure of their importance as regulators of the capital inflows. 'Entity' capital inflows, in particular, are relatively insensitive to changes in the level of interest rates.

(b) Despite the very heavy overall level of capital inflows into Canada, there has been little tendency for interest rate differentials to narrow between Canada and the countries from which she has been a heavier borrower. The relatively free flow of capital has not lead to a general equalization of the prices of bond or debenture capital, i.e. to a general equalization of interest rates.

(c) Institutional factors, in the case of Canada, the degree of maturity in the short-term money market and the depth of the long-term capital market, can have a significant influence on the cost, composition and absolute size of the capital inflow.

(iii) Exchange Rate Variation

There appears to have been a correlation between long term capital inflows into Canada and exchange rate variations between 1910-1962. Table XXIV gives the movement in the exchange rate between Canada and the United States for the period 1910-1962. Table XXV shows movements in this rate

TABLE XXIV

Exchange Rate Fluctuations, 1910-1962

(Premium (+) or Discount (-) on $U.S. in Canadian $)

Year		Year	
1910	0.04	1937	- 0.06
1911	..	1938	- 1.04
1912	0.02	1939	- 0.21
1913	0.01	1940	-10.5
1914	0.00	1941	-10.5
1915	-0.75	1942	-10.5
1916	-0.19	1943	-10.5
1917	-0.06	1944	-10.5
1918	-2.00	1945	-10.5
1919	-2.91	1946	- 0.25
1920	-13.42	1947	- 0.25
1921	-12.75	1948	- 0.25
1922	- 1.13	1949	- 0.25
1923	- 2.38	1950	- 8.92
1924	- 1.53	1951	- 5.28
1925	0.02	1952	2.11
1926	0.12	1953	1.66
1927	0.06	1954	2.68
1928	0.23	1955	1.37
1929	0.83	1956	1.59
1930	0.00	1957	4.12
1931	- 0.26	1958	2.94
1932	-15.33	1959	4.10
1933	-11.18	1960	3.03
1934	- 0.78	1961	- 1.32
1935	- 0.08	1962	- 6.41
1936	- 0.26		

Source: Bank of Canada, Research Division.

TABLE XXV

Exchange Rate Variations and Long-Term Capital Inflows, Canada, 1913-1962

Period	Annual Average Discount (-) or Premium (+) on $U.S. in Canadian Funds (%)	Average Annual Long Term Capital Inflow (+) Outflow (-)
1914-1929	-2.35	163.1
1930-1938	-3.22	- 3.0
1939-1945	-9.3	-912.4
1946-1951	-2.52	- 25.4
1952-1962	1.81	473.6

Source: Tables XXIV and XXVII.

relative to movements in long term capital for selected periods 1914-1962. The periods 1930-1938, 1939-1945 and 1946-1951 were all periods of long-term capital outflow and throughout these periods there was a consistent discount on the Canadian dollar. Between 1952-1962 the absolute volume of foreign capital inflow reached record levels, and until the 1962 devaluation there was a consistent premium on the Canadian dollar. The period 1914-1929 was characterized by a discount dollar accompanied by large inflows of long-term capital, but this can largely be explained in terms of the very large current account deficits that were run in this period. These deficits were of sufficient magnitude to outweigh the investment inflow.

Exchange rate variations will aid economic growth when upward pressure on the rate occurs at times of low and falling unemployment or when periods of high and rising unemployment are accompanied by downward pressure on the exchange rate. From a study of annual data over a long period, there appears to be little relationship between exchange rate variations and the level of internal economic activity in Canada[42]. The factor which appears to have

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[42] To have provided an equation, determining the exchange rate for the economic model constructed, would have provided an opportunity to have tested the validity of this hypothesis in a theoretical world. This could prove a fruitful field for further research.

exerted primary influence on the exchange rate has been the level of the long-term capital inflow, and one of the basic determinants of the size of the inflow has been the degree of confidence that foreign investors have in Canada's long-term growth prospects. But neither exchange variations nor long-term capital inflows have been able to aid economic growth by stimulating the economy in times of slow growth rates and by acting as a brake to inflationary pressures within Canada. Between 1946-1951 the average annual discount on the Canadian dollar was 2.52 per cent, at a time when unemployment averaged only 2.1 per cent of the labour force. Between 1956-1962, the average annual premium on the Canadian dollar was 3.8 per cent at a time when unemployment averaged 5.4 per cent of the labour force.

(iv) Profit Differentials

The sensitivity analysis of the model of the Canadian economy, oversimplifies the complex factors determining the volume of foreign capital, by assuming that all investment is determined exogenously, i.e. externally to the system. There has been an important tendency for parent companies to regard the operations of the Canadian subsidiary as merely one facet of a world wide business complex, whose guiding principle is the maximization of global profits. When direct investment in the resource sector is motivated by a desire to provide continuity in raw material supply, or simply to

provide an alternative source of supply to foreign producers, such investment is little influenced by profit levels, or the general level of business activity, in Canada.

In the fitting of the equations, however, the investment equations regarded sector investment as a function of investment in the immediately preceding year and profits in the previous year, and, in one case, the profits of two years previously. That portion of the direct foreign investment component of total investment which has flowed into the secondary manufacturing sector has been motivated by a desire to take advantage of high profits and buoyant domestic conditions. Table XX shows that United States controlled firms are more heavily represented in those areas of manufacturing which grew most rapidly between 1946-1953. Later figures are not available, but it is likely that these same industries would have shown the most rapid rate of growth between 1954-1962. These industries also tend to show a higher level of wages and salaries and a higher capital output ratio then do domestically controlled firms in the same industry because:

(a) The United States controlled companies are typically of a larger size than the domestically controlled companies, thus allowing scope for greater economies of scale and more extensive use of capital, and

(b) The higher general level of productivity in

foreign controlled enterprises due to their greater absolute size and the 'knowhow' that is associated with the direct investment inflow.

This rapid growth of those enterprises in the manufacturing sector which are foreign controlled, has been combined with extensive use of retained earnings and depreciation allowances to furnish the funds for new investment, and thus reliance on parent companies or domestically controlled savings, has been minimized.

A large United States manufacturer with access to larger quantities of capital, runs relatively less risk than a Canadian manufacturer with less capital per unit of output and with access to smaller quantities of capital and technical expertise. A Canadian manufacturer, in this position, will tend to earn less profits despite having to bear more 'non-insurable' risks and uncertainties, which Knight regards as the raison d'être for profits[43].

(v) Conclusions

One of the most challenging problems facing an analyst studying long-term trends is to establish a cause and effect relationship between foreign capital inflows and the general level of prices, the exchange rate and factor prices. In

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[43] F. H. Knight, Risk, Uncertainty and Profit, Boston, Houghton Mifflin, 1921.

the case of Canada these inflows have significantly stimulated growth[44], but have not contributed to, or been the result of domestic inflationary pressures relative to other trading partners.

The lack of any clear cut correspondence between long-term capital inflows and factor price movements can be explained partially by the general insensitivity of direct foreign investment to the general level of short-term domestic activity in Canada[45]. This also helps to explain the small correspondence between long-term exchange rate movements, which are basically influenced by long-term capital movements and the general level of domestic activity.

5. Foreign Investment and Balance of payments Equilibrium

Theoretically, a country should, over a 'period of time', maintain a balance in both its national and international activities. This implies the equating of export receipts plus the net long-term capital balance, with import

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44 Subject to qualification discussed earlier in this chapter, e.g. the development of a tendency towards a dual economy has somewhat retarded economic growth.

45 Much of the direct investment is motivated by a desire to either maintain long-term continuity of supply to the parent company or to seek long-term profit maximization in the manufacturing sector of the economy.

payments at a level of 'full employment', stable prices and steady and sustained rates of economic growth[46].

In the mathematical model, the value of exports was considered to be determined outside the system. This is a simplification of the complex determinants of the value of exports in the real world. Important determinants of the volume and value of exports from Canada which can be influenced by domestic policies, include the level of the exchange rate, the level of domestic costs of production relative to foreign competitors and the volume and type of capital formation being undertaken in the domestic sector.

The value of imports is determined in the model by the level of income and the level of investment. The level of real income is an important determinant of the level of imports, while in Canada the import component of an increase in domestic machinery and equipment investment expenditures is very high, averaging 38 per cent in the decade 1950-1960[47]

(i) Criteria for Equilibrium

The modern definition of what constitutes balance of

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[46] The 'period of time', what constitutes 'full employment' and 'steady and sustained rates of economic growth' and a definition of price stability, are crucial, and are considered later in this section. This definition may be called the 'modern' definition of balance of payments equilibrium.

[47] D. W. Slater, Canada's Imports, Ottawa, Queen's Printer, Jan. 1957, p. 88-92, uses these key variables to forecast future levels of imports.

payments equilibrium, given above, represents the currently accepted view as to what constitutes balance of payments equilibrium[48]. Modern theorizing, however, appears inadequate to explain the current Canadian situation.

J. M. Keynes and other writers, in developing modern theory, queried the classical view that the monetary system of a country operated in such a way, that a country's balance of payments automatically tends to equilibrium[49]. They queried the assumptions that a change in the quantity of money (induced by a change in the holdings of internationally acceptable reserves, usually gold) would affect demand and that a change in demand would affect prices and costs rather than output and employment. According to this new theory balance of payments adjustments took place via induced movements in income and employment and this has lead to the modern definition of equilibrium. Nurkse states that "the only satisfactory way of defining an equilibrium rate of exchange is to define it as that rate, which, over a period of time, keeps the balance of payments in equilibrium"[50]. If the

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[48] The definition presented here represents a modification of the definition given by Ragnar Nurkse, "Conditions of International Monetary Equilibrium", in Readings in The Theory of International Trade, Editors H.S. Ellis and L.A. Metzler, Philadelphia, Blakiston, 1950, p. 3-34.

[49] For a discussion of the development of the modern theory, see L.A. Metzler, "The Theory of International Trade", in a Survey of Contemporary Economics, edited by H.S. Ellis, Homewood, Illinois, R.D. Irwin, 1948, p. 210-254.

[50] Ragnar Nurkse, op. cit., p. 6-7.

period over which payments have to balance is short, say a week, there is in effect a constantly fluctuating rate, but such a rate may induce disequilibrating capital movements so that equilibrium is impossible. In view of the seasonal pattern of Canada's external trade, the period can hardly be less than a year.

The balance of payments to be considered in defining the equilibrium rate of exchange must exclude transfers of Canada's gold and official exchange reserves necessary to balance her external accounts and movements of other short-term balancing capital[51]. Apart from these short-term transfers, all other external transactions must be included in the balance of payments. In particular long-term investment inflows must be included. Finally the balance of payments cannot be in equilibrium if it is maintained only by widespread restrictions on imports, by domestic deflation or slow internal rates of economic growth. In the Canadian context it is desirable to have a seasonally adjusted level of employment of no less than 96 per cent of the labour force[52]. It is

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[51] In Tables XXVI and XXVII, items D13 (subscriptions in gold and U.S. dollars to international financial agencies), D14 (changes in Canadian dollar holdings of foreigners), D16 (changes in official holdings of gold, U.S. dollars and sterling) and D17 (other capital movements), in the official balance of payments statistics, 1946-1962, have been included under 'short-term balancing capital'.

[52] This 96 per cent figure is arbitrary and such a figure has not been achieved since 1953. Between 1943-1953, however, the figure averaged 97.3 per cent and it does not ....

also desirable to attain a rate of increase of real output per man year, of at least 2 per cent per annum[53],

(ii) The criteria applied to Canadian Historical Experience

Considering Canada's long-term balance of payments position in the light of this modern definition Canada does not appear to have had a "serious"[54] balance of payments problem, despite a consistent failure to match exports of goods and services with imports of goods and services. Tables XXVI and XXVII help to explain why. They set out details of Canada's balance of payments between 1900-1962. Within the framework of the periods considered, accumulated exchange reserves plus other short-term balancing capital have always been sufficient to bridge any deficit between export earnings plus long-term capital flows, and import payments. Between

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appear unreasonable to place the figure at 96 per cent. (See Appendix 3, Table XLV. This compares with a rate of between 94 per cent and 95 per cent in the first nine months of 1963, which is considered as a high level of employment.

53 Between 1930-1953, real output per man year increased by 2.09 per cent per annum. O.J. Firestone, Canada's Economic Development, 1867-1953, London, Bowes and Bowes, 1958, p. 58. It is on this experience that the minimum 2 per cent figure is based.

54 Views differ on the subject as to whether or not Canada has had a 'serious' balance of payments problem. J.C. Coyne, G. Hees, M. Sharp and W. Gordon, have all expressed opinions which may be found in unpublished material in the Bank of Canada's Library. This thesis draws attention to the adequacy of modern theory to cover the case of Canada.

TABLE XXVI

The Source and Disbursement of Foreign Exchange by Canada, 1914-1962

($000,000)

Period 1, 1914-1929	
Foreign Exchange Required to	
(1) Meet net interest and dividend payments	3,104.2
(2) Meet net imbalance on other non-merchandise current account items	294.0
(3) Pay 'other' long term capital outflows principally government war financing	1,086.7
	4,484.9
Foreign Exchange Acquired by	
(4) An export surplus on merchandise trade	2,922.4
(5) An inflow of long term portfolio capital	1,284.7
(6) An inflow of direct investment	218.9
(7) An 'outflow'[1] of short term capital	58.9
	4,484.9
Period 2, 1930-1938	
Disbursement of Foreign Exchange on	
(1) Interest and dividends	2,184
(2) Direct investment outflow	288
(3) 'Other' long term capital outflows	36
	2,508
Receipts of Foreign Exchange from	
(4) A 'surplus' on merchandise trade	2,280
(5) Portfolio capital inflow	81
(6) Balance on other non-merchandise, current account items	12
(7) Short term 'outflow'	135
	2,508

1. The term 'out-low' here refers to a fal... (a) official reserves and (b) foreign short term assets held domestically

Period 3, 1939-1945

Foreign Exchange Required to	
(1) Meet interest and dividend commitments	1,505
(2) Build up short term assets	1,168
(3) Finance outflow of portfolio capital	177
(4) Finance outflow of direct investment	53
(5) Meet balance on other non-merchandise current account items	1,640
(6) Finance other long term capital outflows	4,241
	8,784
Foreign Exchange Acquired by	
(7) A surplus on merchandise trade, i.e. an export surplus	8,784

Period 4, 1946-1962

Funds Paid Out to	
(1) Meet interest and dividend commitments	6,518
(2) Meet other non merchandise, current account items	6,203
(3) Finance other long term capital outflows	708
	13,429
Foreign Exchange Acquired by	
(4) A surplus on merchandise trade	2,319
(5) Direct investment inflows	5,326
(6) Portfolio investment inflows	5,059
(7) Short term balancing capital 'outflow'	725
	13,429

Source: Appendix 1.

TABLE XXVII

The 'Nurksian' Concept of Balance of Payments Equilibrium, Applied to Canada, 1900-1962
($000,000)

Period	(1) Balance on Current Account (Deficit (-))	(2) Long Term Capital (Inflow (+))	(3) The 'Nurksian' Balance of Payments (Deficit(-))	(4) The Cumulative Sum of (3)
1900-1913	-2238.4	2441.4	203.0	203.0
1914-1929	- 475.8	416.9	- 58.9	144.1
1930-1938	108.0	- 243.0	- 135	9.1
1939-1945	5639.0	-4471.0	1618	1177.1
1946-1962	-1040.2	9677	- 725	452.1
1946	363	- 730	- 367	- 367
1947	49	- 742	- 693	-1060
1948	451	56	507	- 553
1949	177	- 7	170	- 383
1950	- 344	607	273	- 110
1951	- 517	637	120	10
1952	164	470	634	644
1953	- 443	650	207	851
1954	- 432	581	149	1000
1955	- 698	361	- 337	663
1956	-1366	1275	- 91	572
1957	-1455	1259	- 196	376
1958	-1131	1012	- 119	257
1959	-1504	1120	- 384	- 127
1960	-1217	818	- 399	- 526
1961	-982	806	- 176	- 702
1962	- 848	825	- 23	- 725

Source: Appendix 1

1900-1913, the cumulated sum of short-term balancing capital inflows amounted to $203 million, which was sufficient to meet short-term outflows of balancing capital between 1914-1938. In the period 1939-1945 Canada experienced a buildup of short-term assets amounting to $1177 million and this plus long-term capital inflows has proved sufficient to meet large and increasing current account deficits in the decade of the 1950's and in the 1960's.

Rates of productivity growth in Canada since 1900, measured in terms of increases, in real output per man year, have been 1.2 per cent (1890-1910); 0.2 per cent (1910-1920); 1.4 per cent (1920-1929); -0.2 per cent (1929-1939); 8.9 per cent (1939-1945); 2.8 per cent (1945-1957); and 1.5 per cent (1957-1961)[55]. Considering a second indicator of domestic growth, namely employment, statistics reveal that between 1926-1962, the year 1929 and the period 1943-1953, were the only times when unemployment fell below 4 per cent of the labour force[56]. From the point of view of internal balance there appears to have been a problem in that increases in domestic investment, designed to stimulate the rate of productivity growth and to raise levels of employment, may have lead to substantial increases in imports. This is not a surprising

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[55] Table XVII of this study. The measurements are in per person working terms.

[56] See Appendix 3, Table [illegible].

conclusion in view of the high import content of domestic investment expenditures.

The period 1955-1962, considered in Table XXVII, reveals that for each year in the period, long-term capital inflows were of insufficient magnitude to bridge the very large current account deficit. During this period Canada was, in fact, subsidizing the currencies of trading partners, in particular the United States dollar. This is one short-term indication of more basic long-term problems which face Canada.

(iii) The Structural Problems

The long-term feature of Canada's balance of payments which has caused structural maladjustments to occur, has been the increasing reliance on long-term capital inflows to maintain long term, 'modern', external equilibrium.

These capital inflows, accumulating at a rapid rate, have of necessity raised the question of eventual repayment. When the long-term profit prospects diminish there may develop pressures to repatriate large amounts of foreign capital. If such a movement continued for lengthy periods, the overseas payments necessary to maintain full employment and a satisfactory rate of growth would, given the current trends in the import and export functions, be substantially in excess of overseas receipts. This may be called a 'potential repatriation problem'.

(b) There is the further point that large capital inflows make the balance of payments particularly vulnerable to changes in the expectations of foreign investors. When, ceteris paribus, export receipts fall or import payments rise, the increased deficit on current account may be reinforced or mitigated by a change in the 'confidence factor'. The decision as to the rate of capital inflow, particularly in the direct investment field, lies with the foreign entrepreneur. Expectations as to likely future movements in the exchange rate or as to growth prospects in the near, medium or long term, can have a significant influence on the rate of capital inflow.

(c) Finally, heavy inflows of foreign funds to Canada have increased the remittance problem. Not only the repatriation of capital, but changes in the rate of remittance of interest and dividends can place severe strains on the balance of payments. The long-term aspect of the problem receives special study in the following section, but in the short run also the rate of change in the flow of foreign investment can cause exchange drains based largely on expectations of foreign businessmen.

(iii) The Import and Export Functions

The direct effects of the foreign investment inflows come when export production is stimulated and when import replacement occurs. The sensitivity analysis of the model

resulted in a table of multipliers for the main aggregates in the economy. These multipliers are the resultant of both the direct and indirect effects stemming from the foreign investment inflow.

The demand from the sectors into which foreign investment has flowed has indirectly stimulated incomes, output and employment in industries supplying intermediate products to the sectors initially stimulated by the foreign investment. An interesting point that emerges is that in those sectors where the direct effect on exports and imports and hence on their respective ratios to National Income, is greatest, the indirect or secondary repercussions on income and employment levels are least. The export industries require little subsequent complementary domestic investment. The secondary industries which attract foreign capital require a greater proportion of complementary domestic investment. Construction expenditures financed from foreign sources and undertaken by the various levels of government have the greatest induced demand for accompanying domestic labour and capital. The acceleration effect of increased output is greatest in this latter area of investment. The interactions between the multiplier and the accelerator are complex. Perhaps the most significant overall influence on the value of the multiplier coefficients is that 40-50 per cent of the machinery and equipment component of a domestically motivated investment upsurge, is imported.

The following appear to have been the main factors which have influenced the development of differentiated acceleration and multiplier coefficients, resulting from differences in the type and sector destination of the capital inflow:

(a) The percentage of supplementary capital from domestic sources needed for additional secondary production.

(b) The extent to which further processing of the output, resulting from the investment inflow, is needed.

(c) The amount of labour and other domestic resources in the form of technical knowhow, managerial ability, market access and technological skill, which are combined with the foreign capital.

Looking at the long-term trend in exports and imports, "imports of goods and services in constant dollar terms were thirty times larger in 1953 than in 1870, whereas Gross National Expenditure was sixteen times larger and exports twenty-five times larger"[57]. Table XXVIII gives the trend of the export and import functions in Canada between 1946-1962 and it reveals a continuation of the trend of import payments to grow more rapidly than export receipts. The principal reasons for this trend have been linked to the increasing volume of capital inflows.

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[57] O. J. Firestone, Op. cit., p. 142.

TABLE XXVIII

Average Propensities to Import and Export, Canada, 1946-1962

Year	Real G.N.P. (Constant 1949 $)	Average Propensity to Import	Average Propensity to Export
1946	15,251	23.9	26.7
1947	15,446	26.3	26.4
1948	15,735	23.3	26.0
1949	16,343	23.3	24.4
1950	17,471	24.8	23.0
1951	18,547	26.2	23.7
1952	20,027	23.5	24.3
1953	20,794	25.6	23.5
1954	20,186	24.8	22.7
1955	21,920	26.7	22.6
1956	23,811	28.4	22.7
1957	24,117	28.1	22.8
1958	24,397	26.6	22.9
1959	25,242	27.8	22.5
1960	25,805	27.7	22.7
1961	26,468	28.1	22.4
1962	28,111	27.9	23.5

Source: Official National Income Statistics. The average propensity to import (export) is the ratio of imports (exports) as per the national accounts to G.N.P., both in real terms.

They include:

(a) The growing payments for non-merchandise transactions reflecting the rise in foreign investment with its subsequent remittances of interest and dividends, and the expanding travel itineries of Canadians.

(b) The consistent premium on the Canadian dollar between 1950 and 1961, which was partly attributable to the large capital inflows.

(c) The growing volume of machinery and capital equipment which is imported by industries in Canada particularly in the resource sector and which is associated with the direct investment inflows.

(d) The increasing price and quality competition being found on world markets. Canada has built up, with the aid of foreign investment inflows, an industrial structure heavily dependent on sustained and rising foreign demand to increase export earnings.

(iv) Conclusions

The tendency since Confederation has been for import payments to grow at a faster rate than export earnings[58]. The growing deficit has been financed by long-term capital inflows

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58 This tendency has been reversed at certain times in Canadian history, e.g. between 1957-1962 exports grew at a faster rate than imports. There still remains, however, a heavy current account deficit.

which have maintained foreign exchange receipts at a level adequate to finance the growing volume of imports. These capital inflows have, however, brought in their wake long-term structural problems.

The multiplier coefficients, presented in the analysis of the model, conceal complex processes of export creation, import replacement, output generation and income creation, all of which are the resultant of direct and indirect causes.

6. The Remittance Problem

During periods of rapid economic development, represented by between three-quarters and four-fifths of the peace time years since Confederation, Canada has faced the problem of persistent current account deficits financed largely by net capital imports. This capital from foreign sources does have to be serviced, and to the extent that interest and dividends are remitted and capital repatriated, foreign exchange is required which could either,

(a) be utilized to pay for additional imports, or

(b) be utilized to relieve some of the dependence on foreign sources to finance domestic investment.

The model of the Canadian economy simplified the problem of remittances. The remittances are included in the import function but the function does not separate the main

components of import demand as should be done in undertaking a more sophisticated analysis. Again imports, in the form of remittance payments, are likely to be a function of past levels of investment as well as current levels of income and investment.

(i) Canada's Debt Servicing Ability

Two of the more commonly accepted measures of Canada's ability to service debt are presented in Table XXIX where interest and dividend payments to non-residents are compared, first with Canada's G.N.P. and then with her receipts on current account. The ratios of interest and dividend payment to G.N.P. and current receipts were both relatively low between 1956-1961 as compared with earlier historical periods. By these criteria, Canada's productivity and international earnings have more than kept pace with the rising cost of servicing her external debt. But such criteria are not very meaningful in the context of the Canadian economy.

(a) Total interest and dividend remittances must be looked at in conjunction with other payments for imports. The size of the net foreign balance and the long-term capital flows that can be attracted, are equally as important variables.

(b) Consideration of the level of economic activity associated with a given level of remittances and repatriation is vital. In the case of equity investments controlled by

TABLE XXIX

Ratios of Interest and Dividend Payments to Non-Residents to G.N.P. and Receipts on Current Account

Year(s)	(1) Interest and Dividend Payments ($M.)	(2) G.N.P. ($M.)	(3) Current Receipts ($M.)	Ratio $\frac{(1)}{(2)}$ = %	Ratio $\frac{(1)}{(3)}$ = %
1900	36	1,044	210	3.5	17.1
1910	92	2,186	388	4.2	23.7
1920	213	5,536	1,581	3.8	13.5
1930-38	300	4,583	1,161	6.5	25.9
1946-50	368	14,897	3,929	2.5	9.4
1951-55	431	24,425	5,700	1.8	7.6
1956-61	652	32,336	7,711	2.1	8.4

Sources: (i) Appendices 1 and 2.
O. J. Firestone, Op. cit., p. 65.

(ii) Official National Income Statistics.

foreign parent companies, the proportions of profit and capital stock to be remitted can be varied significantly by management within a relatively short period. A slowing down in the rate of domestic economic growth may cause foreign controlled enterprises to increase the rate of remittances.

(c) The increasing reliance on direct investment inflows which have been increasingly supplemented by domestically generated savings, has meant that the interest and dividend remittances have represented more and more the return on a smaller proportion of foreign generated savings and on a larger proportion of domestically generated savings.

In the Canadian statistics no distinction is made between interest and dividend payments, or between earnings on portfolio investments and earnings on direct investments. Table XXX, however, gives an insight into the relative proportions of the problemfor the years 1958-1961. Column 1 represents one quarter of the total interest and dividend remittances in the years reviewed, on the assumption that, over time, United States direct investments have provided approximately one-quarter of the total investment inflow[59].

The processes of income generation and subsequent saving are taking place in Canada, but the rewards in the

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59 The assumption cannot be verified and is used for illustrative purposes only. The appropriate per cent figure could well be significantly less given, (i) the relatively recent rise to prominence of U.S. direct investment inflows and (ii) the rather low immediate return on capital invested in the resource sector.

TABLE XXX

Interest and Dividend Payments to Non-Residents as a Percentage of

(i) Total U.S. Direct Investment
(ii) Total U.S. Generated Direct Investment
Canada, 1958-1961

Year	(1) Interest and Dividends ($Million)	(2) (1) as a % of Total U.S. Direct Investment	(3) (1) as a % of U.S. generated Direct Investment
1958	162	14	68
1959	163	13	71
1960	181	14	72
1961	175	14	74

Sources: (i) Tables III and XIV

(ii) Appendix 1

form of interest and dividends paid to shareholders are remitted overseas to an extent depending upon the proportion of foreign to domestic ownership. Canadian entrepreneurs are unable to compete for a large proportion of these domestically generated savings of foreign controlled companies.

(d) In considering the balance of payments problem and Canada's ability to service capital inflows, it is the overall current account that needs to be considered and, in conjunction, the service sector. Except during the periods of the World Wars, commodity exports and imports have been rather closely matched, but a deficit has always existed in the service sector. The problem is that over the long term, interest and dividend payments are rather insensitive to general price adjustments which may have a marked effect on other current account items. Travel expenditures, for example, appear sensitive to exchange rate adjustments. However, such exchange rate adjustments although effecting the timing of remittances, but will do little to change the desire of foreign investors to receive a return on capital invested in past periods. An appreciation of the rate may encourage the ploughing back of profits earned in Canada, but will thereby aggravate the long-term problem.

One policy, which if pursued vigorously, could ease the problem, would be to actively expand export receipts on merchandise account. Canada's trade is concentrated so

heavily with the United States[60], that an expansion of merchandise exports to this area would make a significant contribution to easing the remittance problem. To obtain such an expansion, however, would require the unilateral lowering of trade barriers by the United States. This the United States has not been prepared to do, but it has been prepared to increase capital inflows to help overcome the current account deficit[61]. Given the substantial reliance on 'appropriating' Canadian savings for the purpose of increasing foreign investment, this has been a significantly more palatable economic and political expedient than unilateral reductions in trade barriers.

(ii) The Remittance Problem, 1946-1962

Although it has not been generally valid historically, that the necessity to create a lesser net imbalance on current account has led to a tendency to push the volume of imports below what would correspond to the propensity to import at 'full employment' levels, events over the last six years indicate that the problem may be arising[62]. The problem faced by

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[60] Between 1950-1962, the U.S. supplied 72 per cent of Canada's imports, received 65 per cent of Canada's exports and contributed 77 per cent of the long-term capital inflows. (Official balance [illegible])

[61] Although the motive has not been to aid Canada in her balance of payments problems.

[62] W. Rosenberg, "Capital Imports and Growth: the Case of New Zealand, 1840-1958", in the Economic Journal, Vol 71, No. 281, March 1961, poses the problem. It must be emphasized, however, that reducing imports by reducing income, is merely one method of attack on balance of payments problems.

Canada becomes more acute when the actual and potential burden of interest and dividends on foreign investment becomes larger than a country's earning capacity, defined as (export earnings plus net long-term capital inflows) less (import payments less interest and dividend payments).

It is perhaps possible to categorize the state of the Canadiam economy between 1946-1956 as having National Income running at a high level and a balance of payments 'surplus', i.e. a net inflow of short-term balancing capital, occurring. A study of Table XXXI reveals that the appropriate policy would have been to raise domestic costs and prices and this was essentially brought about during part of the period, by the free play of market forces, i.e. in a consistent premium on the Canadian dollar between 1950-1956.

From 1957-1961 the rate of growth of real G.N.P. slowed down and net outflows of short-term balancing capital occurred. Real output per man year was almost stable over this period. In terms of internal balance deficit financing was the appropriate policy and this policy was followed, although not very selectively. The successive deficits have been a factor contributing to the present recovery, but from the point of view of external balance they tended to aggravate the balance of payments problem which culminated in the exchange crisis of mid-1962[63].

63 Since mid-1962 there has been a marked improvement in the rate of economic growth and in the balance of payments.

TABLE XXXI

Criteria for Internal and External Balance in Canada

National Income in Canada is too high (H); too low (L)	Balance of Payments of Canada is in Surplus (S) or Deficit (D)	In the interest of External Balance Canada should:-	In the interests of Internal Balance Canada should:-
L	S	Inflate Domestic Incomes Raise Money Costs	Inflate domestic Incomes Lower Money Costs
	D	Deflate Domestic Incomes Lower Money Costs	Inflate Domestic Incomes Lower Money Costs
H	S	Inflate Domestic Incomes Raise Money Costs	Deflate Domestic Incomes Raise Money Costs
	D	Deflate Domestic Incomes Lower Money Costs	Deflate Domestic Incomes Raise Money Costs

The situation following the 1962 devaluation reflected the dilemma of a clash of economic policies. It was vital that the rate of economic growth should be accelerated, but easy fiscal and monetary policy designed to this end would have increased import demand. Devaluation of the currency appeared to be the appropriate policy to stimulate exports and encourage imports and this policy has been pursued by the Canadian Government since mid-1962. The spectacular recovery in foreign exchange reserves from $1,100 million in June 1962 to $2,100 million in December 1962 was in large part due to a return in confidence by foreign investors and Canadians themselves in the future growth prospects of the Canadian economy, to an increase in export earnings relative to import payments and to a substantial rise in productivity between 1962 and the present time. In this latter period real G.N.P. per man year has been increasing at a rate of six per cent per annum.

(iv) Conclusions

A major problem faced by Canada centres on the servicing of foreign investment inflows, particularly of the direct investment type. These inflows are supplemented by Canadian savings to an extent three or four times the volume of the foreign savings and thus a significant portion of domestic private saving is removed from the sphere of utilization by Canadian enterprise. The 'entity' capital portion of this

inflow poses especially intractable problems, because no adequate domestic substitute is available for this type of capital.

7. Foreign Investment, Capital Imports and Domestic Investment

The model of the Canadian economy brought out the fundamental dependence of the Canadian economy on the importation of capital goods. Table XXXII shows the import of the Canadian market for machinery and equipment between 1900-1960. Between these years the dependence on foreign sources increased from 34 per cent to 42 per cent.

The economic flow in the mathematical model was from an increase in investment in either the X or the M sector, to a rise in income in the respective sectors, to a rise in total imports. A rise in investment in the X sector lead to a slightly larger increase in total imports than did a rise in investment in the M sector. A segregation of total investment into domestic and foreign components, would add greatly to the analytical power of the model. There are reasons, however, for believing that an increase in foreign investment in the X sector would lead to a greater proportionate use in imports than would increased foreign investment in the M sector. The direct investment inflows bring

with them a greater demand for machinery and equipment expenditures than do the portfolio inflows. Table XXXII reveals that the import share of the Canadian market is higher for the 'industrial, mining and electrical machinery' component of total machinery and equipment, than it is for the aggregate 'all machinery and equipment'. It is into the mining and secondary manufacturing fields, that utilize industrial and electrical machinery, that the foreign capital inflows have tended to concentrate.

The essential purposes of the analysis presented here are to categorize the foreign investment inflows by type in order to add realism to the model world which has been constructed, to draw from the Canadian historical experience to illustrate the interrelationships between domestic investment and the flow of foreign investment,and to endeavour to present foreign investment classifications applicable to a wider theoretical framework linking the theory of economic growth to foreign investment.

(i) Investment Classifications

A distinction has been made in current theory between 'capital-widening' investment, i.e. investment maintaining the capital-population or capital output ratios, and 'capital deepening investment', i.e. investment which increases the above ratios and contributes to making production more

TABLE XXXII

The Import Share of the Canadian Market for Machinery and Equipment 1900-1960

(Percentage)

	All Machinery and Equipment	Farm Machinery	Industrial Mining and Electrical Machinery	Railway Equipment Other Vehicles and Ships
1900	34	27	60	10
1905	34	21	56	21
1910	39	36	56	19
1912	43	42	63	29
1920	34	37	53	13
1925	37	50	45	17
1926	43	41	51	26
1928	49	57	53	46
1929	42	58	55	16
1937	35	41	52	12
1938	34	42	48	11
1947	47	59	62	16
1948	41	68	56	6
1949	43	64	55	7
1950	44	70	44	30
1958	43	70	48	26
1959	42	71	46	16
1960	42	71	50	21

Sources: (i) Paul Wannacott, The Canadian Dollar, 1948-58, Toronto, University of Toronto Press, 1960, p. 112.

(ii) Trade of Canada: Annual Issues.

capital extensive[64].

The two sector analysis showed that the X sector had become relatively more capital extensive in the period 1926-1962. In general, it appears that foreign investment flows into the X sector have been of the 'capital deepening' type.

By contrast the investment into the M sector since 1926 has been of the 'capital maintaining' type. Prior to World War I, the main type of capital inflow was portfolio capital from the United Kingdom and this flowed mainly into the M sector. But since 1926 the main flow of foreign capital has been United States direct investment and a proportionally greater quantity of the total capital stock in the X sector is composed of such foreign investment inflows. Thus an increase in investment in the X sector gives an insight into the results that could follow from increasing direct foreign investment. Similarly, an increase in investment in the M sector gives an insight into the results that could follow from increasing domestic investment.

Foreign investment flows into Canada generally involve a real flow of goods, and services. In the case of direct and 'entity' investments this flow has often been a flow of imported machinery and equipment. In the case of domestic investment, which is supplemented by the portfolio or

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[64] This distinction is made by C. P. Kindleberger, Economic Development, New York, McGraw-Hill, 1958, p. 58.

'supplementary' type of foreign investment, the flow of real goods and services has come more from domestic sources.

Particularly important in the Canadian context is a distinction between capital which increases productivity and capital which either increases, maintains or diminishes output, at a given level of productivity. In Canada, investment in the X sector has increased productivity significantly with the increase being particularly noticeable in the period since World War II. Investment in the M sector has also increased productivity, but at a significantly slower rate. The economic model, however, reflects the higher average productivity in the M sector over the period of time 1926-1962.

The 'entity' type of foreign investment which has come to Canada in the period under review in the model, has thus had a dual character, it has been 'capital deepening' and it has increased productivity at a relatively rapid rate. This tendency helps to explain the apparent economic paradox of capital flowing into a sector where profits are high, productivity increasing and the capital stock appreciating, and yet excess capacity developing. Although productivity within Canada, as measured by real output per man year, has grown significantly, it is productivity changes relative to those experienced by Canada's trading partners that is a crucial determinant of the degree to which resources are fully utilized. Further the productivity of resources which produce

commodities directed towards world markets, depends on the revenue from selling the final output. This is influenced in Canada by foreign parent companies who have not always chosen the lowest cost sources of supply. When foreign demand declines, the 'capital deepening' that has taken place magnifies the quantity of unutilized resources which result from the fall in demand.

(ii) Developments in Historical Perspective

Omitting consideration of the effects of two World Wars, Canada has, since 1900, experienced three periods of accelerated economic growth, namely 1900-1913, 1920-1929 and 1947-1957. A principal feature of each was that the increase in capital formation that lead to accelerated growth was preceded by an expansion of export orientated industries and export receipts. Despite this expansion of export earnings each of the three periods were characterized by heavy current account deficits. One explanation for this revolves on the high import content of both domestic and foreign capital expenditures. In a sense these capital imports have acted as a 'safety valve' in periods of rapid economic expansion. Internal demand was able to spill over onto foreign supplies and thus prevent strong inflationary pressures. In two of the periods, 1900-1913 and 1947-1957, foreign capital inflows into Canada increased significantly.

Expansion from 1900-1913 was based upon the expansion of wheat exports to Europe, the settlement of the Western Prairies and the industrialization and urbanization of central Canada. But the portfolio investment of this period was not, on the whole, invested in the export industries. Most of it was absorbed in the transportation, manufacturing and construction industries. Prairie farm investment was substantially financed from the ploughed back savings of farmers and immigrants. In a fundamental sense foreign investment was induced by growth factors internal to the Canadian economy. In 1900 domestic investment expenditures started to accelerate[65], but it was not until 1908 that foreign investment expenditures showed a significant increase. The foreign capital of this period was both 'capital deepening' and 'productivity increasing', but the productivity improvements arising from the foreign capital were spread widely throughout the economy and were not essentially linked to demand and supply conditions in foreign markets.

The expansion that occurred between 1946-1957 was again preceded by a rise in export receipts in 1947 and 1948. There was no significant time lag between the rise in domestic expenditures and the beginning of an upsurge in foreign investment, both started to rise sharply in 1950. There is,

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65 See A. Buckley, Capital Formation in Canada, 1896-1930, Toronto, Toronto University Press, 1955, p. 128.

however, the basic difference in both the type and direction of foreign investment in this later period. "The autonomous investment that has furnished the impetus for Canada's current phase of accelerated development is much more closely linked to foreign sources of capital and foreign investment decisions than in any previous period of rapid expansion"[66].

From the study of Canada's experience, two main conclusions emerge to explain the relative importance of foreign, as opposed to domestic, investment as a generator of internal growth and import demand.

(a) The greater the degree of non-substitutability between foreign and domestic capital, the greater the stimulus likely to be given to imports from a given increment of foreign investment. The 'entity' capital flows are likely to bring a high proportion of capital equipment imports in association with the money flow.

(b) One of the basic reasons for the increase in United States direct investment into Canada has been the rapid increase in the demand for Canadian industrial raw materials, due to the cumulative expansion of United States industry coupled with the progressive depletion of certain non-Canadian sources of supply. The strength of the shift in demand relative to the elasticity of supply in the

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66 H.G.J. Aitken, American Capital and Canadian Resources, Cambridge, Harvard University Press, 1961, p. 109.

industrialized creditor nation, for raw materials from raw material producing nations, will aid in determining the relative size of the 'productivity increasing' foreign investment. It will also be a determinant of the degree of control sought by the creditor nation over the alternative sources of supply.

8. The Changing Geographical Source of Foreign Investment

Traditionally, the real cost of capital development financed by domestic savings, is measured in terms of the resources foregone by the community which enable the productive assets of a country to be built up[67]. Such a cost cannot, in general, be borne by any future generation, but must be measured in terms of the foregone consumption of the present generation. The only way in which the burden can be shifted to future generations is by relying on foreign sources of capital. In such a case, future generations face the problems of repatriation and interest payments.

In the Canadian context, however, this traditional approach has become less applicable with the passing of time. The direct investment inflows of the post World War II period have drawn extensively on domestic sources of savings. In this

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[67] This is an adaptation of the 'alternative cost' theory.

period a burden has been imposed on both present and future generations. By drawing on Canadian sources for the investment funds, United States direct investment companies have minimized the burden on the United States domiciled parent companies.

(i) The Alternative Cost Theory

It appears that a cost would arise if the domestically generated savings being utilized for capital formation of the 'entity' type, by foreign controlled direct investment companies, were being used for capital formation by Canadian controlled concerns. "The generally accepted explanation of costs is contained in the alternative (or opportunity) cost theory. The cost of any productive service X in the production of any commodity A is the maximum amount that X would produce of any other commodity (B, C. ....)"[68]. Domestic capital formation is not a perfect substitute for foreign 'entity' investment, the latter carrying with it many associated benefits not able to be duplicated within Canada. Given that domestic savings are more productive when utilized by certain foreign direct investment companies, the excess of their return when so utilized over their possible return when utilized domestically by local entrepreneurs, is a true rent of managerial ability.

The phenomenon that has occurred in Canada, the change in source and type of capital inflow, is significant when

68 C.J. Stigler, The Theory of Price, 3 ed., New York, MacMillan, 1956, p. 96.

looked at in terms of real costs to the Canadian economy. Considering the inflows of debt capital from the United Kingdom early in Canada's development, they allowed Canada to draw on the resources of the rest of the world and to shift the burden of repayment onto future generations. Canada, at this time, could maintain consumption levels as an alternative to additional domestic capital formation. The depreciation allowances and retained earnings which have been utilized by the United States direct investment companies do not, however, give Canada a choice between higher consumption levels or higher levels of capital formation. Given that the domestically generated savings were not utilized by foreign controlled companies, they would in all probability have been remitted and thus not have been available for domestic consumption.

When a United States company borrows from a Canadian financial institution, however, the volume of funds available to lend to Canadian controlled companies is reduced. Canadian savings assist in speeding up foreign controlled investment growth, and retardation of investment growth in Canadian controlled companies is the result.

(ii) Foreign Investment Criteria

Four criteria have been suggested as factors to be considered in assessing the desirability or otherwise of

foreign investment inflows[69].

(a) The extent of public and private capital formation which is deemed necessary in the public interest and its relation to the voluntary private savings which can be expected and the government surplus which it is practical to achieve.

(b) The existing state of the country's economy, labour market, balance of payments and external reserves.

(c) The existing burden of the country's external debt.

(d) The country's probable ability to survive additional debt in the future.

These factors have been dealt with at other points in the study. The major point to re-emphasize is that in the Canadian economy of the post World War period, foreign investment has not merely supplemented domestic savings, but has used them to finance the so-called 'foreign investment' inflows. Control over domestic savings is equally as important as the quantity of domestic savings when considering the adequacy of domestic savings and capital formation. One major factor to be considered further and not included in the above list, is:

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[69] Royal Commission on Monetary Banking and Credit Systems in New Zealand, Final Report, Wellington, Government Printer, 1956, paragraph 807.

(e) Canada's absorptive capacity for capital imports.

Foreign investment means that a higher level of internal demand can be maintained ~~internally~~ without running down exchange reserves. It allows a higher level of internal spending on consumption and on capital development[70]. It is important to realize, however, that foreign investment, of itself, provides no solution to the problemsof inflation or development. Extra capital equipment, even obtained directly or indirectly through foreign investment cannot operate, install or service itself. It creates a demand for labour and other factors of production to take part in operations ancillary to the purpose of the equipment. It is an index of Canada's high absorptive capacity that she has been able to absorb the large capital inflows without undue domestic inflation or a consistent running down of excnange reserves.

There are significant differences in the amount of complementary domestic factors needed to ensure productive use of foreign capital, as between the capital inflows originating in the United Kingdom and those originating in the United States. The capital from the United Kingdom, flowing as it did into basic public utilities, and largely coming under construction expenditures, required a larger quantity of domestic labour to complement it. The import requirements

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[70] Subject to the qualifications discussed earlier in the section.

following from this type of foreign investment were rather small. The ability of Canada to absorb foreign capital in the period 1870-1914 is illustrated by:

(a) The relatively small increase in the domestic price level between 1870-1910. Between 1870-1890 the price index implicit in the G.N.P. decreased at an annual average rate of 0.11 per cent. Between 1890-1910 the index increased at an average rate of only 0.83 per cent, which is less than half the rate of increase experienced in any following twenty-year period[71].

(b) The build-up in exchange reserves and short-term balancing capital between 1900-1913 of 203 million dollars[72].

The direct investment inflows on the other hand have been largely concentrated in the machinery and equipment segment of domestic investment. They require a relatively small quantity of domestic resources to complement them and bring in their wake an increased demand for imports. But despite the fact that these direct investment inflows should not theoretically increase domestic inflationary pressures as much as the portfolio investment, these are factors which suggest that, at present, Canada's absorptive capacity is less than at any other comparable periods of heavy capital inflow.

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[71] O. J. Firestone, Op. cit., p. 180.

[72] See Table XXVII of this study.

(a) Between 1948-1961 the price index implicit in the G.N.P. grew at the rate of 2.31 per cent per annum, and

(b) Between 1946-1960 'outflows' of short-term balancing capital amounted to 725 million dollars, a greater annual average outflow than at any other comparable period since Confederation.

(iii) Sources of Foreign Investment

There are several factors that must be considered when considering the relative advantages to be gained from foreign investment from one source as opposed to another. They include:

(a) The availability of finance in different loan markets,

(b) The terms of finance in different loan markets,

(c) Currency problems involved in servicing the foreign investment, and

(d) Political factors.

One of the reasons why Canada has turned more and more to the United States for her external financing needs is undoubtedly the availability factor. Despite massive aid programmes the United States today provides the greatest source of savings, both public and private, in the world. Again there is some evidence that prior to World War I the level of interest rates were lower in the United Kingdom than

anywhere else in the world, taking into account differences in the type of capital and in the maturity rates of capital issues. But since the 1920's interest rates have been consistently lower in the United States. Not only this but the United States has become the main source of technical innovation in the Western World and with the growing importance of direct investments, this has become as important a factor as the level of interest rates prevailing in different loan markets, when the recipient country is considering the source of its foreign investment.

Table XXXIII reveals the principal currency problems involved in servicing Canadian debt. Canada has been left largely with a bilateral problem vis-à-vis the United States. Given such close proximity to the largest and most productive market in the world, it is inevitable that merchandise trade should be concentrated with the United States. The difficulty is that Canada has had to rely heavily on long-term capital inflows from the United States to finance a current account deficit, due largely to a large deficit on service account. Net payments of interest and dividends have been the largest single deficit item in the current account since World War II. In each of the selected years 1926-1950 the current account deficit with the United States has been greater than the total current account deficit, and even when an overall surplus has occurred, a deficit with the United States has been present.

TABLE XXXIII

Area Distribution of:- (1) Balance on Current Account
(2) Balance on Interest and Dividends

Year	U.S. (1)	U.S. (2)	Sterling Area[1] (1)	Sterling Area[1] (2)	Other Countries (1)	Other Countries (2)	All Countries (1)	All Countries (2)
1926	- 126	- 231	- 95	58	13	300	- 208	127
1930	- 195	- 344	-113	-106	19	113	- 289	- 337
1935	- 136	- 29	- 74	62	34	92	- 206	125
1940	- 204	- 292	- 73	419	16	22	- 261	149
1946	- 203	- 607	- 46	664	7	306	- 242	363
1950	- 361	- 400	- 40	1	19	65	- 384	-334
1955	- 310	-1639	- 14	390	1	32	- 323	-698
1960	- 443	-1356	- 30	216	-18	77	- 491	-1217

(1) Balance on Interest and Dividends
(2) Balance on Current Account

[1] Prior to 1940 the U.K. only

Source: D.B.S. publications.
(i) The Canadian Balance of International Payments 1926-1948
(ii) Canadian Balance of Payments 1960 and International Investment Position

The increasing convertibility of the major world currencies has meant that it has become ~~increasingly~~ a problem of maintaining overall equilibrium in the balance of payments, rather than maintaining equilibrium with any particular currency area. Canada has experienced two major exchange crises since 1945, in 1947-1948 and in 1962. Each crisis was accompanied by special circumstances and the following schematic presentation brings out the salient differences.

1947-1948	1962
1. Large increase in current account deficit.	1. Small increase in current account deficit.
2. Large government economic aid outflows to the United Kingdom and Europe.	2. A stable level of government foreign aid.
3. Trade restrictions widespread in trading partners.	3. Trade restrictions greatly reduced on industrial products.
4. Lack of convertibility of sterling and West European currencies.	4. Most currencies convertible. The exchange reserves of Western European countries were at generally high levels.
5. A continuation of private net capital inflow.	5. Private net capital inflow slows down.
6. Canadian dollar at par with U.S. dollar.	6. A 92 1/2 cent Canadian dollar in terms of the U.S. dollar.
7. Confidence in Canada's future economic prospects.	7. A lack of confidence in Canada's future growth potential.
8. A favourable investment 'climate' for foreign investment.	8. A lack of faith in government economic policies and their treatment of foreign capital.

Between December 31, 1946 and December 31, 1947, Canada's exchange reserves fell by 60 per cent, from $1250 million to $750 million; a rate of 5 per cent per month. Between December 31, 1961 and June 30, 1962 exchange reserves fell from $2000 million to $1100 million, a decline of 7 1/2 per cent per month.

In the 1962 crisis the key factor was a decline in private net capital inflows, due largely to a lack of confidence in Canada's economic growth prospects and in the likely future course of government policies. The drain in exchange reserves was not due to a sudden worsening of the balance of payments on current account. The key problem is the inflexibility of the interest and dividend component of the balance in payments coupled with the volatility of the long-term foreign investment inflows which are a function of the expectations of foreign businessmen.

(iv) Conclusions

The large inflows of capital from the United Kingdom did not leave Canada a large, relatively inflexible element in her balance of payments, asthe United States direct investments of a later period have done. The problems that have arisen with the changing source and type of foreign investment include the lack of control exercised by Canadians over the volume of interest and dividend

remittances and the continuing vulnerability of Canada's balance of payments to changes in the confidence of foreign investors in the growth prospects of the Canadian economy.

CHAPTER IV

QUALITATIVE ANALYSIS OF CANADIAN EXPERIENCE

There are, in the Canadian economy, several qualitative and institutional factors which modify and impinge upon the theoretical relationships analyzed in Chapter III. These relationships have, up until this point, been analyzed as far as possible in quantitative terms. The quantitative analysis, however, reflects a number of qualitative and institutional factors. It is the purpose of this chapter to illustrate briefly the importance of these factors by reference to the savings-investment theories of economic growth and international trade.

Arthur Lewis[1] conceived growth as a resultant of economic activities designed to increase the yield of a given resource input or to decrease the cost of a given yield. One of his basic causes of economic growth was the effort to economize, which could take the form of experimentation or risk-taking, of factor mobility or increased specialization. If the effort to economize is not made, either because there does not exist the desire to economize or because customs and institutions discourage its

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[1] W. A. Lewis, The Theory of Economic Growth, Homewood, Illinois, R.D. Irwin, 1955, p. 11-15, 57-63.

expression, then economic growth may be adversely affected. "Institutions promote or restrict growth according to the protection they afford to effort, according to the opportunities they provide for specialization and according to the freedom of manoeuvre they permit"[2].

The problem is not therefore, simply one of aggregate savings and investment. Domestically generated savings have become increasingly used by foreign controlled companies in the process of capital formation in Canada. When they have been utilized they have taken on additional qualities, they have become associated with numerous benefits in the form of managerial, entrepreneurial, technical and marketing knowhow. Domestically controlled savings are often unable to provide these associated benefits and one of the reasons for this is the institutional background.

In the case of Canada high levels of per capita domestic saving have not reduced heavy reliance on foreign sources of saving. In this respect Canada's problem is rather dissimilar from problems faced by the newly emerging nations. "The problem of economic growth for less developed countries, among other things, is to raise incomes to the point where levels of per capita income are high enough to permit sufficient net saving and investment to achieve

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[2] W. A. Lewis, Op. cit., p. 57.

continuous economic expansion"[3]. The problem that has faced Canada has been to get over the hump to the point where domestically generated and controlled savings, when devoted to capital formation, could supply the benefits which have been associated with direct investment inflows.

1. The Savings and Investment Accounts in Canada

The major sources of funds for investment in Canada are personal savings, gross business saving, including undistributed corporation profits, depreciation allowances and miscellaneous valuation adjustments, and government surpluses. Table XXXIV presents the main sources of domestic saving for selected years 1926-1962, together with the main investment outlets into which the savings flowed. There are at least two outstanding features which emerge.

(i) The high proportion of total savings generated by the corporate sector. Only in the year 1945 did personal savings approach corporate savings and this was largely due to forced saving in connection with the war effort. In the depression year of 1933 there was personal net dissaving, while business saving remained a relatively large, positive amount.

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[3] Benjamin Higgins, Economic Development, Principles, Problems and Policies, New York, Norton, 1959, p. 246.

TABLE XXXIV

Sources and Uses of Domestic Savings, Canada, 1926-1962

($000,000)

	1926	1933	1939	1945	1957	1962
			SAVINGS			
Personal saving	419	-263	194	1342	1143	2331
Business gross saving						
(i) Undistributed profits	194	- 35	275	376	870	979
(ii) Depreciation allowances and miscellaneous valuation adjustments	567	528	637	968	3994	4755
(iii) Other business saving	58	- 51	-106	33	- 77	- 11
Total business saving	819	442	806	1377	4787	-132
Government surplus (+)or deficit (-)	40	-192	- 60	-1707	70	-770
Residual Error of estimate	-156	77	29	198	71	-221
TOTAL	1122	64	969	1210	6071	6931
			INVESTMENT			
New residential construction	201	72	174	318	1409	1577
New non-residential construction	240	78	164	253	3103	2668
New machinery and equipment	261	84	254	460	2823	2709
Change in inventories	135	- 91	282	311	210	565
Surplus (+) or (Deficit (-) on current account	128	- 2	123	687	-1402	-809
Residual error of estimate	157	- 77	- 28	197	- 72	221
TOTAL	1122	64	969	1210	6071	6931

Source: Official National Income Statistics.

National Accounts: Income and Expenditures 1926-1956

National Accounts: Income and Expenditures, 1962.

D.B.S.

(ii) As a corollary to this is the large proportion of new investment financed through the accumulated savings of corporations. In 1957 depreciation allowances and undistributed corporation profits amounted to $4,864 million or approximately 70 per cent of total investment expenditures on new construction and machinery and equipment. In 1933, a depression year, business savings were far in excess of new investment expenditures and hence the capital stock was reduced.

Investment, in the context of the savings and investment accounts, comprises gross domestic investment and net foreign investment, the latter being negative when Canada has a current account deficit. This provides the direct link between the Canadian and foreign savings accounts[4]. When a deficit on current account has been consistently experienced, a country may consistently expand gross domestic investment to a higher level than domestic savings alone can provide. This has been the Canadian experience.

The important indirect link between the savings accounts of Canada and foreign countries is provided by the fact that included in the gross domestic investment figures and the business gross saving figures, are investment and savings operations of foreign controlled companies. One

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[4] This direct link is analyzed in section 2 of this chapter.

interesting point arises. In the period 1946-1961 corporate savings amounted to $51 billion comprising $39 million in depreciation allowances and similar business charges and $12 billion in undistributed profits. As foreign direct investments have increased in importance a growing percentage of these savings have been generated in those sectors of the economy controlled by non-residents.

Of more fundamental importance is, however, the fact that in the case of U.S. direct investment companies retained earnings have, percentagewise, provided almost as important a source of investment funds as depreciation allowances. This is in contrast to the aggregative figures for the entire economy where depreciation allowances and similar business costs have provided the bulk of the funds for investment purposes. From the point of view of long-run economic growth only the retained earnings provide a source of funds for net additions to the stock of capital. Foreign controlled direct investment companies appear to have taken a longer view of economic growth than domestically controlled companies. By retaining net earnings from enterprises that are generally more productive and profitable than domestic enterprises, a large quantity of net capital formation is possible. Thus advantage can be taken of technological innovations which require large amounts of new capital and which render earlier capital formation obsolete to a greater or lesser degree.

The next largest source of savings after corporate savings was provided by personal savings. Only a small part of these savings has been used to purchase stocks and bonds, at least since World War II. "The major part of investment in stocks and bonds financed by personal saving has been made indirectly through financial intermediaries, particularly commercial banks and life insurance companies"[5]. These institutions, because of custom and legal requirements, tend to invest almost exclusively in fixed interest bearing debt securities. The deposits of the chartered banks are liabilities which are in practice withdrawable on demand, liquidity becomes an important criterion in making investments, and equity investments are naturally very much restricted. The Final Report of the Royal Commission on Canada's Economic Prospects recommended the amendment of legislation allowing the life insurance companies and trust funds to invest less than 15 per cent of their total funds in equities[6]. "But even if changes along the above lines were made it would not be possible for trustee and life insurance companies even if they wished to do it, to provide all or even a substantial proportion of the capital which will be needed for equity

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[5] Irving Brecher and S. S. Reisman, Canada-United States Economic Relations, Ottawa, Queen's Printer, July 1957 p. 213.

[6] Final Report, Royal Commission Canada's Economic Prospects, Queen's Printer, November 1957, p. 379.

financing in the years to come, ... it may be necessary to devise new mechanisms for concentrating available venture capital and for spreading risks more widely"[7].

2. The Savings-Investment Identity in Canada

Keynesian analysis and its subsequent development has yielded a realistic account of both the "adjustment" mechanism inherent in the balance of payments and of the "propagation" of economic fluctuations from country to country[8]. Such a mechanism can be given quantitative expression through the Canadian National Accounts. These processes are closely related to the savings-investment equality for an open economy like Canada. Simply stated, in Canada, savings are the sum of two components:

(i) Gross Domestic Investment (G.D.I.) in Table XXXIV the sum business gross fixed capital formation as per the National Accounts plus the value of physical change in inventories[9], and

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[7] Ibid., p. 379.

[8] The terms are given in Ragnar Nurkse, "Domestic and International Equilibrium", in The New Economics, edited by Seymour E. Harris, New York, Knopf, 1948, p. 264-265.

[9] Although the figure for total private and public investment in Canada, published in Private and Public Investment in Canada, Trade and Commerce Department, Ottawa, Queen's Printer, would be an equally satisfactory concept.

(ii) The surplus or deficit on current account as per the National Accounts. Savings = G.D.I. + B.O.P.. summarizes this equality algebraically, and when the magnitudes are treated as ex post magnitudes, the equation becomes simply an identity. But if the magnitudes involved are treated as ex ante or intended magnitudes, an immediate condition for equilibrium is given because:

(i) changes in income generally entail changes in the same direction in the demand for imports, and

(ii) changes in volume of exports tend to produce changes in domestic income.

Assuming considerable factor mobility and taking the comparative statics approach, equilibrium could be achieved when planned saving equalled planned investment, and the chain of causation can be illustrated.

(a) Suppose there is initial equilibrium in the Canadian balance of payments in the 'Nurksian' sense[10], i.e. that there is a deficit on current account but that long-term capital flows maintain equilibrium. Exports may rise, due perhaps to the foreign investment of past periods, and a balance of payments surplus develops.

(b) There is an expansion of income and employment in the export industries and since some part of this additional income will be spent on imports, there will be an immediate

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[10] See Chapter III, section 4.

equilibrating tendency in the balance of payments.

(c) A greater part of the additional increase in income will be spent on Canadian produced goods and, therefore, an increase in income spreads to domestic industries with a consequent multiplier effect. Not all the additional income will be spent, i.e. savings ex ante will rise and either gross domestic investment or the balance of payments on current account must be higher than before. Given that Gross Domestic Investment is relatively stable (and apart from the acceleration effect on higher spending on domestic investment, it is likely to be fairly stable) the balance on current account must rise. The induced rise in imports will, therefore, only offset a part of the surplus generated by rising exports.

This analysis is essentially a summary of the income-expenditure theory presented by S. E. Harris[11], and Ragnar Nurkse[12], which stresses the conflict possible between the maintenance of internal and external stability, for it is internal incomes and employment that are at stake. Equilibrium may be attained at a high or low level of trade and incomes. The Canadian economy has, however, certain basic

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[11] S. E. Harris, "International Economics," article in The New Economics, edited by S. E. Harris, New York, Knopf, 1948, p. 245-263.

[12] Ragnar Nurkse, Op. cit., p. 264-283.

institutional features which make a modification of the savings investment relation, essential.

The relative magnitudes of the two components, gross domestic investment and the balance of payments on current account are not clearly distinguishable. The balance of payments statistics do not reveal the extent of foreign investment through the use of savings generated in Canada. A decline in the rate of capital inflow as measured in the official balance of payments may, as seen earlier, lead to a balance of payments problem. But a slackening in the rate pf gross domestic investment, which, according to the income-expenditure theory, should lead to a decline in imports and an improvement in the balance of payments, may actually worsen the balance of payments.

The volume of direct investment capital inflows tends to move in the same direction as that portion of gross domestic investment financed by foreign controlled companies utilizing retained earnings and depreciation. allowances. A fall in gross domestic investment may well lead to a fall in direct investments measured through the balance of payments statistics. This, in turn, may cause severe balance of payments problems.

As discussed earlier, retained earnings have provided a much more important source of investment funds relative to depreciation allowances for U.S. direct investment companies,

than for the aggregate Canadian economy[13]. Retained earnings are a more flexible source of savings than depreciation and similar business allowances. When confidence in future growth is high and the outlook is for a high future level of final demand for their products, foreign controlled enterprises will tend to retain a large proportion of their earnings and thus prevent increasing imbalance in the service sector of the balance of payments. On the other hand, a decision by a foreign controlled company to remit a higher proportion of their net earnings will increase the strain on the balance of payments and reduce the level of domestic aggregate demand, thus slowing down the rate of economic growth. In contrast to this, a domestically controlled firm can retain less of its net income and still not affect the level of domestic demand, there merely being a shift from investment to consumption expenditures. The main point is that depreciation allowances usually run at a stable level, but retained earnings can be varied within elastic limits and by their greater use of retained earnings foreign controlled companies can exercise a greater leverage on domestic growth rates.

The experience of Canada illustrates the importance of institutional factors in the process of channelizing domestic savings and in attracting foreign capital to particular sectors of an economy.

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[13] This can be seen through a comparison of Tables XXXIV and XIV.

CHAPTER V

DEVELOPMENTS IN HISTORICAL PERSPECTIVE

1. The Eras Delineated

Reviewing the flow of capital coming into Canada in an historical perspective, two main eras stand out.

(i) The 'National Unification' or 'Public Utility' stage. From the point of view of the foreign capital inflows this was the period of supplementary investment inflows, which added to domestic investment and formed a means by which Canada was able to sustain growth and development at a rate exceeding that possible from purely domestic sources of saving. This stage lasted from Confederation until World War I and most of the foreign investment came from the United Kingdom. Most of it was concentrated in the railways, in financing the requirements of governments at all levels and in the construction of basic utilities. A large proportion of it was in the form of debt rather than equity capital.

From the point of view of Canada it added an injection of savings to aggregate domestic saving, which opened up new fields for domestic investment, e.g. it aided in the opening up of prairie wheat farming, and which prevented the depression of consumption levels, as has been necessary in many newly emerging nations of today, or the retarding of

expansionary forces. In a real sense this was an aggregate savings frontier of the type prevalent today in many emerging nations. This type of foreign investment did not bring associated control elements or the pyramiding of ownership as has the direct investment of later years.

(ii) The 'Entity Capital' stage, which has lasted from World War I to the present time and shows no signs of abating at the present time. This stage gathered momentum during the 1920's with the development of the newsprint and mining industries and has had accelerated development since World War II with the upsurge in resource development, particularly oil, natural gas, iron ore, non-ferrous metals and uranium. The fundamental properties of this type of capital which has come mainly from the United States have been, associated control, the extensive use of retained earnings and depreciation allowances of various types to extend ownership and control, its concentration in the industries showing the greatest actual or potential growth rates and its association with marketing, managerial, technical and technological elements which make it a 'package' type of capital.

There has been no adequate domestic capital which could have provided the benefits associated with many of the direct investment inflows. Furthermore, and of at least equal importance, many Canadian investment undertakings require not only substantial outlays of capital but also an advanced

technology and access to research facilities, specialized entrepreneurial and management skills, assured markets for a major part of the output; and the efficiency and the reduction in the element of risk which is associated with large, vertically integrated enterprises. "Non-residents, and especially Americans in more recent years, have been able to provide this combination...."[1]. Even if a higher volume of aggregate domestic savings had been achieved, it would not have been an adequate substitute for the direct investment inflows from the United States.

There are inherent disadvantages in endeavouring to fit Canadian economic development into eras. Perhaps, the best known attempt is Professor Innis' 'staple' theory, which conceives the initiating expansion for economic development to be an upsurge in staple industries; the timber industry, the fishing industry, the fur industry, the development of prairie farming and the recent resource development being the best examples[2]. What does emerge from a consideration of the statistics is, however, the great capital intensity of the staple exploitation in recent decades, particularly since World War II. In the two sector model, the capital output ratio of the export orientated sector has shown a generally

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[1] The Royal Commission on Canada's Economic Prospects, Final Report, Ottawa, Queen's Printer, November 1957, p. 386.

[2] Richard Caves and Richard H. Holton, The Canadian Economy, Prospect and Retrospect, Cambridge, Harvard University Press, 1959, p. 41-47, give an excellent summary of this theory.

rising trend since 1926. It is likely that if the secondary manufacturing industries that had attracted foreign capital were considered distinct from the remaining import competing sector their capital-output ratio would also have risen.contrary to the general trend in the economy towards a stable or slightly declining ratio. The M sector has a capital output ratio influenced by that existing in the public utility sector where a large proportion of the supplementary capital from the United Kingdom flowed. The basic public utilities were formed by 1926 and the growth of output in the M sector tended to lead to a declining or relatively stable capital output ratio over the longer term.

The prairie development from the late 19th Century until the mid 1920's, was essentially a demand dominated development. Not only was external and internal demand a driving force for the initial expansion, but "secondary expansion .... appeared mostly in industries supplying the staple producers"[3], i.e. there were waves of derived demand. The resource development of the last twenty years has, by contrast, had its major secondary impact upon those industries which are themselves supplied with staple output. This latest resource expansion had as a primary impetus for its development, the diminishing supplies of raw materials in the United States essential to future manufacturing develop-

[3] R. Caves and R. Holton, Op. cit., p. 44.

ment. In a real sense this has been a supply dominated staple boom.

2. Sub-Periods 1870-1962

There have been only three brief periods in Canada's history since Confederation when there have been appreciable net outflows of capital, during the two World Wars and their aftermaths and during the great depression of the 1930's. On the whole it is a debtor cycle that Canada has gone through. This cycle can be divided into sub-periods.

(i) 1870-1914 was a period when the Distance or Geographic Frontier was overcome. Between 1870 and 1890 Gross National Product at market prices grew at an average annual rate of 3.04 per cent per annum. Between 1890 and 1910 the average annual rate of growth of G.N.P. was 4.09 per cent per annum[4]. Real output per person working per man year, reflecting productivity changes, rose by 1.24 per cent and 1.337 per cent respectively in these two sub-periods. During the whole period there were persistent balance of payments deficits. Between 1900-1913 the cumulated sum of the balance of payments deficits amounted to $2238.4 million dollars and inflows of long-term capital amounted to $2441.4 million,

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[4] These figures are from O. J. Firestone, Canada's Economic Development, 1867-1953, London, Bowes and Bowes, 1953, p. 68.

principally in the form of supplementary capital from the United Kingdom[5]. These were years of relatively rapid economic development, although the years 1873-1896 were years of slower growth rates. "By 1910 the economy was booming, the factory system was in operation and the west was being opened rapidly"[6]. The capital inflows, although mainly in the form of debt capital, gave a significant stimulus to growth and productivity increases.

(ii) The next major period was the period when the Industrial Frontier was overcome. "Canada is now an industrialized society .... If the criterion of industrialization is the proportion of national income derived from manufacturing, then Canada became more industrial than agricultural during World War I"[7]. Between 1914-1929 the cumulated balance of payments deficit amounted to $475.8 million which was balanced by a long-term capital inflow of $416.9 million[8]. The capital inflow was of both the 'supplementary' and 'entity' type and it was during this period that the United States became the major source of capital, replacing the United Kingdom in this role. An interesting feature of this period is the relatively slow rate of growth of real G.N.P. in

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5 See Table XXVII.

6 O. J. Firestone, Op. cit., p. 70.

7 O. J. Firestone, Op. cit., p. 182.

8 See Table XXVII.

absolute, per capita and per person working terms. In per capita terms, G.N.P. rose at an average annual rate of 0.72 per cent between 1910 and 1930. This period was one of general difficulty for many manufacturing industries, due to inflationary pressures, excess capacity arising from World War I expansion and the development of new industries such as pulp and paper, chemicals and transportational equipment which had to face increased international competition. Foreign capital did not come into Canada at a rate comparable to the periods 1900-1913 or 1946-1962 and did not stimulate relatively slow, domestic growth rates.

(iii) The period 1930-1938 saw arising what could be termed an Employment Frontier. The cumulated surplus on current account amounted to $108 million, there wasalong-term capital outflow of $243.0 million and the average annual rate of growth of G.N.P. per capita was of the order of 0.27 per cent. The ratio of unemployed to total labour force ranged from 8.1 per cent in 1930 to 20.7 per cent in 1933, with an annual average of 12.1 per cent[9]. With the heavy excess capital capacity emerging, capital output ratios rose sharply in both the 'export orientated' and 'import competing' sectors. The period illustrates the importance of favourable demand and supply conditions in foreign markets on which

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[9] See Appendix, 3. Table XLV.

Canada sells her exports, to ensure adequate export earnings and continuing inflows of capital into the export sectors.

(iv) Between 1939 and 1945, Canada experienced a great stimulus to economic growth, and at the same time experienced a long-term capital outflow of nearly 4500 million dollars. During the World War II years, G.N.P. rose, in real terms, at anaverage rate of 9 per cent per annum, industrial diversification was accelerated and productivity increases were substantial[10]. The capacity that had been created during the war was relatively easily converted to peace time production and the frontier that next faced the Canadian people was the Consumption Frontier. Consumer expenditures per capita in constant dollars rose from $337 in 1939 to $506 in 1950, a 60 per cent increase. World War II expanded the horizons of the Canadian people and, through higher per capita incomes, allowed them the means to meet these new desires. Between 1946 and 1951 there was an outflow of long-term capital amounting to $179 million[11]. During this period the 'entity' capital inflows from the United States began to enter Canada in considerable quantities, although they were balanced by debt capital outflows to war devastated Europe. Between 1946-1950, G.N.P. per capita in real terms rose at an annual average rate of

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10 See Tables XVI and XVII.

11 See Table XXVII.

3 per cent and the period heralded commencement of the resource expansion phase of the 1950's.

(v) World War II excepted, the years 1950-1957 were the years of most rapid economic growth that Canada had experienced since Confederation, with G.N.P. per capita, in real terms, rising at an average annual rate of 5.3 per cent. Between 1950-1957 long term capital inflows amounted to over $4.4 billion almost equally divided between entity investment and debt inflows, 82 per cent from the United States. The Resource Frontier was met and expanded. United States direct investments flowed into the oil and gas industries, some sections of mining, smelting and refining industries, e.g. aluminium, and certain rapidly growing sections of the secondary manufacturing industries, e.g. automobiles, electrical apparatus.

(vi) The final sub-period that can be delineated can be described as the meeting of the Ownership and Control Frontier. Balance of payments deficits have continued at a high level, averaging close to one billion dollars per annum between 1958-1962. Long-term entity and supplementary capital flows have continued to enter Canada in large quantities, but they have not been sufficient to meet the current account deficit without recourse to short-term capital outflows. With the exception of 1962, it was a period when G.N.P. per capita in real terms rose at an average rate of only 1.1 per cent

per annum. These slow rates of internal economic growth have had the effect of slowing down the rate of capital inflow in times when the confidence of foreign investors in future growth rates is shaken. One price of economic growth in the 1950's has been increased foreign ownership and control of key sectors of the Canadian economy[12].

These are sub-periods that seem to be significant in relation to foreign investment movements in and out of Canada since Confederation. They represent an attempt to apply a broad historical approach to basic economic concepts quantified through the National Accounts[13].

In terms of the two-country model discussed in Chapter II, the historical record tends to substantiate the hypotheses put forward in theoretical form[14]. In the two-country case the effects of an increase in foreign investment were analyzed under the assumption of a three fold adjustment; to a capital inflow which was accompanied by both an increase in domestic expenditure (e.g. investment) and a productivity variation in favour of the capital recipient country. It was deduced that income in the recipient country would rise and the inflows of foreign capital have

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[12] This problem has been treated in detail in Chapter III, section 5.

[13] O. J. Firestone, Op. cit., has based his whole text on this original approach.

[14] Chapter II, section 1.

coincided, in general, with periods of relatively rapid growth in Canada. It is difficult to find a precise causal relationship between foreign capital inflows and national income increases, but it has undoubtedly acted as an output creator and income generator in Canada, and has lead to corresponding slower rates of growth in the lending countries.

It was further deduced that a resultant of these above three forces would be a rather sharp movement in the balance of trade against the recipient country. In the case of Canada the service sector has become responsible for a continuing and substantial deficit on the balance of trade, with interest and dividend payments being a key item in the service sector[15]. Over historical time since 1900, however, long-term capital inflows have been of sufficient magnitude to maintain theoretical equilibrium in most years[16].

In the period since 1926 it is interesting to note that productivity increases in Canada preceded slightly the period of heaviest capital inflow, i.e. the period 1951-1962[17]. There is some doubt, however, that the capital flows have

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[15] See Chapter III, sections 5 and 6.

[16] "Theoretical" is the traditional Nurksian definition. See Chapter III, section 5.

[17] Long-period productivity changes are analyzed in Chapter III, section 2.

helped to maximize the rate of productivity increase within the sectors into which they have flowed. The overall productivity of sectors and of the total economy depends on the full utilization and development of domestic resources and there has been a tendency for foreign capital of the 'entity' type to fossilize and retard certain types of domestic entrepreneurship.

SUMMARY AND CONCLUSIONS

With the exception of brief periods during the Great Depression of the 1930's and during and after the two World Wars, Canada has been a consistent debtor nation in receipt of large quantities of foreign capital. In the real sense Canada has experienced a continuous 'debtor cycle', despite being an advanced industrialized nation with high and, for the most part, continually rising per capita real incomes. At each stage of her development 'frontiers' of various types have had to be pushed back. The change in the structure of Canadian society from a basically agricultural economy to an industrialized nation was such a frontier. The 'consumption frontier' of the 1950's and 1960's which faces Canada in her attempt to emulate United States consumption levels with her lower per capita income level, is another.

Foreign capital inflows have aided Canada's economic development and given her basic assistance in successfully overcoming the development frontiers that have emerged. The type of capital inflow has, however, shown a marked change in type and source over the last hundred years. The portfolio capital flows of the post Confederation period and continuing to be the dominant type of capital until World War I, have been termed 'supplementary' investment flows.

They added to domestic savings as sources of funds for capital formation. They substituted for the "forced" savings necessary in many underdeveloped countries. The direct investment inflows from the United States, which have become the dominant type of inflow in the more recent past and up to the present time, have been termed 'entity' or 'package' capital flows. They brought with them technological, marketing, managerial and technical knowledge. Many of these associated benefits were not duplicable from domestic sources. These 'entity' or 'package' capital inflows did not supplement domestic savings; they complemented them.

Furthermore, the 'entity' capital has its ownership externally but is largely generated internally in the form of retained earnings and depreciation allowances of various types. Savings generated internally within Canada are being utilized to extend maximum foreign control with the minimum of externally generated savings. The rate and extent of Canadian economic growth has become to a greater degree a function of foreign entrepreneurship in combination with domestic savings.

Foreign investment has tended to flow into these sectors of the economy which show the greatest profit potential and growth prospects. In the two sector model set out in this study, one key relationship brought out is the narrowing productivity differential between the 'export

orientated' (X) and 'import competing' (M) sectors. At the present time the productivity difference between the two sectors is relatively small. It is quite probable, however, that in the future the X sector's productivity will remain permanently higher than the M sector's productivity. A part of this trend can be explained by the large quantity of entity foreign investment which has flowed into the resource sectors. But the entity investment which has gone into the M sector has been directed towards those manufacturing industries which show the fastest rates of growth; indeed they are partly a cause of these relatively rapid rates of development. The model considered shows only two sectors and, in particular, disguises the non-homogeneity of the M sector.

Another key factor in the two sector analysis is the generally higher capital output ratios in the M sector combined, however, with a narrowing difference between the sectors. The main reason for this difference is the heavy social capital outlays which are included in the M sector. If the public utility and transport and communication sectors were considered outside the M sector, then the capital output ratio in the sector orientated towards the export market would be much higher. In contrast to the capital output ratio in the M sector, which was the same in 1955 as in 1926, the ratio in the X sector has shown a rising trend indicating the use of more capital extensive methods of production.

This development has meant greater and greater reliance on foreign direct investment.

The mounting total indebtedness, the increased value of the interest and dividend remittances and the rising foreign control over the domestic industry have meant an increasingly vulnerable balance of payments position for Canada. With a relatively inflexible burden of interest commitments on invisible account and lesser control over capital inflows, Canada is vulnerable to changes in policies and attitudes of foreign controlled industries and foreign investors. Balance of payments difficulties reflect on internal growth rates. Domestic industry continues to rely heavily on obtaining adequate imports of machinery and equipment. The maintenance of consumption levels demands rising imports of consumer durables and foodstuffs.

Factor price differentials have, at times, exercised a decisive influence on the rate and direction of capital flows, but the key problem facing Canada has not been the size of such price differentials, but the scarcity of one particular factor, entrepreneurship, defined in its broadest sense to include all the elements of competitive advantage associated with the 'entity' capital inflows.

The model developed tends to substantiate the view that foreign investment has encouraged the development of a 'dual' economy in Canada. It has been associated with high

productivity, capital extensive industries. With a finer sector subdivision the trends would, in all probability, be more marked. The need to expand export production rapidly and to increase productivity levels, coupled with the institutional rigidities of the internal economic structure, has tended to restrict the earnings and efficiency of Canadian factors of production which have to compete with foreign 'entity' capital inflows.

Many of the problems faced by Canada in her position as a wealthy and industrialized nation which has attracted large foreign capital inflows are unique. But many problems she shares with the basically agricultural economies of the emerging nations of the world. The Canadian experience suggests that, over the last century, there have come into being relationships between economic growth and capital inflows which appear to have general applicability. The task to develop a set of all embracing rules, which permits integration into a consistent general theory, remains a challenge for the future.

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Some of the more uncritically accepted arguments against increasing a country's international indebtedness are examined and some of the conclusions applied to Canadian experience.

Rosenberg, W., "Capital Imports and Growth, The Case of New Zealand, 1840-1958", in The Economic Journal, Vol. 71, No. 281, March, 1961, p. 93-113.

An attempt to define what constitutes 'excessive' foreign investment with reference to New Zealand history. Excellent statistical material but his analysis needs to be treated cautiously in view of his dislike of continually growing remittance payments overseas.

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APPENDIX 1

TABLE XXIV

Canada's Balance of Payments Since 1851

($ M)

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI 'Non-balancing' Capital (a)	XI (b)	XII 'Balancing Capital' (a)	XII (b)	XII (c)	XIII
	Commodity Exports	Commodity Imports	Balance on Commodity Trade	Interest and Dividend Payments	Interest and Dividend Receipts	Balance on Interest and Dividends	Balance on other Current a/c Items	Balance on Current a/c	Net New Canadian Security Issues or Retirements	Net Sales of Outstanding Securities	Direct Investment	Other	Monetary Gold	Net Change in External Assets of Canadian Banks	Changes in Official Reserves	Residual Item Equating Current and Capital a/cs
1851	18.0	-29.0	-11.0	-	-	-	-	--	-		-	-	-	-	-	-
1860	45.0	-48.0	- 3.0	-	-	-	-	-	-		-	-	-	-	-	-
1868-72	72.9	-89.6	-16.7	- 5.1	0.9	- 4.2	4.4	-16.5								
1869-73	79.0	-100.8	-21.8	- 6.1	0.9	- 5.2	5.3	-21.7								
1870-74	82.3	-111.3	-29.0	- 7.1	0.9	- 6.2	5.5	-29.8								
1871-75	83.4	-115.9	-32.5	- 8.5	0.9	- 7.6	5.8	-34.3								
1872-76	83.5	-114.4	-30.9	-10.0	0.9	- 9.1	5.8	-34.2								
1873-77	81.7	-109.8	-28.1	-11.5	1.0	-10.5	6.6	-32.0								
1874-78	78.9	-101.8	-22.9	-12.9	1.0	-11.9	5.8	-29.0		170.6 (1868-79)		69				
1875-79	78.1	- 93.6	-15.5	-14.2	1.0	-13.2	6.0	-22.7								
1876-80	80.8	- 91.2	-10.4	-15.2	1.0	-14.2	6.6	-18.2								
1877-81	85.2	- 94.4	- 9.2	-16.0	1.0	-15.0	6.7	-17.5								
1878-82	89.7	-100.1	-10.4	-16.7	1.0	-15.7	6.5	-19.6								
1879-83	93.6	-107.3	-13.7	-18.0	1.1	-16.9	7.2	-23.4								
1880-84	95.7	-112.8	-17.1	-19.1	1.2	-17.9	6.6	-28.4								
1881-85	94.5	-114.9	-20.4	-20.5	1.2	-19.3	6.0	-33.7								
1882-86	92.0	-114.1	-22.1	-22.1	1.2	-20.9	5.1	-37.9								
1883-87	89.9	-111.3	-21.4	-23.9	1.3	-22.6	4.6	-39.4								
1884-88	88.9	-109.0	-20.1	-25.3	1.4	-23.9	4.0	-40.0								-148
1885-89	89.3	-110.2	-20.9	-26.8	1.6	-25.2	3.5	-42.6		324.4 (1880-89)		147				
1886-90	91.2	-113.0	-21.8	-28.5	1.9	-26.6	3.2	-45.2								
1887-91	94.7	-115.9	-21.2	-30.6	2.0	-28.6	3.5	-46.3								
1888-92	99.8	-119.0	-19.2	-32.5	2.2	-30.3	2.9	-46.6								
1889-93	105.2	-121.5	-16.3	-34.4	2.4	-32.0	3.0	-45.3								
1890-94	109.6	-120.9	-11.3	-36.3	2.5	-33.8	2.8	-42.3								
1891-95	113.5	-119.5	- 6.0	-37.4	2.7	-34.7	2.7	-38.0								
1892-96	118.2	-118.5	- 0.3	-38.1	3.0	-35.1	2.4	-33.0								
1893-97	125.2	-118.7	6.5	-38.7	3.4	-35.3	2.1	-26.7		294.4 (1890-99)		100				
1894-98	133.9	-123.7	10.2	-39.2	3.7	-34.5	0.6	-23.7								
1895-99	145.9	-135.6	10.3	-39.9	4.0	-35.9	2.9	-22.7								
1900	156.0(20.0)	176.5	- 0.5	-36.0	4.9	-32.0	-0.1	-32.6	6.4		23.4		- 4.0	12.1		- 5.3
1901	170.2(22.4)	182.6	10.0	-37.4	3.9	-33.5	-0.4	-23.9	11.3	-	21.8		0.9	-24.6		12.5
1902	190.4(17.0)	203.4	4.0	-39.4	5.0	-34.4	3.8	-26.6	15.8	-	24.5		- 5.4	- 2.0		- 6.3
1903	201.9(17.6)	251.8	-32.3	-40.7	5.2	-35.5	4.8	-61.0	27.5	-	24.2		-11.1	20.4		2.0
1904	176.1(15.8)	249.2	-57.3	-43.0	4.5	-38.5	-6.2	-89.6	33.6	-	25.3		- 7.9	-23.4		62.0
1905	205.1(13.6)	263.6	-44.9	-47.4	5.3	-42.1	-0.7	-87.7	69.5	-	40.0	-	0.4	-10.4		-11.8
1906	254.0(11.2)	312.3	-47.1	-51.7	6.0	-45.7	-4.1	-98.9	62.6	-	39.7	-	-5.1	13.3	-	-13.6
1907	253.8(8.0)	363.0	-101.2	-56.6	5.5	-51.1	-10.4	-132.7	51.7	-	39.4	-	-4.2	25.2	-	15.3
1908	249.3(7.8)	282.6	-25.5	-75.9	4.6	-71.3	-15.4	-112.7	173.3	-	44.8	-	-21.7	-99.0		-59.3
1909	269.0(5.9)	339.6	-64.7	-83.9	8.3	-75.6	-11.2	-151.5	209.0	-	40.4	-	- 6.8	-31.8		-90.4
1910	280.0(5.6)	429.0	-143.4	-92.1	9.6	-82.5	-13.7	-239.6	202.0	-	106.2	-	-11.7	33.5		11.6
1911	284.1(7.5)	506.3	-214.7	-101.5	8.6	-92.9	-29.2	-336.8	255.5	-	87.9	-	-26.9	8.7		96.8
1912	351.7(10.0)	626.0	-264.3	-117.5	8.7	-108.8	-51.0	-424.1	236.1	-	80.0	-	2.8	8.4	-	-117.6
1913	442.9(12.7)	654.9	-199.3	-137.2	8.7	-128.5	-62.9	-390.7	463.2	-	78.5	-	-17.5	-15.9	-	-53.6
1914	369.1(15.3)	470.8	-86.4	-180.9	16.6	-164.3	-45.2	-295.9	298.1	- 3.0	1.2	24.3	7.7	21.2	-	-64.1
1915	613.9(16.6)	447.2	183.3	-173.3	13.1	-160.2	-49.2	- 26.1	179.0	- 5.0	0.4	60.4	-31.2	-113.4	-	-95.3
1916	1072.4(18.4)	762.4	328.4	-190.5	23.6	-166.9	-131.9	29.7	254.2	- 8.0	8.2	-52.6	- 6.8	-129.4	-	-203.0
1917	1555.2(16.0)	996.5	564.7	-204.1	28.3	-175.8	-196.0	192.9	126.9	-10.0	12.4	-113.1	-16.9	10.8	-	246.1
1918	1209.4(10.0)	922.4	227.0	-214.0	32.4	-181.6	-133.2	- 87.8	-12.8	-10.0	6.3	-119.3	6.0	-28.5	-	- 19.0
1919	1261.7(5.0)	951.4	315.3	-211.5	39.6	-171.9	- 84.2	59.2	25.1	-40.0	30.9	-25.6	8.9	-21.7	-	137.8
1920	1267.1(4.6)	1428.7	-157.0	-212.9	46.8	-166.1	-30.7	-353.8	153.7	-55.0	13.5	31.0	30.4	42.4	-	-124.8
1921	800.4(2.5)	827.8	- 24.9	-234.3	47.3	-187.0	15.2	-196.7	123.6	-40.0	26.1	27.9	39.5	144.4	-	-216.7
1922	884.1	744.6(4.0)	135.5	-230.3	39.9	-190.4	57.8	2.6	210.3	-20.0	-0.01=0	46.8	-50.0	27.0	-	-179.8
1923	1003.9(12.5)	885.1	131.3	-254.0	40.5	-213.5	64.5	-17.7	109.6	-40.0	9.0	63.8	67.8	-12.7	-	-235.1
1924	1032.6(28.3	789.9	271.0	-242.3	40.3	-202.0	89.8	158.8	143.0	-50.0	- 0.4	20.7	-21.3	-15.7	-	-129.9
1925	1241.1(31.5)	872.4	400.2	-250.7	40.2	-210.5	95.1	284.8	13.0	-80.0	14.6	1.9	-11.6	-92.8	-	
1926	1272(30)	-973	329	-240	32	-208	6	127	161.0	-135.0	26.3	2.3	1	-51.8	-	-130.8
1927	1215(32)	-1057	190	-257	41	-216	16	-10	141.0	-171.0	35	-4	-7	16.0	-	-
1928	1341(40)	-1209	172	-275	46	-229	25	-32	7.0	-126.0	21	-6	49	87.0	-	-
1929	1178(37)	-1272	- 57	-322	61	-261	7	-311	147.0	- 2.0	18	23	37	88.0	-	-
1930	880 (39)	-973	- 54	-348	59	-289	6	-337	290.0	56.0	37	-10	-36	-	-	-
1931	601(57)	-580	78	-330	48	-282	30	-174	- 2.0	45.0	10	60	33	28.0	-	-
1932	495(70)	-398	167	-302	37	-265	2	- 96	- 1.0	85.0	-28	- 1	3	38.0	-	13
1933	532(82)	-368	246	-264	38	-226	-22	- 2	-32.0	51.0	-59	- 1	6	24.0	-	45
1934	648(114)	-484	278	-268	57	-211	1	-68	-58.0	9.0	-45	3	-4	-19.0	-	27
1935	732(119)	-526	325	-270	64	-206	6	125	-139.0	51.0	-44	- 18	-2	-	-	-3
1936	954(132)	-612	474	-311	75	-236	6	244	-164.0	8.0	-62	-26	-	3.0	-	-8
1937	1041(145)	-776	410	-302	76	-228	-2	180	- 80.0	- 5.0	-64	-10	-	-13.0	-	6
1938	844(161)	-649	356	-307	66	-241	-15	100	- 62.0	29.0	-33	-33	-	- 7.0	-	10
1939	906(184)	-713	377	-306	57	-249	-2	126	- 96.0	82.0	-53	-69	-	-	-	39
1940	1202(203)	-1006	399	-313	52	-261	11	149	-191	5	-	-81	-	-	79	6
1941	1732(204)	-1264	672	-286	60	-226	45	491	-229	38	-	-466	-	-	160	7
1942	2515(184)	-1406	1293	-270	67	-203	11	1101	-351	148	-	-761	-	-	-144	-11
1943	3050(142)	-1579	1613	-261	59	-202	-205	1206	-176	272	-	-927	-	-	-364	-10
1944	3590(110)	-1398	2302	-264	71	-193	-1091	1018	-108	198	-	-820	-	-	-278	5
1945	3474(96)	-1442	2128	-251	80	-171	-411	1546	-120	351	-	1115	-	-	-667	-
1946	2393(96)	-1822	667	-312	70	-242	-62	387	-321	219	36	-664	115	-15	267	-
1947	2723(99)	-2535	287	-337	64	-293	55	49	-269	- 12	87	-528	-41	- 8	742	-
1948	3030(119)	-2598	551	-325	70	-255	155	451	36	- 4	86	- 62	-13	- 2	-492	-
1949	2989(139)	-2696	432	-390	83	-307	52	177	- 42	30	107	-102	-58	16	-128	-
1950	3139(163)	-3129	173	-475	91	-384	-123	-334	- 74	399	258	24	456	- 7	-722	-
1951	3950(150)	-4097	3	-450	115	-335	-185	-517	227	53	289	88	-50	-14	- 56	-
1952	4339(150)	-3850	639	-413	145	-268	-207	184	227	- 82	269	56	-429	-168	- 37	-
1953	4152(144)	-4210	86	-404	165	-239	-290	-443	189	- 9	383	87	-166	- 79	38	-
1954	3929(155)	-3916	168	-423	147	-276	-324	-432	128	70	311	72	50	-75	-124	-
1955	4332(155)	-4543	-56	-483	160	-323	-319	-698	- 18	- 2	343	89	171	91	44	-
1956	4837(150)	-5565	-588	-523	142	-381	-397	-1366	526	219	479	65	325	-215	- 33	-
1957	4894(147)	-5488	-447	-589	154	-435	-573	-1455	665	116	446	15	382	-274	105	-
1958	4887(160)	-5066	- 19	-612	168	-444	-668	-1131	519	101	362	30	286	-58	-109	-
1959	5150(148)	-5572	-274	-671	182	-489	-741	-1504	449	169	470	- 26	492	-120	70	-
1960	5400(162)	-5545	17	-669	178	-491	-745	-1217	- 94	32	560	29	424	- 61	38	-
1961	5889(162)	-5716	335	-770	209	-561	-756	- 982	236	98	435	37	353	52	-229	-
1962	6364(167)	-6209	322	-781	211	-570	-600	-848	413	-135	425	122	482	78	-537	

The figures in brackets represent non monetary gold up until 1945 thereafter 'gold production available for export'

PRODUCTIVITY MEASUREMENTS WITHIN THE NATIONAL ACCOUNTS' FRAMEWORK

CANADA, 1870-1961

TABLE XXXVI

CONTRIBUTION OF CAPITAL IMPORTS TO CANADA'S GROWTH

(Base Year 1935-1939 Average)
($ Million)

METHOD I

	1870	1890	1910
Gross Domestic Expenditure (Current $)	494	865	2,463
Export Receipts " "	79	110	349
Import Payments " "	114	166	626
Index of G.D.E.)	61	58	68
" " Exports) 1935-39 = 100	81	90	107
" " Imports)	132	100	106
Deflated G.D.E. (Constant 1935-39 $)	830	1,489	3,601
" Export Receipts " " "	97	122	325
" Import Payments " " "	86	166	589
Real Product " " "	841	1,445	3,337
Net Foreign Balance " " " (Real Product - Real G.D.E.)	11	44	264
Index of Real Product	17	28	66
Index of Net Foreign Balance (N.F.B.)	7	30	177
Index of Total Population	33	43	64
Index of Working Labour Force	28	40	69
Index of Product per Head of Total Population	50	66	103
Index of Product per Person Working	58	71	95
Index of N.F.B. per Head of Total Population	22	68	276
Index of N.F.B. per Person Working	26	72	258

- Deficit

TABLE XXXVI (Continued)

1920	1929	1939	1945	1957	1961
5,806	6,447	5,513	11,480	33,331	37,793
1,619	1,632	1,451	3,597	6,391	7,578
1,889	1,945	1,328	2,910	7,813	8,487
143	115	101	139	224	238
233	124	97	141	232	239
240	123	100	145	231	244
4,057	5,623	5,448	8,526	14,898	15,894
695	1,314	1,494	2,548	2,758	3,168
788	1,578	1,330	2,004	3,377	3,486
3,964	5,359	5,612	9,070	14,279	15,576
93	264	164	544	619	318
78	105	110	178	281	306
63	177	110	369	415	213
78	91	102	109	149	164
80	97	103	112	145	152
100	116	109	165	188	187
97	109	107	160	194	200
81	194	107	336	278	130
77	183	106	326	288	140

TABLE XXXVII

CONTRIBUTION OF CAPITAL IMPORTS TO CANADA'S GROWTH

(1935-1939 Base)
($ Millions)

METHOD 2

	1870	1890	1910
G.N.P. (Current $)	459	809	2,186
Implicit G.N.E. Index (1935-39 = 100)	60	59	69
Real Income $ (1935-39)	764	1,376	3,154
Volume of Exports (from Table 1) (E)	97	122	325
Index of Terms of Trade (t)	0.62	0.90	1.01
Correction Factor 1/	61	13	3
Real Product $ (1935-39 Constant $)	825	1,389	3,151
Real Net Foreign Balance 2/	5	100	450
Index of Product per Head of Population	49	63	97
Index of Product per Person Working	57	68	90
Index of N.F.B. per Head of Total Population	9	133	394
Index of N.F.B. per Person Working	11	140	367
Index of Real Product	17	27	62
Index of N.F.B.	3	56	254

1/ $(\frac{t}{1} - 1)E$ if $t > 1$

$(\frac{1}{t} - 1)E$ if $t < 1$

2/ Real Product - Real G.D.E. (from Table 1)

1920	1929	1939	1945	1957	1961
5,536	6,134	5,636	11,835	31,909	36,884
144	115	100	127	224	239
3,839	5,320	5,636	9,319	14,236	15,404
695	1,314	1,494	2,548	2,758	3,168
0.97	1.05	0.98	1.08	1.04	1.05
21	70	45	191	110	158
3,860	5,250	5,681	9,128	14,126	15,246
198	373	233	602	772	648
97	113	111	165	186	183
95	106	108	160	191	193
144	231	129	308	288	223
138	218	127	304	283	221
75	103	112	179	277	299
112	211	132	339	435	366

TABLE XXXVIII

CONTRIBUTION OF CAPITAL IMPORTS TO CANADA'S GROWTH

(1935-39 Base)

($ Millions)

METHOD 3

	1870	1890	1910
Home consumed G.N.P. (current $)	380	699	1,837
Index of wholesale prices (1935-39 = 100)	80	67	79
Deflated home consumed G.N.P. (constant 1935-39 $)	475	1,043	2,325
Volume of exports	97	122	325
Real product	572	1,165	2,650
Real foreign balance, i.e. real product - real G.D.E.	258	325	951
Index of real product	11	23	53
Index of foreign balance	263	299	972
Index of real product per head of total population	34	54	82
Index of real product per person working	40	57	77
Index of N.F.B. per head of total population	702	582	1,367
Index of N.F.B. per person working	826	732	1,264

1920	1929	1939	1945	1957	1961
3,917	4,502	4,185	8,238	25,518	29,306
203	125	99	133	227	235
1,929	3,602	4,227	6,240	11,241	12,470
695	1,314	1,494	2,548	2,758	3,168
2,624	4,916	5,721	8,788	13,999	15,638
1,434	707	273	262	899	256
53	98	114	175	278	311
1,316	649	250	246	824	235
66	107	112	161	186	188
65	102	110	157	192	196
1,694	704	244	222	551	143
1,622	665	239	211	572	151

SECTOR BREAKDOWN OF NATIONAL INCOME AGGREGATES AND EMPLOYMENT STATISTICS CANADA, 1926-1962

GENERAL NOTE: Throughout this Appendix the subscript 'x' refers to the 'export orientated' sector, the subscript 'm' to the 'import competing' sector and 't' to the total economy. The National Income components are expressed in 1949 constant $.

TABLE XXXIX

Gross National Product (Y)
1926-1962
($ Million)

Year	Yx	Ym	Yt
1926	1,273	6,303	7,576
1927	1,348	6,922	8,270
1928	1,545	7,492	9,037
1929	1,404	7,657	9,061
1930	1,267	7,412	8,679
1931	953	6,614	7,567
1932	870	5,928	6,798
1933	897	5,642	6,359
1934	1,162	5,965	7,127
1935	1,298	6,380	7,678
1936	1,412	6,610	8,022
1937	1,649	7,171	8,820
1938	1,561	7,310	8,871
1939	1,745	7,791	9,536
1940	1,985	8,926	10,911
1941	2,097	10,389	12,486
1942	2,341	12,475	14,816
1943	2,208	13,129	15,357
1944	2,229	13,698	15,927
1945	2,239	13,313	15,552
1946	2,486	12,765	15,251
1947	2,579	12,867	15,446
1948	2,660	13,075	15,735
1949	2,582	13,761	16,343
1950	2,883	14,588	17,471
1951	3,227	15,320	18,547
1952	3,164	16,863	20,027
1953	3,057	17,737	20,794
1954	2,987	17,199	20,186
1955	3,272	18,689	21,961
1956	3,388	20,154	23,542
1957	3,274	20,843	24,117
1958	3,386	21,011	24,397
1959	3,451	21,791	25,242
1960	3,586	22,219	25,805
1961	3,512	22,956	26,468
1962	3,617	24,494	28,111

TABLE XL

Business Gross Fixed Capital Formation (I)

1926-1962*

($ Million)

Year	Ix	Im	It
1926	174	1,034	1,208
1927	216	1,233	1,449
1928	236	1,500	1,736
1929	286	1,662	1,948
1930	239	1,369	1,608
1931	132	1,011	1,143
1932	59	550	609
1933	67	395	462
1934	88	492	580
1935	143	565	708
1936	165	701	866
1937	197	915	1,112
1938	188	862	1,050
1939	169	884	1,053
1940	214	1,129	1,343
1941	327	1,155	1,682
1942	272	1,295	1,567
1943	161	1,073	1,234
1944	161	1,074	1,235
1945	203	1,217	1,420
1946	276	1,570	1,846
1947	403	2,093	2,496
1948	417	2,341	2,758
1949	480	2,552	3,032
1950	432	2,735	3,167
1951	538	2,763	3,301
1952	592	2,996	3,588
1953	599	3,327	3,926
1954	569	3,154	3,723
1955	653	3,320	3,973
1956			4,787
1957			5,115
1958			4,761
1959			4,575
1960			4,345
1961			4,270
1962			4,365

* Some of the series in Appendix 3 do not carry the sector breakdown of National Income aggregates beyond 1955. The breakdown of secondary manufacturing into an 'export orientated' and 'import competing' sector was based largely on the study by Wm. C. Hood and Anthony Scott, Output, Labour and Capital in the Canadian Economy, Ottawa, Queen's Printer, 1957, and this study extends statistics only up to 1955. (See Appendix 4).

TABLE XLI

Wages, Salaries, Supplementary Labour Income and Military Pay and Allowances (W1)

1926-1955
($ Million)

Year	X1x	W1m	W1t
1926	529	2,960	3,489
1927	549	3,196	3,745
1928	603	3,466	4,069
1929	632	3,723	4,355
1930	580	3,654	4,234
1931	473	3,478	3,891
1932	424	3,098	3,522
1933	433	2,821	3,254
1934	512	2,971	3,483
1935	560	3,155	3,715
1936	612	3,267	3,879
1937	747	3,526	4,273
1938	698	3,544	4,242
1939	764	3,691	4,455
1940	830	4,270	5,100
1941	922	5,066	5,988
1942	992	6,071	7,063
1943	1,039	6,866	7,925
1944	1,034	7,119	8,153
1945	1,053	7,034	8,087
1946	1,226	6,273	7,499
1947	1,267	6,338	7,605
1948	1,272	6,529	7,801
1949	1,222	6,893	7,115
1950	1,326	7,180	8,506
1951	1,502	7,525	9,027
1952	1,483	8,097	9,580
1953	1,488	8,833	10,321
1954	1,542	8,846	10,388
1955	1,642	9,399	11,041

TABLE XLII

Corporation Profits Before Taxes, Rent Interest and Miscellaneous Investment Income, Net Income of Farm Operators From Farm Production (P)

Non-Farm Unincorporated Business Income

1926-1955
($ Million)

Year	Px	Pm	Pt
1926	519	1,989	2,508
1927	614	2,082	2,696
1928	713	2,296	3,009
1929	505	2,113	2,618
1930	371	1,695	2,066
1931	200	1,071	1,271
1932	148	823	971
1933	221	853	1,074
1934	379	1,181	1,560
1935	444	1,383	1,827
1936	519	1,462	1,981
1937	659	1,731	2,390
1938	618	1,750	2,368
1939	723	2,080	2,803
1940	824	2,460	3,283
1941	831	2,865	3,696
1942	974	3,752	4,726
1943	896	3,481	4,377
1944	858	3,936	4,794
1945	902	3,748	4,650
1946	935	4,174	5,109
1947	893	4,327	5,220
1948	1,145	4,063	5,208
1949	985	3,917	4,902
1950	1,174	4,417	5,591
1951	1,303	4,762	6,065
1952	1,106	4,782	5,888
1953	954	4,764	5,718
1954	879	4,106	4,985
1955	1,111	4,797	5,908

TABLE XLIII

Gross Capital Stock (K)

1926-1962
($ Million)

Year	Kx	Km	Kt
1926	3,194	23,432	26,626
1927	3,410	24,665	28,075
1928	3,649	26,165	29,814
1929	3,935	27,827	31,762
1930	4,174	29,196	33,370
1931	4,306	30,207	34,513
1932	4,365	30,757	35,122
1933	4,432	31,152	35,584
1934	4,520	31,644	36,164
1935	4,663	32,209	36,872
1936	4,828	32,910	37,738
1937	5,025	33,825	38,850
1938	5,213	34,687	39,900
1939	5,382	35,571	40,953
1940	5,596	36,700	42,296
1941	5,923	38,055	43,978
1942	6,195	39,350	45,545
1943	6,356	40,423	46,779
1944	6,517	41,497	47,914
1945	6,720	42,714	49,434
1946	6,996	44,284	51,280
1947	7,399	46,377	53,776
1948	7,816	48,718	56,534
1949	8,296	51,227	59,523
1950	8,728	53,962	62,690
1951	9,266	56,725	65,991
1952	9,858	59,721	69,579
1953	10,457	63,048	73,505
1954	11,026	66,202	77,228
1955	11,679	69,522	81,201
1956			85,988
1957			91,103
1958			95,864
1959			100,439
1960			104,784
1961			109,054
1962			113,419

TABLE XLIV

Personal Expenditure on Consumer Goods and Services (C) and Imports of Goods and Services (IM)

1926-1962
($ Million)

Year	Ct	IMt
1926	5,010	2,296
1927	5,577	2,530
1928	6,128	2,838
1929	6,490	3,092
1930	6,203	2,811
1931	5,877	2,248
1932	5,414	1,925
1933	5,272	1,824
1934	5,534	1,943
1935	5,775	2,076
1936	6,036	2,352
1937	6,420	2,600
1938	6,337	2,436
1939	6,510	2,599
1940	7,034	2,888
1941	7,471	3,310
1942	7,692	3,549
1943	7,902	4,246
1944	8,444	5,020
1945	9,267	3,986
1946	10,323	3,717
1947	10,657	4,176
1948	10,451	3,749
1949	10,923	3,853
1950	11,642	4,206
1951	11,817	4,685
1952	12,633	4,882
1953	13,338	5,269
1954	13,650	5,013
1955	14,738	5,672
1956	15,516	6,567
1957	16,083	6,571
1958	16,585	6,150
1959	17,392	6,776
1960	17,908	6,743
1961	18,480	6,823
1962	19,157	6,911

TABLE XLV

The Labour Force, Employment (N), and $U_n$employment

1926-1962
(Million)

Year	1. Labour Force	2. N_t	3. Unemployed	4 N_x	5 N_{14}	6. $\frac{3}{2} \times 1$
1926	3.662	3.385	.277	.869	2.516	7.5
1927	3,761	3,529	.232	.897	2.632	6.1
1928	3.856	3.683	.182	.935	2.748	4.7
1929	3.968	3.827	.141	.931	2.896	3.5
1930	4.064	3.723	.332	.896	2.827	8.1
1931	4.156	3.560	.596	.801	2.579	14.3
1932	4.216	3.353	.863	.761	2.592	20.4
1933	4.280	3.390	.890	.777	2.613	20.7
1934	4.343	3.587	.756	.838	2.749	17.4
1935	4.407	3.720	.687	.845	2.875	15.5
1936	4.472	3.833	.639	.871	2.962	14.2
1937	4.432	4.009	.423	.923	3.086	9.5
1938	4.595	3.928	.667	.913	3.015	14.5
1939	4.658	3.989	.669	.928	3.061	14.3
1940	4.714	4.213	.501	.949	3.264	10.6
1941	4.762	4.418	.344	.968	3.450	7.2
1942	5.061	4.820	.241	.966	3.854	4.7
1943	5.283	5.125	.158	.941	4.184	2.9
1944	5.323	5.222	.101	.944	4.278	1.8
1945	5.255	5.118	.137	.931	4.187	2.6
1946	5.042	4.900	.142	.916	3.984	2.8
1947	4.978	4.880	.98	.874	4.006	1.9
1948	5.023	4.921	.102	.872	4.049	2.0
1949	5.125	4.990	.135	.863	4.127	2.6
1950	5.209	5.043	.166	.862	4.181	3.1
1951	5.285	5.179	.106	.875	4.304	2.0
1952	5.401	5.268	.133	.843	4.425	2.4
1953	5.487	5.350	.137	.819	4.531	2.4
1954	5.539	5.307	.232	.854	4.453	4.1
1955	5.681	5.446	.235	.871	4.575	4.1
1956	5.897	5.700	.197	.862	4.838	3.4
1957	6.121	5.843	.278	.854	4.989	4.6
1958	6.247	5.815	.432	.863	4.952	6.9
1959	6.348	5.975	.373	.841	5.134	5.8
1960	6.522	6.074	.448	.821	5.253	6.9
1961	6.639	6.170	.469	.823	5.347	7.1
1962	6.728	6.337	.391	.837	5.990	5.8

APPENDIX 4

SOURCES, METHODS AND LIMITATIONS OF DATA

(i) Appendix 1

The sources were

(a) 1851-1860; O. J. Firestone, Canada's Changing Economy in the Second Half of the 19th Century, Ottawa, September 1957, Chapter 5.

(b) 1868-1899; Penelope Hartland, The Canadian Balance of Payments since 1868, in Studies in Income and Wealth, vol. 24, Princeton, Princeton University Press, 1961.

(c) 1900-1926; F. A. Knox, Dominion Monetary Policy, 1929-1934, a study prepared for the Royal Commission on Dominion Provincial Relations, Ottawa, King's Printer, 1939, p. 89-94. These statistics have been supplemented from F. A. Knox's 'Excursus' appearing in H. Marshall et al, Canadian American Industry: A Study in International Investment, New Haven, Yale University Press, 1936.

(d) 1926-1945; D.B.S. The Canadian Balance of International Payments, 1926-1948, Ottawa, King's Printer, 1949.

(e) 1946-1962; D.B.S. The Canadian Balance of International Payments and International Investment Position, 1960 and 1962 issues.

(ii) Appendix 2

Gross Domestic Expenditure is defined as Gross National Expenditure plus exports minus imports. The current $ G.N.E. figures for the years 1870, 1890, 1910 and 1920 are from O.J. Firestone, Canada's Economic Development, 1867-1953, London, Bowes and Bowes, 1958, p. 65, and are adjusted to the National Accounts concept as developed later by the D.B.S. The same source was used to obtain a) current dollar estimates of a) exports and imports, p. 65, b) an index of G.N.E. (1935-39 = 100), p. 66, c) indices of commodity exports and imports (1935-39 = 100) which were used to deflate import and export figures, p. 178, and d) a terms of trade index (1935-39 =100), p. 152; all for the years 1870, 1890, 1910 and 1920.

O. J. Firestone, op. cit., was also the source for a) figures on total population and employed labour forces, p. 57-58, and b) for the wholesale price index, p. 178, for the years considered, up to and including 1920.

Current dollar estimates of G.N.E. and the import and export components for the years considered between 1926-1961 are from official National Income Statistics. For the years 1926-1950, constant 1935-39 dollar figures are given for these aggregates in the publication, National Accounts Income and Expenditures, 1926-1950, Ottawa, Queen's Printer, 1951. For later years, 1949 constant $ figures were converted to a 1935-39 base. In all cases 1870-1961, the G.D.E. index was

constructed by dividing current by constant dollar figures and thus obtaining an implicit index.

The source for the index of wholesale prices 1926-1945 was the D.B.S. publication Prices and Price Indexes, 1949-52, Ottawa, Queen's Printer, 1954, and for later years subsequent annual issues. From 1926 estimates of the total population and the employed civilian labour force are from the D.B.S. publications National Accounts, Income and Expenditure, 1926-56, Ottawa, Queen's Printer, 1958, p. 100-101, and National Accounts Income and Expenditure, 1962, Ottawa, Queen's Printer, 1963, p. 60. The terms of trade indices for the years 1929-1961 were obtained from annual issues of the Trade of Canada. The three methods used to measure economic growth, productivity and capital inflows within the National Accounts framework were suggested in a paper presented by Mr. J. W. Rowe, to the Annual Conference of the New Zealand Association of Economists, Victoria University of Wellington, February 9-10, 1961, entitled Growth Rates in Australia and New Zealand. He, however, stopped at the calculation of the growth of real product and did not relate this to the changing size of the Net Foreign Balance.

A problem associated with the approach centres on the choice of appropriate periods in which to measure growth. The periods chosen have been designed to form significant and relatively homogenous, time intervals.

Another problem was the choice of an adequate deflator for home-consumed G.N.P. (home consumed G.N.P. being defined as Gross Domestic Expenditure minus Imports). An index of retail prices would have been more appropriate than the index of wholesale prices which was used, but no reliable historical series of retail prices could be found. Finally it must be remembered that the concept of the Net Foreign Balance gives only one measure of the capital inflow into Canada, although it is the only measure possible within a consistent National Accounts framework.

(iii) Appendix 3

The statistics presented in Appendix 3 form the basic data on which the equations of the model have been fitted. The purposes of the statistics presented in this appendix are:

(a) to provide statistical values for the unknowns in the simplified, two sector model of the Canadian economy; and

(b) to give a broad picture of the aggregate indicators of economic growth in Canada since 1926, from which time comparable and continuing National Income data are available.

The statistics are presented in real terms, 1949 constant $. Until this study was nearly completed there were no reliable statistics available which would give an accurate breakdown of key aggregates of the economy on a

sector basis. The publication, by the D.B.S. National Accounts and Balance of Payments Division, of Indexes of Real Domestic Product by Industry of Origin, 1935-1961, Ottawa, Queen's Printer, 1963, would have been useful in obtaining more reliable and accurate sector detail if it has appeared earlier. It could form the basis for more fruitful further research.

The economy has been divided into an 'export orientated' sector (X) and an 'import competing' sector (M). The final production of the X sector is designed to be directed, as far as available data make it possible, towards the export market. The final products of the M sector are designed to be directed, as far as possible, towards the domestic market, i.e. a certain proportion of these final products will compete with imports. This breakdown has been designed to give an indication of the two broad sectors of the Canadian economy into which foreign capital has flowed, namely the resource and secondary manufacturing fields. A more detailed and sophisticated breakdown may well have proved more adequate and this could prove a field for useful research in the future.

The three basic studies used were D.B.S. National Accounts, Income and Expenditure, 1926-1956, Ottawa, Queen's Printer, 1958; D.B.S. National Accounts, Income and Expenditure, 1962, Ottawa, Queen's Printer, 1963, and Wm. C. Hood

and Anthony Scott, Output Labour and Capital in the Canadian Economy, Ottawa, Queen's Printer, February, 1957.

The official National Income statistics give a current dollar breakdown of gross domestic product into thirteen industries. Of these industries, Forestry, Fishing and Trapping, and Mining, Quarrying and Oil Wells, were included in the export orientated sector. O. J. Firestone, op. cit., p. 198, gives "Exports of Agricultural Products as a percentage of gross value of agricultural production" for

1930 ..... 33 per cent
1940 ..... 30.2 per cent
1950 ..... 27.7 per cent

These figures have been interpolated and extrapolated between the years 1926 and 1962, and where appropriate this calculated percentage figure has been applied to the agricultural industry to determine the split up into the X and M sectors.

Similarly Hood and Scott, op. cit., Chapter 5, Appendix F, give a constant $ breakdown of manufacturing G.D.P. into primary and secondary manufacturing sectors for the years 1926-1955. The ratio of primary manufacturing to total manufacturing given in this source for the years 1926-1955 has been applied, where appropriate, to the G.D.P. figures for manufacturing appearing in official National Income Statistics. This ratio was, for example, $\frac{449}{1804}$ in 1930

and $\frac{1325}{5275}$ in 1955. This ratio was used to allocate the income components generated in the primary manufacturing sector, to the X sector. The remaining industries were allocated to the M sector.

The basic technique applied was to calculate a percentage figure for the current $ values of

(a) G.D.P.,

(b) Business Gross Fixed Capital Formation,

(c) Wages, Salaries and Supplementary Labour Income and Military Pay and Allowances, and

(d) Corporation Profits before Taxes, Rent, Interest and Miscellaneous Investment Income, Net Income of Non-farm Unincorporated Business and Net Income of Farm Operators from Farm Production,

originating in the X sector and applying this percentage to the constant 1949 dollar values of the aggregates formed in the G.N.E. and G.N.P. tables. Where no official constant $ estimate of an aggregate had been made, e.g. for corporation profits, the percentage corporation profits - G.N.P. in current dollars was applied to the constant dollar G.N.E. estimates to provide a constant $ value for the aggregate under consideration.

The estimate of the capital stock of each sector has been made as follows. Hood and Scott, op. cit., Appendix B, estimate the Gross Capital Stock in the economy in constant

1949 $. Included in the X sector for 1949 was one third of the gross capital stock in the agricultural sector, and the entire capital stock in the resource sector, the primary manufacturing sector, and the 'wood producers', 'Pulp and Paper', 'non-ferrous metals and electrical equipment' and 'non-metallic mineral products and products of petroleum and coal' from the secondary manufacturing sector. The residual was allocated to the M sector. For the years 1926-1956, Business Gross Fixed Capital Formation for the appropriate years has been subtracted (added) to the 1949 base year figures to obtain a figure for the Gross Capital Stock in these years.

The computations were laborious. As an example the G.N.E. in constant dollars originating in the X sector for 1926, was computed as follows:

$$\frac{866.\frac{34}{100} + 66 + 41 + 155 \quad \frac{409}{1617}.1063}{4904} .7576 = \text{G.N.E. in constant 1949 dollars originating in the X sector.}$$

The limitations of such estimates are considerable and the sector split-up can only be regarded as a first approximation. But the approximations yield results of significance, and in a study of this type, where the method of approach is a crucial element, they serve an illuminatory purpose despite a crude statistical approach.

APPENDIX 4

The equations were all fitted by the method of least squares. The equations were all taken as linear and of the form $A_o + X_1X_1 + A_2X_2 + \ldots + A_nX_n = Y$. Special programs were written for me by Miss G. Boshko of the Computing Division of the University of Ottawa. In many cases the 'fits' were not particularly good but they proved to be adequate for the theoretical and methodological emphasis in the thesis.

The purpose of disturbing the capital stock in each section was to judge the repercussions that would spread throughout the economy from incremental changes in investment which could be regarded as originating with foreign controlled firms. There is no distinction made between domestic and foreign sources of capital in the actual model although investment in the model is determined exogenously. The simplified model of the economy, used in the sensitivity analysis, was designed to bring out the relationship between the key aggregates in the economy. The recursive nature of the simplified model reflects the 'linearizing' and simplifying of the model developed in Chapter II, part (ii). The variables chosen for the equations were suggested on the basis of economic theory and the results seem to indicate,

(a) the limitations of the data,

(b) the inappropriateness of linear equations in many cases, and

(c) the rather wide gap existing between economic theory and the real world.

The emphasis in this study is on theoretical aspects, and as such the relationships set out have proved useful.

(iv) Technical Details Relating to the Model

(a) The data on which the model was based appear in Appendix (iii) or in Official Estimates of National Income and Expenditure. The main purpose of Appendix (iii) was to provide a sector breakdown of the aggregates, although consumption expenditures and imports are of such importance for the study that they are given for the total economy, without a sector breakdown which would have been difficult to achieve.

(b) The basic program used was the study by R. Y. Seaber, C. E. Cates, et al, R.A.P., A Regression Analysis Program, Shell Oil Corp., Texas, A Program designed for the I.B.M. 650. File No. 6.0.018.

It was assumed that all the functional relationships, if they existed, could be expressed as linear functions of the form,

$$Y = a_o + a_1x_1 + a_2x_2 + \ldots + a_nx_n.$$

with $n \geq 3$

and that $a_o \ldots a_n$ could be equal to zero.

The method of least squares was used and the following was the information which the program was designed to achieve.

(1) The constants $a_o, a_1, \ldots, a_n$

(2) A measure of the Maximum Error in the constants, $e_o, e_1, \ldots, e_n$

APPENDIX 4

(3) The Standard Errors of the Estimates.

$$Sy_1, \ldots, Sy_n$$

where Sy_n is defined as

$$\frac{\sum [(O-C)Y_n]^2}{N - K}$$

where

O = observed value of the independent variable,

C = computed value of the independent variable,

N = number of observations,

and K = number of coefficients, including a_o.

(4) The Variance defined as

$$\frac{\sum [(O-C)\ Yn]^2}{N - K}$$

The maximum error of the constants was found by computing the standard deviation (S.D.) the standard deviation (S.D.) of the constants, and working to within

$$a_k \pm \text{S.D.} \quad (k = 1, \ldots, n)$$

(c) Using annual data it was particularly difficult to obtain constants within permissible margins of error. Several linear forms were tried for most of the equations. The final forms are the result of a lengthy, trial and error technique. The 'fits' are not accurate in many cases, but with the emphasis on model building as a technique through which to study the impact of foreign investment on economic growth, the results proved useful. The reader who wishes

to examine a mathematical model of the Canadian economy which has proved remarkably accurate in short-term economic forecasting work, is directed towards the model developed by Professor S. May and his associates in the Department of Trade and Commerce in Ottawa.

APPENDIX 5

PROBLEMS ENCOUNTERED AND FIELDS FOR FURTHER RESEARCH

The main problems encountered were:

(i) A difficulty in obtaining an accurate breakdown of the main components of national income in real terms by sectors. This problem has been partially overcome by the publication of Indexes of Real Domestic Product by Industry of Origin, 1935-1961, D.B.S., Queen's Printer, Ottawa, 1963.

(ii) A difficulty in setting up a model of the Canadian economy, simple, yet realistic and able to give a guide to the direction and magnitude of the repercussions which could follow from a incremental change in one of the aggregative variables. Further study could well be done on widening the equational forms to non-linear types, subdividing the economy into more sectors and on introducing the foreign capital component of the total capital stock as an explicit variable.

(iii) The historical period covered encompassed a vast field of economic development and as such a broad perspective was possible, but concentrated study of a period of say a decade, using perhaps, quarterly data, could well clarify the importance of the quantitative relationships between the variables in the system.