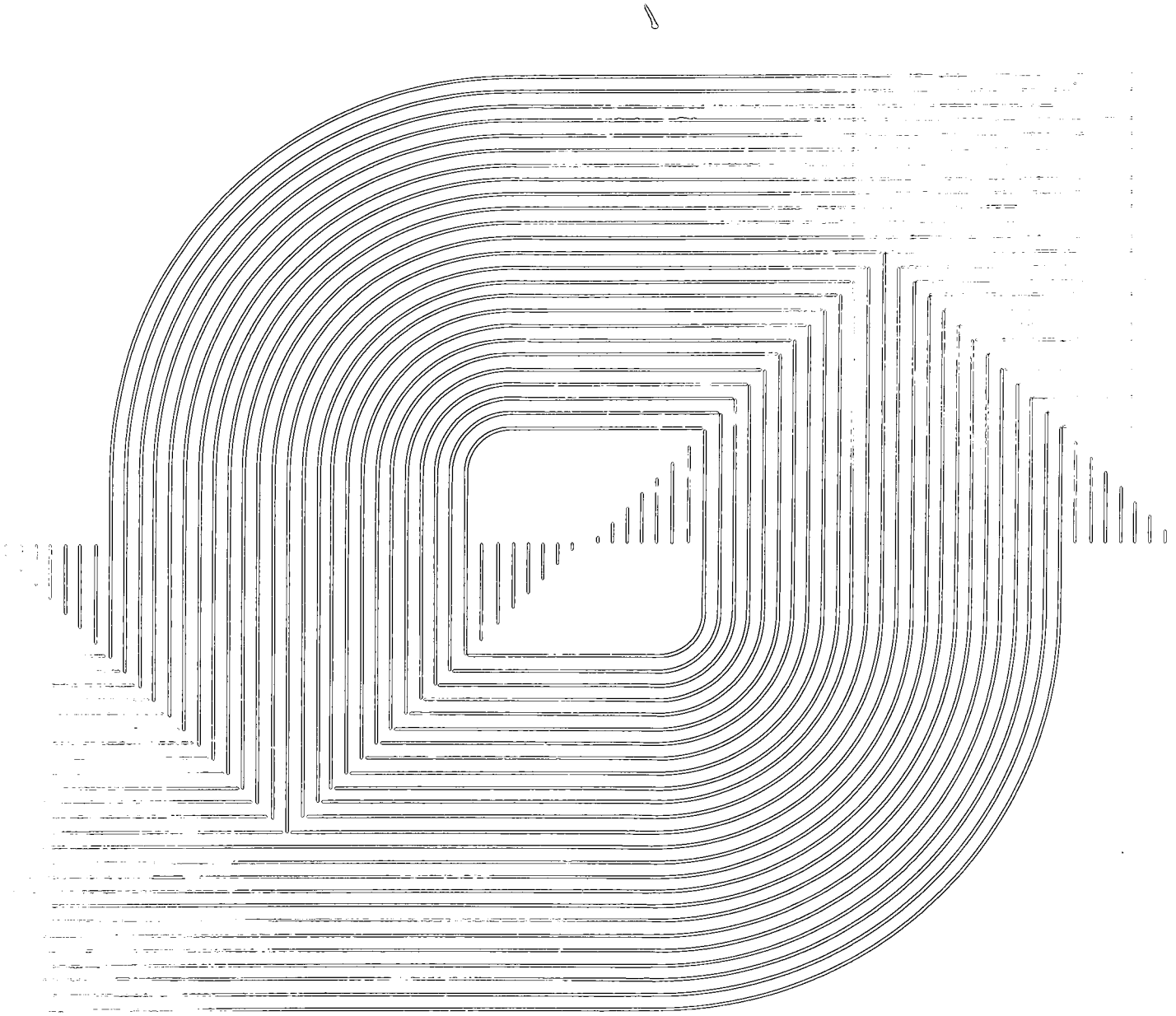
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National Income and Expenditure Accounts Volume 3

A Guide to the National Income and Expenditure Accounts Definitions-Concepts-Sources-Methods



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Gross National Product Division

NATIONAL INCOME AND EXPENDITURE ACCOUNTS

VOLUME 3

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(Definitions - Concepts - Sources - Methods)

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PREFACE

This report is intended as a basic guide to the National Income and Expenditure Accounts. It represents a consolidation and an up-dating of the work which has gone forward in this field since the last major reference compendium *National Accounts, Income and Expenditure, 1926-1956* was issued in 1958. The report and its accompanying two volumes of statistics supersedes all previous publications on the National Income and Expenditure Accounts issued by Statistics Canada.

The present report is Volume 3 of a series of three volumes which together constitute a complete record of the revised National Income and Expenditure Accounts for Canada. The statistical estimates which make up this system are published in Volume 1 *The Annual Estimates* and Volume 2 *The Quarterly Estimates.* Volume 3 – the present report – is designed as a basic reference compendium which describes and explains this key set of economic statistics. It provides a description of the concepts, definitions, content, and sources and methods underlying the statistical estimates.

In writing this report, the objective has been to reach the widest possible audience. The National Income and Expenditure Accounts are now used for economic decision-making and policy analysis in a great variety of fields. They are widely accepted as the central set of statistics for appraising economic performance – for charting the course of the economy and evaluating the pattern of economic developments. Accordingly, an attempt has been made to keep the discussion at a non-technical level insofar as this has been possible. The national income statistician will not find in this report all that he wishes to know.

The report was planned and written by Robert B. Crozier, a former Director of the National Accounts Division and a member of the original group which was established in the early postwar years to develop a system of National Income and Expenditure Accounts for Canada. Mr. Crozier was a senior economist with the Economic Council of Canada prior to undertaking this assignment. But many people in Statistics Canada have contributed to this volume and particularly the members of the Staff of the Gross National Product Division under the direction of Guy Leclerc and Stewart Wells. Major contributions to this report were made by the following members of the staff:

Ellen Buckley
Douglas Clancy
Barbara Clift
Joel Diena
Robert Ferland
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Shan Lal
Albert Meguerditchian
Hans Messinger
Krishna Murty
John O'Day
George Palamedes
Michel Pascal

Peter Devries and Jean Falardeau from the Labour Division also contributed. A special acknowledgement is due to Hans Adler, Bower Carty and Barbara Clift who read through the entire manuscript as it was in preparation and made many useful comments. Louise Cameron prepared the index and contributed the secretarial skills, while Lois Whitmore assisted with the editing and checking. The final text was reviewed by Guy Leclerc and Stewart Wells. The charts were prepared in the Drafting Unit under Gaetan Massicotte. Mrs. Rae Knapp was responsible for the editing and liaison, assisted by Mrs. Diane Joanisse.

PETER G. KIRKHAM,

March 1975

Chief Statistician of Canada.

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PART I

THE ANNUAL ESTIMATES

CHAPTER 1

INTRODUCTION

This report is the third in a series of three volumes which together make up a complete record of the revised National Income and Expenditure Accounts for Canada. The basic statistics on this new revised basis are published in Volume 1 *The Annual Estimates* and Volume 2 *The Quarterly Estimates*. These latter two documents consist entirely of the Tables which comprise the National Income and Expenditure Accounts system. The present volume, Volume 3, aims to provide an up-to-date guide to this key set of economic statistics. It is designed to meet the needs of both the practising economist and the non-specialist user, providing a basic description of concepts, definitions, content and underlying sources and methods.

As noted in the Foreword, in writing this report the objective has been to reach the widest possible audience. The National Income and Expenditure Accounts are now used for economic decision-making and policy analysis in a great variety of fields. They constitute a central framework of statistics which is generally acknowledged to be essential for appraising and evaluating the course and pattern of economic developments. Accordingly, every effort has been made to keep the discussion as non-technical as possible. The national income statistician and other specialists may not find in this report all that they wish to know.

The last major reference document on Canada's National Income and Expenditure Accounts was published in 1958 under the title *National Accounts, Income and Expenditure, 1926-1956*. It dealt entirely with the annual estimates. A brief review of the concepts and methodology underlying the quarterly estimates was published in 1962 in *National Accounts, Income and Expenditure, by Quarters, 1947-1961*. These two documents are now out of date. The present report revises and enlarges on this material, brings it up-to-date, and consolidates it in a single volume.

During the fifteen years since the last major reference compendium was published, a number of factors and developments have operated to produce changes in the National Income and Expenditure Accounts system. Much additional new data has become available – especially as a result of the 1961 Census, but from other sources as well. The new material has involved major **statistical** revisions to the National Income and Expenditure aggregates. In addition, a number of changes in **definition** have been required, to accord more closely to international practice, to introduce improvements in treatment recommended by experts in Canada or elsewhere, to reflect institutional change, or to accommodate new developments and extensions in economic statistics such as financial flow information and industry statistics. At the same time, where new systems of economic statistics have been developed over the past decade, (as in the case of financial flow information) it has clearly been desirable to extend or modify the **structure** of the National Income and Expenditure Accounts system so that linkages to these other systems of information can be readily established and analysis carried out in an integrated way. The structure of the Accounts has also been affected by institutional developments such as the introduction of nation-wide health schemes and pension plans in the 1960's. All of these matters relating to **statistical**, **definitional**, or **structural** changes in the Accounts since the last reference document was published are taken up in detail in Chapter 2 of this report.

The report is organized into two main parts. Part I deals with the **annual** estimates and the framework of ideas and basic information around which they are constructed. Part II deals with the **quarterly** estimates, and the special problems of adapting the basic income and expenditure framework to provide more timely information.

The Historical Setting

The development of National Income and Expenditure Accounts for Canada was powerfully influenced by the experience of the Great Depression and World War II. In particular, the depression of the 1930's shattered traditional economic thought and challenged economists and statisticians to improve their theoretical framework and strengthen and systematize the collection of quantitative data. In 1933, no one in a policy-making position in Canada knew how far production and income had fallen from the peak in 1929, or even how many people were unemployed. No theory had evolved to explain a depression on this scale, and no figures were available to describe its full dimensions. The statistical system had not developed at this stage to a point where such critically important information on the state of the economy was available. The problems associated with mobilization and the operation of a controlled wartime economy in the 1940's focussed further attention on the need for a much broader range of statistical tools to assist the government in managing the economic affairs of the nation. Efforts were in fact made during the war within the departments of the federal government to produce rough National Income and Expenditure estimates for purposes of planning and post-war reconstruction.[1] And discussions were held in Washington in the fall of 1944 with United States and United Kingdom experts on the question of developing an appropriate theoretical framework for National Income statistics. But essentially, a concentrated effort to develop National Income and Expenditure Accounts for Canada had to wait until after the end of hostilities.

Basically, the work on the development of a system of National Income and Expenditure Accounts for Canada had its origins in the 1945 White Paper on Employment and Income published just one month before the end of the war in Europe.[2] In this paper the government set out in broad outline the policies which it intended to follow during the period of reconstruction which would begin with the end of hostilities. The major theme of this paper was that the adoption of high and stable levels of employment and income, and higher standards of living, would be a primary aim of government policy in the post-war period. The depression which preceded the war had demonstrated that industrialized economies were not self-regulating mechanisms which would necessarily or automatically adjust to a level of full employment. The

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[1] W.A. Mackintosh, The White Paper on Employment and Income in Its 1945 Setting, published in *Canadian Economic Policy Since the War* (six public lectures in commemoration of the twentieth anniversary of the 1945 White Paper), Canadian Trade Committee, Private Planning Association, 1966.

[2] *Employment and Income With Special Reference to the Initial Period of Reconstruction,* King's Printer, Ottawa, April 1945. This and the following paragraph draw heavily on a government paper prepared in 1965 for the Organisation for Economic Cooperation and Development, "Canada: Short-Term Forecasting in the Federal Service," published in *Techniques of Economic Forecasting,* OECD, Paris, 1965.

experience of the depression had forced theoreticians and policy-makers alike to re-examine their positions and to probe more deeply for an understanding of economic processes. In this connection, the work of John Maynard Keynes was to become a seminal influence. The problems associated with running a war-time controlled economy under conditions of full mobilization had further emphasized the need for extending the range of economic information, and in a way which would describe the behavior of the economic system in its larger dimensions. The transition to peace and post-war reconstruction which began in 1945 presented new and difficult problems of adjustment in which the government would necessarily be required to play a major role. Against this background, the 1945 White Paper placed on record the key objectives which the government intended to pursue in carrying forward its reconstruction programme in the post-war years.

In line with these objectives, the government acted to establish a more comprehensive and fully integrated system of economic reporting. The initial task was to improve and extend the statistical tools available for charting the course of economic developments, and to establish a framework for measuring the level and outcome of the nation's economic performance. In 1945, a Central Research and Development Staff was established at the (then) Dominion Bureau of Statistics, charged with the task of coordinating the bureau's work in the field of economic statistics and of developing a set of National Income and Expenditure Accounts for Canada. A quarterly labour force survey was begun at about the same time, and steps were taken to establish a survey of the capital investment intentions of businesses and governments. Concurrently, the Economic Research Branch of the (then) Reconstruction Department was assigned responsibility for preparing, on a regular basis, short-term forecasts of the level of economic activity.

The Canadian system of National Income and Expenditure Accounts which emerged from these initiatives and which is described in this report was developed at the same time that similar efforts were taking place in other countries. Indeed, as has been noted, the basic theoretical framework – much as it stands today – was put together during the course of discussions among representatives of the United States, the United Kingdom, and Canada in the fall of 1944, at which time a large measure of clarification and agreement was reached. In the years since the war, material published in the reports of the Conferences on Research in Income and Wealth (sponsored by the National Bureau of Economic Research), the International Association for Research in Income and Wealth, official government reports, professional journals, and numerous text-books, have gone far toward building up a comprehensive body of literature in the field. The work of the United Nations has also done much to disseminate and systematize the results of these studies. The Canadian National Accounts have benefitted from all of these developments.

During the last half of the 1940's, regular estimates of Gross National Product and Expenditure were prepared and published in Canada on an annual basis. In this period the main essentials of the statistical framework were established and tested out in an operational way. The first basic reference document, containing annual estimates for the period 1926-50, was published in early 1952. In the fall of 1953, the first report on quarterly estimates of Gross National Product and Expenditure was published, covering the period 1947-52. Since that time, quarterly estimates of the National Income and Expenditure Accounts have been prepared regularly each quarter.

The evolution of a statistical system tends to reflect and respond to the changes which are taking place in the society. Against the background of depression and war, Canadians made explicit new economic goals embodied in the 1945 White Paper. But over the post-war period, the number of economic goals which Canadians have set for themselves, to be achieved simultaneously and consistently, has multiplied. These goals now include full employment, a high rate of economic growth, reasonable price stability, a viable balance of payments position, and an equitable distribution of income. As the goals have become more ambitious, more explicit, and more difficult to attain consistently, the demand for economic information to guide decision-making has grown steadily – information covering new areas, more timely information, and higher quality information. The National Income and Expenditure Accounts have continued to be shaped and influenced by these demands, as have other sets of economic statistics published by Statistics Canada.

It is possible, by generalizing very broadly, to discern three fairly distinct phases in the evolution of post-war economic developments. In each phase, the growing list of economic objectives has tended to be characterized by special concerns which have influenced the demand for and the nature of our economic statistics. These three stages can perhaps be summarized in a general way as follows: a period covering the late 1940's and the decade of the 1950's in which the principal concern was with the problem of "stabilization" – the avoidance of recession; a period covering the decade of the 1960's in which the goal of "economic growth" came to occupy a more dominant role – and during which time the North American economy underwent the longest expansion in its history; and more recently, the emergence of strong concerns about the quality of life and the side-effects of economic growth, with a shift in emphasis toward problems of welfare, resource use, social choice, and the question "growth for what? ".

In the immediate post-war period, the principal concern of economic policy was "stabilization" – to avoid the possibility of a down-turn in the economy cumulating into a major depression such as occurred in the 1930's. Policy thinking was heavily focussed on minimizing fluctuations in the business cycle and only indirectly on the problem of realizing the economy's large and continually expanding potential. Governments tended to think of their role as a "balance wheel" in the economy, adding to total demand whenever private demand weakened, and constraining total demand whenever the latter became excessive. The business cycle provided the basic analytical framework for appraising and evaluating current developments in the economy.

During this period, major emphasis was given in the statistical program of Statistics Canada to the development of data for measuring cyclical fluctuations in the economy. The quarterly National Income and Expenditure Accounts were developed and published in the early 1950's, and rapidly achieved prominence as a key set of data for appraising current business cycle developments. The increasing size and importance of government revenues and expenditures, and their influence on the level and direction of economic activity, led to a rapid expansion of the detail underlying the government sector of the National Income and Expenditure Accounts. Large efforts were made to expand the seasonal adjustment program at the bureau – not only the seasonal adjustment of the National Income and Expenditure Accounts but

also a wide range of closely related business cycle indicators. By the mid-1950's, seasonal adjustment of time series by electronic computers had become feasible, and this greatly facilitated the task of providing a large amount of statistical information on a seasonally adjusted basis to permit ready identification of underlying cyclical movements.[3] At the same time, the Economics Branch of the Department of Trade and Commerce did much valuable work in the "dating" of Canadian business cycles, identifying the timing of peaks and troughs, studying the behavior of leading, lagging and coincident indicators, and undertaking studies of the average length of cyclical recessions and expansions in Canada.[4]

The emphasis in the White Paper had been "to maintain a high and stable level of employment and income". The wording implied that there would be a strong focus on "prevention". And the installation of new economic and social machinery in the 1940's and the 1950's was very much influenced by the desire to create "built-in stabilizers" for employment and income maintenance. But as John Deutsch has pointed out:

> "There was no similar emphasis (in the White Paper) on the maintenance of a reasonably stable price level; there was no explicit reference to a rapid rate of economic growth; there was surprisingly little concern about the balance of payments. However, the events of postwar history brought these matters to the fore one after another. The experience of inflationary pressure demonstrated quite sharply that there was a problem about prices and the cost of living. The cold war, strong East-West competition for power and influence, rapid technological progress and the new dynamism of the older industrial countries, all contributed to an increasing preoccupation with the task of achieving a rapid rate of economic growth. The problem of maintaining external stability was never far away."[5]

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[3] The seasonal adjustment of time series by electronic computer was initially developed by Julius Shiskin, Chief Economic Statistician at the United States Bureau of the Census in the mid-1950's (see his *Electronic Computers and Business Indicators*, Occasional Paper No. 57, National Bureau of Economic Research, New York 1957). The Canadian program of seasonal adjustment owes a heavy debt to this work, and to the helpful collaboration which developed between the (then) Dominion Bureau of Statistics and the United States Bureau of the Census. Mention should also be made of the pioneering work of the National Bureau of Economic Research, whose basic studies of the business cycle have provided economists with the methodological framework for analyzing business cycle developments. (See National Bureau of Economic Research, *Business Cycle Indicators, Volumes 1 and 2*, Princeton University Press, Princeton, 1961).

[4] While a large part of this work was undertaken for internal use within the government, much of it also found its way into published reports, for example, in the *Report of the Special Committee of the Senate on Manpower and Employment* (Queen's Printer, Ottawa 1961), the *Report of the Royal Commission on Banking and Finance* (Queen's Printer, Ottawa, 1964), the *Report of the Organisation for Economic Cooperation and Development on Seasonal Adjustment on Electronic Computers* (OECD, Paris, 1961), and various professional journals.

[5] John J. Deutsch "Canadian Economic Policy 1945-1965: A Summing Up", published in *Canadian Economic Policy Since the War* (six public lectures in commemoration of the twentieth anniversary of the 1945 White Paper) Canadian Trade Committee, Private Planning Association, 1966.

In the late 1950's and early 1960's, unemployment rose sharply in Canada (and in North America generally), and this was accompanied by a slowing in the rate of economic growth, the accumulation of a large amount of economic slack and a generally unsatisfactory economic performance. Partly in response to this situation, the Economic Council of Canada was created in 1963, one of whose major tasks was "to recommend what government policies, in the opinion of the Council, will best help to realize the potentialities and growth of the economy". The concept of "potential" Gross National Product, and the **growth** of this potential, thus came to assume a major role in the Council's work. The "potential" GNP emphasized the output which **could** be produced if the labour force were fully employed and industrial capacity fully utilized. In an economy with an expanding labour force and an average annual increase in productivity, this potential was always growing. The view that demand management should be deliberately aimed at steering the economy along the underlying path of this continually expanding "potential" (rather than seeking simply to counter cyclical fluctuations) became one of the early themes of the Council's reports. What was emphasized here was that the level of demand should be sufficient to purchase the output which a fully employed economy could produce; and that the standard for judging economic performance should be whether the economy was measuring up to its "potential" rather than whether it was simply advancing cyclically.

The shift from a preoccupation with "stabilization" toward a greater emphasis on "economic growth" and the economy's expanding potentials was in fact a development which occurred in a large number of countries in the 1960's. Much of the impetus came from the collective growth goal established by the member countries of the Organisation for Economic Cooperation and Development at the beginning of the decade. These countries collectively agreed that they should aim to increase the physical volume of production of the 21 member OECD group (including Canada and the U.S.) by 50% in the ten years 1960 to 1970.[6] (This goal was in fact exceeded.) This commitment, which established the goal of strong economic growth as one of the central objectives of governments in almost all of the world's advanced industrial countries, was one of the important economic developments of the decade. In the United States, the turn toward "growth" as a principal goal had begun even earlier, prompted by the launching of Sputnik by the U.S.S.R. in the late 1950's, and subsequently reinforced by the generally unsatisfactory performance of the United States economy after the 1957-58 recession. The massive tax cut in the United States in the early 1960's recommended by the Council of Economic Advisers was a "growth-oriented" measure designed to close the output gap and get the U.S. economy moving back up towards its potential. The path-breaking work of the American economist Edward Denison in the 1960's on sources of economic growth had a major influence in educating decision-makers on the options available for promoting growth, both in the United States as well as in other countries.[7]

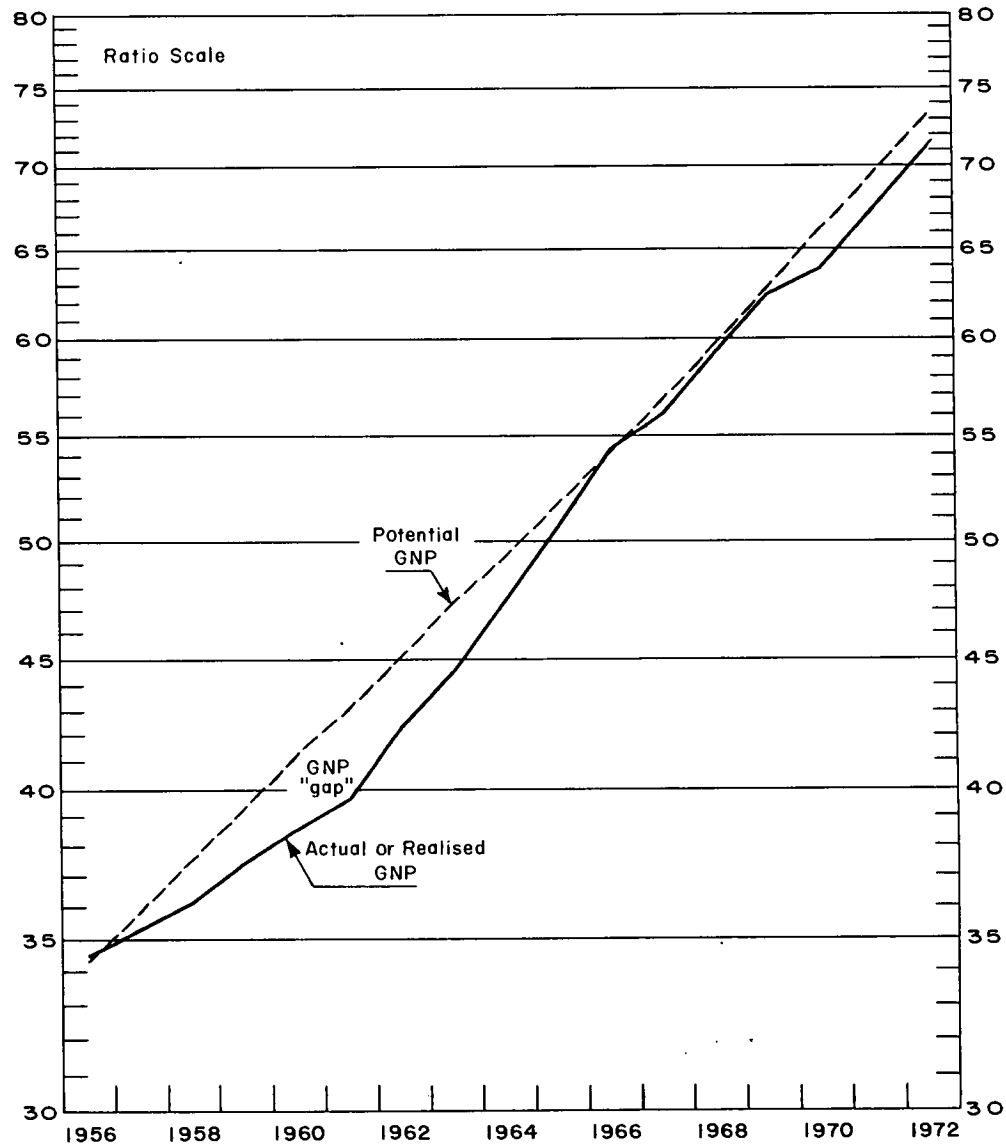
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[6] See *Policies for Economic Growth*. Organisation for Economic Cooperation and Development, Paris, 1962. Also, *The Growth of Output, 1960-1980: Retrospect, Prospect, and Problems of Policy*, OECD, Paris, 1970.

[7] Edward F. Denison, *The Sources of Economic Growth in the United States and the Alternatives Before Us*, A Supplementary Paper for the Committee for Economic Development, New York, 1962. Also, *Why Growth Rates Differ: Post-War Experience in Nine Western Countries*, The Brookings Institution, Washington, D.C., 1967.

Actual and Potential Gross National Product[1]

(Billions of 1961 dollars)



[1] Adapted from "Performance in Perspective, 1971", Economic Council of Canada, Queens Printer Ottawa, October, 1971. The potential G.N.P. calculations are approximate and illustrative.

The attention given to "economic growth" as an objective of policy in the 1960's was a factor influencing priorities in statistical work. It emphasized the critical importance of maintaining consistent and continuous records of income and output over considerable periods of time. It focussed attention on inadequacies in the measurement of the physical volume of output which led subsequently to steps to improve them. It pointed up the crucial role of productivity in the growth process and kept this matter in the forefront of statistical priorities. It influenced the decision to give major support to the development and production of real output by industry statistics. And finally, it led to the joint development of a "growth model" of the Canadian economy by the Economic Council of Canada and other agencies of the federal government which is now generating new and increasingly sophisticated demands on the statistical system.

At the beginning of the 1970's, there is apparently emerging a growing uneasiness and disenchantment with the process of economic growth. Economic growth is being attacked as a major source of environmental pollution and the cause of a declining quality of life. Social costs, or "negative externalities" associated with the growth process are now generating mounting concern. Economists are accused of being preoccupied with maximizing the size of the Gross National Product to the exclusion of other basic considerations including the preservation of air, land and water resources upon which all life on the planet depends. In many countries, a shift in political priorities is apparently taking place, with pollution abatement and the preservation of the environment high on the agenda. Concern with the growth of economic output as such is being replaced by concern with "the problem of social choice" – of how that output is being used, what the alternatives are, and how the choices are likely to affect people's well being. This is reflected in a decision of the Organisation for Economic Cooperation and Development that future work on growth problems will entail a shift in emphasis from the growth of aggregate output to the growth of social welfare in a wider sense, including questions relating to the allocation of the growing volume of national resources as between public and private uses.

The Economic Council has pointed out that the goal of economic growth is not an end in itself, but simply a means for achieving other ends – for providing the resources with which to fulfill the vast array of wants and needs in our society. Economic growth is a "performance" goal whose attainment is desired in order to reach certain "achievement" goals, including those associated with a higher quality of life. How will the nation's growing productive resources be used to meet the wants and aspirations of the society? How can economic growth, which is needed to generate this growing volume of resources, be reconciled with preservation of the environment and the conservation of non-renewable materials? These are questions which are now exercising the minds of many people in Canada as well as in other countries. In the course of this wide-ranging debate, new demands for statistics are emerging, among them a demand for "social indicators" which will better measure the welfare or "quality of life" status of the people.

The National Income and Expenditure Accounts do not measure social welfare. They are centred around the measurement of market-based activity, and they follow clearly defined market-based criteria.[8] They take no account of social costs or "negative externalities" such as air and water pollution caused by the private use of public goods, or the disamenities caused by traffic congestion and urban crowding. In this specific sense, they cannot measure changes in welfare – although the general view has been that increases in welfare have in the past usually tended to be associated with increases in real per capita incomes. But while the Accounts cannot cope with questions of social welfare, they can shed a good deal of insight into questions of "social choice". They show, on the expenditure side, how the resources of the economy are allocated among major uses. This information is likely to become increasingly relevant in societies where attention is shifting to problems of choice and priority in resource use.[9]

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[8] The terms "market-based activity" and "market economy" are used in this report to refer to the money-exchange economy which includes the activities of governments and non-profit institutions as well as the activities of business enterprises operating for a profit.

[9] See *Expenditure Trends in OECD Countries, 1960-1980,* Organisation for Economic Cooperation and Development, Paris, 1972.

Uses and Applications

It has been said that the National Income and Expenditure Accounts represent an attempt to construct a statistical counterpart of the market or "money-exchange" economy. This is a reasonably good working description. Essentially, the Accounts are centred around the measurement of market-based activity – activity associated with the production of goods and services, and the sale of these goods and services in final markets. Thus, the Accounts provide a basic statistical picture of the key economic processes of production, income generation, sales to major markets, consumption, and capital formation.

The uses and applications of a system such as this are of course very numerous. The previous discussion of the historical setting will have indicated in a general way how the use of the Accounts has evolved in the area of public policy. More specific applications will become evident in later Chapters which deal in detail with particular areas of the National Income and Expenditure system. But it might be useful, in this opening chapter, to provide a brief summary description of some current uses and applications by way of an introductory review. A simple listing might run as follows:

Current economic analysis – This is the most general use of the Accounts. They provide a central organizing framework for monitoring the current performance of the economy – for measuring and keeping abreast of changes in the growth of output, in the pattern of the income flows, and in the strength and composition of demand. The quarterly estimates provide the basis for such evaluations at regular intervals during the course of each year.

Short-term forecasting – Governments and businesses periodically undertake assessments of future economic prospects for purposes of planning their activities in the year ahead. Such short-term forecasts are ordinarily cast up in the framework of the National Income and Expenditure Accounts. Within the federal government it is customary for the Minister of Finance to calculate the estimate of government revenue yields in the year ahead on the basis of the forecast level of Gross National Product. This combined with the estimates of spending commitments permits a judgment to be made of the prospective government surplus or deficit in the year ahead. Conferences to assess the short-term economic outlook are now a fairly regular occurrence among business, government and academic economists. The Organisation for Economic Cooperation and Development carries out a major forecasting exercise twice each year in which the economic prospects of all member countries are appraised and evaluated.

Background to the budget – Each year, in bringing down the federal budget, the Minister of Finance makes an official statement on the economic situation – both in terms of current developments and trends as they have been emerging in the recent past and in terms of future prospects. This budget statement is normally accompanied by an official White Paper in which the latest National Income and Expenditure statistics are reviewed and interpreted.

Medium-term projections – Assessments of medium-term potentials and prospects for the Canadian economy are regularly undertaken by the Economic Council of Canada. The Council's Sixth Annual Review (September 1969) set out the prospects for supply and demand, and saving and investment

for the period 1967 to 1975. The Ninth Annual Review (November 1972) centred around an assessment of the economy's prospects and potentials through to the year 1980.

Studies of the sources of economic growth – Much new light has been shed in recent years on the sources of economic growth. Such studies have typically been carried out in the framework of the National Income and Expenditure Accounts. The growth in the productive capacity of the economy depends partly upon increases in the sheer physical **quantity** of resources used – increases in the number of people and in the volume of capital employed. But a very large part of economic growth also comes about from improvements in the **quality** of the resources used, such as higher levels of education in the work force and more technologically advanced capital equipment. In addition, growth is related to increases in the **efficiency** with which these resources are used – for example, as a result of shifts of men and capital from less productive to more productive lines of activity, and through economies of scale and specialization. Studies of the sources of economic growth, particularly those by E. Denison in the United States, and by Miss D. Walters in Canada, have made it possible to assess quantitatively the relative significance of each of these particular factors in the growth process.[10]

Model-building – The National Accounts are now widely used in the construction of econometric models designed to simulate the behavior of the economy and to take account of feedback effects from one part of the system to another. Examples are the large annual growth model (CANDIDE) developed by the Economic Council of Canada in collaboration with a number of other government departments and agencies; the RDX2 model developed by the Bank of Canada, which is a quarterly model designed for short-term forecasting; and the TRACE model of the University of Toronto, which is also used for short-term forecasting.

Structural analysis – A good deal of information on the structure of the economy is revealed in the Accounts, for example, information on the structure of income, on the composition of demand, and on the industrial composition of production. The geographical distribution of personal and disposable income by major regions is also a feature of the system, and regional breakdowns of National Accounts aggregates are in strong demand. Some very striking changes in the structure of the economy have occurred over the post-war period. By way of illustration, in 1946 agriculture accounted for around 11% or 12% of domestic production and national income, and for about 25% of total employment in Canada. By the early 1970's, the share of agriculture in domestic production and national income had dropped to 2% or 3% and its share in total employment to about 6%. Over the same time span, the value of production in the service industries rose from almost 50% of total production to around 60%, while employment in the service industries increased from 40% of total employment to over 60%. On the demand side, personal spending on consumer goods and services has declined sharply as a share of Gross National Product, and government spending on goods and

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[10] The Canadian studies by Dorothy Walters for the Economic Council of Canada are: *Canadian Income Levels and Growth: An International Perspective* (Staff Study No. 23); and *Canadian Growth Revisited, 1950-1967* (Staff Study No. 28). The Denison studies are noted on page 26, footnote 7.

services has increased sharply as Canadians have chosen to allocate more of their output to collective consumption. The role of the government sector in the economy in fact has expanded greatly in the post-war period, with total government revenues rising from 24% of Gross National Product in 1950 to 37% in 1972.

Education – In the general field of education, the Accounts provide a framework within which economic questions of public concern can be considered in their quantitative aspects. The habit of looking at economic problems in quantitative terms and in relation to overall economic magnitudes is a common feature of reporting in the country's financial press. The statistical framework represented by the Accounts is also a useful expository device in the teaching of economics.

Administrative uses – An important early administrative use of the Accounts in Canada was their adoption by the federal and provincial governments as the basis of adjusting the federal tax rental payments to the provinces in the period 1947-57. About $2.0 billion of federal transfers was involved. A further administrative use of the Accounts has been in connection with Canada's contribution to international organizations.

The potential output and GNP "gap" analysis – The National Accounts provide the basic material for developing estimates of "potential" GNP, for measuring the "gap" between actual and potential GNP, and for calculating the high employment budget position. These analytical tools have played a prominent role in the work of the Economic Council of Canada, in connection with its annual reviews and performance reports.[11] Potential output is that output which could be produced if the labour force were fully employed and industrial capacity fully utilized. The shortfall of "actual" GNP in relation to the level of "potential" GNP is a measure of the output gap, or GNP "gap". If total demand for goods and services from all of the major spending sectors is not adequate to purchase the output which a fully employed economy can produce, then "actual" output will decline below "potential" output, and unemployment will rise.

The present report deals with the definition and measurement of "**actual**" output and income – that is, with "**realized**" Gross National Product, and not with "potential" Gross National Product. But the "potential" or full employment level of Gross National Product is an important basic concept which is coming to be used more widely in economic analysis. It will be referred to again in later chapters of this report.

Consistency in statistical collection – The Accounts have important technical uses in establishing priorities and in enforcing consistency in statistical collection. Not only are the Accounts internally consistent in

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[11] See B.J. Drabble, *Potential Output, 1946 to 1970,* Staff Study No. 2, Economic Council of Canada, Ottawa, 1964; First Annual Review: *Economic Goals for Canada to 1970,* ECC, Ottawa, December 1964; Sixth Annual Review: *Perspective 1975,* ECC, Ottawa, September 1969; *Performance and Potential, Mid-1950's to Mid-1970's,* ECC, Ottawa, September 1970; and *Performance in Perspective, 1971,* ECC, Ottawa, October 1971.

themselves, but, since they touch upon all economic activity in the economy, further extensions of the general body of economic statistics are more efficiently considered in terms of comparability with them.

This summary outline of uses and applications is intended to be illustrative. In the next chapter, we turn to a discussion of the statistical, definitional and structural changes which have been incorporated in the National Income and Expenditure Accounts system since the last major reference compendium was published.

CHAPTER 2

WHAT IS NEW IN THIS REPORT?

This chapter describes the modifications to the National Income and Expenditure Accounts system which have been made since the last major reference document *National Accounts, Income and Expenditure, 1926-1956* (the "Brown Book") was published in 1958. The changes are mainly of three types: changes in concept and definition; alterations in the structure of the accounting framework; and changes in the statistical estimates resulting from revisions to primary data.

The task of consolidating all three types of changes for the entire span of years covered by the Accounts, and at the same time maintaining a current reporting and publication program, has been difficult and time consuming. The revision program has in fact taken place in two stages. In August 1969, an interim report *National Income and Expenditure Accounts, 1926-1968* (the "Green Book") was published, incorporating all of the changes in concept and definition which are described in this chapter, and indicating the nature of the proposed alterations to the format and structure of the Accounting system. In addition, this interim report incorporated major revisions to the statistical estimates necessitated by new information from the 1961 Census and new or revised primary data from other sources. The second and "final" stage of this revision program has now been completed. In this second stage, the statistical estimates have undergone a further significant revision for the period 1947 to the present,[1] made necessary by additional information becoming available in a number of important areas since 1969, including the results of the 1966 Census. No changes in concept or definition, or in structure, were made in this second stage of the revision program.

The present chapter aims to provide an up-to-date summary account of these developments in the Accounts. Comparisons are made for the most part between the present set of Accounts and the Accounts as set out in the basic 1958 Brown Book *National Accounts, Income and Expenditure, 1926-1956*. The reader is thus provided with a fixed landmark from which to make the transition to the new features of the system described in this report. The interim 1969 revision (Green Book) simply constituted a step along the way to the preparation of the present report.

Because this chapter deals essentially with differences between the "old" and "new" system of National Income and Expenditure Accounts, it must assume some familiarity on the part of the reader with the system as described in the 1958 "Brown Book". The reader who does not possess a reasonably good working knowledge of the Accounts will find this chapter difficult and perhaps irrelevant to his particular interests. The uninitiated reader coming to the Accounts for the first time would do well to proceed directly to Chapter 3, "The Conceptual Framework of the National Income and Expenditure Accounts".

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[1] This second stage statistical revision was not carried back to the period 1926-46. There is therefore a "break" or discontinuity in the series between the years 1946 and 1947. See section at the end of this chapter for a discussion of this matter.

Among other new features of this report is a section on concepts, sources and methods underlying the preparation of the **quarterly** National Income and Expenditure estimates, comprising Part II of the report. In addition, the report contains a chapter setting out the principal differences between the Canadian National Income and Expenditure Accounts, the system employed in the United States, and the standard system recommended by the United Nations. The report also includes a chapter which sets out the basic linkages between the National Income and Expenditure Accounts and other major systems of economic statistics such as the Financial Flow Accounts, the Balance of Payments, Input-Output Accounts, and Gross Domestic Product by Industry data. Finally, in Chapters 5, 6, 7 and 8, the report provides explicit examples of the way in which the detail in the sector accounts can be consolidated to yield the main statistical aggregates in the summary Gross National Product – Gross National Expenditure and production account tables. These are all new features of the current report which were not included in the 1958 reference document.

Why Revisions?

Users of the National Income and Expenditure Accounts are sometimes perplexed by the need to undertake periodic revisions to the figures – especially such large-scale revisions as are described here. Why do such large-scale revisions become necessary from time to time? A discussion of this question may be appropriate at this point.

The National Income and Expenditure figures are always designated as "**estimates**". The figures cannot be calculated with complete precision, although their accuracy can be improved with the passage of time and the availability of new information. Many of the annual figures, when they first appear, are based on incomplete information from sample surveys assembled for purposes of preparing quarterly estimates. Even under the best of circumstances, the annual figure when it first appears will be based on a **preliminary** annual survey. Subsequently, there will usually be a **revised** annual survey which results in changes to the figures. Still later there will be a Census count (decennial or quinquennial) which may reveal missing elements or other shortcomings in the annual surveys, entailing revisions to a 10- or 20-year run of data to bring the figures into line with the basic Census benchmarks. For example, the 1961 Census in the field of population, housing, the labour force and merchandising has led to major modifications in the estimates of residential construction outlays, personal expenditure on consumer goods and services, wages and salaries, and many other components of the Income and Expenditure estimates. Twenty years of data were affected by the 1961 Census revision – the period between Census benchmarks 1951 to 1961, and the period after 1961 which is anchored to the basic 1961 Census benchmark. The 1966 Census had similar though less wide-ranging effects.

Revisions to incorporate the results of periodic Censuses thus involve far-reaching changes in the estimates, covering a time span of many years. Moreover, because the Accounts constitute a highly integrated and interrelated system, a change in any one of the main aggregates touches off a chain of revisions throughout the entire system – in the quarterly accounts, in the deflation, in the sector tables, in the auxiliary tables, and in the seasonal adjustment program. Such revisions can be very inconvenient, for they require

users of the Accounts to carry through extensive changes in analytical worksheets and various applications of the data extending to the structure of models and computer programs. To keep this inconvenience to a minimum, serious attempts are made to incorporate and consolidate **all** changes in the Accounts **at one time** insofar as this is possible.

The basic "once every ten year" revision of the statistical estimates made necessary by the decennial Census provides an opportunity for incorporating other desirable changes in the Accounts system at the same time. There are several reasons apart from Census revisions why such changes are required. New sources of information outside the field of the Census may become available which permit significant improvements to be made in the quality of the estimates. This has happened in the case of wages and salaries, where tabulations from employers' submissions of employees' earnings (T.4 Forms) undertaken by the Department of National Revenue in connection with the administrative needs of the Canada Pension Plan have led to substantial revisions. Also, improvements in the estimates of corporation profits and depreciation have been made possible by new information to which access became available under the Corporation and Labour Unions Returns Act.

Statistical revisions may also be required because improvements have been made in technique – in the method in which the primary data are assembled and combined to yield the estimates incorporated in the National Accounts. The introduction of a productivity and profit margin adjustment in the deflation of residential and non-residential construction constitutes a change in method which has substantially improved these series for measuring changes in the volume of output in the construction industry.

The foregoing factors – basic Census information, new information from non-Census sources, or improvements in method – are the principal reasons for the **statistical** revisions in the national income and expenditure aggregates. Such statistical revisions account overwhelmingly for the numerical change in the figures, as Tables 2-2 and 2-3 indicate. But, apart from data revisions, there are other reasons why the National Income and Expenditure estimates may need to be modified at these periodic intervals. It becomes desirable from time to time to introduce new concepts or definitions into the Accounts, to modify or abandon others, or to change the treatment of particular items. Such **definitional** changes can emanate from a variety of sources:

(a) improvements in the theory and design of National Income accounting systems;

(b) institutional changes in the economy such as the introduction of national hospital schemes and national pension plans;

(c) the need to strengthen the linkages between the National Income and Expenditure Accounts and other major systems of economic statistics;

(d) practical working experience which suggests that the item in question would be more appropriately handled in a different way;

(e) new sources of information which make it possible to translate a theoretically desirable concept into the appropriate statistical aggregate; and

(f) the desire to accord more closely to international practice and standards in National Income accounting, especially as recommended by the United Nations.

Finally, in addition to definitional and statistical revisions, modifications to the **structure** of the Accounting framework may be required periodically, again to accord more closely to international standards, or to accommodate more readily the integration of National Income and Expenditure data with other major systems of National Accounting such as the financial flow estimates. All of these aspects of the revision program are discussed in later sections of the chapter.

The program which has now been completed is the most comprehensive basic revision of the National Income and Expenditure Accounts since they began to be published 25 years ago. The need to build in 1961 Census information has provided the occasion for undertaking a major overhaul of the system to incorporate many desirable changes which have accumulated in various areas over the past decade.

To sum up, the National Income and Expenditure figures are "estimates", subject to revision for a good many years following the period to which they actually refer. In the field of national income accounting, absolute numerical precision is never attainable even after all available data have been exploited. For these reasons, in using the Accounts, emphasis should **not** be placed on the exactitude or precision of the numbers, but rather on the underlying configurations, patterns, and relationships which they reveal. It is in this broader sense that the data need to be interpreted.

The Scope of the Revisions

This section includes a number of broad summary tables showing the general scope of the revisions for the years 1950 to 1968. The year 1968 was

TABLE 2-1. Gross National Product at Market Prices, 1950-68

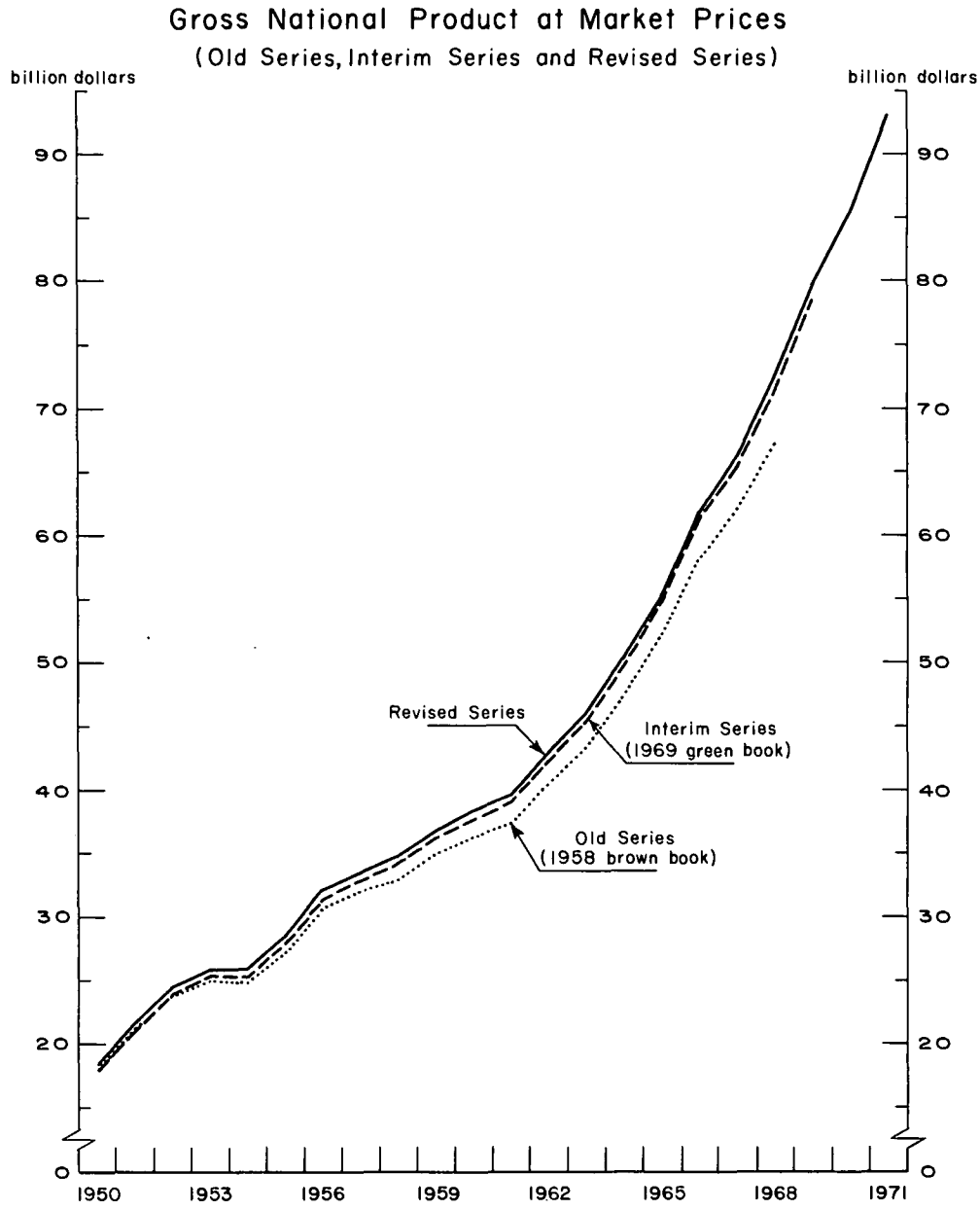
Old Series, Interim Series and Revised Series

	Old series (1958 Brown Book)[1] (1)	Interim series (1969 Green Book) (2)	Interim revision (3) (2 - 1)	New revised series (4)	Final revision (5) (4 - 1)	Final revision as per cent of old 1958 Brown Book series
	millions of dollars					
1950	18,006	17,955	– 51	18,491	485	2.7
1951	21,170	21,060	– 110	21,640	470	2.2
1952	23,995	24,042	47	24,588	593	2.5
1953	25,020	25,327	307	25,833	813	3.2
1954	24,871	25,233	362	25,918	1,047	4.2
1955	27,132	27,895	763	28,528	1,396	5.1
1956	30,585	31,374	789	32,058	1,473	4.8
1957	31,909	32,907	998	33,513	1,604	5.0
1958	32,894	34,094	1,200	34,777	1,883	5.7
1959	34,915	36,266	1,351	36,846	1,931	5.5
1960	36,287	37,775	1,488	38,359	2,072	5.7
1961	37,471	39,080	1,609	39,646	2,175	5.8
1962	40,575	42,353	1,778	42,927	2,352	5.8
1963	43,424	45,465	2,041	45,978	2,554	5.9
1964	47,393	49,783	2,390	50,280	2,887	6.1
1965	52,203	54,897	2,694	55,364	3,161	6.1
1966	58,104	61,421	3,317	61,828	3,724	6.4
1967	62,109	65,608	3,499	66,409	4,300	6.9
1968	67,368	71,454	4,086	72,586	5,218	7.7

[1] Based on *National Accounts, Income and Expenditure, 1926-1956* and series compatible with this document.

the last year for which National Income and Expenditure estimates were published on the old Brown Book basis. As can be seen in Table 2-1 (and Chart 2-1), the revisions have been substantial, raising the level of Gross National Product (as measured on the old Brown Book basis) by an amount in the range of 5% to 8% in the late 1950's and 1960's.

Tables 2-2 and 2-3 show, for the demonstration year 1961, how the revision to Gross National Product in that year (of $2,175 million) was made up of numerous revisions to component series on both the income and



expenditure sides of the Accounts. The largest **statistical** revisions, in absolute terms, have occurred in the two largest components of the Accounts, wages, salaries and supplementary labour income, and personal expenditure on consumer goods and services. A large statistical revision has also occurred in corporation profits before taxes. The bases of these and other statistical revisions are discussed later in this chapter.

In addition to showing the component detail of the revisions for the year 1961 by income and expenditure shares, Tables 2-2 and 2-3 also show how the total numerical change was made up of revisions due to **definitional changes**, and revisions due to **statistical changes**. Definitional changes include changes in concept, definition, and classificatory arrangements in the Accounts. Statistical changes are those which stem solely from changes in the basic statistics. These distinctions are relatively clear-cut, but there are cases where statistical revisions have been made co-terminously with changes in definition or classification. In such cases, the statistical revisions are included with the category "definitional changes" in Tables 2-2 and 2-3.

TABLE 2-2. Revisions to Gross National Product, 1961

Income

Item	Old series (1958 Brown Book)[1]	Definitional changes[2]		Statistical changes	New revised series
		Within GNP	To GNP		
	millions of dollars				
Wages, salaries, and supplementary labour income	18,996	– 60	–	+ 1,463	20,399
Military pay and allowances	550	+ 60	–	–	610
Corporation profits before taxes	3,427	+ 26	–	+ 613	4,066
Deduct: Dividends paid to non-residents	– 586	–	–	– 36	– 622
Interest, and miscellaneous investment income	2,670	– 1,091	– 342	+ 47	1,284
Accrued net income of farm operators from farm production	1,008	–	–	– 182	826
Net income of non-farm unincorporated business including rents	2,274	+ 1,069	–	– 82	3,261
Inventory valuation adjustment	– 89	–	–	+ 48	– 41
Net National Income at factor cost	28,250	+ 4	– 342	+ 1,871	29,783
Indirect taxes less subsidies	4,696	+ 34	– 11	+ 119	4,838
Capital consumption allowances and miscellaneous valuation adjustments	4,540	– 38	+ 614	– 233	4,883
Residual error of estimate	– 15	–	–	+ 157	142
Gross National Product at market prices	37,471	–	+ 261	+ 1,914	39,646

[1] Based on 1958 Brown Book *National Accounts, Income and Expenditure, 1926-1956*, and series compatible with this document.

[2] For detail underlying these summary figures, see the Appendix to this chapter.

TABLE 2-3. Revisions to Gross National Expenditure, 1961

Expenditure

	Old series (1958 Brown Book)[1]	Definitional changes[2]		Statistical changes	New revised series
		Within GNE	To GNE		
	millions of dollars				
Personal expenditure on consumer goods and services	24,466	– 653	–	+ 2,117	25,930
Government current expenditure on goods and services	7,236	– 928	+ 194	– 296	6,206
Government gross fixed capital formation	–	+ 1,674	–	–	1,674
Business gross fixed capital formation	6,635	– 217	+ 183	+ 117	6,718
Value of physical change in government inventories	–	+ 8	–	–	8
Value of physical change in non-farm business inventories	439	–	–	+ 79	518
Value of physical change in farm inventories and grain in commercial channels	– 409	–	–	– 1	– 410
Exports of goods and services	7,631	– 60	–	+ 53	7,624
Deduct: Imports of goods and services	– 8,542	+ 176	– 116	+ 2	– 8,480
Residual error of estimate	15	–	–	– 157	– 142
Gross National Expenditure at market prices	37,471	–	+ 261	+ 1,914	39,646

[1] Based on 1958 Brown Book *National Accounts, Income and Expenditure, 1926-1956,* and series compatible with this document.

[2] For detail underlying these summary figures, see the Appendix to this chapter.

While it is not the objective of this report to undertake an analysis of the revisions in terms of what they imply by way of a re-assessment of past economic performance, it should be noted that they have involved significantly stronger rates of growth in almost all component series. Table 2-4 sets out the rates of increase in the physical volume of output and in the main expenditure components in constant dollar terms at the two stages of the revision program. The bulk of the change in growth rates was caught in the interim revision published in 1969. Since that time, the effect of revisions on growth rates has been, in most cases, fairly marginal.

TABLE 2-4. Growth Rates in Gross National Expenditure and Components

Constant 1961 Dollars

	1950-61			1961-68		
	Old series (1958 Brown Book)[1]	Interim series (1969 Green Book)	New revised series	Old series (1958 Brown Book)[1]	Interim series (1969 Green Book)	New revised series
	average annual percentage change					
Personal expenditure on consumer goods and services	4.3	4.8	4.7	5.1	5.2	5.2
Government current expenditure on goods and services	6.1	6.4	6.3	4.0	4.2	5.7
Gross fixed capital formation[2]	3.5	4.7	4.8	6.0	6.8	6.3
Government	7.0	9.4	9.4	5.2	6.2	5.4
Business	2.8	3.7	3.8	6.3	6.9	6.5
Residential construction	1.1	3.6	3.5	4.6	4.9	5.2
Non-residential construction	5.1	5.8	6.1	3.7	5.5	4.9
Machinery and equipment	1.7	1.8	1.8	9.4	9.7	8.9
Exports of goods and services	4.2	4.2	4.2	9.5	9.6	9.5
Imports of goods and services	4.6	4.6	4.6	8.2	8.4	8.2
Gross National Expenditure at market prices	3.9	4.6	4.5	5.6	5.8	5.9

[1] Based on 1958 Brown Book *National Accounts, Income and Expenditure, 1926-1956,* and series compatible with this document.

[2] Previous estimates of government capital spending have been added to the old series to make comparisons meaningful.

In spite of the substantial revisions which have occurred in the rates of growth of the main aggregates and their components, the income and expenditure shares of Gross National Product show a relatively high degree of stability as between the "old" and "new" series. Table 2-5 sets out the comparisons for three selected years. In two cases where major changes in classification have occurred, adjustments have been made to maintain the essential comparability of the series, as indicated in footnotes 1 and 2 of Table 2-5.

TABLE 2-5. Selected Income and Expenditure components as a Proportion of Gross National Product, 1950, 1961, 1968

	1950		1961		1968	
	Old series (1958 Brown Book)	New revised series	Old series (1958 Brown Book)	New revised series	Old series (1958 Brown Book)	New revised series
	per cent of Gross National Product					
Selected income components:						
Wages, salaries and supplementary labour income	47.9	48.7	50.7	51.5	52.3	53.0
Corporation profits before taxes	14.0	14.1	9.1	10.3	8.7	10.7
Interest and miscellaneous investment income[1]	3.1	2.1	5.2	3.2	5.7	3.6
Accrued net income of farm operators from farm production	7.3	7.0	2.7	2.1	2.7	1.8
Net income of non-farm unincorporated business including rents[1]	9.9	10.2	8.0	8.2	6.4	6.6
Capital consumption allowances and miscellaneous valuation adjustments	10.6	10.1	12.1	12.3	10.8	11.4
Selected expenditure components:						
Personal expenditure on consumer goods and services	66.8	67.5	65.3	65.4	60.7	60.2
Government current expenditure on goods and services	9.8	10.4	15.2	15.7	15.4	17.5
Gross fixed capital formation[2]	21.9	20.9	21.8	21.2	23.3	21.7
Government	3.3	2.8	4.1	4.2	4.3	4.1
Business	18.6	18.1	17.7	16.9	18.9	17.6
Residential	4.9	5.2	3.9	4.5	4.2	4.5
Plant and equipment[3]	13.7	12.9	13.8	12.4	14.7	13.1

[1] Old estimates of rents have been deducted from the previously published series Rents, Interest and Miscellaneous Investment Income and have been added to previously published Net Income of Non-farm Unincorporated Business in order to bring the old series to a comparable basis with the new ones.

[2] Previous estimates of government capital spending have been added to the old series to make comparison meaningful.

[3] Non-residential construction plus machinery and equipment.

Changes in Concept and Definition

This section describes **definitional** changes in the Accounts – changes in concept, in definition, and in the classification of items which have been introduced in this new revised system of National Income and Expenditure Accounts. **Statistical** revisions, and alterations to the format or **structure** of the accounting framework considered as a set of "accounts", are taken up in later sections of this chapter.

The changes reviewed here, broadly defined as "**definitional**", reflect new developments since the 1958 Brown Book in social accounting, in statistical integration, in the general evolution of the Canadian system of National Accounts, and in the institutional arrangements of the economy. A particular effort has been made to eliminate differences between the Canadian Accounts and the United Nations System of National Accounts, except where distinctive institutional elements or fundamental differences in methods of data collection and presentation have made it inappropriate or impossible to do so. It will be clear from Tables 2-2 and 2-3 that these definitional changes have not been of a radical nature in terms of their overall impact on the Accounts. The broad conceptual and definitional framework as it was set out in the 1958 Brown Book still provides the basic anatomy of the system. The modifications described here do not alter its fundamental features.

The **definitional** changes which have been incorporated in the new National Income and Expenditure Accounts, arranged in approximate order of magnitude, are set out below. The quantitative effect of each of these changes on Gross National Product and Expenditure for the demonstration year1961[2] is also given. The overall numerical effect of these changes, taken as a whole, is summarized in the Appendix to this chapter, in the sequence in which they are described in the text. The Appendix, in turn, provides the underlying detail for the consolidated figures given in Tables 2-2 and 2-3.

Capital Formation

Gross fixed capital formation is now defined to include both government fixed capital (excluding defence outlays) and all transfer costs on the sale and purchase of existing fixed assets. Capital formation in inventories has been extended to cover changes in surplus war assets and in the inventories of government commodity agencies. The imputed rent on government-owned buildings has been dropped.

The treatment of government capital formation as part of the investment of a country conforms to recommended international practice and brings the measurement of investment and saving more closely into line with theoretically desirable concepts. Outlays for schools, hospitals, roads, harbours, airports and so forth add to the country's stock of capital assets, and these assets yield economic services over many years, even although such services do not form a part of the transactions of the market economy. The growing relative importance of government capital formation has heightened the need for this change. All government expenditures on new buildings and equipment (with the exclusion of defence construction and military equipment outlays which remain a current expenditure) are covered by the new definition.

The definition of capital has also been extended to include transfer costs in the form of commissions and fees on the sale or purchase of existing fixed assets by both business and government. These costs were previously considered as intermediate expenses not adding to the value of assets or to

[2] The year 1961 is used throughout this report as a "demonstration year" since it is not subject to further revision until the next major reference document is published some years from now.

production and were treated as a negative entry in capital consumption allowances and miscellaneous valuation adjustments in order to offset the income generated by the transaction and recorded in factor incomes. The new treatment has several advantages: it eliminates one of the differences between the saving derived in the Income and Expenditure Accounts and the Financial Flow Accounts; it conforms to international practice; and it brings the definition of capital closer to business accounting practices upon which estimates of capital formation, capital consumption, and profits are based.

The result of these first two changes on the Income and Expenditure tables is:

(a) to lower government expenditure on goods and services (defined as government current expenditure on goods and services in the new series) by the amount of government fixed capital formation, and to raise total gross fixed capital formation by a corresponding amount. ($1,457 million in 1961);[3]

(b) to raise capital consumption allowances and miscellaneous valuation adjustments on the income side of the Accounts (by eliminating the need for the negative entry) and to increase gross fixed capital formation on the expenditure side ($341 million in 1961).

The first change is entirely offsetting on the expenditure side of the Accounts and Gross National Product and Expenditure are not affected. The second change raises both the income and expenditure side of the Accounts and correspondingly increases Gross National Product and Expenditure.

The new definition of capital formation has also been broadened to cover changes in government-held inventories. These were previously classified as government expenditure on goods and services. The result of this modification is to remove from government expenditure on goods and services (defined as government **current** expenditure on goods and services in the new series) the value of the physical change in government-held inventories, and to incorporate this with the series "value of physical change in inventories" ($8 million in 1961). This change is entirely offsetting on the expenditure side and does not affect Gross National Product or Expenditure.

Although it would be technically desirable to include in Gross National Product an estimate of the value of the services yielded by government capital, an overall imputed return to government capital has not been estimated and the imputed rent on government-owned buildings has been dropped. This decision was prompted by the difficulties involved in deriving a series for the large part of government capital which has no counterpart in the market place and was reinforced by a similar recommendation in the United Nations System of National Accounts.

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[3] The **total** increase in government gross fixed capital formation shown in Table 2-3 is $1,674 million. This amount includes the adjustment for capital outlays of hospitals (+ $150 million), municipal waterworks (+ $74 million) and the Canadian Broadcasting Corporation (– $7 million), discussed in later sections and summarized in the Appendix to this chapter.

The effect of this decision is to reduce government expenditure on goods and services (defined as government **current** expenditure on goods and services in the new series) by the amount of imputed gross rent on government-owned buildings ($250 million in 1961). On the income side, the effect is to lower the estimates of miscellaneous investment income by the amount of the imputed rent on government-owned buildings ($150 million in 1961) and to lower capital consumption allowances by the amount of the estimated depreciation on government-owned buildings ($100 million in 1961). The change thus reduces both income and expenditure and lowers Gross National Product and Expenditure by $250 million in the year 1961.

Capital Consumption Allowances

Corresponding to the new treatment of government fixed capital outlays as a part of gross fixed capital formation, a parallel modification has been made to the definition of capital consumption allowances. These now include an estimate of depreciation on **all** government fixed assets. Previously, as noted above, a rather arbitrary estimate of depreciation on government buildings was prepared in connection with calculations of gross and net imputed rent on such buildings. With the development in the Bureau of capital stock estimates for government, it has now become possible to calculate depreciation on **all** government assets, on a replacement cost basis. This results in a sizable upward revision to the previous estimates of depreciation included in Gross National Product, raising capital consumption allowances on the income side of the Accounts, and government current expenditure on goods and services on the the expenditure side. Thus, the effect of this change in definition is to increase the level of Gross National Product and Expenditure. In 1961, the amount involved was $531 million.

Public Hospitals[4]

Public hospitals, including lay and religious hospitals mainly organized to meet local municipal needs, have been transferred from the personal to the government sector, beginning in 1961. In the old system of Accounts, public hospitals – defined as institutions not operating for profit and accepting all patients regardless of ability to pay – were treated as private non-profit institutions in the personal sector, irrespective of actual ownership. All final hospital expenditures in this category were regarded as outlays of "associations of individuals" and classified to personal expenditure on consumer goods and services. That portion of hospital expenses paid for by government on behalf of persons was shown as a current transfer from the government to the personal sector (included in "grants to private non-commercial institutions"). With the inception of hospital insurance, and particularly the universal application of the Hospital Insurance and Diagnostic Services Act in 1961, hospitals have increasingly come under the financial and operational control of government departments or agencies, with the purchase of hospital services mainly undertaken directly by government on behalf of individuals. As a

[4] The changes discussed here do not affect government-owned and operated special treatment hospitals such as mental hospitals, tuberculosis sanitaria, and veterans' hospitals. These have always been classified to the government sector, as part of the activities of "general government".

result, final expenditures on hospital services, from 1961 onward, have been shifted from personal expenditure on consumer goods and services to government current expenditure on goods and services in the main Gross National Expenditure table ($614 million in 1961). The capital formation of hospitals now appears as part of government gross fixed capital formation instead of business gross fixed capital formation in the Gross National Expenditure table ($150 million in 1961). These changes accord with the general principle that a purchase should be charged to the sector actually making the purchase. Since the changes are completely offsetting on the expenditure side, there is no effect on total Gross National Product or Expenditure.

The level of Personal Income has been lowered by this change of treatment from 1961 onward, since there is no longer a transfer payment recorded from the government sector to the personal sector on account of hospitals ($713 million in 1961). At the same time, personal expenditures have been reduced by what was formerly classified as personal expenditure on hospital services ($614 million in 1961). The effect on net personal saving is small. In the government sector, the results are reversed, with higher government current expenditures on goods and services largely balanced by the elimination of grants to hospitals as non-profit institutions. The resultant small change in government saving is offset by the change in the opposite direction in personal saving and the overall level of national saving is not affected.

It should be noted that some hospital expenses which are charged directly to patients or their agents, such as differential costs for preferred accommodation, continue to be treated as an item of personal expenditure on consumer goods and services. In addition, privately owned profit-oriented hospitals remain in the business sector.

The introduction of this changed treatment at the year 1961 will cause some breaks in series; to assist the users, income and expenditure figures for hospitals are shown separately in the government supplementary tables (Tables 43 to 52).

Employer and Employee Contributions to Social Insurance and Public Service Pensions

In the personal sector, employer and employee contributions to social insurance and public service pensions are now treated as a transfer payment (tax outlay) from persons to government, instead of as a deduction from Personal Income. The new treatment yields more appropriate estimates of Personal Income and conforms to international practice. Personal Disposable Income is unaffected, with Personal Income and transfers from persons to government (tax outlays) rising equally. The amount involved in 1961 is $673 million. Gross National Product and Expenditure are not affected.

Net Rental Income of Persons

Net rental income of persons, formerly classified with interest and miscellaneous investment income, is now included with the net income of non-farm unincorporated business. This conforms to the treatment

recommended in the United Nations System of National Accounts, and consolidates all forms of income from non-farm unincorporated business activity in a single category. The amount involved in 1961 is $1,057 million. Since the changes are offsetting on the income side, Gross National Product and Expenditure are not affected.

Government Investment Income

In the government sector account, government investment income now includes, from 1949 onward, only the **remitted** profits of government business enterprises, instead of total profits.[5] The remitted portion is treated as being analogous to the dividend distribution of corporate profits, with unremitted profits remaining in the saving of the corporate and government business enterprise sector. The treatment conforms to that recommended in the United Nations System of National Accounts. The unremitted portion in 1961 amounted to $111 million. Gross National Product and Expenditure are not affected by these changes, but government sector saving is reduced by the unremitted portion and the saving of the corporate and government business enterprise sector is increased correspondingly.

Government Income from Resource Royalties

Government income from resource royalties has been redefined as investment income instead of indirect taxes, beginning with the year 1947. An examination of government revenue from royalties indicates that an overwhelming proportion of this income arises because of government ownership of property rather than by virtue of powers of taxation. The decision was taken to include all resource royalties, including a small amount of indirect taxes, in the miscellaneous investment income component, with a separation to be made later should the indirect tax portion become significantly larger. The amount involved in 1961 is $154 million. Since the changes are offsetting on the income side of the Accounts, Gross National Product and Expenditure are not affected.

Profits of Provincial Liquor Control Boards

Profits of provincial liquor control boards have been reclassified from government investment income to indirect taxes. Such profits are more closely akin to taxation than to income from commercial activities.[6] The amount involved in 1961 is $188 million. Since the changes are offsetting on the income side of the Accounts, Gross National Product and Expenditure are not affected.

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[5] It was possible to make the separation of remitted profits from total profits only from 1949 onward.

[6] While the profits of provincial liquor control boards are now treated as indirect taxes, the factor incomes generated by the activities of the boards are regarded as originating in the corporate and government business enterprises sector, and are classified to retail trade in the industrial distribution of Gross Domestic Product.

Scrap and Salvage Allowances on Used Machinery and Equipment including Commercial Vehicles and Ships

Scrap and salvage allowances on used machinery and equipment sold by businesses in domestic or export markets (and recorded explicitly or implicitly in final expenditures) were formerly balanced, on the income side of the Accounts, by a positive entry under capital consumption allowances and miscellaneous valuation adjustments. This treatment had the effect of including in Gross National Product certain sales of used equipment which were in no way related to the measurement of current production.

Under the new treatment, the entry under capital consumption allowances and miscellaneous valuation adjustments is eliminated, and a negative entry is recorded on the expenditure side under business gross fixed capital formation to reflect this dis-investment. The amount involved in 1961 was $158 million. Gross National Product and Expenditure are correspondingly reduced.

Withholding Taxes

Withholding taxes are now treated as a transfer payment (tax outlay) from the non-resident sector to the government sector.

Previously, interest and dividend payments to non-residents were included on the expenditure side of the Accounts as a component of "imports of goods and services" **net** of withholding taxes. They were included, on the income side, as a negative entry in miscellaneous investment income, but on a **gross** basis. Withholding taxes were then included as a positive component of investment income. This had the effect of treating withholding taxes as a return to Canadian factors of production.

The new treatment of including withholding taxes with payments to non-residents (in imports of goods and services) accurately measures the factor incomes attributable to non-residents and eliminates the need for the plus entry in investment income which incorrectly assigned withholding taxes to Canadian factor incomes. The amount involved in 1961 is $116 million. The effect is to reduce both the income side (miscellaneous investment income) and the expenditure side (raising imports of goods and services, a negative entry) by the amount of withholding taxes. Gross National Product and Expenditure are reduced correspondingly.

Other Transfers to and from Non-residents

As noted, the new sector system makes provision for transfer payments in the non-residents sector accounts. In addition to an improved treatment of withholding taxes, this permits an improved treatment of various other items of a transfer payment nature which could not be handled in a satisfactory way in the old system of Accounts – principally government official contributions, pension payments and receipts, and other personal and institutional remittances to and from abroad.

In the former system of Accounts, official contributions[7] from government to non-residents, and pensions paid abroad were entered in Gross National Expenditure in two places: in government expenditure on goods and services (positive entry); and in imports of goods and services (negative entry). The two sets of transactions were offsetting and Gross National Expenditure was not affected. In principle, this practice meant that the transactions were being effectively defined as transfer payments. But there was no provision in the sector system for treating the transactions as transfer flows from the government sector to the non-resident sector.

Under the new treatment, official contributions ($56 million in 1961) and pensions paid abroad ($21 million in 1961) are eliminated from the two components of the Gross National Expenditure in which they were formerly entered. Again, there is no effect on the Gross National Expenditure since the original entries were offsetting. However, the entries now appear in the sector accounts as current transfers from government to non-residents (Tables 17 and 24).

Under the old system of Accounts, personal and institutional remittances paid abroad were included in personal expenditure on consumer goods and services (positive entry) and in imports of goods and services (negative entry) in the Gross National Expenditure table. The entry in personal expenditure was made simply to provide an offset to the entry in imports of goods and services so that Gross National Product and Expenditure would not be influenced by current transfers taking place between the personal and non-resident sectors which were not associated in any way with the measurement of productive activity. In the same fashion, remittances received from abroad were deducted from personal expenditure[8] to offset the positive entry in exports of goods and services in the Gross National Expenditure table.

Under the new treatment, these transactions are eliminated and no entries are made to cover personal and institutional remittances to and from abroad in the main Gross National Expenditure table. The entries now appear only in the personal and non-resident sector tables as current transfers (Tables 12, 13, 24 and 25). The amounts involved in 1961 were $99 million for remittances paid abroad, and $60 million for remittances received from abroad. Gross National Product and Expenditure are not affected by the change in treatment.

All transactions relating to official contributions, pensions paid and received and remittances to and from abroad constitute a part of the reconciliation of the official current account Balance of Payments with the surplus or deficit position on transactions with non-residents as recorded in the Gross National Expenditure table.

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[7] This discussion refers to the treatment of "official contributions" only from the year 1949 onwards. During the war and the early post-war period, official contributions included heavy shipments of government-financed goods under mutual aid, UNRRA, and military relief arrangements (*National Accounts, Income and Expenditure, 1926-1956,* Table 55, footnote 2). These items were given special treatment in the Accounts, as indicated in Chapter 6.

[8] In the old system, this adjustment should have included pensions received from abroad, but these were inadvertently omitted.

Bad Debts

The amounts charged by businesses in respect of bad debts, net of recoveries, enter into the market prices of goods and services but were not included in factor incomes in the earlier system of Accounts. To achieve balance, bad debts were treated as a valuation adjustment on the income side and included as a positive entry in the item "capital consumption allowances and miscellaneous valuation adjustments".

In the new system, three changes have been made to this treatment:

(a) Bad debts owed by persons to corporations and written off in company books are shifted from miscellaneous valuation adjustments to corporation profits. The amount involved in 1961 was $26 million. Since the changes are offsetting on the income side, Gross National Product and Expenditure are not affected.

(b) At the same time, in the sector accounts, bad debts owed by persons to corporations are treated as a transfer payment from the corporate and government business enterprise sector to the persons and unincorporated business sector. The effect of this change is to eliminate an element of over-statement in business saving and to correct for an element of under-statement in personal saving (Tables 12 and 21).

(c) Bad debts owed by persons to unincorporated businesses and written off are also shifted from miscellaneous valuation adjustments to net income of non-farm unincorporated business. The amount involved in 1961 was $12 million. Gross National Product and Expenditure are not affected, nor are the savings figures affected since persons and unincorporated businesses are consolidated in a single sector in the sectoring system.

The changes in treatment noted above are in conformity with the United Nations System of National Accounts. They also bring the figures of saving and investment in the National Income and Expenditure Accounts into closer agreement with the requirements of the Flow of Funds system.

Interest on Consumer Debt

No change has been made in the treatment of this item in the main GNP-GNE tables. In other words, only the "productive" or "service" portion of interest on consumer debt is included in National Income and GNP-GNE, and the non-productive portion continues to be treated as a transfer payment, as in the former system of Accounts (see discussion in Chapter 3).

In the new system of Accounts, an explicit entry is made in the sector tables to show the non-productive portion of consumer debt as a current transfer from the personal sector to the corporate and government business enterprise sector (Tables 13 and 20). The amount involved in 1961 is $130 million. There is no effect on Gross National Product or Expenditure.

At the same time, under this new treatment, a corresponding adjustment is made to raise the outlays of interest, dividends, and miscellaneous investment income payments from the corporate sector to the personal sector. As a result, the new treatment, considered in all its aspects, has no effect on the levels of personal or business saving.

Municipal Waterworks

Municipal waterworks have been reclassified from government business enterprises to general government. The change in classification is based partly on the fact that one of the criteria defining a government business enterprise – the freedom of the customer to purchase or not to purchase the service – is missing. Ordinarily, home owners are obliged to connect to the public system. Also, the rates charged are generally designed to cover operating expenses only, and not the cost of the capital installation. Finally, waterworks operations are being increasingly regarded as a part of general municipal departmental administration, creating great difficulty in obtaining separate operating statistics.

In the former system of Accounts, water charges (including both water rates and water frontage taxes) were treated as an item of personal expenditure on consumer goods and services. The balancing entries on the income side were wages and salaries and government investment income (the latter representing the operating surplus or deficit).

In the new treatment, water frontage taxes are defined as indirect taxes. Wages and salaries and indirect taxes on the income side are balanced by entries in government current expenditure on goods and services, and personal expenditure on consumer goods and services. Water rates are included in personal expenditure, but deducted (as a refund against expenditure) from government current expenditure on goods and services. The overall effect is to reduce Gross National Product and Expenditure in 1961 by $17 million (see Appendix to this chapter).

In line with the reclassification to general government, capital expenditures on waterworks are shifted from gross fixed capital formation of business to gross fixed capital formation of government. Gross National Expenditure is not affected by this shift. The amount involved in 1961 is $74 million.

Canadian Broadcasting Corporation

The Canadian Broadcasting Corporation has been reclassified from general government to government business enterprises, from 1959 onward. When the Canadian Broadcasting Corporation was originally established, it was both a regulatory agency and a broadcasting agency. Because of its regulatory functions, its activities were assigned to general government. In November 1958, the regulatory functions were assumed by the Board of Broadcast Governors, and subsequently by the Canadian Radio-Television Commission. With these developments, the CBC's role became less that of a regulatory arm of government and more that of a government business enterprise with a substantial part of its earnings derived from the sale of comercial services. This change in function is now recognized.

Previously, the incomes generated by the activities of the CBC on the income side were balanced on the expenditure side by government expenditure on goods and services. A deduction was made from government expenditure to adjust for sales (i.e., commercial revenues) made by the CBC which were implicitly included in personal expenditure on consumer goods and services.

Under the new treatment of the CBC as a government business enterprise, an entry is made in investment income to cover the operating profit or loss of the corporation, and grants from the government to the corporation are classified as subsidies. The net effect of the change in treatment is to reduce Gross National Product and Expenditure by some $70 million in 1961 (see Appendix to this chapter).

In keeping with this change, capital expenditures of the CBC are shifted from capital formation of government to capital formation of business. Gross National Expenditure is not affected by this shift. The amount involved in 1961 is $7 million.

Investment Income of Trusteed Pension Plans

Investment income of trusteed pension plans covering government employees has been reclassified to personal investment income.

Previously the investment income of these plans was classified to government investment income, while that of trusteed plans for employees of businesses was classified to the investment income of persons. However, one of the attributes of trusteed pension plans is that the employer does not have control over the disposition of the assets of the fund. For this reason, the classification change was introduced. All trusteed pension plans are now included in the personal sector.

The changes are entirely offsetting within the category of interest and miscellaneous investment income, and Gross National Product and Expenditure are not affected. However, there is an effect on the sectoral distribution involving a shift of investment income from the government sector to the personal sector. Investment income of non-trusteed pension plans of government employees remains in the government sector.

Employer Contributions to Pensions of Armed Forces

Employer contributions to the pensions of armed forces personnel have been reclassified from wages, salaries and supplementary labour income to military pay and allowances. This corrects an anomaly which has existed in the Accounts for some years. In 1961, the amount involved was $60 million. Gross National Product and Expenditure are not affected.

Statistical Revisions

In Tables 2-2 and 2-3, the definitional changes which have been incorporated in the new system of Accounts are distinguished from those changes which have come about as a result of statistical revisions, for the demonstration year 1961. As the tables indicate, the statistical revisions account for around 90% of the total numerical change in the GNP-GNE estimates. The definitional changes are individually quite large, but understandably tend to be offsetting. In 1961, the statistical revisions resulted in an increase of $1.9 billion to Gross National Product, equal to about 5% of the previously published figure.

On the income side of the Accounts, the largest statistical revisions occurred in three components: wages, salaries and supplementary labour income; corporation profits before taxes; and capital consumption allowances. On the expenditure side, the total statistical revision to Gross National Expenditure was more than accounted for by the revision to personal expenditure on consumer goods and services.

Reference is made in the following section only to the **major** statistical changes in component series. In order to keep the narrative keyed to Tables 2-2 and 2-3, all figures cited are for the year 1961. The year 1961 is used throughout this report as a "demonstration year" since it is not subject to further revision until the next major reference document is published some years from now.

Wages, Salaries and Supplementary Labour Income

Statistical revisions result in an increase of 7.7% or $1,463 million in the level of wages, salaries and supplementary labour income estimates for 1961 (Table 2-2). These changes reflect the incorporation of benchmark data from the 1961 Population Census and other new sources of information.

Apart from the 1961 Census, a major new source of information is the tabulation of wages and salaries from "T4" forms submitted by employers with respect to employees' earnings, undertaken by the Department of National Revenue in connection with the administration of the Canada Pension Plan. This new tabulation is very comprehensive and closely approximates the total of wages and salaries as required for National Accounting purposes.

A comparison of this new material with the traditionally derived information has revealed considerable under-coverage in the data for items such as taxable allowances and executive salaries and bonuses. Adjustments have been made to existing estimates to take this into account, from 1961 onward.

Another major change in source data has been the use of recently developed employment aggregates based on surveys of both large and small establishments, combined with average weekly earnings of the larger establishments. These data have been used in the preparation of benchmarks for some industry groups, and also as projectors of annual data.

Capital Consumption Allowances

Ideally, estimates of consumption of fixed capital should take into account the cost of replacing the assets in the period for which the estimates are being made. This "replacement cost" approach is widely recognized as being the relevant concept for estimating **net** capital formation. In fact, however, there are great practical difficulties involved in obtaining values which reflect the true "replacement cost" of maintaining capital intact – of valuing the actual wear and tear and obsolescence of physical assets in terms which reflect current replacement cost. Mainly for this reason, this "replacement cost" approach is not adopted in the Canadian Accounts in calculating capital consumption of business fixed assets.

Business accounting practice, in calculating net profits, typically employs an "original cost" concept of depreciation. This approach aims at maintaining the money value of original capital intact, allocating the original cost over the expected economic life of the asset. The estimate of net profit, based on original cost "book depreciation", influences and guides much business decision-making.

In the previously published Accounts, estimates of capital consumption allowances were based on tabulations of capital cost allowances reported in income tax returns to the Department of National Revenue. For part of the post-war period, this was reasonably close to the "book depreciation" concept employed by businesses for calculating book profits. However, capital consumption allowances as reported for income tax purposes may be heavily affected by taxation legislation. Where this happens, the figures reported for income tax purpose can differ significantly from "book depreciation" based on a company's records and accounting procedures. The liberalization of capital cost allowances in the 1960's, which reflected changing government fiscal policies, did in fact result in very major differences between capital cost allowances as reported in income tax records and company "book depreciation" in that period.

In the new system of Accounts, capital consumption allowances have been revised to reflect "book depreciation". The change to a "book depreciation" basis was made possible by the availability of tabulations from the Corporations and Labour Unions Returns Act Administration (CALURA) Division of Statistics Canada, which provided benchmark values for 1966, and by quarterly surveys of financial statements which provided the basis for the interpolation and projection of the estimates. The estimates have been revised back to 1951. Book depreciation and capital cost allowances were almost identical prior to 1951.

The effect of this revision is to reduce capital consumption allowances for corporations, and to increase corporation net profits before taxes by an equal amount. In 1961, the downward adjustment to capital consumption allowances occasioned by this change was $207 million.

Corporation Profits Before Taxes

In percentage terms, corporation profits show the largest statistical revision among the major components of Gross National Product, an increase of $613 million or 17.8% over the "old" published figure for the year 1961. A considerable part of this increase, $207 million, is due to the previously noted downward revision in the capital consumption allowance estimate for corporations. (Corporation profits measured for Gross National Product are net of capital consumption allowances, and any change in the latter has an opposite effect on profits.) The remainder of the upward revision to profits, $406 million, reflects changes in data arising out of new information to which access became available under the Corporations and Labour Unions Returns Act.

Personal Expenditure on Consumer Goods and Services

The estimates of personal expenditure on consumer goods and services have undergone very major revisions since the old Brown Book series. Not only have there been statistical revisions and definitional changes which have

affected the total, but the whole internal structure of the personal expenditure estimates has been re-arranged. Three types of revisions have therefore been involved, as summarized in Table 2-6:

(a) statistical revisions resulting from availability of new primary data, which have raised total personal expenditure on consumer goods and services by $2,117 million, or 8.7% in 1961 (Table 2-6);

(b) definitional changes, which in 1961 have resulted in a shift of $653 million out of personal expenditure and into other categories of Gross National Expenditure (these are discussed in the preceding section of this chapter);

(c) re-arrangements of component detail within the structure of personal expenditure which has created a new sub-category for "semi-durable" goods and shifted many items out of categories formerly defined as "durables", "non-durables" and "services".

TABLE 2-6. Revisions to Components of Personal Expenditure on Consumer Goods and Services, 1961

	Old series (1958 Brown Book) (1)	Interim series (1969 Green Book) (2)	New revised series (3)	Final revisions (4)(3 - 1)
	millions of dollars			
Durable goods	2,716	3,083	3,365	+ 649
Semi-durable goods	–	2,892	3,698	+ 3,698
Non-durable goods	12,178	9,805	9,220	– 2,958
Total goods	**14,894**	**15,780**	**16,283**	**+ 1,389**
Services	9,572	9,340	9,647	+ 75
Total personal expenditure on consumer goods and services	**24,466**	**25,120**	**25,930**	**+ 1,464**
Of which "definitional change" equals				– 653[1]
Total "statistical" revision				**+ 2,117**

[1] Made up of the shift of outlays of public hospitals from personal expenditure to government expenditure ($614 million in 1961), and the net adjustment for personal and institutional remittances to and from abroad.

In Table 2-6, the large revisions in the main categories of total personal expenditure on consumer goods and services reflect both statistical revisions and the re-grouping of component detail. For the most part, this latter type of change has resulted from the introduction of a new category for "semi-durables" and the elimination of many items from the non-durable goods group. However, there have also been changes in the classification of durables and of some services. A more complete discussion of the nature of the new classification system is given in Chapter 14, "Notes on Auxiliary Tables". The statistical estimates are set out in Table 53.

It should also be noted in Table 2-6 that the relatively small revision of $75 million shown for services under-states the actual size of the statistical revision which has occurred in this group. This is because the so-called "definitional" changes to the total estimates of personal expenditure occurred entirely in the service group and the total revision to the service category of $75 million reflects this reduction of $653 million. In other words, the "non-definitional" revisions – mainly statistical revisions – amount to $728 million for services.

Turning to the statistical revisions for all personal expenditure on consumer goods and services (amounting to $2,117 million in 1961), the major source has been the availability of new data from the 1961 and 1966 Censuses of Merchandising. This has resulted in upward revisions to many categories of personal expenditure. In addition, information from periodic Family Expenditure Surveys has been used to good effect in re-working the estimates. New data on university expenditures and expenditures of welfare and religious institutions have also been incorporated in the revised estimates.[9] And finally, a number of new, relatively small elements of consumer spending previously not taken account of have been introduced into the estimates for the first time.

Other Statistical Revisions in Current Dollar Estimates

In general, the other statistical revisions in the current dollar estimates have resulted from the incorporation of new benchmarks, particularly the 1961 and 1966 Censuses; the incorporation of new series which have become available since the last basic revision of the Accounts in 1958; and the introduction of improved methods of calculation for some series. In addition, the opportunity has been taken to correct minor errors and inconsistencies which have come to light over the years and which, to avoid statistical breaks, were postponed until this major revision.

Changes in the Structure of the Accounting Framework

A major new feature of the present report is a re-designed structure of the accounting framework. The statistical revision program has provided an opportunity for undertaking a basic review of the structure of the system.

In re-designing the framework of the Accounts, an attempt has been made to accommodate several objectives:

(a) to accord more closely to international practice and particularly to move closer to the presentation recommended in the United Nations System of National Accounts;

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[9] Non-commercial institutions are treated as associations of individuals in the National Accounts and these expenditures are included with personal expenditure on consumer goods and services.

(b) to provide an income and expenditure account for each of the four main sectors of the economy: persons and unincorporated businesses; governments; corporate and government business enterprises; and non-residents. In the previous system of Accounts, no income and expenditure account existed for the corporate and government business enterprise sector;

(c) to provide capital finance accounts (or saving and investment accounts) for each of the four main sectors of the economy and thereby to facilitate the linkage to the system of financial flow accounts. There were no capital finance accounts for sectors in the previous system of Accounts;

(d) to provide, as a central part of the sector analysis, a consolidated Gross Domestic Product account within which both the sector accounts and industrial production statistics can be more readily accommodated;

(e) to extend the information available in the system.

The changes which have been made in the design of the Accounts do in fact move the system closer to that recommended by the United Nations. The introduction of an income and expenditure account for the corporate and government business enterprise sector now makes the presentation of the sector accounts symmetrical, as in the United Nations system. The creation of capital finance accounts for each sector to show saving-investment relationships is in line with the U.N. recommendations. And the greater emphasis now given to the concept of Gross Domestic Product in the Canadian Accounts accords more closely to the U.N. system where the entire structure of the Accounts is built around the concept of Gross Domestic Product.

The creation of capital finance accounts for each sector flows naturally out of the sector system of income and expenditure accounts. In this system, the "saving" of each sector derived from its income and expenditure account is carried over to a "source and disposition of saving" account. This latter account shows the source of the sector's total saving, the use which is made of this saving to finance capital investment in fixed assets or inventories, and the net lending or borrowing in which the sector was involved depending upon whether its saving was surplus or inadequate to its needs. The net lending or borrowing position, in turn, provides the link to the Financial Flow system of statistics[10] and facilitates the integration, for analytical purposes, of this Financial Flow information with the National Income and Expenditure Accounts. The inter-connections between these two sets of economic statistics is described in greater detail in Chapter 12 "The System of National Accounts: Linkages from Income and Expenditure Accounts to Other Parts of the System".

The creation of a new Gross Domestic Product account as a central part of the statistical framework provides a main reference feature to which industrial data can be more readily reconciled than to Gross National Product

[10] *Financial Flow Accounts*, Catalogue 13-002, Statistics Canada.

(for example, the Gross Domestic Product by Industry data in Table 28), and within which the system of sector accounts can be fitted. The sector accounts can in fact be consolidated to yield the basic production account represented by Tables 8 and 9. Thus, there is now a closer structural link within the framework of the Accounts between industrial product statistics and the basic institutional information provided by the sector system. Again, this matter is discussed more fully in Chapter 12.

Finally, these new features of the system, while fulfilling a variety of objectives, also extend the amount of information contained in the Accounts. The new income and expenditure account for the corporate and government business enterprise sector, the four new capital finance accounts, and the new consolidated production account are all examples of areas where additional information is now made available. In addition, as noted earlier, detail of the revenue and expenditure transactions of hospitals and the Canada and Quebec Pension Plans is now given in the government sector supplementary tables (Tables 43 to 52). In a number of the tables, the footnotes have been extended to provide additional information relevant to the needs of users.

A Break in Continuity, 1946-47

The initial "Green Book" revision published in *National Income and Expenditure Accounts, 1926-68* (August 1969) covered the entire span of years back to 1926 and incorporated conceptual and definitional changes, changes in the structure of the Accounts, and large-scale statistical revisions. This constituted a basic, major overhaul of the system. The second and "final" stage of the revision process dealt only with supplementary statistical revisions necessitated by the emergence of some new information (including the 1966 Census) and was carried out only for the period 1947 to the present. Because these second-stage statistical revisions were not carried back into the earlier 1926-46 period, there is a statistical break or discontinuity in the series between the years 1946 and 1947. The user should be aware of this fact.

The decision to leave the 1926-46 series as published in the "Green Book" and to incorporate second-stage statistical information only for the period 1947 to the present was made in the interests of bringing the revision process (which had already involved several years of work) to an early conclusion. To have re-worked the series back to 1926 a second time would have involved a further substantial delay in publication, the deferral of work on up-dating the quarterly estimates for the current period, and continuing inconvenience to users of the Accounts. On balance, it seemed preferable to allow the record to stand with a break in continuity between the juncture years 1946 and 1947.

The nature of this discontinuity and its relative size may be seen from an examination of Table 2-7. Virtually all of the discontinuity is concentrated in two series – wages, salaries and supplementary labour income, and personal expenditure on consumer goods and services. It is in these two series that the bulk of the second-stage revisions are to be found in the overlap year 1947 (see Table 2-7).

TABLE 2-7. Effect of Statistical Break on Gross National Product and Expenditure Series

	1926	1946	1947	1968	1926-46	1946-47	1947-68
	millions of dollars				per cent		
Wages, salaries and supplementary labour income:							
"Green Book" revisions	2,366	5,487	6,390	38,493			
Average annual percentage change					4.3		8.9
Per cent change						16.5	
"Final" revision	2,366	5,487	6,662	38,444			
Average annual percentage change					4.3		8.7
Per cent change						21.4	
Personal expenditure on consumer goods and services:							
"Green Book" revisions	3,508	8,012	9,054	42,360			
Average annual percentage change					4.2		7.6
Per cent change						13.0	
"Final" revision	3,508	8,012	9,362	43,704			
Average annual percentage change					4.2		7.6
Per cent change						16.8	
Gross National Product at market prices:							
"Green Book" revisions	5,146	11,885	13,169	71,454			
Average annual percentage change					4.3		8.4
Per cent change						10.8	
"Final" revision	5,146	11,885	13,473	72,586			
Average annual percentage change					4.3		8.3
Per cent change						13.4	

APPENDIX TO CHAPTER 2

Summary of Definitional Changes as described in the Text for the Demonstration Year 1961

	Definitional change	
	Within GNP or GNE	To GNP or GNE
	millions of dollars	
Capital formation:		
1. Government current expenditure on goods and services	− 1,457	
2. Government gross fixed capital formation	+ 1,457	
3. Business gross fixed capital formation		+ 341
4. Capital consumption allowances and miscellaneous valuation adjustment		+ 341
5. Government current expenditure on goods and services	− 8	
6. Value of physical change in government inventories	+ 8	
7. Government current expenditure on goods and services		− 250
8. Interest and miscellaneous investment income		− 150
9. Capital consumption allowances and miscellaneous valuation adjustment		− 100
Capital consumption allowances:		
10. Capital consumption allowances and miscellaneous valuation adjustment		+ 531
11. Government current expenditure on goods and services		+ 531
Public hospitals:		
12. Personal expenditure on consumer goods and services	− 614	
13. Government current expenditure on goods and services	+ 614	
14. Business gross fixed capital formation	− 150	
15. Government gross fixed capital formation	+ 150	
Employer and employee contributions to social insurance and public service pension plans		
Net rental income of persons:		
16. Interest and miscellaneous investment income	− 1,057	
17. Net income of non-farm unincorporated business	+ 1,057	
Government investment income	−	
Government income from resource royalties:		
18. Interest and miscellaneous investment income	+ 154	
19. Indirect taxes less subsidies	− 154	
Profits of provincial liquor control boards:		
20. Interest and miscellaneous investment income	− 188	
21. Indirect taxes less subsidies	+ 188	
Scrap and salvage allowances on used machinery and equipment:		
22. Capital consumption allowances and miscellaneous valuation adjustment		− 158
23. Business gross fixed capital formation		− 158
Withholding taxes:		
24. Interest and miscellaneous investment income		− 116
25. Imports of goods and services		(+)− 116

Summary of Definitional Changes as described in the Text for the Demonstration Year 1961 – Concluded

	Definitional change	
	Within GNP or GNE	To GNP or GNE
	millions of dollars	
Other transfers to and from non-residents:		
26. Government current expenditure on goods and services	−77	
27. Imports of goods and services	(−) −77	
28. Personal expenditure on consumer goods and services	−99	
29. Imports of goods and services	(−) −99	
30. Personal expenditure on consumer goods and services	+60	
31. Exports of goods and services	−60	
Bad debts:		
32. Capital consumption allowances and miscellaneous valuation adjustment	−26	
33. Corporation profits before taxes	+26	
34. Capital consumption allowances and miscellaneous valuation adjustment	−12	
35. Net income of non-farm unincorporated business	+12	
Interest on consumer debt	−	−
Municipal waterworks:		
36. Government current expenditure on goods and services		−17
37. Indirect taxes less subsidies		+55
38. Interest and miscellaneous investment income		−72
39. Business gross fixed capital formation	−74	
40. Government gross fixed capital information	+74	
Canadian Broadcasting Corporation:		
41. Government current expenditure on goods and services		−70
42. Interest and miscellaneous investment income		− 4
43. Indirect taxes less subsidies		(+) −66
44. Business gross fixed capital formation	+ 7	
45. Government gross fixed capital formation	− 7	
Investment income of trusteed pension plans	−	−
Employer contributions to pensions of Armed Forces:		
46. Wages, salaries and supplementary labour income	−60	
47. Military pay and allowances	+60	

Note: Double sign (+) indicates increase in a negative entry; (−) indicates decrease in a negative entry.

Summary of Definitional Changes, GNP 1961

	Definitional change			
	Within GNP		To GNP	
Wages, salaries and supplementary labour income	(line 46)	– 60		
Military pay and allowances	(line 47)	+ 60		
Corporation profits before taxes	(line 33)	+ 26		
Deduct: Dividends paid to non-residents		nil	nil	
Interest and miscellaneous investment income	(line 16)	– 1,057	– 150	(line 8)
			– 116	(line 24)
	(line 18)	+ 154	– 72	(line 38)
	(line 20)	– 188	– 4	(line 42)
		– 1,091	– 342	
Accrued net income of farm operators		nil	nil	
Net income of non-farm unincorporated business	(line 17)	+ 1,057		
	(line 35)	+ 12		
		+ 1,069		
Inventory valuation adjustment		nil	nil	
Net National Income		+ 4	– 342	
Indirect taxes less subsidies	(line 19)	– 154	– 66	(line 43)
	(line 21)	+ 188	+ 55	(line 37)
		+ 34	– 11	
Capital consumption allowances and miscellaneous valuation adjustment	(line 32)	– 26	+ 341	(line 4)
	(line 34)	– 12	– 100	(line 9)
			+ 531	(line 10)
			– 158	(line 22)
		– 38	+ 614	
Residual error		nil	nil	
Gross National Product at market prices		–	261	

Summary of Definitional Changes, GNE, 1961

	Definitional change			
	Within GNE		To GNE	
Personal expenditure on consumer goods and services	(line 12)	– 614		
	(line 28)	– 99		
	(line 30)	+ 60		
		– 653		
Government current expenditure on goods and services	(line 1)	– 1,457	– 250	(line 7)
	(line 5)	– 8	+ 531	(line 11)
	(line 13)	+ 614	– 17	(line 36)
	(line 26)	– 77	– 70	(line 41)
		– 928	+ 194	
Government gross fixed capital formation	(line 2)	+ 1,457		
	(line 15)	+ 150		
	(line 40)	+ 74		
	(line 45)	– 7		
		+ 1,674		
Business gross fixed capital formation	(line 14)	– 150	+ 341	(line 3)
	(line 39)	– 74	– 158	(line 23)
	(line 44)	+ 7		
		– 217	+ 183	
Value of physical change in inventories	(line 6)	+ 8		
Value of physical change in non-farm business inventories		nil	nil	
Value of physical change in farm inventories and GICC		nil	nil	
Exports of goods and services	(line 31)	– 60		
Imports of goods and services	(line 27)	+ 77	– 116	(line 25)
	(line 29)	+ 99		
		+ 176		
Residual error		nil	nil	
Gross National Expenditure		–	261	

CHAPTER 3

THE CONCEPTUAL FRAMEWORK OF THE NATIONAL INCOME AND EXPENDITURE ACCOUNTS

> *"The method of modern economic investigation is the same as the method of all science. Economics studies facts and seeks to arrange the facts in such ways as make it possible to draw conclusions from them. As always, it is the arrangement which is the delicate operation. Facts, arranged in the right way, speak for themselves; unarranged, they are dead as mutton."*[1]

This chapter reviews the central concepts underlying the National Income and Expenditure Accounts. It describes the general principles of classification which are used to translate these concepts into an operational set of statistics, and it provides a summary of definitions covering the main statistical aggregates. Its aim is to give an overall view of the theoretical framework behind the Accounts. The themes of the chapter are therefore fairly broad, dealing with principles and fundamentals rather than with particularities and specifics. Later chapters of the report will elaborate on these basic ideas where they apply to particular areas of the system. The sources and methods involved in preparing the statistical estimates are not taken up in this chapter, but are described in Chapters 5, 6, 7 and 8.

The conceptual framework of the Accounts has its origin in economic theory. The central concepts of production, the factors of production, income of the factors of production (national income), consumption, capital formation, and saving are basic and fundamental ideas in the literature of economics. The translation of these ideas into a system of economic statistics which can be used in an operational way to describe and explain the functioning of the economic system is the objective of national income accounting.

In constructing a set of National Income and Expenditure Accounts to fit these central concepts, it is necessary to re-arrange, classify, compress and summarizethe multitudinous detail of transactions which make up the Nation's economic life. Not only must millions of individual economic transactions be condensed and reduced to manageable summary terms, but these transactions must be sorted out and classified according to some logical system of arrangement in which economic activities of an essentially similar nature (from an economic point of view) are grouped according to their particular economic characteristics. Classification, which seeks to arrange observational data according to recognizable uniformities and common characteristics, is fundamental to the quantitative study of any phenomenon, whether in the social or physical sciences. It forms the essential basis of all scientific generalization.

Throughout this report the reader will encounter terms relating to particular classes of economic activity (or particular types of economic transactions) such as: "personal expenditure on consumer goods and services",

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[1] J.R. Hicks, A.G. Hart and J.W. Ford, *The Social Framework of the American Economy*, Oxford University Press, New York, 1955, p.5.

"government current expenditure on goods and services", "gross fixed capital formation", "wages and salaries", "corporation profits", "investment income", "net income of unincorporated businesses", "transfer payments", "subsidies", "direct taxes", and "indirect taxes". Each of these terms can be uniquely defined according to a particular set of criteria which distinguishes this particular class of activity from other types of economic activity. All of these various forms of economic activity (or groups of transactions) are encompassed within a unified conceptual framework which is keyed to and built around the central concept of "economic production".

Economic Production

At the heart of the system of Accounts is the concept of "economic production". Gross National Product and Gross National Expenditure (Tables 1 and 2 of Vol. 1) are designed explicitly to measure the value of the Nation's total production of goods and services. But, in arriving at this total, these tables also provide a statistical picture of the structure and functioning of the economy – of the composition and use of the Nation's production, and of the various types of income which are generated in the course of producing it. Going a stage further, the broad income and expenditure estimates of Tables 1 and 2 can be further broken down to show how the various sectors of the economy (the business sector, the personal sector, the government sector and the non-resident sector), interact in their transactions with one another to produce this output, as described in Chapters 4 to 8. In other words, beginning from the basic concept of production, it is possible to build up a major system of statistics which traces the flow of all income and expenditure transactions underlying the production and distribution of the Nation's total output.

What is included in the definition of "economic production"? As presented in the National Income and Expenditure Accounts, economic production is defined essentially to include the production of goods and services which are exchanged for money in the market economy.[2] This is the general principle, but there are a number of exceptions to this rule:

(a) illegal transactions are not included;

(b) purchases and sales of used assets are not included;

(c) some activities which result in the production of useful goods and services but which are **not** exchanged for money in the market economy are included, (with an "imputed" value given to them in the Accounts).

Illegal Activities

Illegal activities are excluded from the concept of "economic production" on the basis of a convention that the Gross National Product should include only the products that society recognizes as legitimate. But even if this convention were not accepted, it would be virtually impossible to trace illegal transactions in the statistical record.

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[2] The market or "money-exchange" economy includes transactions of governments and non-profit institutions (the non-commercial sector of the economy) as well as the activities of the business enterprise sector (the commercial sector) operating for a profit.

Purchases and Sales of Used Assets

Purchases and sales of used assets are also excluded from the measurement of current production. Such assets, for example, a ten-year-old house or a used car, have been counted as part of production in the year in which they were produced. To include them a second time in a later period would be to "double-count" them. However, fees and commissions earned in the course of providing the transfer service (the real estate dealer's commission on the house and the "mark-up" on the used car) are included in the concept of production, as earnings received for productive services rendered.

Imputations

In a small number of cases the rule providing for the inclusion of only those goods and services which are exchanged for money in the market economy is relaxed, and an "imputation" is made to include certain types of non-market activity which results in the production of useful goods and services. In general, these "imputed" transactions apply only to situations where the non-market activity has a counterpart in or is closely similar to an activity in the market economy, and where there is thus a reasonably satisfactory basis for valuation. In the Canadian Accounts, five types of imputations are identified (see Table 55 of Volume 1):

(a) an imputed rent on owner-occupied housing, on the basis that the owner-occupier is the beneficiary of the services rendered by the building in the same way that a landlord would receive rent from a tenant for the services of the same building;

(b) farm products consumed directly in farm households, on the basis that such production is a part of total farm output and that it is appropriate to count it as such irrespective of whether it is sold for cash or consumed in kind;

(c) food provided to employees in lieu of wages, on the basis that this represents a payment for services rendered, and is a form of additional income to the factor of production "labour"; also, lodging in bunk-houses, ships and hotels furnished to employees in lieu of wages, following the same rationale;[3]

(d) depreciation on government fixed assets, for which an explicit entry must now be made in both Gross National Product and Gross National Expenditure to accord with the new treatment of government capital outlays as gross fixed capital formation;

(e) an imputation to include the value of services rendered by banks and other financial intermediaries for which they make no specific charge.

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[3] Until 1966, food and clothing provided to members of the Armed Forces without charge was also treated as imputed income in lieu of paid wages. After 1966, food and clothing was no longer provided free of charge to the bulk of the forces except for uniforms provided upon enlistment.

Imputations in the Accounts have the effect of helping to keep the measurement of production invariant to mere changes in institutional or organizational arrangements in the economy. For example, if no imputation were made for rents on owner-occupied housing and an increase occurred in the proportion of houses owned relative to rented accommodation, production would show a decline simply because of the change in the pattern of home ownership. In practice, the number of "imputations" made in the Accounts is carefully limited, and confined essentially to those areas where there is a clear-cut link to the market (or money-exchange) economy – for it is the transactions of the market economy that the Accounts are designed to measure.

Households

Thus, the value of housework is not included in the Accounts as part of the production of households. There is no direct link between such services and the money-exchange economy, and no satisfactory way of valuing such services on the basis of market-based criteria. The wages paid to domestic servants would clearly be inadequate as a basis of valuation. Similarly, much "do-it-yourself" activity of households in the form of chores is excluded from the measurement of economic production.[4] Production originating in the household sector, as defined in these Accounts, consists basically of services rendered directly to households by the factor of production "labour" as reflected in direct payments for services performed (e.g., domestic services). The dominant rule is that production originating in households is based on transactions which are exchanged for money.

Government

Government activity is included within the boundary of production. Part of government activity is conducted by government business enterprises such as the Canadian National Railways, whose motivation and methods of operation are similar to those of commercial enterprises in the non-government business area. The production of government business enterprises is therefore measured in the same way as that of other types of business enterprises, as described later in this section.

The non-commercial activities of governments – "general government" activities as recorded in the government sector (Tables 16-19 and 43-52) – are also included within the boundary of production. Such production originating in "general government" consists of the services rendered by the government's own employees. It is measured "at cost" through the direct payments made by government to its own employees in the form of wages, salaries, and supplementary labour income, and military pay and allowances. Since the government sector does not operate on a commercial basis – i.e., it does not sell its services and set a price which is designed to cover costs and yield a profit – no "market price" exists for valuing its production. Such production can only be valued at the "cost" of the inputs involved in producing it.

[4] Apart from the difficulty of measuring such forms of household activity, the question also arises of where the line would be drawn if the scope of imputations were to be extended in the Accounts. Many forms of do-it-yourself activity could in principle be regarded as a form of economic production, e.g. self-administered shaves and owner-driven automobiles. Limiting the estimates substantially to the transactions of the money-exchange economy is the accepted practice in industrialized countries.

Business Enterprises

The bulk of the nation's output of goods and services is produced in the business sector – by corporations engaged in producing and selling goods and services for profit, by government business enterprises, by farm operators, and by various other types of unincorporated business enterprises including self-employed professionals. Over 80% of the total value of production was produced by the business enterprise sector in 1972. The measurement of business output thus dominates the estimates of economic production in these Accounts, and shapes the structure and design of the entire system. Because of its importance in each of these two respects, it may be useful to illustrate by example the principles underlying the treatment and measurement of business production in the National Income and Expenditure Accounts.

There are in fact three basic approaches to the measurement of business production, each of which yields an identical total. These are usually denoted as **the income approach, the expenditure approach,** and **the net value added approach.** A simple set of figures will illustrate the matter. Assume an economy in which all output is produced by three firms. Each firm sells its production to another firm for further processing or fabrication, or disposes of it in final markets as sales to final users (Table 3-1). Thus Firm 1, a rubber manufacturer, imports raw rubber and processes it for sale to Firm 2, a tire manufacturer. The tire manufacturer sells a part of his output of tires in final markets (to consumers, governments, etc., who are the ultimate users of the product) and the balance to Firm 3, an automobile manufacturer, for assembly with the fully fabricated automobile. The automobile manufacturer in turn sells all of his production of automobiles (including the tires) to final users. In this example, each firm generates income only in the form of wages and salaries, and profits. For simplicity, it is assumed that there are no taxes, no depreciation, and no inventories.

TABLE 3-1. Hypothetical Example of a Three-firm Economy

Costs of production	Millions of dollars	Gross value of production	Millions of dollars
FIRM 1 (Rubber Manufacturer)			
Imports (raw rubber)	35	Sales to Firm 2 (processed rubber)	100
Wages and salaries	60		
Profits	5		
Total	100	Total	100
FIRM 2 (Tire Manufacturer)			
Purchases from Firm 1 (processed rubber)	100	Sales to final users (tires to consumers, governments, etc.)	30
Wages and salaries	40	Sales Firm 3 (tires to automobile manufacturer)	120
Profits	10		
Total	150	Total	150
FIRM 3 (Automobile Manufacturer)			
Purchases from Firm 2 (tires)	120	Sales to final users (automobiles to consumers, governments, etc.)	1,100
Wages and salaries	900		
Profits	80		
Total	1,100	Total	1,100

From the basic data presented in Table 3-1, it is possible to measure the unduplicated value of production produced by these three firms in three separate ways. The first is simply to sum all of the factor incomes (wages and salaries, and profits) generated by this productive activity – incomes representing the returns to the labour and capital employed. The results of this summation are shown in Table 3-2:

TABLE 3-2. "Sum of Incomes" Approach

	Millions of dollars
Firm 1	60 + 5 = 65
Firm 2	40 + 10 = 50
Firm 3	900 + 80 = 980
Total incomes earned in current production (total value of production)	1,095

A second approach is to sum all sales which these firms have made to **final** users – to consumers, to governments, to business on capital account, or in export markets. This approach also provides an unduplicated measure of the total value of production produced by these three firms. Imports, of course, have to be deducted from this summation (as in Table 3-3) since imports are implicitly included in these final sales and should not be counted as a part of Canadian production – they represent part of the production of a foreign country. Sales from one firm to another (intermediate production) are not counted since to do so would involve double counting, all intermediate production being embodied in final output sold to final users. (In this particular example, all output is assumed to be sold, and none accumulates in the form of unsold inventories.) It can be seen that this "sales to final users" approach (or "sum of expenditures" approach) yields the same value of production as the "sum of incomes" approach.

TABLE 3-3. "Sum of Sales to Final Users" Approach or "Sum of Expenditures by Final Users"

	Millions of dollars
Firm 1	–
Firm 2	30
Firm 3	1,100
Sub-total	1,130
Less imports	– 35
Total sales of current Canadian production to final users	1,095

Finally, the unduplicated value of production can be measured by taking the gross value of production of each firm and subtracting from this each firm's costs of production in the form of its purchases from other firms (including imports), to yield the "net value added" to production by the firm. Again, it can be seen from Table 3-4 that this procedure yields the same value of "unduplicated production" as is achieved under the first two approaches.

TABLE 3-4. "Sum of Net Values Added" Approach

	Gross value of production (1)	Purchases from other firms, or imports (2)	Net value added in production (3)(1 - 2)
Firm 1	100	35	65
Firm 2	150	100	50
Firm 3	1,100	120	980
Totals	1,350	255	1,095

Essentially, in the system of Accounts described in this report, only the first two approaches to the measurement of production are used – the "sum of incomes" approach, to measure National Income and Gross National Product (Table 1 of Volume 1); and the "sum of sales to final users" (or "sum of expenditures") approach, to measure Gross National Expenditure (Table 2 of Volume 1). The third approach, the "sum of net values added", is not a central feature of the National Income and Expenditure Accounts, but it is extensively used in other, related, systems of economic statistics where it is desired to measure output in individual industries and where the primary data consist of gross values of production and information on operating costs. The Index of Industrial Production and the Domestic Product by Industry data depend heavily on this particular approach.

National and Domestic Product

Before turning to a discussion of how the estimates are assembled using the two basic approaches described above, one further clarification of the boundary of production is needed. Residents of Canada may contribute to production in other countries by investing capital in those countries which earns them a return, or by working in those countries while remaining residents of Canada (e.g., Armed Forces and diplomatic missions stationed abroad). Similarly, non-residents may contribute to production arising within the geographic boundaries of Canada by investing capital in Canada which earns them a return, or by working in Canada while remaining residents of their own country (e.g., foreign diplomatic missions located in Canada). In the first instance, if the boundary of production is drawn to include all of the production of Canadian factors of production irrespective of what country the production originates in, the measurement is conventionallydenoted as the

"national product". In the second instance, if the boundaries of production are confined to the geographic boundaries of Canada irrespective of whether the factors of production are Canadian or non-resident, the measurement is conventionally denoted as the "domestic product".

In the present system of Accounts, both concepts are in use. The Gross National Product and Gross National Expenditure totals (Tables 1 and 2 of Volume 1) are designed to measure the "national product" – that is, the earnings of all Canadian factors of production regardless of where located. The Gross Domestic Product total (Tables 3, 8 and 9 of Volume 1) is designed to measure only that production originating within the geographic boundaries of Canada – the "domestic product" – regardless of whether the factors of production are Canadian or non-resident. Thus, to move from national product to domestic product, one should in principle eliminate all earnings of Canadian factors of production originating in other countries from the national product and add back all earnings of non-resident factors of production arising out of activities in Canada. In practice, these adjustments can only be partially carried out, as is indicated in Table 3 of Volume 1 and described in a later section.

In the above context, "residents" are taken to include both individuals and institutions such as government agencies, corporations and non-profit institutions which are normally resident in Canada. Thus, tourists or commercial travellers travelling abroad are treated as normal residents, but citizens who usually live abroad are not. Members of diplomatic and consular staffs, official missions, and Armed Forces abroad are considered residents of Canada, while such personnel stationed in Canada by other countries are considered residents of those countries. The term "Canadians" is used to mean residents of Canada in the above sense.

National Income and Gross National Product (Table 1, Volume 1)

The National Income and Gross National Product aggregates are constructed using the "sum of incomes" approach illustrated in the preceding section (Table 3-2). The National Income is made up of the sum of all incomes arising in productive activity, representing the earnings of the factors of production, land, labour, capital and entrepreneurship. Conceived more broadly, such factor incomes essentially represent earnings resulting from the employment and use of labour and capital. These earnings take a variety of forms – wages and salaries, constituting a form of employment income to the factor of production "labour"; profits and investment income, constituting a form of property income for the use of the factor of production "capital"; and earnings of self-employed business enterprisers, constituting a combination of both labour and property incomes which are not distinguishable separately. Because there are both theoretical and statistical difficulties involved in clearly distinguishing between the various factors of production, the classification of factor incomes in these Accounts is based to a considerable extent on the form in which the information on factor earnings is available.[5]

[5] For example, net income of farm operators from farm production can be viewed as a mixture of rent from the use of land, labour income from self-employment, property income from the use of buildings and machinery, and a return to entrepreneurship and risk-taking. All of these so-called "factor earnings" are consolidated in the one measurement in these Accounts.

It should be noted that factor incomes exclude all transfer payments – payments which are not in exchange for the services of a factor of production. Thus, income such as old age pensions, family allowances, and other types of welfare benefits for which no productive service is rendered, are excluded from the National Income.

The following table sets out the components of the National Income (or the earnings of the factors of production) for the year 1961.

TABLE 3-5. Net National Income at Factor Cost, 1961

	Millions of dollars
Wages, salaries, and supplementary labour income	20,399
Military pay and allowances	610
Corporation profits before taxes	4,066
Deduct: Dividends paid to non-residents	– 622
Interest and miscellaneous investment income	1,284
Accrued net income of farm operators from farm production	826
Net income of non-farm unincorporated business including rent	3,261
Inventory valuation adjustment	– 41
Net National Income at factor cost	29,783

The National Income – or Net National Income at Factor Cost, to use the complete terminology – provides one measure of the nation's production of goods and services at a particular level of valuation. But this level of valuation, based on earnings of the factors of production (or "factor costs"), does not include such non-factor costs of production as capital consumption costs (depreciation) and indirect taxes net of subsidies – costs which enter into the market price of goods and services. A more widely used and practically advantageous concept is the Gross National Product at Market Prices – a concept which brings the valuation of production up to the "market price" level by taking account of these additional non-factor costs – and which, by virtue of this fact, facilitates the task of tracing this production through the various market channels in which it is disposed (as is done in Table 2 of Volume 1, Gross National Expenditure at Market Prices).

The Gross National Product is thus designed as a measure of the total value of production of goods and services of Canadian residents **at market prices**. While National Income is "net" in the sense that the earnings of the factors of production have been reduced by the costs incurred in the consumption of capital, Gross National Product is "gross" in the sense that the costs of consuming capital (capital consumption allowances) are added in as a part of the "market price" valuation of production. In addition, indirect taxes (less subsidies) which also represent a part of the market price of goods and services, and which are not a part of factor earnings, are included in the Gross National Product.

TABLE 3-6. Gross National Product at Market Prices, 1961

	Millions of dollars
Net National Income at factor cost	29,783
Indirect taxes less subsidies	4,838
Capital consumption allowances and miscellaneous valuation adjustments	4,883
Residual error of estimate	142
Gross National Product at market prices	**39,646**

The following discussion will deal in turn with each of the components of the Net National Income and Gross National Product as set out in Tables 3-5 and 3-6.

Wages, Salaries, and Supplementary Labour Income

Wages and salaries cover all of the earnings from employment of Canadian residents paid for work performed, including payments in kind such as free board and lodging. Also included are such payments as commissions, directors' fees, tips and bonuses, and taxable allowances such as cost-of-living allowances and allowances in respect of holidays and sick leave. The estimates do not include earnings from self-employment or partnership, income from independent professional practice, income of farmers from farming operations, or military pay and allowances. Wages and salaries are estimated before tax deductions, and before contributions of employees to unemployment insurance, pensions, and other social insurance schemes. Bonuses, commissions, and retroactive wage increases are included in the period in which they are paid because of the statistical difficulties of allocating these items to the period in which they were earned.

Supplementary labour income consists of other expenditures by employers on labour account that can be regarded as payment for employees' services. Included here are employers' contributions to pension funds, employee welfare funds, unemployment insurance, and workmen's compensation.

Military Pay and Allowances

Payments to members of the Armed Forces in Canada and Overseas are treated as compensation for services rendered. Under this heading are included military pay, various types of allowances, and employer contributions to the Armed Forces pension fund. War service gratuities and all post-discharge re-establishment benefits are excluded and treated as transfer payments. Prior to 1966, the estimated value of food and clothing issued in kind is also included. Since 1966, the amounts involved have been small.

Corporation Profits Before Taxes

The estimates of "profits before tax" used in the National Accounts are closely based on business accounting practice as reflected in business "book profits". However, a number of adjustments are needed to convert data drawn from business accounting records to a basis compatible with National Accounts concepts and definitions. For the most part, these adjustments relate to the treatment of items which are charged as operating expenses by business but which are not regarded as a charge against production as measured by the National Income. Thus, depletion charges, which are treated as an operating expense on the books of business, are added back to net profits in these Accounts. Discoveries of new natural resources are not capitalized in the Accounts (i.e., they are not counted as a part of gross fixed capital formation) and the exhaustion of natural resources is not therefore regarded as a charge against National Income. Provincial mining and logging taxes, which are treated as an operating expense by business, are also added back to profits in these estimates (they are defined in the Accounts as direct taxes). Similarly, appropriations for losses of chartered banks are added back to profits and National Income since they are not considered a charge against current production. Bad debts owed by persons to corporations and written off on company books are treated in these Accounts as a transfer payment from corporations to persons. An adjustment is therefore made to add back to net profits the amounts applicable. Charitable contributions made by corporations, also deducted as an expense by business, are added back on the grounds that they are not a direct cost of production, but merely a distribution of earnings (a transfer payment). All capital gains or losses of corporations are excluded, since these have no counterpart in current productive activity.

Mining development and exploration costs which involve the acquisition of durable tangible assets, and construction and drilling costs, are included in the Accounts as gross fixed capital formation. In some cases such costs are treated by business as current operating expenses, and where this occurs the amounts must be added back to profits in the Accounts. In other instances, costs such as geological and geophysical survey costs, which are not regarded as gross fixed capital formation in the Accounts, are charged to capital account by business. In such cases, profits as reported by business must be reduced by these amounts before inclusion in the National Income.

A variety of other adjustments are made to business book profits. All profit figures are adjusted from a fiscal to calendar year basis in these Accounts, insofar as this is possible. The profits of incorporated cooperatives are included as a part of corporation profits in these estimates. In addition, corporate losses are deducted from estimated total profits in order to bring the figures to a "profits less losses" basis. It should be noted also that business accounting records include in book profits the dividends received from other Canadian corporations. An adjustment is therefore necessary to eliminate the double counting which this involves.

Dividends paid to Non-residents

Since the National Income is calculated on a "national" basis – that is, it includes the earnings of Canadian residents only – an adjustment must be made to eliminate from corporation profits the earnings of non-resident

factors of production. Dividends paid to non-residents are therefore deducted, as in Table 3-5. In principle, **all** earnings of non-residents – both distributed and undistributed earnings – should be eliminated from the National Income. In practice, because of statistical problems, only the distributed portion of profits (that is, dividends) is eliminated. The undistributed profits of corporations which accrue to foreign owners are thus included as a part of Canada's National Income.

Interest and Miscellaneous Investment Income

This component of the National Income comprises the interest income of persons, and government investment income. These items are measured before deduction of direct taxes, and cover the earnings of Canadian residents only. The component also includes a major adjustment needed to eliminate from the National Income all interest on the public debt as well as the transfer portion of interest on consumer debt.[6]

Interest income of persons, includes the interest received by, or accruing to persons (defined to include individuals, private non-commercial institutions, estates, and trust funds); interest income of life insurance companies, fraternal and mutual benefit societies and trusteed pension plans, accruing on behalf of persons; and small amounts of miscellaneous income. Interest paid to corporations and government business enterprises is automatically included in the profits of these institutions and is not counted here. Interest paid to government is included in government investment income.

Interest income of persons is thus made up of the following items: Canadian bond and mortgage interest received by or accruing to persons; paid and imputed interest on deposits with chartered banks and similar financial institutions, received by or accruing to persons; investment income received on behalf of persons by life insurance companies, fraternal and mutual benefit societies and trusteed pension plans (all of which are treated as associations of individuals for this purpose); interest and dividends received by persons from non-residents; and some smaller categories of income, namely, royalties received by persons, the interest credited to persons from federal government annuities accounts, and the profits and interest of mutual non-life insurance companies.

Government investment income includes the profits of government business enterprises, royalties, interest on government loans and advances, interest on publicly held funds such as government pension and social insurance funds, and imputed interest. Profits of government business enterprises consist of profits (less losses) of those government agencies which conduct their activities on an essentially commercial basis, setting a price for their services which is calculated to cover costs. Included here are profits of the Canadian National Railways and other crown corporations, and provincial and local public utilities such as hydro-electric systems, telephone systems,

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[6] Some interest on the public debt and interest on consumer debt is included in corporation profits. The total interest on the public debt and the transfer portion of interest on consumer debt are, however, subtracted from interest received by persons and governments. Corporation profits therefore include the amount of interest on the public debt and the transfer portion of interest on consumer debt received by corporations while the interest income of persons and governments is understated by this amount.

transit systems, and so forth. The profits of the federal Post Office Department are included here, its gross expenditures being offset against its gross revenues to arrive at an estimate of profits. Interest on government loans and advances includes interest on loans to government agencies, such as various public utilities, and interest on loans to foreign and domestic governments.

Interest on the public debt is made up of two parts: that part which is paid to Canadian residents, which is regarded as a transfer payment rather than as a payment to a factor of production for a productive service, and which is therefore excluded from the National Income; and that part which is paid to non-residents, representing a claim by non-residents on the pool of goods and services produced domestically.

In the first instance – public debt interest paid to Canadians – an explicit deduction is made in the interest and miscellaneous investment income component to exclude from the National Income that portion of the interest received by Canadian residents. As noted in the footnote on page 72, not all interest on the public debt received by Canadians accrues to persons and governments, but the full adjustment is nevertheless made in this component of the Accounts. If it were statistically possible to identify the amounts, corporation profits as well as the interest income of persons and governments would each be reduced by their relevant share of the debt interest received.

There are two reasons for treating interest on the public debt paid to Canadians as a transfer payment and excluding it from National Income. The first is that the National Income should not vary simply because of changes in techniques of government financing. In other words, National Income should not rise simply because the government finances its operations through borrowing rather than taxation; and it should not fall, on the other hand, if a shift occurs in the other direction, from borrowing to taxation. It may be noted that this problem does not arise in the case of a business firm, where a change in the method of financing will not affect National Income because of offsetting adjustments in profits. Any resort to borrowing by business will cause the interest content of National Income to rise, but at the same time will bring about a corresponding reduction in profits, leaving the National Income unchanged.

A second reason for treating interest on the public debt received by Canadians as a transfer payment is that all of this debt has been incurred to finance past government expenditure. A large part of this debt was not incurred for the acquisition of any productive asset currently in existence. In such circumstances, it is difficult to regard the interest arising on such debt as a payment for the production of currently produced goods and services.

The portion of interest on the public debt which is paid to non-residents requires special treatment. Such interest payments represent a direct claim by non-residents on the pool of goods and services produced domestically. Accordingly, an explicit subtraction is made at this point to reduce the National Income – an adjustment which reflects the charge against domestic production which must be paid to non-residents. This adjustment is balanced, on the expenditure side of the Accounts, by an entry under "Imports of goods and services".

Part of the **interest on consumer debt** is also treated as a transfer payment and is excluded from the National Income by an explicit deduction in the interest and miscellaneous investment income component. All consumer outlay is regarded as current consumption in these Accounts (except outlay on housing which is regarded as capital expenditure). Since consumer goods

(except housing) cannot give rise to investment income, it is necessary to exclude interest on the debt which finances such goods. The administrative expenses which are incurred in rendering services to borrowers are, however, included in personal expenditure and also in the Gross National Product.

Accrued Net Income of Farm Operators from Farm Production[7]

The net income accruing to farm operators from farm production[8] includes the sales of farm products, plus the imputed value of farm output consumed by the farmer and his family, plus the value of the physical change in farm inventories, less farm operating expenses and capital consumption allowances on farm buildings and equipment. Farm production includes the sale of logs cut from forests on farm lots and income from fur farming. It excludes, however, other forms of income of farmers such as net rental or interest receipts and imputed net rent of owner-occupied houses. It also excludes transfer payments such as payments under the Prairie Farm Assistance Act since these are not in exchange for goods or services and are therefore excluded from National Income. Since the National Income attempts to measure earnings arising out of current production rather than cash receipts, the accrued earnings of farm operators arising out of the operations of the Canadian Wheat Board[9] are included as is the accrued income represented by inventories held on the farm.

Net Income of Non-farm Unincorporated Business including Rent[7]

Net income of non-farm unincorporated business consists of the earnings of working proprietors from their own businesses. Such businesses are "unincorporated" as distinct from the corporate form of organization. The estimates cover a heterogeneous range of industries which includes unincorporated retail stores, unincorporated operators in construction and in transportation and communication, unincorporated manufacturing establishments, and many types of unincorporated service establishments. It also includes the net income of independent professional practitioners such as doctors, dentists, lawyers and engineers.

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[7] Accrued net income of farm operators from farm production, and net income of non-farm unincorporated business, represent a mixture of labour income and investment income which cannot be segregated on anything but an arbitrary basis. To the extent that working proprietors supply their own labour, they earn wages and salaries; to the extent that they supply their own capital, they earn profits, interest and rents. These elements are inextricably mixed in the estimates of the net income field.

[8] Excluded from this item are a small number of incorporated companies since their profits are included in the item corporation profits.

[9] The Canadian Co-operative Wheat Producers Limited was established in 1924 as the central selling agency for the Alberta, Manitoba, and Saskatchewan Wheat Pools. It was replaced in 1935 by the Canadian Wheat Board. A difficult problem arises in valuing grain output at market prices during the period in which it is produced since all sales are made by the Canadian Wheat Board, and the final price of the wheat sold cannot be precisely determined until well after the accounting period represented by the production year. The methods used in arriving at the accrued earnings of farm operators arising out of the operations of the Canadian Wheat Board, described in Chapter 5, come as close as is statistically possible to arrive at accrued income which corresponds to production of the current period. In recent years the federal government has made payments to the Canadian Wheat Board to cover the storage costs on temporary wheat reserves. These payments are treated in the National Accounts as a federal government subsidy.

Net rental income of persons acting in a landlord capacity is included in these estimates. Such rental income covers net rents (either paid or imputed) received from the ownership of residential property, and also net paid rents from the ownership of non-residential property. In each case, the **net** rent received by persons is equivalent to gross rents received less landlord expenses such as heating costs, property taxes, capital consumption allowances, mortgage interest, insurance, and repairs. As was indicated in Chapter 2, the inclusion of net rental income of persons in this component of the National Income consolidates all forms of income from non-farm unincorporated business activity in a single category.

Inventory Valuation Adjustment

As has been indicated, production in the National Income and Expenditure Accounts is measured at the current market prices of the period in question. This means that net investment (or disinvestment) in inventories – represented by the change in inventories from one period to the next – should be valued at the average prices of the period in question. However, the principles of inventory valuation used in business accounting are usually quite different from those required for the Accounts. In periods of rising prices, changes in recorded business inventory book values will frequently include an element of capital gain which simply reflects the fact that beginning-of-period inventories and withdrawals have been recorded at original cost, while purchases and end-of-period inventories are recorded at a higher price. In other words, the recorded money value of the "book change" in inventories will have increased by more than the physical change in inventories valued at current (or replacement cost) prices.

In these circumstances, corporation profits and net incomes of non-farm unincorporated businesses[10] included in National Income will contain an element of capital gain (stock appreciation) which is not related to the measurement of current production, and which is not consistent with the way in which other flows and transactions in the National Accounts system are valued. The inventory valuation adjustment is thus designed to remove from the National Income any such capital gains (or losses)[11] resulting from the inventory accounting procedures of business firms where no distinction is made for profits arising from the turnover of goods at higher prices.[12]

The method of carrying out the inventory valuation adjustment is described in detail in Chapter 7. The adjustment represents the difference between the "change in book values" as recorded on the books of business

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[10] Accrued net income of farm operators from farm production does not contain this element of capital gain since the estimates are not based on "book values" but rather on a direct calculation of the "value of physical change" in farm-held inventories.

[11] Throughout most of the post-war period, the inventory valuation adjustment has been negative – that is, it has reflected the fact that for most of this period, rising prices have resulted in inventory gains and a negative adjustment is needed to eliminate such gains from the National Income. However, in periods of declining price, inventory losses may also occur. Analagous procedures are followed to eliminate such losses from the National Income, involving a positive valuation adjustment to the figures.

[12] Thus, in Table 3-7, withdrawals of inventories (or inventories used up) are charged to operating expense at the average replacement cost price prevailing during the period, of $5.50 per unit, rather than at the original cost of $4.00.

firms, and the "value of the physical change", valued at the prices prevailing in the current period. The following example is illustrative of the principle involved:

TABLE 3-7. Business Inventory Account

Withdrawals at Original Cost, Purchases at Current Price[1]

	Number of units	Price	Value
		dollars	
Beginning-of-period inventories	100	4	400
Withdrawals	– 75	4	– 300
Purchases	25	4	100
	75	6	450
Sub-total purchases	100		550
End-of-period inventories	125		650
1. Change in book value of inventories over period			+ 250
2. Change in number of units held over period			+ 25
3. Value of the physical change (25 units valued at the average (weighted) current price prevailing during period of $5.50 per unit)			+ 137.50
4. Inventory valuation adjustment required to eliminate capital gain from national income (line 1 minus line 3)			112.50[2]

[1] Approximates the first-in, first-out (FIFO) method of inventory accounting.
[2] This amount should be deducted from the National Income, as a negative adjustment.

Indirect Taxes

Indirect taxes represent a part of the market price of goods and services which is not received by factors of production. They are, therefore, not included in the National Income, but must be added to factor costs to arrive at total costs entering into market prices. Business accounting procedures provide a guide as to whether a tax is to be regarded as direct or indirect. Thus, all taxes which represent a business cost and which are likely to be partly or fully reflected in final or market prices paid by the purchaser, – such as sales and excise taxes, import duties, and property taxes – are taken as indirect. Such taxes make up a part of the producers' costs but they do not form a part of the income of the factors of production. In effect, they are taxes on expenditure, not on income. Taxes which are levied directly on the net incomes of the factors of production, whether of individuals or corporations, are regarded as direct taxes.[1 3]

[1 3] Motor vehicle taxes and other similar taxes are indirect when levied on a business since they are a business cost but are direct taxes when levied on a person since they are paid out of personal income.

The separation of taxes according to actual incidence – according to who bears the ultimate burden, the producer or the purchaser – is not used as a principle of organization in these Accounts. It is not possible to make this separation on the basis of present knowledge. There is evidence to suggest that direct taxes on incomes are sometimes shifted forward into market prices, and alternately, that indirect taxes (or producers' costs) may sometimes be absorbed and borne by the producer through a reduction in his net income. The classification of taxes according to the source from which they are levied, as in these Accounts, does not rest on assumptions regarding ultimate incidence but is based solely on considerations of where the taxes apply in the first instance.

Subsidies

Subsidies represent amounts contributed by governments toward current costs of production. For this reason, they must be deducted from factor costs to arrive at Gross National Product at market prices. The larger part of the subsidy figure consists of federal production and consumption subsidies. There are a variety of purposes – some of them inter-related – behind the payment of subsidies. Producer subsidies are usually made to encourage certain types of economic production (Emergency Gold Mines Assistance), to assist producers in areas of special difficulty (railway subsidies under National Transportation Act), to protect the producer against a decline in the price of his product (Canadian Dairy Commission Payments), or to support activities which are regarded as socially desirable (broadcasting activities of the Canadian Broadcasting Corporation). Consumer subsidies are usually paid in order that the consumer may benefit from lower prices, as in the case of many of the subsidies paid on agricultural products during World War II.

Capital Consumption Allowances and Miscellaneous Valuation Adjustments

Economic production involves the using up of productive assets – the "consumption" of capital through the depreciation, wear, tear, and obsolescence associated with the processes of economic production. Since productive assets in the form of capital goods such as machinery and equipment and buildings are for the most part highly durable products, this "using up" of productive assets, or loss in value, is a gradual process, occurring over periods of time often covering many years. Businesses therefore customarily charge to each year's operating expenses a "depreciation charge" or "capital consumption cost" designed to cover the cost of the wearing out of capital assets which has occurred during the accounting period in question. Thus, depreciation, or capital consumption charges, represent business costs which are implicitly included in the market price of goods and services sold to final users.

A brief example will illustrate the point. A shoe manufacturer purchases a shoe-making machine for $9,000. The value of the machine enters into business gross fixed capital formation (a part of Gross National Expenditure) as investment in capital assets in the year in which it is purchased. If the life of the machine is expected to be 10 years, the manufacturer may write it off in equal amounts over a 10-year period ("straight line" depreciation), charging $900 each year to current operating expenses to allow for the depreciation on

the machine. The selling value of the shoes sold by the manufacturer will then include $900 each year for 10 years, to cover the "using up" or capital consumption of this asset which is charged to the purchaser of the shoes. Over the full 10-year period, personal expenditure on consumer goods will therefore include $9,000, representing the full cost of the machine. In effect, the original-cost value of the machine has become embodied in the value of all of the shoes produced over the 10-year period. At the end of 10 years, the full cost of the machine has been depreciated and charged to operating expense.

In these Accounts, there are three major types of productive assets for which depreciation charges are calculated – business plant and equipment, housing, and government fixed assets. Depreciation on business plant and equipment investment is quantitatively the most important of the three sets of estimates. It should be noted that the depreciation charges in these Accounts relate to the **total stock** of these productive assets, not simply to the annual gross additions to the stock. The year-to-year gross change in the stock of productive assets, valued at current market prices, is shown in the Gross National Expenditure under "Gross Fixed Capital Formation".[14]

In addition to estimates of capital consumption covering these three types of productive assets, some miscellaneous valuation adjustments are included with this category of Gross National Product. These are described in a following section. The section immediately below deals with some special features and problems of the depreciation or capital consumption cost estimates.

Depreciation or Capital Consumption Costs

Depreciation, or the gradual wearing out by use and obsolescence of the nation's fixed capital assets, cannot be measured directly since it is not represented by any actual transaction. In providing for depreciation, businessmen must usually make assumptions about the expected life of the asset in normal operation, as well as the degree of obsolescence which it is likely to undergo as a result of technical change. The estimates of depreciation taking into account these considerations are typically based on the original-cost value of the asset. That is, they provide for the recovery and setting aside of the original money value of the asset over the period of time in which the asset is gradually written off.

As has been indicated in Chapter 2, it would be desirable for certain purposes in the National Income and Expenditure Accounts, to show depreciation on a "replacement cost" basis which would reflect, year by year, the "replacement cost" of maintaining capital intact. For, in periods of rising prices, "book depreciation" based on original cost is likely to significantly under-state the actual cost of maintaining capital, and to over-state business profits or net incomes. In addition, for some types of economic analysis, it

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[14] Thus, the annual figures of "business gross fixed capital formation in non-residential construction and in machinery and equipment" represent the annual gross additions to the stock of business fixed capital (plant and equipment) valued at current market prices; "business gross fixed capital formation in residential construction" represent the annual gross additions to the stock of housing; and "government gross fixed capital formation" represent the annual gross additions to the stock of government fixed capital assets – all valued at current market prices.

would be useful to have estimates of **net** fixed capital formation – that is, of the **net** additions to the nation's stock of capital which are made each year after providing for depreciation on a replacement cost basis. Such estimates are not possible where the "gross fixed capital formation" figures are presented on a current market price basis of valuation, and the capital consumption or depreciation estimates are based on original cost, as is the case with the estimates of depreciation on business plant and equipment.

It should be noted that the estimates of depreciation on housing, in the agriculture industry, and on government capital assets presented in these Accounts are in fact based on replacement cost, not original cost. In these three areas, book-keeping records are not ordinarily available, the estimates are largely "imputations", and the statistician must perforce resort to a variety of estimating techniques. Quantitatively the estimates here are much less important than those in the business plant and equipment area.

The fact that the estimates of depreciation on business plant and equipment continue to be based on the original-cost basis of valuation is not without its advantages. These estimates of depreciation are firmly anchored to business accounting records, and the corresponding figures of corporate profits shown in the Accounts are closely analogous to business "book profits" which influence and guide much business decision-making. If one were to show business depreciation figures on a replacement cost basis (a procedure which would involve certain judgements and arbitrary conventions), measured corporation profits for these Accounts would differ significantly from the figures given here. The National Income would be lower (because replacement cost depreciation would be higher than original cost depreciation, with profits correspondingly reduced), but the Gross National Product would be unaffected.[15]

As was noted earlier, charges for the **depletion** of exhaustible natural resources are not included in the consumption of fixed capital in the Accounts, even although they are charged by business as operating costs. The discovery of such natural resources is not regarded as gross fixed capital formation.

The definition of gross fixed capital formation for the National Accounts is framed in terms of the tangibility and durability of the goods in question. Certain durable items such as furniture, office equipment, tools, and so forth are sometimes not capitalized by business but are charged as a current operating expense. In order to include all of these durable equipment items in capital formation in the National Accounts, these **capital outlays charged to current expense** are included in business gross fixed capital formation and therefore in Gross National Expenditure. To balance the Accounts on the income side, this capital outlay charged to current expense is included in capital consumption allowances in the Gross National Product. In other words, the assumption is made that these items are all used up in the year in which they are purchased.

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[15] Gross National Product would not be affected by a change in the method of calculating depreciation allowances of business enterprises. Any change in the depreciation estimates would be exactly offset by a corresponding change in the opposite direction in corporation profits and net incomes.

One final point needs to be made in connection with the estimates of depreciation and the treatment of gross fixed capital formation in these Accounts. This relates to the fact that there is an element of "double counting" in the Gross National Product. Capital goods are included in Gross National Product both in the year in which they were originally produced, and also in the years in which their services have become embodied, through depreciation allowances, in the output of goods and services. Thus, if the value of Gross National Product is cumulated over a sufficient number of years, it will be apparent that the value of capital goods will have been counted approximately twice in the figures. This element of double counting does not, of course, occur in the National Income.

Miscellaneous Valuation Adjustments

Included under this category of Gross National Product are two adjustments which are related to the need to bring information based on business accounting records into conformity with the definitions employed in the National Income and Expenditure Accounts, or to maintain balance between the income and expenditure side of the Accounts. The first of these adjustments concerns **non-capital outlays charged to capital account** by business. In some instances, non-tangible items such as brokerage fees on the purchase and sale of stocks and bonds are capitalized by business. In keeping with the tangibility criterion used in the Accounts, such items are excluded from gross fixed capital formation on the expenditure side. In order to keep the Accounts in balance, however, a negative adjustment must be made on the income side to offset the over-statement of business net income inherent in the figures. This negative adjustment, in the form of a "capital valuation adjustment", is made at this point.

The second adjustment relates to the **claim portion of business and residential insurance** paid out to compensate for fire and other types of losses. These are treated in the Accounts as a form of capital consumption, and an explicit entry is made to account for them. Such an entry is required to keep the Accounts in balance. Insurance premiums paid by business (an operating expense) enter into the market value of goods and services on the expenditure side. The full amount of the premiums must therefore be matched on the income side, to keep the Accounts in balance. The factor incomes generated by insurance companies and paid for out of premium revenues (in the form of salaries, wages, profits, etc.) are automatically included in National Income. However, the "claim portion" of premium revenues does not appear anywhere on the income side, and an explicit entry must be made to account for it. It is this latter amount which is regarded as a form of capital consumption allowance and for which an entry is made to keep the Accounts in balance. In the case of the claim portion of insurance on owner-occupied housing, the principle and the treatment is identical, with insurance premiums paid being included on the expenditure side as a part of imputed gross residential rent. No specific allowances are made in these Accounts for uninsured losses on business and residential property.

Gross National Expenditure (Table 2, Volume 1)

It was shown in an earlier section that the "sum of incomes" and the "sum of expenditures" approach to the measurement of economic production (as set out in Tables 3-2 and 3-3) produce identical results. The "sum of

expenditures" approach is used here to arrive at the estimates of Gross National Expenditure at Market Prices discussed in the following section. Conceptually, Gross National Expenditure and Gross National Product are identical measurements – each is defined as a measure of the value of the nation's total production of goods and services at market prices. The theoretical framework underlying the estimates, and the methodology employed, therefore provides for conceptual equality between the two figures.[16]

In the "sum of expenditures" approach, the measurement of economic production is arrived at by tracing the disposition of final output through the various channels in which it is used. There are four major types of users of the nation's production identified in these Accounts: **consumers**, whose purchases of goods and services represent a direct form of personal consumption of the nation's output; **governments**, whose current purchases of goods and services constitute a form of "collective consumption", and whose fixed capital investment outlays form a part of gross fixed capital formation;[17] **business enterprise**, whose construction and machinery and equipment outlays make up the greater part of gross fixed capital formation in these Accounts (and whose investment in inventories also form a part of the nation's output and capital formation); and **non-residents**, who purchase a part of the nation's production in the form of exports of goods and services. The sum of these expenditures accounts for all of the nation's output as it is used up either for consumption or capital formation.

In general, then, economic production can be measured by identifying and adding together all final sales of the national output to final purchasers, making allowance for any unsold economic production which takes the form of additions to inventory stocks.[18] Because of the fact that sales to final purchasers ordinarily include elements of imports of goods and services (foreign production) as well as of national production, and because it is not feasible to eliminate imports separately from each of the individual expenditure categories, the deduction to eliminate imports of goods and services is made in total as a single adjustment (Table 3-8).

One further point should be noted in considering this general approach to the measurement of production. In order to avoid duplication, it is essential that only purchases of **final** output be included in the various expenditure categories. In other words, **intermediate** production, such as purchases of raw materials from one business firm by another, must be excluded since the value of such intermediate production is implicitly included in the final sale of the end product. Thus, in the example given in Table 3-3, sales of processed rubber

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[16] In fact, such equality can never be fully achieved in a statistical sense because of unidentified errors and timing discrepancies in the underlying data. This error factor ("residual error of estimate") is allocated between the Gross National Product and Gross National Expenditure in such a way as to produce arithmetic balance between the two sides of the Accounts.

[17] A small amount of inventory investment is also made by government. In Table 43, government gross capital formation includes both government gross fixed capital formation and government inventory investment.

[18] Additions to inventory stocks are included in final output in these Accounts, although they are not "final purchases" in any conventional sense. They represent a form of investment in capital assets and as such are a part of the nation's total production and capital formation. A small amount of inventory investment is made by government.

from Firm 1 to Firm 2 are excluded from the summation, since the value of this processed rubber (intermediate production) is embodied in the value of the final output sold to final purchasers (i.e. the tires sold to consumers, governments, etc., by Firm 2, and the automobiles sold to consumers, governments, etc., by Firm 3). As a general rule in these Accounts, final output is taken to include capital formation and current purchases by consumers and general government, while intermediate production (excluded from the summation) consists of goods and services charged to current account and used up by business in the course of further production.[19]

Table 3-8 provides a summary view of the estimates of Gross National Expenditure for the year 1961, measured through the "sum of expenditures" approach. The discussion which follows will deal in turn with each of these main categories of the nation's total spending.

TABLE 3-8. Gross National Expenditure, 1961

	Millions of dollars
Personal expenditure on consumer goods and services	25,930
Government current expenditure on goods and services	6,206
Gross fixed capital formation:	
Government	1,674
Business:	
Residential construction	1,789
Non-residential construction and machinery and equipment	4,929
Value of physical change in inventories:	
Government	8
Business	108
Exports of goods and services	7,624
Deduct:	
Imports of goods and services	– 8,480
Residual error of estimate	– 142
Gross National Expenditure at market prices	39,646

Personal Expenditure on Consumer Goods and Services

Personal expenditure on consumer goods and services is the largest single component of Gross National Expenditure. Around 60% of the Nation's total production is purchased in final markets for consumer use. Such outlays include personal expenditure for **durable goods**, such as automobiles, and

[19] In national income accounting, there remain unsettled questions regarding the theoretical distinction between "intermediate" and "final" output. For example, governments provide goods and services to business in the form of police and fire protection and the maintenance of transportation facilities. It has been argued that services of this kind should be regarded as intermediate output which is used up in the process of producing final goods and services, and that it should accordingly be excluded from final expenditures. As a practical matter, there is no satisfactory way of distinguishing between "final" and "intermediate" forms of government activity. In these Accounts, all government expenditures on goods and services are treated as "final" output.

household appliances and furniture; expenditure for **semi-durable goods**, such as clothing and footwear; expenditure for **non-durable goods**, such as food, alcoholic beverages and tobacco; and expenditure for a wide variety of **services**, covering such outlays as gross rents (including the rental value of owner-occupied housing), recreation, railway, air and urban transportation costs, and laundry, cleaning, and personal care service costs.

Free board and lodging and other income in kind for which an imputation is made are also included in personal expenditure, as if persons received income equal to the value of such goods and services and then purchased these items. Purchases of houses are regarded as business gross fixed capital formation but, as noted above, an imputed space rent on owner-occupied houses is included in both rental income of persons and in personal expenditure. The operating costs of private non-commercial institutions which provide their services to the community collectively (and which are treated as "associations of individuals" in these Accounts) are also included in personal expenditure. In addition, the operating costs and profits (premiums less claims) of life insurance companies are included to reflect the value of the services rendered by such companies (see Chapter 5). The estimates also cover expenditures of Canadian residents temporarily abroad (i.e. tourists and members of the Armed Forces); these expenditures are offset by a negative entry under imports of goods and services, so that Gross National Expenditure as a whole is not affected (no Canadian production is involved). To avoid double counting, an adjustment is made to the total estimate of personal expenditure to deduct expenditures of foreign residents temporarily in Canada, since this expenditure is already included as a positive entry in exports of goods and services. The value of used goods sold to persons is excluded from these estimates, but the dealer's commission and other factor incomes generated by the transaction are included as current production, and to maintain balance with the income side.

Government Current Expenditure on Goods and Services

This component consists of the current, non-capital outlays for goods and services of the federal, provincial and local governments, including locally administered elementary and secondary school systems and government administered hospital care services. It does not include government purchases on capital account (gross fixed capital formation, or inventories), or any of the activities of government business enterprises. The outlays cover all current purchases of goods and services for general operating expenses of government departments and agencies, including wages and salaries of government employees, office supplies, and maintenance and repair costs. The estimates also include defence expenditures. The imputation for the capital consumption (or depreciation) of government fixed assets is included here.

It needs to be emphasized that these expenditures relate to government current purchases of **goods and services only**. They do not include such current expenditures of government as transfer payments to persons, interest on the public debt, subsidies to producers, capital assistance to producers, or transfers to non-residents. These latter items, together with government gross fixed capital formation, must be added to government current expenditure on goods and services to arrive at figures of total government spending for all purposes.

Gross Fixed Capital Formation

Total "capital formation" in these Accounts consists of two types of investment – investment in durable fixed capital assets which yield a flow of services over a period of time extending into the future, and which are gradually used up by the wear and tear involved in general public use or (as in the case of industrial fixed capital) in the process of producing future goods and services; and investment in inventories, which do not yield a service beyond the period of account and which can be used up only once, either as a final sale, or as raw materials or partly finished products to be entered into future production. The following discussion deals only with investment in durable fixed assets – that is, with gross fixed capital formation as set out in Table 3-8, consisting of expenditures by government and business for all types of construction and machinery and equipment. Capital formation in the form of inventory investment is taken up in a later section.

Gross fixed capital formation is defined to include outlays on durable tangible assets with a lifetime use of one year or more. Only **new** construction (both residential and non-residential) and **new** machinery and equipment are included. Outlays on used buildings and second-hand machinery and equipment are excluded, since such goods do not represent a part of the nation's current production (they have been counted in Gross National Expenditure in the period in which they were produced).[20] An exception relates to imports of used machinery and equipment, which are included in both gross fixed capital formation and, are deducted as an import of goods and services, leaving Gross National Expenditure unaffected.

Outlays for land, mineral deposits, or timber tracts are also excluded from gross fixed capital formation since such assets do not represent current production of goods and services. However, capital costs involved in the preparation of sites, land improvements, mining development and exploration costs involving the acquisition of tangible assets, and construction and drilling costs, are included in gross fixed capital formation. Such costs represent stages in the process through which natural resources are discovered, developed and brought into use. But the value of the resources themselves is not capitalized in these Accounts.

Replacements and major alterations of capital installations are included as part of gross fixed capital formation, but ordinary repairs and maintenance expenses are not. Also included are various associated expenses which are capitalized along with the cost of the fixed assets acquired, such as architectural, legal and engineering fees. Outlays on construction works which are to be used primarily for military purposes, and purchases of military equipment, are not included in the estimates of gross fixed capital formation.

As has been indicated earlier, the estimates of fixed capital formation in these Accounts are on a "gross" basis, before any deduction to allow for the depreciation or capital consumption of existing assets. The calculation of "net" fixed capital formation is not possible on the basis of the estimates of depreciation as presently prepared. This matter is discussed more fully in the section "Capital Consumption Allowances and Miscellaneous Valuation Adjustments".

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[20] As noted in Chapter 2, transfer costs in the form of commissions and fees earned on the sale of used capital assets are included as part of gross fixed capital formation on the Expenditure side, and are balanced by factor incomes on the Income side.

There are three main types of expenditures on productive assets included in these estimates of gross fixed capital formation: government outlays for construction and machinery and equipment; business outlays for residential construction; and business outlays for non-residential construction and machinery and equipment (sometimes referred to as business plant and equipment outlays). These three categories of investment spending are discussed below.

Government gross fixed capital formation consists mainly of construction type expenditures – for schools, hospitals, waterworks, sewerage systems, roads, harbours, airports and various other capital installations – but it also includes outlays for machinery and equipment and a small amount of housing.[21] All levels of government are included – federal, provincial and local – but the investment spending of government business enterprises is not covered here. The decision to capitalize government investment spending in this revised set of Accounts was made on the basis that such assets add to the country's stock of capital and yield a flow of economic services over a period of years into the future. The gradual "using up" of government fixed capital is reflected in the imputation which is made for depreciation on government assets in the Accounts. But unlike business depreciation these amounts are not reflected in the market price of goods and services produced by the asset, since in the case of government assets no goods and services appear on the market.

Business gross fixed capital outlays for residential construction cover all expenditures for new housing except a small amount shown with government capital formation. The estimates include single units, multiple units and apartment dwellings, as well as garages and major improvements and alterations. The term "business" is here defined to include individual home-owners, who are treated in the Accounts as business enterprisers renting to themselves. All personal purchases of housing for owner-use are therefore included in these estimates, as well as commercial-type construction undertaken for rent.

Business gross fixed capital outlays for non-residential construction and machinery and equipment cover investment in all forms of productive assets by business which are used to produce a future flow of goods and services. Included here are all plant and equipment expenditures of corporations, unincorporated business enterprises (including farm operators) and government business enterprises. The capital outlays of non-commercial institutions such as universities, churches, and charitable and welfare agencies are also included in the estimates.

Value of Physical Change in Inventories

The annual change in holdings of business and government inventories must be included in the Gross National Expenditure in order to allow for that portion of current production which has not yet been sold (positive change in inventories), or to eliminate that portion of previous years' production which is included in sales of the current year (negative change in inventories). The change in the value of inventories relevant to Gross National Expenditure

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21 Defence expenditures for military equipment and defence installations are not treated as capital outlays, but are included with government current expenditure on goods and services.

should reflect the change in physical volume valued at the average market prices of the period. This change is referred to as the value of the physical change in inventories. Because the value of inventories reported by businessmen reflects "book values" based on accounting procedures which are not consistent with National Accounts requirements, an inventory valuation adjustment must be made to produce an appropriate figure. This inventory valuation adjustment is described in the earlier discussion of National Income and Gross National Product.

There are three main types of inventories distinguished in Table 2 of Volume 1 for which estimates of the value of physical change are computed: **government inventories; business non-farm inventories**; and **farm inventories and grain in commercial channels** (which are also a part of total business inventories). Government inventory holdings are a relatively small and insignificant part of total inventory holdings and exercise little leverage in the total change in inventory stocks. They include inventories held by government commodity agencies such as the Agricultural Commodities Stabilization Board and the Canadian Dairy Commission, and some uranium stocks.[22]

Business non-farm inventory stocks represent by far the largest part of total inventory holdings in the economy. They include all inventories of raw materials, goods-in-process, and finished products held by corporations, non-farm unincorporated businesses, and government business enterprises. By industry, the major part of non-farm business inventory stocks is held in manufacturing, and in wholesale and retail trade.

Farm inventories and grain in commercial channels consist mainly of grain and livestock held on farms, and grain in the hands of the Canadian Wheat Board. This category also includes some grain inventories held privately by commercial dealers. It may be noted that in the case of grain and livestock inventories held on farms, and grain held by the Canadian Wheat Board, the value of the physical change in inventories (and the corresponding estimates of net income on the income side) is computed directly, and no inventory valuation adjustment is necessary.

The inventory valuation adjustment in these Accounts applies only to business non-farm inventory stocks and grain in the hands of private dealers – areas where the primary data entering into the Accounts on the income side are based on book values.

Exports of Goods and Services less Imports of Goods and Services

Because a part of Canada's current production of goods and services is sold to non-residents, it is necessary to add the value of exports of goods and services to arrive at a final accounting of current production through final sales. Conversely, because sales to persons, governments, business and non-residents, as enumerated in Table 3-8 include goods and services produced by non-residents, i.e., imports of goods and services, it is necessary to subtract these in order to arrive at a correct summation of the value of Canadian output.

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[22] During the war and early post-war period, a substantial number of government commodity agencies existed – the Commodity Prices Stabilization Corporation, the Canadian Wool Board, the Special Products Board, the Meat Board, the Dairy Products Board, and the Agricultural Prices Support Board. These agencies are now defunct.

Exports of goods and services as defined in the Accounts include current receipts from exports of merchandise, freight and shipping credits earned on Canadian account, travel expenditures of non-residents in Canada, interest and dividends received from abroad, gold production available for export,[23] and other current earnings including receipts from business services rendered to non-residents. Imports of goods and services include current payments for imports of merchandise, freight and shipping charges incurred by Canada on foreign account, travel expenditures of Canadians abroad, interest and dividends paid to non-residents, and other current payments including payments for business services rendered by non-residents. It will be recalled that entries corresponding to the interest and dividend payments to and receipts from non-residents are made on the income side of the Accounts in keeping with the concept of "national" production expressed in the Gross National Product and Expenditure measurements.

The figures of exports and imports of goods and services appearing in the Gross National Expenditure table are those published by Statistics Canada in the Canadian Balance of International Payments,[24] subject to certain modifications related to wartime financing. Detailed aspects of transactions with non-residents are described more fully in Chapter 8. The relationship between transactions in goods and services and the current account of the Balance of Payments is set out in Table 3-9. Basically, current account receipts and current account payments reflect, in addition to exports and imports of goods and services, current transfers and transfers of inheritances and migrants' funds. Current transfers appear, as will be seen later, in the income and outlay account of non-residents (Tables 24 and 25 of Volume 1), but are not included with exports and imports of goods and services in Gross National Expenditure since they are not considered to represent current earnings of Canadian or foreign factors of production. Inheritances and migrants' funds received from or paid to abroad are transfers of a capital nature and for this reason do not appear in the Gross National Expenditure.

Until fairly recently the links between Balance of Payments data and the National Income and Expenditure Accounts were not fully articulated. Users of historical Balance of Payments reports will find it necessary to make a number of further adjustments. These include (for some parts of the back record) the addition to imports of goods and services and to current transfers received from abroad, of taxes withheld on earnings of non-residents. This adjustment for withholding tax, which in effect assigns this item to earnings of non-resident factors of production, has been described in Chapter 2. Such taxes represent a part of the earnings of foreign factors of production, but they also represent a transfer payment (tax outlay) from non-residents to the Canadian government. It is only in recent Balance of Payments publications that this entry has been articulated.

Also, in some earlier Balance of Payments reports there appears in both current receipts and current payments an entry for Mutual Aid to NATO countries. These entries have to be eliminated for use in the National Income

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[23] Gold production available for exports was treated as a current receipt in the Canadian balance of payments up to March 1968 as Canadian gold holdings were regarded as an external asset. With the establishment of separate official and private gold markets in March 1968, private gold has been treated as a normal commodity with exports and imports included in the merchandise trade data.

[24] Basic data for 1926 through 1971 are contained in *The Canadian Balance of International Payments, 1971*, Catalogue 67-201.

and Expenditure Accounts since the amounts represent provision of goods and services which have already been counted as Canadian production in government (defence) expenditure for goods and services, either in the current period or in some previous period. The adjustments are self-cancelling (since they reduce both exports of goods and services and imports of goods and services by identical amounts), and Gross National Expenditure is not affected.

TABLE 3-9. Relationship Between Balance of Payments Current Account Figures[1] and Exports and Imports of Goods and Services as per Gross National Expenditure

	1961	1962
	millions of dollars	
Current receipts, balance of payments	7,904[2]	8,548[2]
Deduct:		
Inheritances and immigrants' funds	– 104	– 124
Current transfers received from abroad[3]	– 60	– 65
Withholding taxes	– 116	– 125
Exports of goods and services as per GNE, Table 2	7,624	8,234
Current payments, balance of payments	8,832[2]	9,378[2]
Deduct:		
Inheritances and emigrants' funds	– 176	– 175
Current transfers paid abroad[4]	– 176	– 158
Imports of goods and services as per GNE, Table 2	8,480	9,045

[1] Data as published in *The Canadian Balance of International Payments 1971*, Catalogue 67-201.
[2] Includes withholding taxes.
[3] Personal and institutional remittances, and pensions received from abroad.
[4] Official contributions, pensions paid abroad, and personal and institutional remittances.

In earlier years, and particularly the war and early post-war period, a number of special adjustments have been made to the basic Balance of Payments data for National Income and Expenditure Accounts purposes. These and other aspects of transactions with non-residents are described more fully in Chapter 8.

The Residual Error of Estimate

The final estimate of the conceptually equal Gross National Product and Gross National Expenditure is taken as the **average** of the statistical totals obtained by adding together the unadjusted components of the Gross National Product and Gross National Expenditure, respectively. In other words, the difference between these two independently calculated totals – the residual error of estimate – is divided in half, with one half being subtracted from the higher estimate, and one half being added to the lower estimate, to produce arithmetical balance between the two totals, as in Tables 1 and 2 of Volume 1. This residual error of estimate reflects a number of factors including

imperfections in the basic statistics, flaws in estimation techniques, and discrepancies in the timing with which the income and expenditure data are recorded.

Rough appraisals of the income and expenditure sides of the Accounts suggest that they have approximately equal reliability. However, a small residual error is not conclusive evidence that the components are relatively free from error since there is a tendency for errors to cancel out in the summation process. Also, for much of the period covered by the estimates, the residual error has tended to be positive on the product side for a number of successive years, and then to be positive on the expenditure side for a period of time. This pattern, in which first one side of the Accounts, and then the other is persistently higher, suggests that there is some systematic "bias" in the estimates but to date it has not proven possible to identify probable sources of bias with any degree of certainty.

The residual error may sometimes be quite significant when considered in relation to year-to-year changes in Gross National Product and Expenditure. Preliminary estimates for the period 1968-71 provide an example of a period during which the residual error of estimate became relatively large, and also changed sign from year to year with the income side running below the expenditure side in one year and above the expenditure side in the immediately following year. The figures are shown in Table 3-10.

TABLE 3-10. Effect of Residual Error on Year-to-year Percentage Change

	1968	1969	1970	1971
	millions of dollars			
1. Gross National Product (before adjustment for residual error)	72,576	80,239	85,298	93,532
2. Gross National Expenditure (before adjustment for residual error) . . .	72,596	79,258	85,600	92,655
3. Residual error of estimate (1 - 2) . . .	– 20	981	– 302	877
4. Average ("Official" GNP and GNE). .	72,586	79,749	85,449	93,094
	1968-69	1969-70		1970-71
Year-to-year percentage change in (1) . .	10.6	6.3		9.7
Year-to-year percentage change in (2) . .	9.2	8.0		8.2
Year-to-year percentage change in (4) . .	9.9	7.1		8.9
(Year-to-year percentage change in Real Gross National Product)	(5.2)	(2.5)		(5.5)

Source: *National Accounts, Income and Expenditure, Third Quarter 1972* and related series.

In Table 3-10, the year-to-year percentage change in the income side (before adjustment for the error) differs from the year-to-year change in the expenditure side (before adjustment for the error) by about 1.5 percentage points in each of the three periods for which comparisons are made. For example, the value of production in 1969-70 increased by 6.3% on the basis of the income estimates and by 8.0% on the basis of the expenditure estimates. The "official" figures move mid-way between the two estimates and show an increase in the value of production of 7.1%. It may be noted that the

discrepancy of 1.7 percentage points between the income and expenditure sides is even more significant when it is considered in relation to the deflated estimates of Gross National Product (Real Gross National Product, shown in brackets) which rose by only 2.5% in 1969-70. In this period, the measured error factor is quite large in relation to the reported change in the physical volume of production.

Other Income Concepts (Tables 4 and 5, Volume 1)

An important and commonly used aggregate in these Accounts is "**Personal Income**" – the sum of **all** incomes received by persons resident in Canada irrespective of whether these incomes represent factor earnings of persons from current production or whether they are received as unrequited current transfers of income from the government and other sectors[25]. The following section reviews briefly the composition of the Personal Income total, and describes two related concepts – "Personal Disposable Income" and "personal saving". A fuller description of these aggregates and the sources and methods on which the estimates are based is provided in Chapter 5, "Persons and Unincorporated Business".

As shown in Table 4 of Volume 1, Personal Income includes all factor incomes of persons such as wages and salaries and net incomes of unincorporated businesses;[26] interest, dividends and various types of investment income of persons, (including investment income accumulated on behalf of persons by life insurance companies, private pension funds, and similar institutions); and all transfer payments received by persons from governments (such as old age pensions, mothers' and dependents' allowances, and unemployment insurance benefits) as well as transfers from corporations and non-residents. In these Accounts, "persons" and the "personal sector" are defined to include private pension plans, and private non-commercial institutions such as universities, labour unions, professional organizations, fraternal societies and charitable institutions, as explained in Chapter 5.

While the National Income includes all earnings of the various factors of production arising from the current production of goods and services, Personal Income includes only that part of the National Income which is paid out to persons, but it also includes large amounts of income of a transfer payment nature which is not included in the National Income. The relationship between the National Income and Personal Income is shown in Table 3-11, (and in Table 5 of Volume 1). All earnings not paid out to persons (line 3) are deducted from the National Income to arrive at Personal Income. Such earnings include the undistributed earnings of corporations and government business enterprises, the direct taxes of corporations and government business

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[25] Current transfer payments represent unrequited transfers of income from one sector to another (e.g. old age pensions paid by the government sector to the personal sector) where no flow of goods and services is involved. They represent transactions in which there is no "quid pro quo". They do not therefore enter into the National Income or Gross National Product and Expenditure, since these aggregates include only requited payments. In effect, current transfer payments simply represent a re-distribution of the income which has been earned in production.

[26] In the case of unincorporated businesses (farm and non-farm), the whole of net incomes is included in Personal Income since it is not statistically feasible to separate withdrawals for personal use from amounts retained in the business.

enterprises, government investment income, and the inventory valuation adjustment. At the same time, income received by persons in the form of current transfer payments from the government and other sectors are added back (line 2). The resulting figure is the total of Personal Income (line 4).

TABLE 3-11. Relation Between Net National Income at Factor Cost, Personal Income, Personal Disposable Income and Personal Saving

	1961
	millions of dollars
1. Net National Income at Factor Cost	29,783
Add:	
2. Government and other current transfer payments to persons[1]	4,091
Deduct:	
3. Earnings not paid out to persons	– 3,770
Equals:	
4. Personal income	30,104
Deduct:	
5. Personal direct taxes	– 2,944
6. Other transfers from persons to government	– 256
Equals:	
7. Personal disposable income	26,904
Deduct:	
8. Personal expenditure on consumer goods and services	– 25,930
9. Other transfers from persons to corporations and non-residents[2]	– 229
Equals:	
10. Personal saving	745

[1] Includes interest on the public debt and all government current transfers to persons shown in Table 50 of Volume 1.

[2] Includes interest on consumer debt and personal remittances paid abroad.

Personal Disposable Income (line 7) is the amount left over from Personal Income after payment of personal direct taxes and various other fees, licences and permits (including hospital and medical insurance premiums) to governments. This amount is available to be spent on consumer goods and services, transferred to other sectors, or saved. In these Accounts, **personal saving** (line 10) is derived residually, being equal to personal disposable income less personal expenditure on consumer goods and services, less personal transfers to other sectors. These basic concepts are discussed in greater detail in Chapter 5.

Gross Domestic Product (Tables 3, 8 and 9, Volume 1)

As was indicated in Chapter 2, the concept of Gross Domestic Product is accorded a larger role in this new revised system of Accounts, and a major new consolidated Gross Domestic Product account has been created in Tables 8 and 9 which provides one of the main reference features of the system. This new consolidated production account measures the value of production arising within the **geographical boundaries** of Canada irrespective of whether the factors of

production involved are resident or non-resident. (It will be recalled that the Gross National Product is designed to measure the production of Canadian residents only, and to exclude the production of non-resident factors of production).

There are several reasons for creating this new account. One principal reason is to permit a more easy accommodation of industry statistics within the main framework of the National Income and Expenditure Accounts. Estimates of production by individual industry groups are typically developed on a Gross Domestic Product basis which defines the production of each industry group as that which arises within the geographical boundaries of the country (see, for example, Table 28 of Volume 1). Not only is this where the main focus of interest is centred, but the form in which industry statistics are available does not permit a distinction to be made between the production of resident and non-resident factors at the industry level. Thus the new account establishes a closer link between the National Income and Expenditure system and various sets of industry statistics now being developed or published by Statistics Canada.

In addition, there is a growing interest in measurements of total production on a provincial or less than country-wide basis. Such estimates are more readily developed on a geographical (or domestic) product basis which aims to measure the value of production originating within the geographical boundaries of the province. Information to clearly distinguish between the production of resident and non-resident factors is generally inadequate. A number of the provinces now prepare estimates of Gross Provincial Product, although the bases and techniques of estimation vary a good deal. The creation of this new consolidated production account provides a comprehensive measure of production originating within the geographical boundaries of Canada, and constitutes an overall reference framework within which provincial estimates can be coherently related.

Finally, the greater emphasis on Gross Domestic Product conforms more closely to the United Nations system, where the entire structure of the Accounts is built around the concept of Gross Domestic Product. It may be noted that in the new revised Canadian Accounts, all of the sector tables (Tables 12 to 27 inclusive, of Volume 1) can be consolidated to yield the major aggregates set out in Tables 8 and 9. This consolidation can readily be carried out by simply following the cross-referencing system in the tables.

Table 3-12 shows the relationship between three major aggregates used in these Accounts – Gross National Product at Market Prices (Table 1 of Volume 1), Gross Domestic Product at Market Prices (Tables 8 and 9) and Gross Domestic Product at Factor Cost (Table 3). It will be noted that the estimates of Gross Domestic Product by Industry set out in Table 28 of Volume 1 are on a "factor cost" basis (as in Table 3), not a "market prices" basis (as in Tables 8 and 9). Given present information, it is not possible realistically to allocate the component "indirect taxes less subsidies" to the various industries which have borne the cost.

TABLE 3-12. Relationship Between Gross National Product at Market Prices and Gross Domestic Product at Market Prices and at Factor Cost

	1961
	millions of dollars
Gross National Product at Market Prices	39,646
Deduct:	
Investment income received from non-residents	– 300
Add:	
Investment income paid to non-residents	1,022
Gross Domestic Product at Market Prices (Tables 8 and 9)	40,368
Deduct:	
Indirect taxes less subsidies	– 4,838
Residual error of estimate	– 142
Gross Domestic Product at Factor Cost (Table 3)[1]	35,388

[1] See also Table 28 of Volume 1.

The Constant Dollar Estimates and Implicit Price Indexes (Tables 6 and 7, Volume 1)

Gross National Product and Expenditure measure the **value** of goods and services produced by Canadians. The value of this production is seen to increase year by year, but this value increase is composed of two elements – a change (usually an increase) in the **quantity** of goods and services produced; and a change (again, usually an increase) in the **price** of goods and services produced.[27]. Thus, between 1963 and 1964, the value of Gross National Product rose by 9.4%. This value increase was made up of an increase in the price component of Gross National product of 2.5 per cent (as measured by the implicit price index of G.N.E. in Table 7 of Volume 1), and an increase in the quantity of goods and services produced of 6.7% (as measured by the constant (1961) dollar estimates of G.N.E. in Table 6).[28]

The purpose of this section is to provide a brief introduction to these estimates of price and quantity change – to show how the change in the **value** of the Gross National Product can be decomposed into its two basic elements of **price** and **quantity** change. Chapter 9 discusses these estimates, and the techniques underlying them, in much fuller detail. The present discussion merely aims to provide a simplified explanation of the basic rationale and principle involved.

It is, of course, essential to know whether the volume (quantity) of production is increasing or declining, and at what rate. The rate of increase in the physical volume of output is one of the main determinants of the rate of job creation in the economy. It also indicates whether the economy is measuring up to its "potentials", or whether it is falling short of these potentials with a resultant gap developing between actual and potential Gross

[27] Since the end of World War II, there have been only two years in which the quantity of goods and services produced declined – 1946 and 1954. In this period, the price component of Gross National Product has shown a virtually uninterrupted rise except in 1953 when a fractional decline occured.

[28] Thus, the index of price change (102.5) times the index of quantity change (106.7) equals the index of value change (109.4).

National Product. This information is masked and obscured in the value figures, because the value figures also reflect the rate of price change in the economy. And this rate of price change can on occasion account for a major part or even most of the increase in the value of production, as in 1969-70 when real output (volume) rose by 2.6%, prices by 4.6% and the value of output by 7.3%.

The problem, then, for the national income statistician, is to decompose the value estimate of Gross National Product into its price and quantity constituents. To do this, he takes the various categories of expenditure which make up the value of the Gross National Expenditure, and tries to identify the price element which is associated with each particular category of outlay, in each of the years for which the estimates are made. When this price element is eliminated, the estimates are said to have been "deflated". Several hundred individual series are involved, each representing the value of final sales or final expenditures.

These individual series represent sales of products or groups of products whose physical characteristics differ widely – pounds of sugar, loaves of bread, pairs of shoes, suits of clothes, and so forth. They also represent sales of services which cannot ordinarily be expressed in terms of physical units of output. The measurement of physical quantities for the whole economy (and for most series) cannot therefore be expressed and summed up in terms of homogeneous physical units of output, but must be converted to a money valuation basis from which the year-to-year change in price has been eliminated. The estimates which measure the change in the physical volume of output provided in Table 6 of Volume 1 (and illustrated in Table 3-13), are thus valued in 1961 constant dollars. In other words, the estimates of quantity change are valued in constant 1961 prices.

Gross National Product in Current and Constant (1961) Dollars

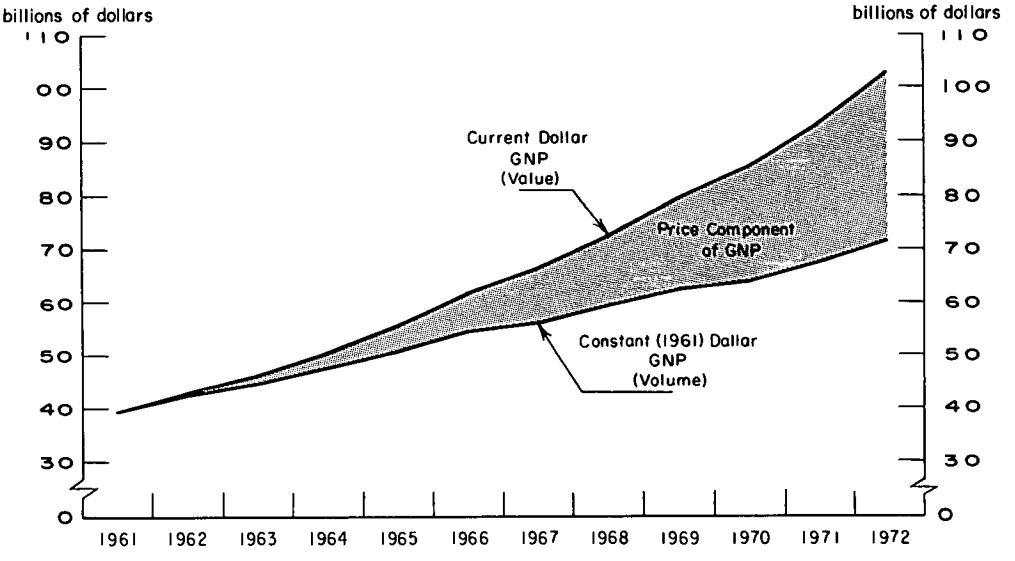


TABLE 3-13. An Illustration of the Deflation Principle

		1961	1962	1963	1964	1965
Basic data on final sales:						
1. Value of sales	$	125,000	137,700	157,500	187,000	185,600
2. Average estimated price	$	5.00	5.10	5.25	5.50	5.80
3. Implied quantity (line 1 ÷ line 2) (units unspecified)		(25,000)	(27,000)	(30,000)	(34,000)	(32,000)
Deflation process:						
4. Index of price (1961=100), from line 2	%	100.0	102.0	105.0	110.0	116.0
5. Value of sales in Constant (1961) Dollars (line 1 ÷ line 4)	$	125,000	135,000	150,000	170,000	160,000
Year-to-year change in volume of output:						
6. Year-to-year percentage change in deflated sales (line 5)	%		+ 8.0	+ 11.1	+ 13.3	– 5.9
7. Year-to-year percentage change in implied quantity (line 3)	%		(+ 8.0)	(+ 11.1)	(+ 13.3)	(– 5.9)

Table 3-13 provides a simplified example of the "deflation" procedure. Assume a situation in which the basic data are as given in lines 1 and 2 of the table. The statistician has information only on the total value of sales (line 1) and the average (usually a weighted) price for this particular group. In line 4, an index of price change is prepared, based on the year 1961=100. This index is then divided into the value of sales (in line 1), to yield a "deflated" series of sales expressed in constant (1961) dollars (line 5). The year-to-year percentage change in this deflated sales series (line 6) is identical to the year-to-year percentage change in the implied quantity series (line 7).[29]

The estimates for total constant (1961) dollar Gross National Expenditure shown in Table 6 of Volume 1 are obtained as the sum of all of the individual expenditure estimates, "deflated" as illustrated in Table 3-13. When these deflated estimates of total Gross National Expenditure are divided into the total value of Gross National Expenditure in Table 2, an **overall** implicit price index for Gross National Expenditure as a whole is obtained. This price index is shown in Table 7 of Volume 1, on the basis 1961= 100. In effect, this index constitutes an index of price change for the economy as a whole, implicitly weighted to reflect the relative importance of each expenditure category in the Gross National Expenditure. It is commonly known as the price component of Gross National Product, or as the implicit GNP price deflator. Of all the price indexes available, this is the most comprehensive since it covers expenditures of the entire economy.[30]

For illustrative purposes, the value, volume and price components of Gross National Expenditure for the years 1961-65 are shown in Table 3-14.

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[29] If all units of output were homogeneous for any one series (e.g. pounds of butter), and if the price and value data could be matched exactly, the physical volume of output for any particular series (not for the economy as a whole) could be derived directly, as in line 3 of Table 3-13.

[30] Other indexes of price change, such as the consumer price index and the wholesale price index, cover only particular areas of the economy.

TABLE 3-14. Current and Constant (1961) Dollar Gross National Expenditure and the Implicit (1961=100) GNE Price Index

	1961	1962	1963	1964	1965
	millions of dollars				
Gross National Expenditure at Market Prices, Table 2	39,646	42,927	45,978	50,280	55,364
Percentage change from previous year . . . . %		+ 8.28	+ 7.11	+ 9.36	+ 10.11
Gross National Expenditure in Constant (1961) Dollars, Table 6	39,646	42,349	44,531	47,519	50,685
Percentage change from previous year . . . . %		+ 6.82	+ 5.15	+ 6.71	+ 6.66
Gross National Expenditure Implicit Price Index (1961=100), Table 7	100.00	101.36	103.25	105.81	109.23
Percentage change from previous year . . . . %		+ 1.36	+ 1.86	+ 2.48	+ 3.23

Saving and Investment (Tables 10 and 11, Volume 1)

Among the key aggregates in these Accounts are those which relate to the concepts of saving, and capital formation or investment. Tables 10 and 11 of Volume 1 are designed to show total gross domestic capital formation in the economy, and the sources of financing – in the form of national saving or net borrowing from abroad – from which this investment was made. Before discussing these estimates and their relationship to other parts of the system, however, a word on basic definitions is in order.

In these Accounts, national saving is defined as being equal to national production less consumption – that is, to Gross National Product at Market Prices, less personal expenditure on consumer goods and services, less government current expenditure on goods and service. Thus, for the year 1961:

	1961
	millions of dollars
National saving equals:	
Gross National Product	39,646
Less personal expenditure on consumer goods and services	– 25,930
Less government current expenditure on goods and services	– 6,206
National saving	7,510

But, since national production less consumption is also equal to the nation's investment from its own resources, national saving must also be equal to total gross capital formation (gross fixed capital formation plus inventory change) plus any net investment abroad represented by a surplus on current transactions with non-residents, or minus any net disinvestment abroad (net borrowing) represented by a deficit on current transactions with non-residents. Thus, for the year 1961:

	1961
	millions of dollars
National saving equals:	
Gross fixed capital formation	8,392
Plus value of physical change in inventories	116
Plus surplus on current transactions with non-residents, or minus deficit on current transactions with non-residents	– 856
Plus residual error of estimate	– 142
National investment	7,510

For most of the post-war period, Canada has in fact run a **deficit** on its current transactions with non-residents. Such a deficit in effect means that the country has been drawing upon the savings of non-residents to help to finance its domestic investment program[31] – savings which correspond to the net import of resources from abroad as measured by the deficit on current account. This being so, it is more convenient to re-write the above identities in the following form (Table 3-15) to show the country's total investment program (not simply that part which is financed out of national saving) and to show the total sources of financing of this program from both national saving and non-resident saving.

TABLE 3-15. Gross Capital Formation (Demand for Saving) and Sources of Saving

	1961
	millions of dollars
Gross fixed capital formation	8,392
Value of physical change in inventories	116
Residual error	– 142
Total gross capital formation	8,366
Sources of saving	
National saving	7,510
Net borrowing from abroad, or net import of resources from abroad, represented by deficit on current transactions with non-residents	856
Total sources of saving	8,366

In the present system of Accounts, these saving-investment identities are presented in the form shown in Table 3-15. Tables 10 and 11 of Volume 1 represent a consolidation of the "capital finance" accounts of each of the four main sectors of the economy which are discussed in the next chapter – the persons and unincorporated business sector, the government sector, the corporate and government business enterprises sector, and the non-resident sector. The way in which the saving and investment of each of these four main sectors can be consolidated to yield the overall saving and investment totals shown in Tables 10 and 11 (and in Table 3-15) is explicitly set out in the cross-referencing system given in the tables.

[31] Gross domestic investment is the total gross capital formation taking place within the geographical boundaries of Canada.

In analyzing saving-investment relationships, it is useful, on the investment side, to distinguish between government capital formation and business capital formation. The decision to capitalize government investment outlays in this new revised system of Accounts has meant that government sector "saving" includes all of the gross capital formation of the government sector. This treatment represents a departure from government accounting practices, where capital-type outlays are ordinarily charged to current expenditure, with the government surplus or deficit reflecting this fact. In Table 43, two figures are provided – a figure of government "saving" which includes government gross capital formation; and a figure showing the "surplus or deficit" on all government transactions on a National Accounts basis, which in effect reflects the charging of all government outlays, including capital outlays, to current expenditures. (Table 3-16 shows the figures for the year 1961).

It is also useful, on the financing of investment (or saving) side, to distinguish between **private sector** saving (persons and unincorporated business enterprises, and corporate and government business enterprises), **government sector** saving, and **non-resident** saving. While by far the greater part of saving is generated by the private sector, the role of the government sector and of the non-resident sector in the saving-capital formation process is highly significant. It is of interest to note that private sector saving as a percentage of Gross

TABLE 3-16. Gross Capital Formation (Demand for Saving) and Sources of Saving

	1961
	millions of dollars
Gross fixed capital formation (Tables 2, 11, 15, 19, 23):	
Government	1,674
Business	6,718
Value of physical change in inventories (Tables 2, 11, 15, 19, 23):	
Government	8
Business	108
Residual error of estimate	– 142
Total gross capital formation	**8,366**
Sources of saving	
Private sector saving:	
Persons and unincorporated business (Table 14)	2,389
Corporate and government business enterprises (Table 22)[1]	4,274
Total	**6,663**
Government sector saving (Tables 18, 43):	
Gross capital formation (as above)	1,682
Surplus (+) or Deficit (-) on all government transactions[2]	– 835
Total	**847**[3]
Non-resident sector saving (Table 26):	
Deficit of Canada on current transactions with non-residents	856
Total sources of saving	**8,366**

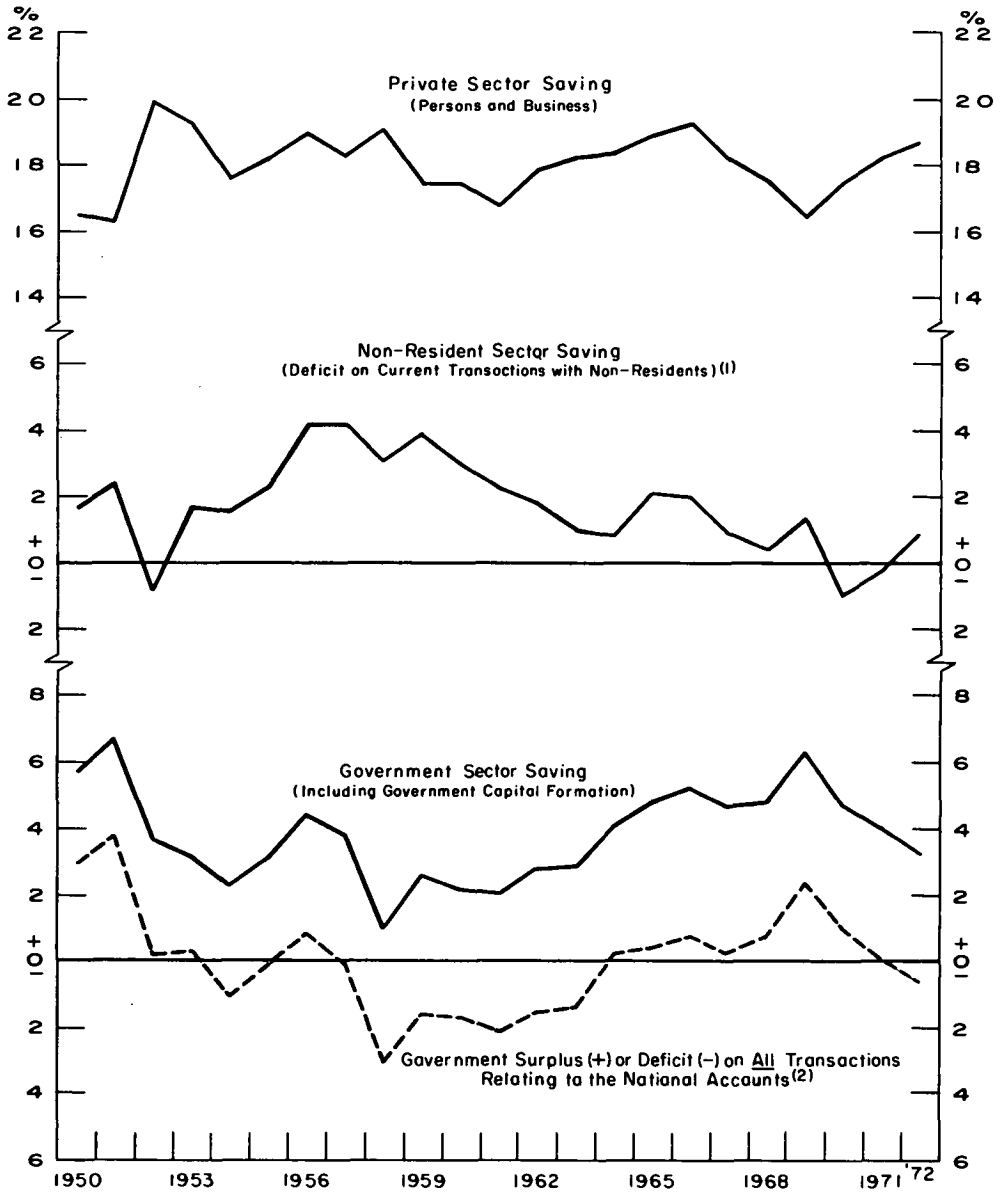
[1] Includes residual error of estimate arbitrarily assigned to this sector.
[2] Reflects charging of government gross capital formation to current expenditures.
[3] An alternative presentation of government sector saving would be as follows:

Total revenue less total current expenditure – Tables 18 and 43	316
Capital consumption allowances – Tables 18 and 43	531
Total	847

National Product has tended to show a remarkable degree of stability over long periods of time, while government sector saving and the degree of Canada's dependence on saving from abroad has tended to fluctuate more widely. (Chart 3-2).

Table 3-16 draws together the information contained in Tables 10 and 11 of Volume 1, with the data organized along the lines suggested in the foregoing discussion. While there are many ways of re-arranging and recombining the saving-investment figures, this particular presentation provides a useful over-all summary view.

Sources of Saving to Finance Gross Capital Formation as a Percentage of Gross National Product



(1) In 1952 and 1970, the Balance on Current Transactions with Non-Residents was in Surplus.

(2) Reflects Charging of Government Gross Capital Formation to Current Expenditures.

A Concluding Comment

The Bibliography at the end of this report sets out some of the more important references in the field of National Income theory and concepts. Much of this literature is concerned with the basic design of National Income accounts as presently developed in the industrialized countries, but some of it explores the possibility of major new departures which would involve significant modifications to the present system. In recent years, for example, partly reflecting current concerns with economic growth, environmental deterioration, and the quality of life, a good deal of discussion has focussed on what are regarded as inadequacies in the existing framework from the point of view of measuring social and economic welfare. (This matter was discussed briefly in Chapter 1.) Thus, the failure of the Accounts to reflect the "costs" or unwanted side-effects of economic growth such as air and water pollution and other forms of environmental deterioration has received wide-spread attention. It is suggested by some that these "costs" or diseconomies should be measured and that the Gross National Product should be correspondingly reduced to reflect the negative effects of economic growth. Such an approach would take the Accounts far into the welfare field (which they do not presently purport to measure) and into major areas of non-market activity. At the same time, it has been suggested that the distinction between consumption and capital formation is unsatisfactory, and that there are grounds for extending the definition of capital to include intangibles such as investment in education and knowledge, as well as investment in the stock of durable goods in the hands of consumers which yield economic services over long periods of time. These and a good many other matters relating to the construction and use of National Income accounts continue to be under active debate in the literature.

A discussion of these issues would go far afield and well beyond the intended scope of this report, which is to describe the existing system which has been developed since the end of the war. Needless to say, the issues raised are large, and most of them would involve major changes to the existing structure if they could in fact be implemented. The introduction of welfare considerations in particular would alter the basic nature of the system, which is to describe and measure market-oriented activity taking place in the money-exchange economy. Users of the Accounts may wish to be aware, however, that a good deal of work has been done to explore and better develop the basis for understanding and coping with these questions.[32] It is by no means agreed among national income statisticians that all of these matters are capable of being dealt with within a formally structured system of Accounts, or even that they should be. But research into these areas is important in its own right, whether or not the results are eventually incorporated into a re-structured set of National Income and Expenditure Accounts at some future date.

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[32] See for example, *The Design of Economic Accounts*, by Nancy and Richard Ruggles, National Bureau of Economic Research, New York, 1970; *Education, Income and Human Capital*, by W. Lee Hansen (Editor), National Bureau of Economic Research, New York, 1970; *On the Measurement of Economic and Social Performance*, by F. Thomas Juster, 50th Annual Report of the National Bureau of Economic Research, 1970; and recent Annual Reports of the NBER reporting on its research program. See also, discussions in *Economic Accounts of the United States: Retrospect and Prospect*, Survey of Current Business, U.S. Department of Commerce, Washington, D.C., July 1971. These and other source references are listed in the Bibliography.

CHAPTER 4

FOUR SECTORS OF THE ECONOMY: THE SECTOR ACCOUNTS SYSTEM

The previous chapter has outlined the broad conceptual framework of the National Income and Expenditure Accounts and described the principal measures of aggregate output and their components. Underlying the derivation of these basic aggregates is a vast network of transactions which reflects the flows of income and expenditure taking place among different parts or sectors of the economy. The present chapter describes the organizing system which summarizes this flow of information and reduces it to an orderly and manageable set of statistics – statistics in the form of a set of accounts suitable for analyzing the operation of the economy and for showing the inter-relationships among its various parts.

Sectors

In the construction of a system of sector accounts, the economy is viewed as consisting of four separate groups of transactors or sectors. These are: persons, governments, businesses, and non-residents – each representing a class of transacting unit which is separately distinguishable from other groups of transactors on the basis of the particular role or function which each group occupies in the operation of the economy. Thus, the personal or household sector is essentially concerned with the transactions of members of the community in their capacity as final consumers. The government sector is focussed around the transactions of the public authorities (all levels of government) as they relate to taxation and public expenditures. The business sector encompasses that group of transactors who produce goods and services for sale at a price which is calculated to cover costs and yield a profit (this profit-motivated "business enterprise" groups of transactors produces the bulk of the nation's output). All three of these sectors or group of transactors are motivated and behave in ways which are relatively homogeneous within groups but are essentially quite different between groups. This principle of homogeneity of transacting groups from the standpoint of motivation and behavior is a major basic idea behind the division of the economy into separate sectors.

The fourth sector – the non-residents sector – groups together the transactions taking place between Canada and the rest-of-the-world. In this particular instance, the principle of grouping together transactors in accordance with the similarity of their economic behavior and motivation cannot be followed. This is because the transactors involved are in reality the business, personal, and government sectors of the national economy and the economies of the rest-of-the-world, and the motivation and behavior of these sectors are different regardless of whether the transactions take place internally or with the rest-of-the-world. The treatment of setting up a separate sector to show transactions with non-residents simply meets the practical test of facilitating the analysis of economic inter-relationships in these Accounts.

It will be recalled that in the preceding chapter, in the discussion of Gross National Expenditure, there were four major types of users of the nation's production identified – consumers, governments, business enterprises, and non-residents. The classificatory system underlying the present set of sector

accounts represents an extension and modification of this four-way view of the economy. It builds upon the definitions and principles underlying this four-way classification of the uses of the nation's output, but (primarily for statistical reasons) it does not follow exactly the precise lines of these sectoral arrangements, as will be indicated later in this chapter.

The four main sectors of the economy which provide the major markets for the nation's output and which constitute (with some modification) the organizational basis for the sector accounts system are defined as follows:

Persons

The personal sector includes all persons, households, and private organizations which are not established for the purpose of making a gain, e.g. charitable institutions, labour unions, professional organizations, fraternal societies and universities. Private pension funds are also included in this sector. The homogeneity of the personal (or household) sector suffers somewhat from the inclusion of the transactions of private non-commercial institutions, although this relatively small group of transactors operates essentially as "associations of individuals".

Governments

The government sector includes all general government departments and agencies – federal, provincial and local, including hospitals and the Canadian and Quebec Pension Plans – which are non-commercial in nature. Government enterprises which operate on a profit or cost recovery basis and are thus broadly similar in their motivation to a private business enterprise are included in the business sector. Activities of governments of a non-budgetary nature which do not come within the definition of a government business enterprise, such as transactions arising out of the Unemployment Insurance Fund and the Old Age Security Fund, are included in the government sector.

Businesses

The business sector includes all transactors who operate for gain, including corporations, unincorporated business enterprises, independent professional practitioners, and government business enterprises. The basic characteristic is that these transactors produce goods and services for sale at a price which is intended to cover the cost of production. There are, however, some special cases where part of the activity of a non-business group of transactors is considered to be business activity. Persons who own residential dwellings are assumed to be operating as business enterprises (landlords) with respect to their housing activity whether or not they occupy their own premises. Similarly, private non-commercial institutions are assumed to be operating as business enterprises when they undertake the construction of new buildings. Thus, all capital formation, apart from government capital formation, is defined to take place in the business sector. Government capital formation is included in the government sector.

Non-residents

The non-residents' sector includes the transactions of the rest-of-the-world with Canadian residents. In this context, Canadian residents are defined as individuals, and institutions such as government agencies, corporations and non-profit institutions which are normally resident in Canada.[1]

Types of Accounts

Broadly considered, there are three main types of economic activity covered in the National Income and Expenditure Accounts – production; consumption; and capital formation (saving). In principle, it is possible to construct an account corresponding to each of these three basic types of economic activity, for each of the above four sectors of the economy. Thus, it would be possible in principle (if all the necessary information were available) to build a system of sector accounts which would include a production account for each of the four sectors, a consumption account for each of the four sectors, and a capital formation account for each of the sectors, as in the following schema:

	Persons	Governments	Businesses	Non-residents
Production Account	– Expenses incurred in production, and Receipts from sales of goods and services produced. (Operating surplus or "profit").			
Consumption Account	– Operating surplus or "profit" on production account plus income from other sources, and Current Outlays for all purposes. (Saving).			
Capital Formation Account	– Sources of saving to finance gross capital formation, and Disposition of saving as gross capital formation or acquisition of financial assets (Net lending or borrowing).			

In such a system, the **production account** would correspond broadly to the operating account of a business firm. (The main production account in such a system would be that of the business sector, where over 80% of the nation's production originates.)[2] In it would be recorded, on the expenditure side, current costs of production such as wages and salaries, rents, interest

[1] It may be noted that Canadian branches and subsidiaries of foreign corporations are considered as Canadian residents with regard to their transactions both in Canada and with the rest-of-the-world. Their purchases from Canadian residents do not go through the Balance of Payments but are regarded as transactions taking place between residents of Canada. Their purchases from the rest-of-the-world are regarded as transactions with non-residents and are considered as imports of goods and services. However, to the extent that earnings represent returns to non-resident factors of production (e.g. interest and dividends paid on capital invested by non-residents), these earnings are excluded from the National Income as earnings accruing to the non-resident sector.

[2] See the Appendix to this chapter.

charges, depreciation costs and indirect taxes incurred in the course of producing goods and services. On the receipts side, revenues from current sales of goods and services would be recorded as well as any additions to the value of inventory stocks. (Inter-business purchases and sales of goods and services would not be recorded since for the economy as a whole these transactions cancel out.) The balance would represent the "operating surplus", "profit" or "net income" earned on production account, to be carried down into the sector's consumption (or income and outlay) account. The "saving" on consumption (or income and outlay) account in turn would provide a source of saving for financing the sector's gross capital formation.

There are various ways in which the sectoral divisions of the economy can be drawn, and various combinations in which the three types of accounts can be presented. In the Canadian sector system adopted here (shown diagrammatically in Chart 4-1), there are two basic modifications made to the design of the system of sector accounts described in the above example:

(a) production accounts are **not** provided for the various sectors of the economy. Only a production account for the economy as a whole is shown; and

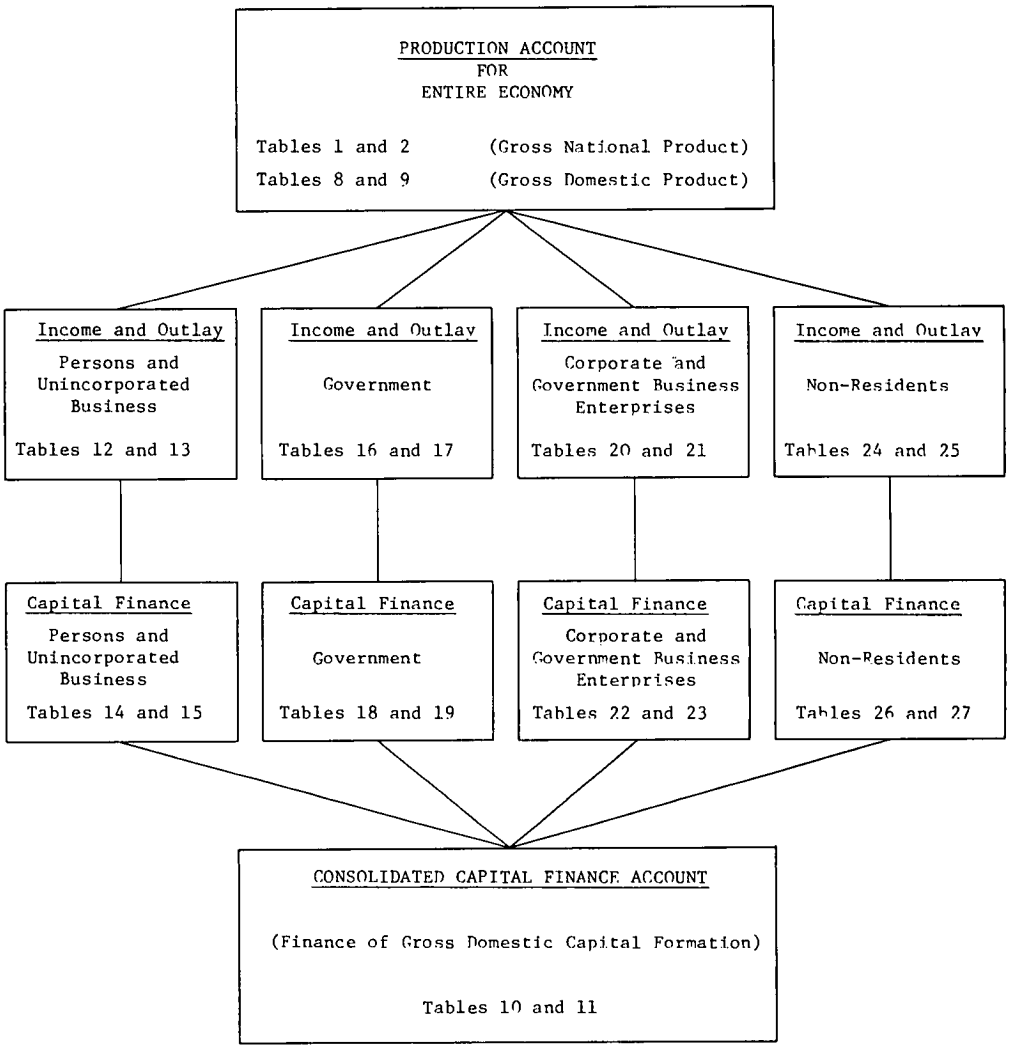
(b) the transactions of unincorporated businesses are consolidated with the transactions of persons rather than with the transactions of business, because of the problem of distinguishing between withdrawals of net income for personal use and net income retained in the business. In other words, the transactions of the persons and business sectors of the economy are re-grouped so as to create a "persons and unincorporated business sector" and a "corporate and government business enterprise sector".

The main tables of Gross National Product and Expenditure (Tables 1 and 2 of Volume1), and The Consolidated Production Account (Tables 8 and 9 of Volume 1) are in effect production accounts for the entire economy – for all of the four sectors (as modified) taken together (Chart 4-1). The construction of separate production accounts for each of the four sectors of the economy would add no essential information which cannot be presented in other ways. Accordingly, in these Accounts, the sector system is developed in terms of a set of **income and outlay accounts** together with an associated set of **capital finance (or capital formation)** accounts, both of which are described in later sections of this chapter.

Types of Transactions

A word needs to be said at this point about types of transactions. There are two basic types of transactions distinguished in these Accounts – transactions which take the form of **requited** payments involving a two-way exchange between transactors, in which there is a "quid pro quo"; and transactions which take the form of **unrequited** payments involving a unilateral transfer in which there is no "quid pro quo".

THE CANADIAN SYSTEM OF NATIONAL INCOME AND EXPENDITURE ACCOUNTS



Requited payments fall into three classes: **payments for goods and services received** (e.g. personal expenditure on consumer goods and services); **payments to factors of production** (e.g. wages and salaries, profits and rents); and **payments in exchange for financial assets** (e.g. lending involving the acquisition of bonds or mortgages, or direct purchases of equity stocks). Transactions of the latter class (involving financial assets) appear here only in the capital finance accounts, as consolidated net lending or borrowing.

Unrequited transactions, or "transfer payments" are divided into two classes: **current transfers**, involving a re-distribution of incomes earned in the course of current production (e.g. welfare-type transfers from governments to persons, or tax transfers from persons and businesses to governments); and **capital transfers**. Almost all transfer payments in these Accounts are "current" transfers. However, one class of transactions – migrants' funds and

inheritances (both receipts and payments) – are defined as capital transfers since they are more closely identified with transfers of accumulated wealth than with transfers of current income from productive activity.

As was indicated in Chapter 3, only requited payments in the form of payments to factors of production or payments for goods and services enter into the Gross National Product and Expenditure. Such requited transactions measure, on the one hand, the incomes generated in the course of current production, and on the other hand, the sale of this production to final users. Unrequited payments in the form of current transfers simply represent a re-distribution of the incomes earned in current production and do not add to the total of the national income.

Income and Outlay Accounts

The income and outlay accounts presented here are designed to record, on the income side, the "operating surplus", "profits" or "net incomes" earned on production account, and all other classes of income received by each sector from various sources – wage and salary earnings from direct participation in productive activity, earnings distributed from other sectors such as interest and dividends paid out to persons by business, and income received in the form of unrequited current transfers from other sectors. On the expenditure side, all of the current outlays of each sector are recorded – outlays in the form of current expenditures on goods and services, transfer payments including payment of taxes, and distribution of earnings (interest and dividends). The balance, representing the "saving" of each sector on income and outlay account, is carried down into the sector's capital formation account as a source of finance for gross capital formation.

Persons and Unincorporated Business (Tables 12 and 13 of Volume 1)

The income of the persons and unincorporated business sector (Table 12) includes all forms of labour income, distributed earnings in the form of interest and dividends received, various types of miscellaneous investment income, and income in the form of current transfers, mainly from government. In addition, all of the net income of unincorporated business proprietors (including farm operators) is included with the income of this sector – not simply withdrawals of income for personal use. For this particular group of transactors, withdrawals of earnings for personal use cannot be separated from the earnings retained in the business.[3]

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[3] If the net income of unincorporated business proprietors could be broken down between withdrawals for personal use and earnings retained in the business, it would be possible in principle to construct income and outlay accounts for the personal and business sectors as separate entities. In this case, the total net income of unincorporated businesses would be shown on the income side of the business income and outlay account, with the distributed portion entered as an outlay in this account, and as income in the income and outlay account of persons. The present treatment means that personal saving as shown in the income and outlay account of persons and unincorporated business contains an unidentifiable amount of business retained earnings.

The outlay side of this account (Table 13) includes all of the consumption expenditures of households – all expenditures by persons for consumer goods and services, including the expenditures of unincorporated business enterprisers in their capacity as consumers. In addition, all tax payments from the personal and unincorporated business sector to the government sector, and some other payments of a transfer nature, are entered as outlays in this account. The balance, representing personal saving, is transferred to the capital formation account of the sector as a source of finance.

Corporate and Government Business Enterprise (Tables 20 and 21 of Volume 1)

The corporate and government business enterprise income and outlay account (Tables 20 and 21) is essentially an account for recording receipts of business income by the business sector (excluding the net income of unincorporated business enterprises), and showing how this income is distributed. The major source of income for this sector is the "profit" earned on production account, but other sources of income include transfer payments, investment income and capital assistance from government. On the outlay side, this account shows how the income of the sector is distributed – to shareholders and debt-holders as dividends and interest, to other groups as distributed earnings, to governments in the form of tax payments, and to the personal sector in the form of small amounts of current transfers.[4] The undistributed profits and other unremitted income of this sector represents the sector's saving, which is again carried down into the sector's capital formation account as a source of finance of investment.

The Government Sector (Tables 16 and 17 of Volume 1)

In the government sector income and outlay account (Tables 16 and 17), the main source of income consists of the tax revenues flowing to the government sector – direct taxes levied on businesses and persons, indirect taxes, various fees, licences and permits, and withholding taxes on the investment income of non-residents. In addition, governments receive a substantial amount of investment income in the form of remitted profits of government business enterprises and various types of interest and miscellaneous investment income. The outlay side of the government account includes current purchases of goods and services from business, payments of wages and salaries to the government's own employees, interest on the public debt, a great variety of transfer-type payments to persons (such as unemployment benefits, family allowances and old age pensions), and subsidies to business. Again, the balance representing the sector's saving (which is sometimes negative) is carried down to the sector's capital formation account as a source of finance.

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[4] There are no purchases of goods and services shown in this account, since all purchases of goods and services by business are either a form of intermediate production, payments to factors of production for factor services (which are recorded in the production account), or a part of business gross capital formation. The latter is shown in the sector's capital formation account.

The Non-residents Sector (Tables 24 and 25 of Volume 1)

The income and outlay account of non-residents (Tables 24 and 25) summarizes the current transactions of the rest-of-the-world with Canada. The income side of this account consists of receipts by non-residents from sales of goods and services to Canada, receipts of interest, dividends and miscellaneous investment income paid by Canada, and receipts of current transfers of income from Canada. The outlay side includes payments by non-residents to Canada for goods and services purchased, payments of interest, dividends and miscellaneous investment income earned by Canadians, and payments representing current transfers. The deficit or surplus of Canada on current transactions with non-residents is carried into the capital finance account of the non-resident sector.

In this system of accounts, a Canadian deficit represents a net import of resources from abroad – a form of non-resident saving which becomes a source of financing for gross capital formation. Its counterpart on the financial side is a corresponding amount of net borrowing by Canadians from abroad (or net lending by non-residents to Canada). A Canadian surplus, on the other hand, represents a net export of resources to abroad and constitutes a form of Canadian "saving" which has been invested abroad. Its counterpart on the financial side is a corresponding amount of net lending by Canadians to non-residents.

The figures appearing as totals in the income and outlay account of non-residents correspond closely to the figures of "imports of goods and services" and "exports of goods and services" in Table 2 of Volume 1. The difference is simply that in the income and outlay account of non-residents as presented in Tables 25 and 26, current transfers to non-residents and current transfers from non-residents are included as part of total payments and receipts. In Table 2, such transfer-type transactions are excluded from the figures as they do not measure any form of productive activity.

TABLE 4-1. Payments and Receipts of the Non-resident Sector

	1961	1962
	millions of dollars	
Exports of goods and services as per GNE, Table 2	7,624	8,234
Add:		
Current transfers received from non-residents[1]	176	190
Payments by non-residents to Canada as per Table 25	7,800	8,424
Imports of goods and services as per GNE, Table 2	8,480	9,045
Add:		
Current transfers paid to non-residents[2]	176	158
Receipts by non-residents from Canada as per Table 24	8,656	9,203

[1] Withholding taxes, personal and institutional remittances, and pensions received from abroad.
[2] Official contributions, personal and institutional remittances, and pensions paid abroad.

Chart 4-1 provides a diagrammatic view of the sector accounts system and the way in which the three basic types of accounts – each corresponding to a particular kind of economic activity – are related to each other and to the whole. The sector accounts (income and outlay and capital finance) can be

consolidated to yield the production account for the entire economy – that is, Gross National Product or Gross Domestic Product as set out in Tables 1, 2, 8 and 9 of Volume 1. The capital finance accounts, which flow directly out of the income and outlay accounts, can also be consolidated to yield the overall consolidated capital finance account shown in Tables 10 and 11 of Volume 1.

TABLE 4-2. Gross National (and Domestic) Product derived from Sector Accounts System 1961

Components of Gross National Product, Table 1	Millions of dollars	Sector accounts		Millions of dollars
		Table	Line	
		12	1	16,343
		12	2	3,382
		12	3	80
		12	5	594
Wages, salaries and supplementary labour income	20,399		Total . . .	20,399
Military pay and allowances	610	12	4	610
Corporation profits before taxes . .	4,066	20	1	5,450
Deduct:		24	4	– 882
Dividends paid to non-residents . .	– 622	24	5	– 140
Interest and miscellaneous investment		25	2	216
income	1,284	25	3	33
		25	4	51
Total	4,728		Total . . .	4,728
Accrued net income of farm operators from farm production		12	7	799
		12	8	27
Total	826		Total . . .	826
Net income of non-farm unincorporated business	3,261	12	6	3,261
Inventory valuation adjustment . . .	– 41	21	12	– 41
Indirect taxes less subsidies		16	8	5,159
		17	7	– 321
Total	4,838		Total . . .	4,838
Capital consumption allowances and		14	3	1,617
miscellaneous valuation adjustment		18	2	531
		22	5	2,735
Total	4,883		Total . . .	4,883
Residual error of estimate	142	22	6	142
Gross National Product at market prices	39,646		Total . . .	39,646
Deduct:				
Interest and dividends received from abroad	– 300	25	2, 3 and 4 . .	– 300
Add:				
Interest and dividends paid abroad	1,022	24	4 and 5	1,022
Gross Domestic Product at market prices	40,368		Total . . .	40,368

Tables 4-2 and 4-3 provide numerical illustrations of the way in which the sectors accounts system can be consolidated to yield the Gross National (or Domestic) Product and Expenditure, as indicated in the preceding diagram.

TABLE 4-3. Gross National (and Domestic) Expenditure derived from Sector Accounts System, 1961

Components of Gross National Expenditure, Table 2	Millions of dollars	Sector accounts		Millions of dollars
		Table	Line	
		13	1	24,720
		13	2	594
		13	3	616
Personal expenditure on consumer goods and services	25,930		Total . . .	25,930
		17	1	2,073
		17	2	– 486
		17	3	3,992
		17	4	531
		17	5	96
Government current expenditure on goods and services	6,206		Total . . .	6,206
Gross fixed capital formation:		19	1	1,594
		19	2	80
Government	1,674		Total . . .	1,674
		15	1	2,256
		23	1	4,462
Business	6,718		Total . . .	6,718
		15	2	– 410
		19	3	8
		23	2	518
Value of physical change in inventories	116		Total . . .	116
		25	1	7,324
		25	2	216
		25	3	33
		25	4	51
Exports of goods and services	7,624		Total . . .	7,624
		24	1	–6,746
		24	2	– 616
		24	3	– 96
		24	4	– 882
		24	5	– 140
Deduct: Imports of goods and services . . .	– 8,480		Total . . .	–8,480
Residual error of estimate	– 142	23	3	– 142
Gross National Expenditure at market prices	39,646		Total . . .	39,646
Deduct: Interest and dividends received from abroad	– 300	25	2, 3 and 4 . .	– 300
Add: Interest and dividends paid abroad	1,022	24	4 and 5 . . .	1,022
Gross Domestic Expenditure at market prices	40,368		Total . . .	40,368

Capital Finance Accounts
(Tables 14, 15, 18, 19, 22, 23, 26 and 27 of Volume 1)

The capital finance accounts record the saving and investment transactions of each sector of the economy. They also provide the link from the National Income and Expenditure Accounts to the Financial Flow Accounts system published by Statistics Canada.[5]

In these capital accounts, the net saving or undistributed earnings carried down from each sector's income and outlay account is combined with the sector's capital consumption allowances to yield gross saving for the sector. This amount represents the total saving available to the sector for adding to wealth – that is, for investing in **physical assets** in the form of fixed capital or inventories, or for investing in **financial assets** in the form of acquisitions of financial claims, (i.e. net lending).

Table 4-4 shows these relationships. Thus, in Table 4-4. the saving of the persons and unincorporated business sector of $2,389 million in 1961 was available to finance the sector's investment in physical assets (gross capital formation) of $1,846 million. The balance, or most of the balance, was available for investing in financial assets – in other words, for lending to other sectors.

Similarly, in Table 4-4, the total saving of the corporate and government business enterprise sector of $4,274 million was available to help finance the sector's gross capital formation of $4,980 million. But it was also necessary, in this case, to draw on the savings of other sectors to the extent of some $500 to $600 million in the form of net borrowing (or negative lending). The corporate and government business enterprise sector did not generate enough of its own saving to finance its investment in physical assets and had to resort to borrowing. The government sector was also a net borrower from other sectors in 1961. Its saving was $847 million, but its financing requirements for gross capital formation amounted to $1,682 million, leaving a deficit of $835 million to be financed. The shortfall in the savings availabilities of these two sectors combined in 1961 was met in part by net lending to Canada by non-residents – net lending which corresponds broadly to Canada's deficit on current transactions with non-residents in that year.

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[5] The net lending or borrowing of each sector, representing the surplus or shortfall in the sector's saving with respect to its financing requirements for gross capital formation, provides the basic link to the Flow of Funds system. The latter set of accounts shows the changes in financial claims underlying this net lending or borrowing. See *Financial Flow Accounts, 1962-67,* Catalogue 13-530 (occasional) and *Financial Flow Accounts,* Catalogue 13-002 (quarterly).

It should be noted that in the capital accounts, the amount of saving available after financing gross capital formation in the persons and unincorporated business sector and in the corporate and government business enterprise sector is denoted as "net lending plus net purchase of existing non-financial assets". The inclusion of net purchases of existing non-financial assets with net lending (or net acquisition of financial assets) reflects the fact that this final element in the disposition of saving is calculated residually. Because purchases of existing non-financial assets do not appear anywhere in the expenditure flows in the National Income and Expenditure Accounts, the estimates of total saving include these amounts. Thus, any "residual saving" after accounting for the financing of gross capital formation (or other specified outlays) will include purchases of existing non-financial assets as well as acquisitions of financial assets (net lending).

TABLE 4-4. Sources and Disposition of Saving, 1961

Consolidation of Sector Capital Finance Accounts

Source of saving	Millions of dollars	Disposition of saving	Millions of dollars
		Persons and unincorporated business, Table 15:	
		Gross capital formation (lines 1 and 2)	1,846
		Capital transfers (line 3)	72
		Net lending, etc. (line 4)	471
Persons and unincorporated business (Table 14, line 4)	2,389	Total	2,389
		Government, Table 19:	
		Gross capital formation (lines 1, 2 and 3)	1,682
		Surplus (+) or deficit (–) (line 4)	–835
Government (Table 18, line 3)	847	Total	847
		Corporate and government business enterprise (Table 23):	
		Gross capital formation (lines 1 and 2)	4,980
		Residual error (line 3)	–142
		Net lending, etc. (line 4)	–564
Corporate and government business enterprise (Table 22, line 7)	4,274	Total	4,274
		Non-residents, Table 27:	
		Net lending to Canada by nondents (line 1)	928
		Less capital transfers (Table 26, line 2)	–72
Non-residents (Table 26, line 1)	856[1]	Total	856[1]
Total saving available from all sources (Table 10)	8,366	**Total disposition of saving (Table 11)**	8,366

[1] Net capital transfers to non-residents of inheritances and migrants' funds are omitted from the totals in this consolidation of the capital finance accounts of the four sectors. Such capital transfers are unrelated to saving and investment originating in the current income and expenditure flows in these Accounts.

It will be observed in Table 4-4 that the net borrowing and net lending transactions of the four sectors of the economy with each other are completely offsetting. Thus the two sectors which engaged in net lending – the persons and unincorporated business sector, and the non-residents sector – together made available $1,399 million to finance the savings shortfall of the other two sectors. The amount borrowed by the corporate and government business enterprise sector, and the government sector, to meet the shortfall in their savings requirements was also $1,399 million. In adding up the disposition of the saving side of Table 4-4, these inter-sectoral lending and

borrowing transactions therefore cancel out, and what is left is simply the total of gross capital formation for the four sectors combined. As can be seen from Table 4-4, this total is equal to the sum of the savings of all four sectors as set out in the "sources of saving" side of the account.

It should be noted that the transactions covered by the terms "net lending" or "net borrowing" as used in connection with these capital accounts are not restricted to changes in the structure of debt holdings only, but include changes in equity holdings as well. The terms are defined here in the broadest sense to encompass changes in all types of holdings of financial assets which have the effect of transferring savings, through the operation of financial markets, from one sector of the economy to another.

As was indicated earlier, the capital finance accounts of the four sectors can be consolidated to yield the totals of saving and investment (capital investment) set out in Tables 10 and 11 of Volume 1. Table 4-4 illustrates the way in which this consolidation is carried out.

The Appendix to this chapter provides a table showing an allocation of Gross National Product according to the amount originating in each of the four main sectors of the economy. Each sector's contribution to production is measured by the factor costs and other expenses which originate in the sector. The allocation is somewhat approximate because a small amount of indirect taxes assignable to the personal and government sectors is included in the business sector in this table. These latter amounts are not separately identifiable in the statistics. It will be clear, however, that the overwhelmingly greater part of Gross National Product originates in the business sector – well over 80%. A significant part of Gross National Product originates in the government sector (well over 10%), with only a minor part originating in the personal sector. These orders of magnitude are based on the year 1961, but up-dating the figures to 1972 would not change these conclusions in any significant way.

APPENDIX TO CHAPTER 4

Allocation of Gross National Product originating by Sector, 1961[1]

	Millions of dollars
Personal sector:	
Wages, salaries and supplementary labour income (Table 8, line 5)	594
Business sector:	
Wages, salaries and supplementary labour income (Table 8, line 1)	16,343
Net income of non-farm unincorporated business including rent (Table 8, line 6)	3,261
Accrued net income of farm operators from farm production (Table 8, lines 7 and 8)	826
Profits and other investment income (Table 8, line 9)	5,450
Inventory valuation adjustment (Table 8, line 10)	– 41
Capital consumption allowances, etc.:	
Persons and unincorporated business (Table 8, line 13)	1,617
Corporations and government business enterprise (Table 8, line 15)	2,735
Indirect taxes less subsidies (Table 8, lines 11 and 12)	4,838
Total	35,029
Government sector:	
Wages, salaries and supplementary labour income:	
Current (Table 8, line 2)	3,382
Capital (Table 8, line 3)	80
Military pay and allowances (Table 8, line 4)	610
Capital consumption allowances (Table 8, line 14)	531
Total	4,603
Non-resident sector:[2]	
Interest and dividends paid by non-residents:	
To business (Table 25, line 2)	216
To government (Table 25, line 3)	33
To persons (Table 25, line 4)	51
Total	300
Interest and dividends received by non-residents:	
From business (Table 24, line 4)	– 882
From government (Table 24, line 5)	– 140
Total	– 1,022
Residual error of estimate (Table 8, line 16)	142
Gross National Product at market prices (Tables 1 and 2, Volume 1)	39,646

[1] In this allocation, all indirect taxes are treated as originating in the business sector as a business expense. In fact, some small amounts of indirect taxes do not originate in the business sector, but should be assigned to the personal and government sectors, as in the case of import duties paid directly by persons and governments on direct purchases from abroad. In such cases, the indirect taxes do not go through the business sector.

[2] This sector would disappear if the allocation were made on a gross domestic product basis, and there would be no negative income originating.

CHAPTER 5

PERSONS AND UNINCORPORATED BUSINESS

Introduction

The four-way system of sector accounts which shows the flows of income and expenditure and the capital financing activities taking place among different parts of the economy was described in Chapter 4. The present chapter and the three following chapters provide a more detailed discussion of each of these four main sets of sector accounts which make up the sectoring system. The aim is to give a more complete description of the content of the sectors, the definitions of the component aggregates, and the sources and methods which underlie the statistical estimates in the income and outlay and capital finance accounts of each sector.

In many cases – indeed, in the great majority of cases – the statistical estimates in these Accounts cannot be taken **directly** from basic source material published in the reports of Statistics Canada or other agencies. The estimates are typically derived by drawing upon and combining a wide variety of source information, using procedures which frequently involve many adjustments to published information to bring it to a basis which accords with the concepts and definitions underlying the Accounts. To assist users in identifying the sources of the data which enter into the construction of the estimates, the titles of the various publications which are used are given in this and the following chapters, together with their catalogue numbers, as set out in the *Statistics Canada Catalogue*.

The persons and unincorporated business sector is essentially concerned with the transactions of members of the consuming public in their capacity as receivers of income and as final consumers. The sector includes mainly the transactions of Canadian households and individuals, but the transactions of unincorporated business enterprises – self-employed persons such as individual farmers, independent retailers, professional practitioners, and other working proprietors who operate their own businesses – are also included in this sector because of the difficulty of separating the income withdrawn for personal use from the income retained in the business. Thus, as was indicated in Chapter 4, **all** of the income earned by unincorporated business enterprises is included with the income of the sector, and not simply withdrawals of income for personal use. Since the consumption expenditures of unincorporated business enterprisers are included with personal expenditure on consumer goods and services in the outlay account of this sector, one effect of this treatment is to include in personal saving an unidentifiable amount of business undistributed earnings. An additional effect is to include in the capital finance account of the sector the gross fixed capital formation of unincorporated business enterprises and the value of physical change in farm inventories and grain in commercial channels.[1] The bulk of housing outlays is also included in the capital finance account of the sector.

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[1] Changes in inventories of non-farm unincorporated businesses should also be included, but the necessary data are not separately identifiable in the inventory statistics. The amounts are consolidated with the changes in total non-farm business inventories in the capital finance account of the corporate and government business enterprises sector, Table 23.

In addition to persons and unincorporated businesses, this sector also includes private non-commercial institutions serving persons; private pension funds; and some aspects of the transactions of insurance companies. Transactions associated with hospital and medical care services also warrant a special note here because of changes in the institutional arrangements for administering such services which have taken place in recent years (see below).

Private Non-commercial Institutions

Private non-commercial institutions included here cover all private institutions and agencies serving persons which do not operate on a profit-oriented basis and whose fees or service charges may not always cover total costs.[2] Such institutions include labour unions, professional organizations, fraternal societies, churches and charitable institutions, and universities. These organizations are regarded as groups of persons or "associations of individuals" acting collectively for the benefit of the community or part of the community. The revenues of non-commercial institutions consist of fees from the sale of services; gifts from government, business and individuals; and investment income. The value of their services cannot be taken as equivalent to the fees received, as in the case of ordinary business enterprise, since these fees do not usually cover all expenses and are not expected to do so. Nor is it logical to assume that the value of their services is equivalent to the total of fees, gifts, and investment income combined, since this amount will not necessarily correspond to the services rendered to the community in the accounting period in question.

The solution to measuring the contribution of such organizations to national output is to regard the operating expenses of these institutions as expenditures of "associations of individuals" and to include them in personal expenditure on consumer goods and services. Wages and salaries paid to the employees of these institutions are included in the National Income and in the income of this sector. The investment income of these institutions is treated as if it accrues collectively to the association of individuals and is included with the investment income of persons. Under this treatment, the saving of these institutions is thus consolidated with personal saving. Gifts to these institutions from governments and from business are included with transfer payments to persons. Gifts to these institutions from individual persons are simply inter-personal transfers which cancel out and which do not affect the income or outlay totals of the sector.

Private Pension Funds

The transactions of private pension funds (and certain government trusteed pension funds) are also included in this sector. Wages and salaries paid to persons are calculated in these Accounts before the deduction of employee contributions to private pension funds. The contributions of employers to these funds are treated as supplementary labour income, and the investment income of such funds is included as income accruing to persons. Thus, all

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[2] The transactions of private non-commercial institutions which provide services to the business sector (e.g., trade associations and some private research organizations) are consolidated with the accounts of the corporate and government business enterprises sector.

income of private pension funds is included in the income account of this sector. The benefits paid from private pension funds are not explicitly recorded in the income and outlay accounts of this sector since they cancel out – the outlay of one group of "persons" – the pension funds – being offset by the income received by another group of "persons" – the pension beneficiaries. Payments for goods and services made out of private pension benefits are of course included in personal expenditure on consumer goods and services. Under this treatment, therefore, the "saving" of the pension funds and of pension fund beneficiaries becomes consolidated with the overall figure of personal saving.

By contrast, the transactions of social insurance funds (such as unemployment insurance and old age pensions) and government non-trusteed pension funds for its own employees are included in the government sector. In the accounts of the persons and unincorporated business sector, employer and employee contributions to such funds are implicitly recorded as part of the income of the sector,[3] but are transferred through the outlay account to the revenue side of the government sector account as a transfer payment (tax outlay) from persons and unincorporated businesses to government (line 6, Table 13). The investment income of such funds is also included with the revenues of the government sector. The outpayments from such funds are treated as government transfer payments to persons.

It may be noted that the interest credited to persons on federal government annuities is included with the income of the persons and unincorporated business sector. Purchase of these annuities more closely resembles privately arranged and administered pension fund activity than government sponsored and administered pension and social insurance schemes.

Insurance Companies

The contribution to output of various types of insurance services purchased by persons (life, accident, theft, personal property, casualty, and automobile) cannot be measured by simply taking the payments (premiums) for such insurance as equal to the value of the insurance service, since the premiums include moneys to be disbursed in the form of claims either in the same year or in future years. Since the premiums paid and the claims received constitute to a large extent simply a redistribution of income within the persons and unincorporated business sector, both premiums and claims are ignored in these Accounts. The value of the service of the institutions which facilitate this process of redistribution is measured by their administrative expenses, i.e., premiums minus claims, which are included in personal expenditure on consumer goods and services.

Life insurance companies and fraternal societies have, however, an additional characteristic which must be considered in their treatment in the Accounts. These institutions not only redistribute income of persons, but they also perform a saving function on behalf of persons. The personal savings

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[3] Wage and salary compensation is included as income of the sector before deduction of employee contributions to social insurance and government pension funds. Employer contributions to such funds on behalf of employees are also included in the income of the sector, as supplementary labour income.

accumulated in the life insurance group give rise to investment income which accrues on behalf of individuals. In order not to omit this investment income from the income of this sector, life insurance companies are treated as "associations of individuals" insofar as their investment function is concerned, and their investment income is included in the "interest, dividends, and miscellaneous investment income" of this sector (line 9, Table 12). The administrative expenses of life insurance companies include the investment expenses of these companies, i.e., a "fee" which persons pay to the insurance companies for the management of their investments.

It should be noted that the payment for the services of insurance companies as measured through their administrative expenses constitutes the purchase of these services from the business sector, and that all factor income arising from this activity therefore originates in the business sector.

Hospital and Medical Care Services

Until 1961, municipal, lay, and religious hospitals were treated in these Accounts as private non-commercial institutions and included in the persons and unincorporated business sector. With the introduction of universal hospital care insurance under the Hospital Insurance and Diagnostic Services Act of 1961, the transactions of these institutions were transferred to the government sector beginning in that year.[4] Thus, as is described in Chapter 2, the income and expenditures of these institutions, and their capital outlays, have been consolidated with the transactions of the government sector from 1961 onward. This change in treatment results in a break in some of the statistical series at the year 1961. To assist users who may require the information, separate figures on the income and outlay transactions of public hospitals are shown separately in the government supplementary tables (Tables 43 to 52).

During the 1960's and early 1970's, institutional changes also occurred in the administration of medical care services. Prior to the advent of publicly administered medical care schemes, individuals paid for the services of medical practitioners either directly or through private insurance plans, and the outlays in each case were recorded under personal expenditure on consumer goods and services (in the outlay account of the persons and unincorporated business sector). Since the passage of the Medical Care Act of 1968, each of the provinces has entered into an agreement under the Act and medical care services are now provided under government administered plans in every province. (It should be noted, however, that in a number of the provinces universal medical care schemes were in force prior to the passage of this Act). As various provincial plans have gone into force, over a period from 1962 to 1971, expenditures for medical care service in the Accounts have been progressively transferred from personal expenditure on consumer goods and services to government current expenditure on goods and services. The premiums paid by individuals under the various provincial schemes are now included as a part of the revenues of the government sector, and in the outlay account of the persons and unincorporated business sector, as "other current transfers to government" (line 7, Table 13).

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[4] The changes discussed here do not affect government-owned and operated special treatment hospitals such as mental hospitals, tuberculosis sanitaria, and veterans' hospitals. These have always been classified to the government sector as part of the activities of "general government".

The Income and Outlay Account: Income (Table 12 of Volume 1)

The income side of the income and outlay account for this sector includes all forms of income received by or accruing to persons and unincorporated businesses: wages, salaries and supplementary labour income; military pay and allowances; the net income of non-farm unincorporated business including rent; the accrued net income of farm operators from farm production; interest, dividends and miscellaneous investment income; and various forms of transfer payment income – from government (much the largest part), from corporations, and from non-residents. It may be noted that the sum of these components – that is, the total income of persons and unincorporated business – differs in one respect from total Personal Income given in Table 4 of Volume 1 (described in the section "Other Income Concepts" in Chapter 3). The difference is the item "Adjustment on Grain Transactions",[5] made up of two parts: an allocation of earnings arising out of the operations of the Canadian Wheat Board (or in years prior to 1935, of the Canadian Cooperative Wheat Producers Limited); and an inventory valuation adjustment required to eliminate from these earnings any inventory gains or losses.

The amounts involved constitute retrospective adjustments to the cash payments made to farmers by these marketing organizations after all transactions relating to particular crop years have been completed. A positive entry represents accruals of earnings not paid out to farmers in the year in question but received in later years and now re-allocated. A negative entry reflects an over-payment of cash to farmers relative to total accrued earnings in the year in question. Thus, the adjustment is designed to present farm net income on an "accrual" basis.

The following table shows the relationship between Personal Income and the total income recorded in the persons and unincorporated business sector for the year 1961.

[5] Although this item is statistically of minor significance for most years, it bears emphasis that this is the one statistical difference which could be articulated between the income of this sector and Personal Income. In principle, as noted earlier, Personal Income should only include the withdrawals of working proprietors. Since this is not possible, the assumption is made for purposes of estimating Personal Income that the total income of unincorporated business is transferred to persons.

TABLE 5-1. Relationship Between Personal Income and Income of Persons and Unincorporated Business

	1961
	millions of dollars
Personal income, Table 4, Volume 1	30,104
Add:	
Adjustment for grain transactions, line 8, Table 12, Volume 1	27
Equals:	
Total income of persons and unincorporated business as per Table 12, Volume 1	30,131

Wages, Salaries and Supplementary Labour Income (Table 12, lines 1, 2, 3 and 5)

The estimates of labour income are designed to include all compensation to Canadian wage-earners and salaried employees for services rendered. The total constitutes the largest single component of Gross National Product, amounting to well over half of the Gross National Product (Chart 5-1). The estimates do not include the earnings of self-employed individuals or partners, the income of independent professionals, the net income of farmers, or payments to members of the Armed Forces. The latter fits the definition of labour income but is excluded here because it is treated as a separate component of Gross National Product.

Wages and salaries, including income in kind (i.e., board and lodging), are estimated on a "gross" basis, that is, they are reckoned before tax deductions and before deduction of contributions by employees to unemployment insurance, pensions and other social security schemes. Bonuses, commissions, directors' fees, taxable allowances and retroactive wage payments[6] are included in the year in which they are paid.

Supplementary labour income is composed of other expenditures by employers on labour account that can be regarded as payment for employees' services. Included here are employers' contributions to private pension funds, the Canada and Quebec Pension Plans, employee welfare funds, the Unemployment Insurance Fund, and Workmen's Compensation Funds.

The estimates of wages, salaries, and supplementary labour income given in Table 12 of Volume 1 are shown in Table 5-2 for the year 1961. This total is identical to the total appearing in line 1 of Table 1, "National Income and Gross National Product", and the component estimates are identical to those appearing in lines 1, 2, 3 and 5 of Table 8, "Consolidated Production Account". The industrial distribution of this total (with military pay and allowances included, under public administration and defence) is shown in Table 29 of Volume 1. The geographic distribution of this total, by provinces and other areas, is shown in Table 38 of Volume 1.

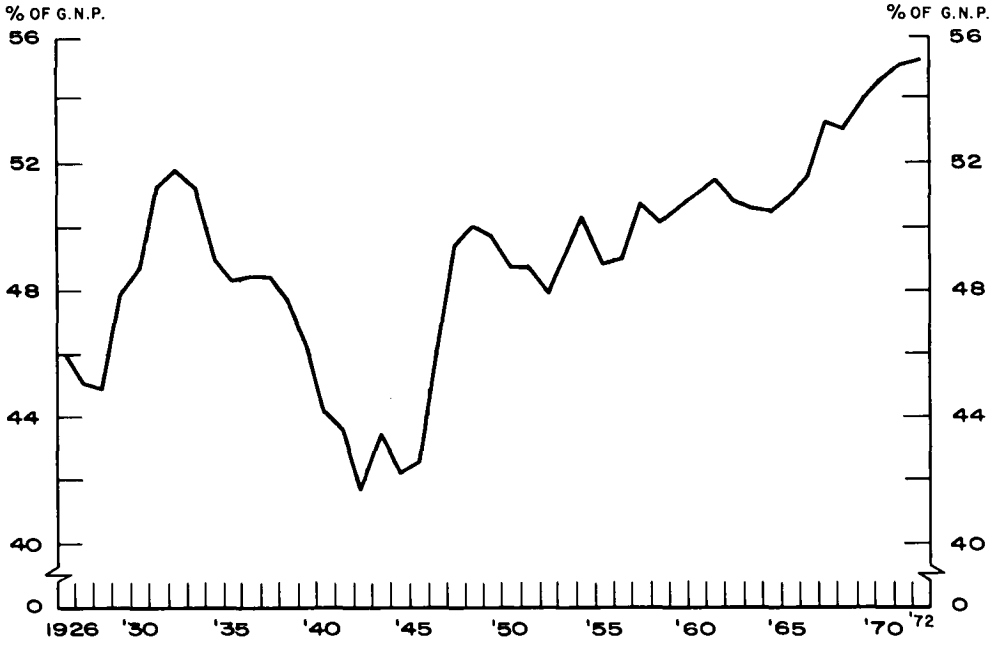
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[6] As a practical matter it is not possible to allocate retroactive wage payments to the period in which they are earned.

TABLE 5-2. Wages, Salaries and Supplementary Labour Income

	1961
	millions of dollars
From business (line 1, Table 12)	16,343
From government current account (line 2, Table 12)	3,382
From government on capital account (line 3, Table 12)	80
From persons (line 5, Table 12)	594
Total	20,399

Wages, Salaries, and Supplementary Labour Income as Percentage of: Gross National Product



The general method used in the preparation of the labour income estimates consists of calculating the payments made on labour account by the various industrial groups, and summing the results. In recent years, by far the greater portion of the estimate is based on monthly and annual sample or full-coverage surveys conducted by Statistics Canada, the decennial and quinquennial censuses of Canada, and published statements of governments. In areas where the annual coverage is incomplete, the problems of estimation are more difficult, and greater reliance must be placed on directly related data. In such cases, benchmark estimates are developed from the decennial censuses of population, agriculture and distribution, and interpolation or projection techniques are employed to obtain estimates for inter-censal years using indexes of aggregate earnings, employment, and wage rates from various sources. In a number of cases, methods of estimation have had to be devised from indirect evidence, but such instances are few, and in the aggregate, quite small.

Since the last reference volume on the National Income and Expenditure Accounts was published, a major new source of information has become available in the labour income field. This consists of the tabulation of total wages and salaries from "T.4" forms submitted by employers with respect to employees' earnings, undertaken by the Department of National Revenue in connection with the administration of the Canada Pension Plan. This information has been available on a regular basis since the year 1966. The coverage is very comprehensive and closely approximates the total of wages and salaries as required for national accounting purposes. This new information has revealed that the estimates prepared by Statistics Canada on

the industry-by-industry basis were somewhat understated, and since 1966 this material has served to provide a control total for the labour income estimate. The data for all years 1947-66 have also been adjusted to compensate for this undercoverage.

The following discussion is designed to give the reader a broad view of the sources and methods underlying the labour income estimates. The discussion focusses more heavily on the sources and methods which are currently in use, but an attempt is made to indicate in a general way the basis on which the earlier estimates were made. It is not possible in a volume of this nature to set out the complete methodology, or to provide sufficient information to permit users to replicate the estimates. To do so would involve the inclusion of a totally unmanageable amount of worksheet detail. The approach taken here (and in the discussion of other component estimates) is to present a highly compressed summary view of an aspect of the Accounts which would require many hundreds of pages to cover in any reasonably comprehensive way.

Table 5-3 provides a view of the industrial origin of the labour income payments for the year 1961. It indicates the relative importance of each group in the total, and assigns a rough qualitative rating to the estimates for each industry for the period 1961 to date. For purposes of this qualitative appraisal, three broad rating categories are used: "A", consisting of industrial groups where the estimates are mainly derived from direct measurements of wages and salaries obtained from surveys with high coverage ratios or published statements; "B", consisting of industrial groups where the estimates are mainly based on directly related data, or a combination of direct measurement and indicators of a somewhat lesser order of reliability; and "C", where the estimates are mainly based on indirect information. It should be noted that in some cases the estimates for an industry group are based on sources whose quality is not uniformly consistent, and which come under two or more of the above categories. The qualitative ratings shown in Table 5-3 relate to the categories under which the bulk of the estimates for any one industry fall.

TABLE 5-3. Wages, Salaries and Supplementary Labour Income by Industry

	1961		
	Millions of dollars	% of total	Qualitative rating
Agriculture	252	1.2	B
Forestry	317	1.6	B
Fishing and trapping	28	0.1	C
Mines, quarries and oil wells	593	2.9	A
Manufacturing	6,086	29.9	A
Construction	1,541	7.6	B
Transportation	1,669	8.2	A
Storage	68	0.3	B
Communication	561	2.7	A
Electric power, gas and water utilities	379	1.9	A
Wholesale trade	1,106	5.4	B
Retail trade	1,726	8.5	B
Finance, insurance and real estate	1,037	5.1	B
Public administration and defence[1]	1,519	7.4	A
Community, business and personal service	3,517	17.2	B
Totals	20,399	100.0	

[1] Excludes military pay and allowances, which are not a part of the civilian wage and salary bill.

These assessments provide rough guides to the quality of the estimates by published industry group. An analysis of the figures at a finer level of detail reveals that in the year 1961, approximately 55.8% of the total labour income estimate was based on surveys with high coverage ratios (type "A" estimates); 39.4% was estimated on the basis of directly related data (type "B" estimates); and 4.8% was estimated largely on the basis of indirect information (type "C" estimates). For earlier years, a larger proportion of the total falls into the middle range of the quality scale.

The review of sources and methods which follows is organized in accordance with the main industry groups outlined in Table 5-3. It should be noted that for the period 1926-46, wages, salaries and supplementary labour income are classified according to the 1948 Standard Industrial Classification.[7] For the period 1947 to date, they are classified according to the 1960 Standard Industrial Classification.[8] For example, use of the latter system results in some shifting of industry sub-groups between the main groups of manufacturing, trade and services. It also assigns a number of the component elements of wages and salaries paid by government to the associated industrial groups, e.g., government forestry services to forestry, experimental farm services to agriculture, government construction to the construction industry, and government bridge and highway maintenance to transportation. Users of the Accounts should note that this change in the system of classification causes a break in some series at the year 1947. (A note on the reason for revisions to the Standard Industrial Classification is given in Chapter 10 "Income and Product by Industry".)

Agriculture – Wages and salaries and living allowances in **agriculture** are estimated mainly in the Agriculture Division of Statistics Canada. Since 1951, the estimates are constructed by interpolating and projecting census data on the basis of a combined index of paid workers[9] and wage rates[10] in agriculture. For the period 1926 to 1950, benchmarks obtained from decennial censuses are interpolated by a combined index of hired labour force and farm wage rates.

Commencing with 1947, **services incidental to agriculture** were added. Prior to 1947, wages and salaries originating from these services were considered to be included in other industry groups. Benchmarks for 1961 for a) landscaping and b) services other than landscaping, were derived from the census of that year. The projection back to 1947 was based on the trend of wages and salaries in agriculture, as derived above. The 1961 benchmark for landscaping was then projected forward based on an index of wages and salaries in construction, while the benchmark for other services incidental to agriculture excluding landscaping, was projected forward on the basis of farmers' expenditures on related services.

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[7] *Standard Industrial Classification Manual,* Dominion Bureau of Statistics, King's Printer, Ottawa, 1948.

[8] *Standard Industrial Classification Manual,* Dominion Bureau of Statistics, Queen's Printer, Ottawa, 1960 (DBS Catalogue 12-501).

[9] *The Labour Force,* Catalogue 71-001.

[10] *Farm Wages in Canada,* Catalogue 21-002.

Forestry – In **forestry**, wages and salaries for the period since 1961 are calculated from employment data derived from surveys of both large[11] and small establishments,[12] combined with information on average weekly earnings in the larger establishments. Adjustments are made to include directors' fees, taxable allowances (including income in kind) and bonuses. For earlier years, the estimates are based on annual census of industry data on wages and salaries paid by the larger establishments. An allowance is made to include the small establishments based on the ratio of the estimated value of total production to the value of production reported by the large establishments.

Fishing and trapping – In **fishing**, benchmarks for wages and salaries are derived from the population censuses of 1931, 1941, 1951 and 1961. These figures are interpolated and projected back to 1926 and forward to the present on the basis of the value of fish landings as reported to Statistics Canada.[13] In 1965, a benchmark estimate was established from a survey of the Canadian sea-fishing industry in that year,[14] and the estimates as calculated above have been keyed in to this 1965 benchmark.

In **hunting and trapping**, total wages and salaries are estimated from the 1941, 1951 and 1961 censuses, with interpolation and projection to derive figures for other years based on an index of the value of fur production as reported to Statistics Canada.[15]

Mines, quarries and oil wells – In **mines, quarries and oil wells**, the estimates for the period since 1961 are derived from the monthly surveys of employment in larger and smaller establishments combined with data on average weekly earnings in the larger establishment group. Adjustments are made to include directors' fees, taxable allowances, commissions and bonuses. For earlier periods, the estimates are built up from aggregate payrolls as reported in the annual census of industry for the larger establishments. For years prior to 1950, these census-based estimates are adjusted to exclude earnings in the metal smelting and refining groups which are classified to manufacturing.

Manufacturing – In **manufacturing**, the basic estimates of wages and salaries are derived from annual census of industry data.[16] For the period since 1961, the coverage of the census of industry surveys is quite comprehensive and only minor adjustments to include directors' fees and taxable allowances have to be made to the data. For the period prior to 1961, the basic data have been adjusted as necessary:

(a) to exclude estimates of working proprietors' withdrawals, which properly belong with net income of unincorporated business;

(b) to include head office personnel not adequately covered by the census of industry until 1949;

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11 *Employment, Earnings and Hours*, Catalogue 72-002.

12 *Estimates of Employees by Province and Industry*, Catalogue 72-008.

13 *Monthly Review of Canadian Fisheries Statistics*, Catalogue 24-002 and related series.

14 *Survey of the Canadian Sea Fishing Industry, 1965*, Catalogue 24-501.

15 *Fur Production*, Catalogue 23-207.

16 *General Review of the Manufacturing Industries of Canada*, Catalogue 31-203.

(c) to include repair establishments not covered by the census of industry in the early period; and

(d) to exclude gas manufacturing establishments, which are classified with public utilities.

Construction – In **construction**, the estimates for the period since 1961 are derived from the monthly surveys of employment in large and small establishments combined with data on average weekly earnings in construction in the larger establishments. Adjustments are made to include directors' fees, taxable allowances, commissions and bonuses.

For the period prior to 1961, the estimates of wages and salaries in construction are computed from benchmark estimates. Basic benchmark figures were calculated for 1941, 1946, 1951 and earlier years using decennial census data and such other information as was available. Interpolations between these benchmark totals, and projections back to 1926 were made using data on contractors' wages and salaries taken from annual surveys on construction and – for very early years – using an index of wages and salaries in private construction obtained from a study prepared for the Royal Commission on Dominion-Provincial Relations (1939).

Transportation – In **transportation**, the greater part of the estimate for recent years is derived from annual surveys conducted by Statistics Canada. These surveys cover trucks and buses since 1941,[17] water transportation since 1954,[18] oil and gas pipelines since 1948,[19] air transport since 1938,[20] and railway transportation and urban transit systems for the whole period.[21] The estimates are adjusted for undercoverage, taxable allowances and benefits, and directors' fees. Estimated tips in dining, buffet, parlour and sleeping cars are incorporated. Also, estimates for food and lodging received are included with the figures of wages and salaries paid in water transportation. Since 1947, wages and salaries for highways and bridge maintenance are included under transportation, the estimates being based on the Public Accounts of the various levels of government; prior to 1947, these amounts were classified to public administration.

Prior to 1941, wages and salaries in **truck and bus transportation** are projected back on the basis of a combined index of truck drivers' wage rates and employment in trucking. Prior to 1938, wages and salaries paid in **air transport** are projected back on the basis of an index of number of hours flown by commercial aircraft. Prior to 1951, wages and salaries paid in **water transport** are based on census benchmark data, using aggregate payroll indexes in water transportation, or combined indexes of employment and wage rates, to interpolate or project for other years. No significant amounts of wages and salaries were paid in **oil and gas pipeline transportation** before 1948, and no allowance is made for this early period.

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17 *Motor Carriers – Freight*, Catalogue 53-205.

18 *Water Transportation*, Catalogue 54-205.

19 *Oil Pipeline Transport*, Catalogue 55-201.

20 *Civil Aviation*, Catalogue 51-202.

21 *Railway Transport: Part II*, Catalogue 52-208; *Railway Transport: Part III*, Catalogue 52-209; *Railway Express*, Catalogue 52-204; *Electric Railways*, Catalogue 52-203; *Passenger Bus Statistics*, Catalogue 53-215; *Urban Transit*, Catalogue 53-216.

Wages and salaries paid in **taxi service** are based on census benchmark estimates for 1941, 1951 and 1961, using the following types of projectors:

(a) for the period 1926-41, an index based on average wage rates and the number of registered taxis in Canada:

(b) for the period 1941-51, an index based on average weekly earnings in truck transport and the number of registered taxis:

(c) for the period 1951 to the present, an establishment survey payroll index for transportation, storage and communication with an estimated value of tips included.

Storage – In the **storage** industry, annual survey data are available for warehousing for the years after 1944.[22] For prior years, these estimates are projected on related series. The estimates for grain elevators for recent years are based on monthly data collected by the employment survey of larger establishments. For earlier years (prior to 1957), wages and salaries in grain elevators are based on benchmark estimates from the merchandising and services census of 1941, and 1951, projected on the basis of a payroll index in grain elevators and, for the very early period, a combined index of employment and wage rates in grain elevators.

Communication – In **communication**, wages and salaries paid in the telephone industry are based on annual surveys by Statistics Canada.[23] Wages and salaries of Post Office employees are derived from the Public Accounts of the federal government. In radio and television broadcasting, the estimates for the recent period are based on annual survey results[24] conducted by Statistics Canada, and data obtained directly by correspondence. In telegraph and cable systems, the estimates are derived from surveys conducted by Statistics Canada.[25]

In the period prior to 1951, estimates of wages and salaries in private radio broadcasting are based on figures derived from the 1931, 1941 and 1951 censuses, using various related indexes for interpolation or projection.

Electric power, gas and water utilities – In **electric power, gas, and water utilities**, wages and salaries are, for the most part, derived from annual surveys. In the case of electric power, the figures are taken from the publication, *Electric Power Statistics*, Catalogue 57-202. In the case of gas distribution, the figures since 1951 are taken from the publication, *Gas Utilities (Transport and Distribution Systems)*, Catalogue 57-205. For the years prior to 1951, the estimates are obtained from annual census of industry returns of wages and salaries paid by gas manufacturing establishments. The estimates of wages and salaries in waterworks from 1942 forward are based on sample surveys conducted by the Public Finance Division of Statistics Canada. For earlier years, the estimates are keyed to decennial census benchmark data and carried back to 1926 on the basis of the trend of total municipal wages and salaries.

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[22] *Warehousing*, Catalogue 63-212.

[23] *Telephone Statistics*, Catalogue 56-203.

[24] *Radio and Television Broadcasting*, Catalogue 56-204; and *Community Antenna Television*, Catalogue 56-205.

[25] *Railway Transport: Part VI*, Catalogue 52-212; and *Telegraph and Cable Statistics*, Catalogue 56-201. For years prior to 1951, wages and salaries in telegraph and cable systems are included with railway transportation.

Trade – In **wholesale trade**, benchmarks of total wages and salaries are established from the 1930, 1941, 1951 and 1961 censuses of distribution. The interpolation between 1941, 1951 and 1961 was based on the wholesale payroll index obtained from the establishment survey of larger firms,[26] while that for the period between 1930 and 1941 was based on an index of wholesale sales. The 1961 and 1966 estimates were derived from the census of wholesale trade[27] for those years, interpolated between 1961 and 1966 and projected to the present on the basis of employment data derived from surveys of both large and small establishments, combined with information of average weekly earnings in the larger establishments. A virtually identical method is used to estimate the wages and salaries paid in **retail trade**, based on corresponding source material for the retail trade group.[27]

Finance, insurance and real estate – In **finance, insurance and real estate**, annual expenditures on wages and salaries by chartered banks for all years are obtained from the Canadian Bankers' Association. Wages and salaries of other banking institutions are obtained either by correspondence or from other sections of Statistics Canada. For trust, loan, mortgage and insurance institutions, wages and salary payments for years prior to 1961 are derived from the annual reports of the Superintendent of Insurance for Canada and of provincial registrars of loan and trust companies. Since 1961, financial statistics data supplied to Statistics Canada are combined with establishment survey data and average weekly earnings in the particular industry group to derive the required estimate. In the miscellaneous finance group, special estimates had to be devised to cover the period prior to 1961. Estimates of wages and salaries established from the decennial censuses of 1931, 1941 and 1951 were projected or interpolated on the official index of aggregate payrolls in finance, or for very early years, on a composite index of employment in certain industries, and average wage rates.

Public administration and defence – In **public administration and defence**, wages and salaries paid in **federal and provincial administration**, including the sessional indemnities of the members of the federal and provincial legislatures, are derived from the Public Accounts, and in the case of a number of provinces, from monthly survey data. The figures do not include military pay and allowances paid to the Armed Forces. (These are included as a separate item in the income estimates and are not regarded as a part of the civilian wage and salary bill). Wages and salaries paid in Post Office employment are not included here, since they are classified with communication. Wages and salaries paid in connection with activities which are classified to separate industries under the 1960 Standard Industrial Classification (e.g., wages and salaries paid by governments in connection with activities related to agriculture, forestry, construction, highway and bridge maintenance, and so forth) are not included here for the period from 1947 to date; for the period prior to 1947, the classification follows the 1948 Standard Industrial Classification, and wages and salaries paid in connection with such activities are included with public administration. Users of the Accounts should be aware that this change in the classificatory system causes a break in some series at the year 1947 (see Chapter 10).

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[26] *Employment Earnings and Hours*, Catalogue 72-002.

[27] *Wholesale Trade*, Catalogue 97-625; and *Retail Trade*, Catalogue 97-607.

In **local administration**, the estimates are based on annual and monthly surveys conducted by the Public Finance Division.[28] Since 1947, all figures have been adjusted to exclude wages and salaries classified to industries other than local administration in accordance with the 1960 Standard Industrial Classification, e.g., street maintenance and recreational activities. (For a fuller discussion of these items, see Chapter 10, "Income and Product by Industry".)

Wages and salaries received by Canadian employees of foreign governments are included in public administration. The estimates are based on information obtained by correspondence with the United States government and from census data.

Community, business and personal services – In **community, business and personal services**, the estimates are based on a wide variety of sources. This group includes wages and salaries paid in education, hospitals, commercial services, domestic services, and by welfare and religious organizations. With the exception of education and hospitals – two very large components of the total – the estimates for this group are largely based on interpolation or projection techniques utilizing directly related data, or in some cases indirect evidence.

Estimates of wages and salaries paid in **education** are based, for the most part, on annual reports received from the provincial governments, universities, colleges, and private schools. The estimates are assembled in the Education, Science and Culture Division of Statistics Canada.

Wages and salaries and living allowances paid by **hospitals** are obtained mainly from annual reports tabulated by the Health and Welfare Division of Statistics Canada.[29] The data are adjusted to include wages and salaries for non-reporting hospitals based on the ratio of bed capacity in all hospitals to bed capacity in reporting hospitals.

The **commercial services** group includes a wide range of activities, covering motion picture and recreational services; services to business and management, including accountancy, advertising, engineering and scientific services, labour organizations and trade associations; personal services, including hotels, lodging houses, restaurants, cafes, taverns, dyeing, cleaning and pressing establishments, barbering and hairdressing establishments, photography and undertaking; and health and welfare services excluding hospitals and non-commercial welfare organizations. Basic data on wages and salaries for most of these groups are obtained, for years 1961 and 1966, from

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[28] Full coverage monthly surveys of municipalities with a population over 10,000 were begun in 1960, and sample surveys of the smaller municipalities have been conducted since 1966. These data were used for the preparation of the publications *Municipal Government Employment, 1961-1966,* Catalogue 72-505 and *Local Government Employment,* Catalogue 72-009.

[29] *List of Canadian Hospitals and Related Institutions and Facilities,* Catalogue 83-201; *Hospital Statistics, Volume 1: General Information,* Catalogue 83-202; *Mental Health Statistics, Volume 1: Institutional Admissions and Separations,* Catalogue 83-204; *Mental Health Statistics, Volume III: Institutional Facilities, Services and Finances,* Catalogue 83-205; *Tuberculosis Statistics, Volume II: Institutional Facilities, Services and Finances,* Catalogue 83-207; *Hospital Statistics, Volume 1 – Hospital Beds,* Catalogue 83-210; *Hospital Statistics, Volume II – Hospital Services,* Catalogue 83-211; *Hospital Statistics, Volume III: Hospital Personnel,* Catalogue 83-212; *Hospital Statistics, Volume VI, Hospital Expenditures,* Catalogue 83-215; *Hospital Statistics, Preliminary Annual Report,* Catalogue 83-217.

the census of merchandising. These basic estimates are supplemented with estimates for services which are not included in the census of merchandising (e.g., trade unions and trade associations, engineering and scientific services, legal services, health services other than hospitals, and government services including those of crown corporations). The latter estimates are built up using 1961 decennial census data, data from the regular establishment surveys, and information from the federal and provincial Public Accounts. Interpolations of the totals between 1961 and 1966, and projections from 1966 to the present are based on payroll indexes derived from establishment survey estimates of employment, combined with estimates of average weekly earnings in the larger establishments. The 1961 figures were projected back to 1951 using payroll indexes derived from employment and earnings data. For earlier years, a variety of sources and techniques are used and the estimates are progressively weaker as they are pushed back in time.

In **domestic** services, separate estimates of wages and salaries are prepared for household servants, baby-sitters and private duty nurses. For household servants, the decennial census provides the basic information on average annual wages, and these estimates are interpolated and projected using data on average earnings from establishment surveys combined with estimates of the number of household servants reported in the labour force survey. For private duty nurses, benchmarks for 1951 and 1961 were again derived from census data, with the estimates for inter-censal years interpolated on the basis of an index of earnings from private employment. Since 1961, estimates are based on average annual wages paid in hospitals combined with a series on employment from reports of the Canadian Nurses Association. Estimates for board and lodging provided are included in both cases. Earnings of baby-sitters are arbitrarily estimated.

Estimates of wages and salaries paid by **welfare and religious organizations** are derived, in large part, from census benchmark data, with interpolations and projections based on a variety of sources including average weekly earnings from the industrial composite,[30] data on government welfare programs, and information from an annual survey of religious organizations conducted by Statistics Canada.

In a number of cases, the estimates of wages and salaries in community, business and personal services are based on scanty information. This applies particularly to some of the estimates for the very early period. Included here are wages and salaries paid by **religious and welfare organizations** in the period prior to 1941. The early estimates of wages and salaries paid in **services to business and management** – accountancy, advertising, engineering, scientific services, labour organizations and trade associations are also inadequate, being projected on an index of payrolls in advertising agencies. In **recreation service**, the estimates of wages and salaries in the early period are based on decennial census material, with an index of wages and salaries in motion picture theatres used to obtain inter-censal estimates. Barbering, hairdressing, undertaking and other **personal service** are also estimated indirectly on the basis of indexes of employment and payrolls in associated industrial groups; estimated tips for barbering and hairdressing are added.

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[30] The sum of the industries covered in *Employment, Earnings and Hours*, Catalogue 72-002.

Income in Kind

The value of board and lodging received by employees is estimated separately for industries where they are important. In **agriculture**, census benchmark data are adjusted to arrive at estimates for inter-censal years in accordance with changes in employment and farm living costs. In **forestry**, income in kind is estimated, from 1944 on, on the basis of data from annual surveys; the 1944 benchmark is projected back to other years on the basis of an index combining food prices and employment in logging. In other groups, such as **water transport, hospitals, religious institutions** and **domestic service**, similar techniques are employed. Income in kind consumed by farm proprietors is not a part of the labour income estimates but is included with accrued net income of farm operators from farm production. Food and clothing supplied to the Armed Forces are a form of employee income, but are included under military pay and allowances.

Supplementary Labour Income

Employers' contributions to pensions, social insurance and welfare funds on behalf of employees are also estimated separately by industry. For the period 1926-60, contributions to pension and welfare funds in manufacturing, electric power, trade, mining, and telephone were based on a survey made in 1944 and projected to other years on the trend of total wages and salaries in each industry. *Taxation Statistics*[31] (Department of National Revenue) figures were used for pension contributions after 1946, and for welfare contributions after 1954. In steam railways, insurance, banking and federal and provincial governments, the estimates of employer contributions were made available through correspondence, through annual surveys, or from publications of the agencies concerned. For municipal government, estimates were based, for the years 1938-44, on an analysis of financial statements of a number of larger cities, and since 1945, on questionnaires collected by Statistics Canada.

For the period since 1960, employers' contributions to pension funds, except those to the Canada and Quebec Pension Plans, are derived from *Trusteed Pension Plans – Financial Statistics,* Catalogue 74-201, supplemented by data from annual surveys conducted by Statistics Canada. Employers' contributions to the Canada and Quebec Pension Plans are obtained from the tabulation by the Department of National Revenue of employers' taxation reports. Employers' contributions to welfare funds for the 1961-64 period are derived by industry, mainly from *Taxation Statistics* supplemented by data obtained from annual surveys conducted by Statistics Canada, with projection to date based on the movement of wages and salaries.

Employers' contributions to the Unemployment Insurance Fund are obtained from data supplied by the Unemployment Insurance Commission. Employers' contributions to Workmen's Compensation Funds are obtained from the reports of the Workmen's Compensation Boards in each province.

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[31] During the period 1944 to 1964 inclusive, the Department of National Revenue compiled statistics from the "T2" income tax returns filed by corporations under the Income Tax Act. The data were published in the report *Taxation Statistics.* Since 1965, Statistics Canada has compiled and published information obtained from corporation tax returns, in *Corporation Taxation Statistics,* Catalogue 61-208, and *Corporation Financial Statistics,* Catalogue 61-207. The report *Taxation Statistics* which has continued to be published by the Department of National Revenue is now essentially concerned only with the compilation and analysis of individual tax returns data.

Military Pay and Allowances[32] (Table 12, line 4)

Payments to members of the Armed Forces in Canada and Overseas are treated as compensation for services rendered. Under this heading are included military pay, various types of allowances, and employer contributions to pension funds. War service gratuities and all post-discharge re-establishment benefits are excluded and treated as transfer payments. The estimated value of food and clothing issued in kind is also included.

The estimates of cash pay and allowances for the years 1938 to the present are on a calendar year basis and are supplied by the Department of National Defence. The estimates for the years 1926-37 are by fiscal year ending nearest December 31 of the calendar year, and are taken from the Public Accounts of the federal government.

Income in kind is calculated by applying average military strengths of the armed services to estimates of man-year costs for food and clothing. Since 1966, (when cash pay and allowances became the predominant form of remuneration) the amounts of income in kind have been small, but during the War and for much of the post-war period they were substantial.

Net Income of Non-farm Unincorporated Business, including Rent[33] (Table 12, line 6)

Net income of non-farm unincorporated business consists of the earnings of working proprietors from their own businesses. Such businesses are "unincorporated" as distinct from the corporate form of organization. The estimates represent a mixture of labour and investment income that cannot be segregated on anything but an arbitrary basis. To the extent that working proprietors supply their own labour, they earn wages and salaries; to the extent that they supply their own capital, they earn profits, interest and rents. These elements are inextricably mixed in the estimates of the net income field. The net rental income of persons is also included here in order to consolidate all forms of income from non-farm unincorporated business activity in a single category.[34]

The methods of estimating net unincorporated business income can be classified broadly into four main groups: (1) the synthetic operating account method wherein estimates of gross income are obtained and brought to a net basis by subtracting expenses; (2) the ratio method wherein estimates of gross income are obtained and brought to a net basis by the application of a ratio of "net to gross income" based on survey or income tax data; (3) direct enquiry

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32 The estimates for military pay and allowances also appear in Table 1 "National Income and Gross National Product", line 2, and in Table 8 "Consolidated Production Account", line 4.

33 The estimates of net income of non-farm unincorporated business including rent also appear in Table 1, line 7, and in Table 8, line 6.

34 This item was included with "Interest, Dividends and Net Rental Income of Persons" in the former system of Accounts. It is felt that this item, since it is derived by deducting expenses from a form of gross income, is more closely akin to "net income" than "investment income".

and (4) projection from benchmark data. In a number of the industrial groups, a combination of two or more methods is required to complete the series back to 1926. To a considerable extent, information in the net income field is of a fragmentary nature, and for this reason a number of the estimates are in some degree arbitrary.

The estimates themselves can be grouped under three broad headings: (a) net professional income; (b) net income of other unincorporated non-farm businesses; and (c) net rental income of persons.

(a) Net Professional Income

This group includes independent professional practitioners such as doctors, dentists, lawyers and engineers. In general, the estimates for the more recent years are obtained by multiplying average net income by the number of independent practitioners. For the earlier years, the estimates are projected on related data.

From 1957, the average net income of independent doctors is obtained from *Earnings of Physicians in Canada* which began to be published in that year by the Department of National Health and Welfare. For the years 1947-56, average net income is obtained from *Taxation Statistics*. Average net income for the years 1939, and 1944-46, is obtained from the *Survey of Incomes in the Medical Profession in Canada, 1939, 1944, 1945 and 1946* conducted by Statistics Canada. For the years 1938, and 1940-44, average net income is estimated on the basis of dentists' average gross income obtained from *Survey of Incomes in the Profession of Dentistry, 1941-1944* and adjusted for expenses by the ratio of "net to gross income" obtained from the survey of the medical profession.

The number of active independent doctors in Canada is obtained, for the years 1941-56, from surveys carried out by the Department of National Health and Welfare since 1946, linked to a census benchmark for the 1951 census, and extrapolated to the years 1941-45, on the trend of medical graduates from universities. For the years 1938-41 the number is obtained on the basis of the decennial censuses of 1931 and 1941. The figures are adjusted to exclude salaried doctors, and doctors in the Armed Forces.

A similar method is used to estimate net income of independent practicing dentists for years prior to 1959. From 1959, the information is obtained from *Earnings of Dentists in Canada*, published by the Department of National Health and Welfare.

Estimates for professionals in "other health service" (e.g., osteopaths, chiropractors, optometrists, etc.) from 1946-51 are made by multiplying the number of professionals, based on census and labour force survey data, by an average net income derived from *Taxation Statistics*. From 1938-45 estimates are made by projecting the 1941 census benchmark on the net income of doctors and dentists. A similar method is employed to estimate the net income of professionals in "other community service" (e.g., teachers, musicians, etc.). In 1961, census data are used to estimate the net income of the two groups. The totals for 1951 and 1961 are then interpolated and extrapolated on the basis of the movement in net income of dentists.

In the case of lawyers, average net income is derived from *Survey of Incomes in the Legal Profession in Canada 1946-1948;* and from taxation data from 1949 on. The estimates are projected back to 1938 on the trend of average net income in the medical profession. Numbers of lawyers are derived from the Statistics Canada survey and the censuses of 1951 and 1961.

The net income of accountants and auditors for 1951 and 1961 is based on census data and interpolated and projected on the basis of data taken from *Taxation Statistics.* An estimate of the net income of this group is available for 1941 from the census and for 1944 from an unpublished survey by Statistics Canada. The net income for the intervening years and to 1938 is projected on the basis of the net income of lawyers.

Net income of engineers, architects, designers, chemists, and metallurgists for 1951 and 1961 is based on census data, interpolated for inter-censal years, and projected to 1946 and forward on the basis of data taken from *Taxation Statistics*. An estimate of the net income of this group derived from the 1941 census is projected to 1945 and back to 1938 on the basis of an unweighted average index of accountants' net income and construction activity.

For the years 1931-37, the estimates for all of the above groups are carried back on the trend of total net income of professionals paying income tax, obtained from the Department of National Revenue; the figures are projected back from 1931 to 1926 on the basis of net income of professionals obtained from the report of the Rowell-Sirois Commission.[35]

(b) Other Unincorporated Non-farm Income

The non-farm group of other unincorporated business covers a heterogeneous range of industries. Little actual information on net unincorporated income in these industries is available for many of the years covered by this report; for the most part, the estimates rest upon directly related material, but in a number of cases indirect information is used.

In **forestry**, the net income from 1946 to date is the product of the number of working proprietors based on labour force data and the average net income based on *Taxation Statistics*. For 1942, an estimate of net income in forestry was calculated from the returns received by the census of industry in that year. The estimates for the years 1943-45 are a straight interpolation, while prior to 1942 the estimates are based on projections on related indicators such as the estimated number of proprietors and the wholesale price index of lumber and timber.

In **fishing**, estimates are obtained by the synthetic operating account method. For 1965, estimates of gross revenue and operating expenses are based on data from the 1965 survey of the Canadian sea fishing industry,[36] carried out by the Manufacturing and Primary Industries Division (Statistics Canada). Relationships from this survey and annual estimates of the "value of fish caught and landed" as compiled by the same Division are then used in deriving the estimates for the years 1947 to date. For the years prior to 1947,

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35 *Report of the Royal Commission on Dominion-Provincial Relations,* King's Printer, Ottawa, 1940.

36 *Survey of the Canadian Sea Fishing Industry, 1965,* Catalogue 24-501.

the gross revenue is taken to be the value of fish caught and landed and estimates are made for wages, depreciation, fuel, repair and miscellaneous expenses; these are deducted to arrive at estimated net income. For the whole period, a deduction is made to eliminate the profit of corporate organizations.

Gross income in **hunting** and **trapping** is taken to be the gross value of Canadian fur production as reported annually by the Agriculture Division,[37] adjusted to eliminate sales by fur farms. Wages and salaries paid to employed guides and trappers, and an estimate of miscellaneous expenses are deducted to arrive at net income.

In **mining**, the number of proprietors of unincorporated mining establishments by type is obtained from the 1931, 1941, 1951 and 1961 decennial censuses. Census benchmark data on average net income in 1951 and 1961 are projected to other years on an index based on Canadian gold prices and non-metallic mineral prices. For 1931 and 1941, average net income is estimated separately for proprietors on the basis of data compiled by the Manufacturing and Primary Industry Division (Statistics Canada) and from the decennial censuses. This net income figure based on these sources is projected, for the earlier years, on the basis of Canadian gold prices in the case of prospectors and placer miners, and on the basis of non-metallic mineral prices in the case of other mining proprietors.

For the net income estimates in **manufacturing**, tabulations of the gross revenues of unincorporated establishments from annual census of industry returns are used to derive the revenue estimates from 1946 on. The estimates are brought to a net basis by applying a ratio of "net to gross" revenue from *Taxation Statistics*. For the years 1926-45, the 1946 figure of the gross value of production in unincorporated manufacturing industries is projected back on the total of gross value of production of selected industries; the 1946 ratio of "net to gross" income is applied to the gross figures back to 1926.

Prior to 1947, the estimates of net income in non-farm unincorporated business included a separate estimate for net income in **repair service**. As a result of the classification changes introduced by the implementation of the 1960 Standard Industrial Classification, these activities are now embodied with the estimates of various associated industries – manufacturing, retail trade, and personal and miscellaneous services.

For the years 1926-46, net income in repair service is compiled from information on numbers of proprietors and average salaries obtained from the 1931 and 1941 decennial censuses. Net income for own account workers is assumed to be equal to wages and salaries paid in the respective sub-groups, while the net income of employers is raised by an arbitrary percentage. These benchmark figures are then adjusted to other years on the basis of related series.

In **construction**, net income from 1953 on is estimated by multiplying the number of proprietors, obtained from labour force surveys, by the adjusted average net income of contractors obtained from *Taxation Statistics*. A benchmark for 1946 is calculated in the same manner except that the

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[37] *Fur Production*, Catalogue 23-207.

average net income is based on returns filed with the Construction Section of Statistics Canada. The resulting figure is projected to 1952 on an index based on a gross to net ratio obtained from *Taxation Statistics* and total new and repair investment spending on residential construction. The 1946 figure of average net income is carried back to 1942 on the basis of an index of wage rates in building construction, multiplied by estimated numbers of proprietors. For years prior to 1941, estimates of net income are calculated by projecting benchmarks from the 1931 and 1941 decennial censuses on the trend of a combined index of the volume of construction put in place and wage rates in the industry.

From 1953 to date, the net income in **transportation** and **communication** is based on data from *Taxation Statistics* and the labour force surveys. From 1947-52 net income in transportation is based on data collected by the Transportation and Communication Division, adjusted to the 1953 benchmark. In 1945, a special analysis of financial statistics collected by this Division was made to establish net income of road transport carriers. This estimate is projected to other years (1926-37 excepted) on the basis of employment in road transport, in the case of freight and passenger carriers, and by an index of gross revenues of taxi companies, in the case of small carriers. For the years 1926-37, benchmark estimates are obtained from decennial census data, and projected to other years, for small carriers, on a combined index of taxi registrations and truck drivers' wages, and for large carriers, on a special index of employment in road transport. In water transport, a special survey by the Division provides estimates for the years 1938, 1941, 1944 and 1945. These figures are projected back to 1926 on an index of employment in shipping and stevedoring, and forward to 1946 on the trend of net income of firms reporting to the Transportation and Communication Division.

In unincorporated **retail trade**, sales are estimated on the basis of benchmark data from the decennial censuses. Prior to 1951, sales are projected on the trend of estimated unincorporated retail sales; since 1951, the projection is based on the indicated percentage of unincorporated sales to total sales from the census benchmarks. Net income is obtained by applying a ratio of "net to gross" revenue from *Taxation Statistics* for the years 1960 on, and from the operating results surveys conducted by the Merchandising and Services Division for the years prior to 1960. An adjustment is made for bad debt allowances, based on sales. From 1951, adjustments are also made to correct for undercoverage.

Estimates of net income of unincorporated **wholesale** establishments are based on a benchmark figure established in 1961 from the decennial census. The 1951 estimate, based on *Taxation Statistics* data and adjusted to reflect the 1960 Standard Industrial Classification changes, is then interpolated and projected using total sales of wholesale merchants. A level adjustment is made to the series from 1947 to 1950 to reflect the Standard Industrial Classification changes. For the years 1938 to 1946, a benchmark figure based on the numbers of proprietors and average earnings from the 1941 decennial census is projected on the index of wholesale sales published by the Merchandising and Services Division. For the years 1926-37, the estimates are based on data from the report of the Rowell-Sirois Commission.

Since 1953, net income in **finance, insurance** and **real estate**, is based on *Taxation Statistics*. For other years, estimates are made separately for each industry in this group and the total is tied in with the year 1953. Net income of stock and bond dealers is estimated, for 1941, from decennial census data and projected to other years on an index of the total value of shares traded on the Toronto and Montreal Stock Exchanges. An estimate of the net income of insurance and real estate agents for 1943 is based on a special survey conducted by the Merchandising and Services Division; for other years projections are made on annual information on commissions paid by fire insurance companies compiled from reports of the Superintendent of Insurance for Canada.

Service other than those professional services enumerated above includes **personal and recreational service**, and **boarding and lodging**. Estimates of net income in the **personal services** group are calculated by sub-groups: barbering and hairdressing, laundries and cleaners, undertaking, hotel and tourist camps, restaurants, cafes and taverns. In most cases the method consists of establishing a benchmark from census data. Projections are then made on various related indexes such as the gross annual receipts of cleaning and dyeing plants, as reported to the Merchandising and Services Division, tourist expenditures in Canada (Balance of Payments Division) and similar indicators.

In **recreational service**, benchmark estimates are also made from census data. From 1951 on, the consumer price index for recreation and reading is used as a projector; projections to years prior to 1951 are made on the basis of an index of receipts (excluding taxes) of motion picture theatres.

Net income from **boarding and lodging** for the year 1961 is based on census data, and the estimate has been held constant since that time. An earlier benchmark for the year 1947 is based on data from *Family Expenditures, 1947-1948*, Statistics Canada. A straight line interpolation is used for the intervening years 1947-61. For years prior to 1947, the projection is based on the trend of restaurant sales.

(c) Net Rental Income of Persons

Rental figures are reflected on both the income and expenditure sides of the National Accounts. On the income side, net rental income of persons and unincorporated businesses, including imputations for owner-occupied dwellings, are consolidated with and shown as part of "net income of non-farm unincorporated business, including rent". Net rental income of corporations is implicitly included in corporation profits. The facility and space expenses deducted in arriving at residential net rents are included implicitly in the other components of Gross National Product. On the expenditure side, gross rents on residential tenant-occupied dwellings and an estimate of gross imputed rents on owner-occupied dwellings are explicitly included in personal expenditure on consumer goods and services. Non-residential rents, which are business expenses, are reflected in the price of products sold and therefore in the Gross National Expenditure.

The calculation of the net rent estimates of persons and unincorporated businesses is divided into three parts:

(i) non-farm rents, residential;

(ii) non-farm rents, non-residential;

(iii) farm rents, both residential and non-residential.

Of these three classes, the first is the most important in size and is also the one for which statistical coverage is the most satisfactory. From 1941 on, the series on residential non-farm rents is estimated as outlined in the following paragraphs. Prior to 1941, the basic approach is similar but due to lack of data is not carried out at the same level of detail.

(i) **Residential non-farm rents** (including garages) are divided into rents paid on tenant-occupied dwellings and rents imputed on owner-occupied dwellings. The steps used in both cases are similar and can be outlined as follows:

Gross paid rents

Less: Expenses of facilities supplied by landlords and included in paid rent.

Equals: Gross space rent paid by tenant occupants.

Plus: Gross space rent imputed to owner-occupants.

Equals: Gross paid and imputed rent for space.

Less: Space expenses for tenant and owner-occupied dwellings.
Repair and maintenance
Municipal property taxes
Depreciation
Insurance premiums
Mortgage interest

Equals: Net paid and imputed rents.

Less: Net rents paid to non-personal sectors.

Equals: Net rent paid and imputed, received by individuals.

Gross paid rent (residential non-farm) is obtained by multiplying the number of tenant-occupied non-farm dwellings by the average annual rent paid. The number of non-farm occupied dwellings classified between tenant and owner-occupied is estimated by the Construction Division, Statistics Canada. The average annual rent paid by tenants from 1941 to 1948 is obtained by projecting the 1941 census figure of rent on the trend of the rent component of the consumer price index. From 1949 on, average annual paid rents are obtained from the Labour Force Survey conducted by Statistics Canada.

Costs of facilities provided by the landlord to the tenant and included in the rent are subtracted from the gross rent paid, to obtain the gross rent paid for space. Space rent is defined here as rental for the use of land and dwellings and fixtures which are structurally part of the dwelling. The facility expenses include the amortization of furniture, stoves, refrigerators and washing

machines supplied, and the cost of fuel, janitor services, water, electricity, gas, cable TV, and telephone supplied by the landlord.[38] The estimates are based on a survey of landlord expenses conducted by Statistics Canada in 1955, and projected on data collected as part of the Labour Force Survey.

Imputed gross space rents (residential non-farm) are obtained by multiplying the number of owner-occupied dwellings by the average annual gross imputed rent. The average gross imputed rent is equal to the average gross paid space rent adjusted for differences in the amount of space between owned and rented accommodations. No allowance is made for the difference in quality between owner and tenant-occupied dwellings.

Estimates of "space expenses". – costs of repairs and maintenance, property taxes, depreciation, insurance, and mortgage interest, are deducted from both paid and imputed gross rents to arrive at net rents. These expenses are allocated between owned and rented dwellings on the ratio of gross paid space rents to gross imputed space rents. The repair and maintenance estimates are prepared in the Gross National Product Division, drawing on data from Central Mortgage and Housing Corporation, the 1969 National Family Expenditure survey, and using as projectors related data such as construction wage rates and residential building material prices. Property tax levies by local and provincial governments are estimated in the Public Finance Division of Statistics Canada. Adjustments are made to exclude levies on non-residential property and tax subsidies paid by some provincial governments. Depreciation on residential non-farm property is estimated by the Construction Division, Statistics Canada. The estimates are calculated from housing stock figures valued at replacement cost. Insurance premiums on residential non-farm dwellings are obtained from the Superintendent of Insurance for Canada. Mortgage interest on residential non-farm property is calculated in the Gross National Product Division. Data on balances outstanding for mortgages held in Canada by life insurance companies, banks, loan companies, trust companies, individuals, corporations, government agencies and non-residents are taken from the reports of Central Mortgage and Housing Corporation, reports of the Superintendent of Insurance for Canada, the Public Accounts and other sources. Effective rates of interest are derived for each group and applied to the outstanding balances to arrive at a total mortgage interest figure. Total interest is then allocated on the basis of available data between non-residential and residential property.

Total net paid and imputed rents (residential non-farm) as estimated above are adjusted to eliminate net residential rents flowing to the non-personal sectors in order to arrive at net paid and imputed rents received by individuals. The estimate of residential non-farm rent received by the non-personal sectors is based on the reports of Central Mortgage and Housing Corporation, a special corporation sample study for the years 1926-44, *Taxation Statistics*, and data on rent received by corporations as published in *Corporation Financial Statistics*, Catalogue 61-207.

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[38] Landlord facility expenses are recorded separately in personal expenditure on consumer goods and services in a variety of separate expenditure categories and are not treated as a part of consumer outlay on rent, which is confined to space rent expenditures. On the income side, the amortization portion of landlord facility expenses appears under capital consumption allowances (miscellaneous valuation adjustments). The factor incomes generated appear, on the income side, in their respective categories.

(ii) Non-residential non-farm rents received by persons are estimated as follows. An estimate of gross rents paid by business is first derived using the following sources. Data on rents paid by non-financial corporations are available from 1944 on from *Taxation Statistics* and *Corporation Financial Statistics*, Catalogue 61-207, and for the years 1926-43 from the special corporation sample study. Rents paid by insurance companies are compiled from the annual reports of the Superintendent of Insurance; and rents paid by federal and provincial governments, from the various Public Accounts. Only paid rents are included here. The "rental" return on owner-occupied premises used by business is implicitly a part of the estimate of profits or net income.

Gross rents paid by unincorporated business are estimated on the basis of very fragmentary information. Rents paid by unincorporated retail stores for the years after 1944 are based on surveys made by the Merchandising and Services Division of Statistics Canada. For the years prior to 1944, benchmarks available from the 1931 and 1941 censuses are projected on the trend of rents paid by corporate retail stores. For the other industrial groups, the benchmarks of rents paid are derived from special compilations obtained from the census of industry, or from special surveys. In several industries, projections are made on the basis of rents paid by incorporated firms.

From the total of gross rents paid, as enumerated above, rents received by governments and incorporated business are subtracted to arrive at estimates of gross rents received by individuals. Gross rents received by governments are based on tabulations made from the Public Accounts. Rents received by corporations (both financial and non-financial) are obtained from *Taxation Statistics*, from the special corporation study and from *Corporation Financial Statistics*, and are arbitrarily adjusted to exclude residential rents received. Rents received by insurance companies are available from the reports of the Superintendent of Insurance.

The resulting estimates of gross non-farm non-residential rents received by individuals are reduced to a net basis by applying the ratio of net to gross rents received by persons and unincorporated business as calculated from *Taxation Statistics*, and other sources.

(iii) Farm rents, both residential and non-residential, are estimated in the Agriculture Division of Statistics Canada. Imputed and paid rents on farm dwellings are built up from data on taxes, depreciation, and repair and other expenses, with an allowance for a return on investment.

Non-residential farm rents are based on rents in kind and in cash, reported in the decennial censuses and for earlier years, in the 1936 and 1946 prairie censuses. Intercensal years are estimated by projecting census figures on the value of farm crops and land per acre.

Accrued Net Income of Farm Operators from Farm Production[39] (Table 12, lines 7 and 8)

Like the estimates for net income of non-farm unincorporated business, the net income of farm operators from farm production consists of a

[39] The estimates of accrued net income of farm operators from farm production also appear in Table 1 "National Income and Gross National Product", line 6, and in Table 8, "Consolidated Production Account", lines 7 and 8.

consolidation of returns to labour (wages and salaries) and returns to capital (profits, interest and rents) which cannot be separately identified. Thus, in this field also, a variety of types of factor incomes are inextricably mixed.

The basic estimates of "**net income of farm operators from farming operations**" are prepared by the Agriculture Division of Statistics Canada and adjusted to meet National Income and Expenditure definitions. The method of estimation employed in the Agriculture Division is summarized briefly below. A more detailed account of the definitions and concepts is published in *Handbook of Agricultural Statistics*, Catalogue 21-511.

In computing the estimates of "net income of farm operators from farming operations" the Agriculture Division constructs a synthetic operating account for agricultural activity. **Farm cash receipts** from the sale of farm products is first calculated by type of farm product sold. These estimates rest upon an extensive statistical coverage of the agricultural sector, and include Canadian Wheat Board participation payments on previous years' grain crops, net cash advances on farm-stored grains in Western Canada and deficiency payments made by the Agricultural Stabilization Board.

Estimates are made of the value, at farm prices, of food and forest products grown and consumed on farms, and these, together with imputed gross rents on owner-occupied farm dwellings, constitute the value of **income in kind** received by farmers. The value of the **physical change in farm-held inventories** of field crops and livestock is calculated by taking the difference occurring in the quantities of selected field crops and the number of livestock on farms between the beginning and end of the calendar year and valuing them at average prices received by farmers during the year. These value of physical change figures will be positive or negative according to whether inventory stocks have been increased or depleted. The sum of all these items constitutes **gross farm income.**

Farm operating expenses are then deducted from this figure. These include taxes on real estate, gross rents on farm land, labour costs, interest on farm debt, machinery expenses, crop expenses, feed and other livestock expenses, repairs to buildings, depreciation charges, and so on.

The estimates are based on a wide range of sources and methods too extensive for detailed comment here. To the net figure, after deduction of these expenses, are added such government payments to farmers as payments under the Prairie Farm Assistance Act, payments made under the Lower Inventory for Tomorrow (LIFT) program, and payments to farmers under the two-price wheat program. The resulting aggregate is called "**net income of farm operators from farming operations**".

For national accounting purposes, certain adjustments are made to the estimates of total farm net income. These adjustments are shown explicitly in the reconciliation statement given in Table 57 of Volume 1, and are set out for the year 1961 in Table 5-4.

TABLE 5-4. Reconciliation Statement, Accrued Net Income of Farm Operators

Adjustments to net income of farm operators from farming operations to arrive at accrued net income of farm operators from farm production

	1961
	millions of dollars
Net income of farm operators from farming operations	922
Deduct:	
Amounts included in other components of GNP	– 83
Govemment transfer payments to persons	– 36
Add:	
Other adjustments	– 4
Equals:	
Net income received by farm operators from farming operations	799
Add:	
Adjustment on grain transactions	27
Equals:	
Accrued net income of farm operators from farm production	826

The first adjustment consists of deducting from the "net income of farm operators from farming operations" figure, two items which are included elsewhere in the Accounts – that is, the imputed rent on owner-occupied farm dwellings (included with net rental income of persons), and the profits of agricultural enterprises which are organized as corporations (included with corporation profits).

The second adjustment consists of deducting government transfer payments (such as payments under the Prairie Farm Assistance Act) since these amounts do not represent income earned from activity in farm production. Payments to farmers from the government under LIFT and the two-price wheat programs are not deducted here since they are treated as subsidies in the Accounts and are deducted from the National Income at a later stage.

A third adjustment – included with "other adjustments" – allows for differences in the method of calculating the change in farm inventories for national accounting purposes. In the National Income and Expenditure Accounts, the value of the annual physical change in inventories of field crops on farms since 1947 has been defined as the sum of the change in the four quarters of the year. However, the Agriculture Division calculates an annual value of physical change in these inventories based on average annual prices. The difference between the two figures is due to differences in the weighting of prices which results from these two methods of calculation and an adjustment must therefore be made to reconcile to the National Income and Expenditure Accounts basis.

A fourth adjustment – also included with "other adjustments" – consists of an estimate of agricultural net income in Newfoundland (beginning in

1949). The Agriculture Division does not include that province in its annual surveys, and this estimate is therefore added.

The fifth, and final, adjustment is called "adjustment on grain transactions". This adjustment constitutes an allocation of earnings arising out of the operations of the Canadian Wheat Board, (and in earlier years, the Canadian Cooperative Wheat Producers) to place the earnings of farmers arising out of these operations on an "accrual" basis.[40] Since the earnings of these agencies are calculated, in the first instance, on the basis of changes in book values of inventories, the figures are modified to bring them to a value of physical change basis before the adjustment is determined.

Interest, Dividends and Miscellaneous Investment Income (Table 12, lines 9 and 10)

These components of the income of the persons and unincorporated business sector consist mainly of distributed earnings in the form of interest and dividends received from the corporate and government business enterprise sector (Table 21, line 1) and from the non-resident sector (Table 25, line 4). Also included is interest on the public debt paid to persons (which is routed through the corporate and government business enterprise sector. See Chapter 7 page 211) and the interest accruing on private pension funds, life insurance funds, and on funds invested by other "associations of individuals".

Because the components involved are mainly distributions of earnings of other sectors, and since they are recorded as outlays in the outlay accounts of these sectors (the corporate and government business enterprise sector and the non-resident sector), the discussion of the estimates is reserved for later chapters. The reader is referred to Chapter 7 "Corporate and Government Business Enterprises" and Chapter 8 "The Non-Resident Sector" for a description of the sources and methods underlying the calculations.

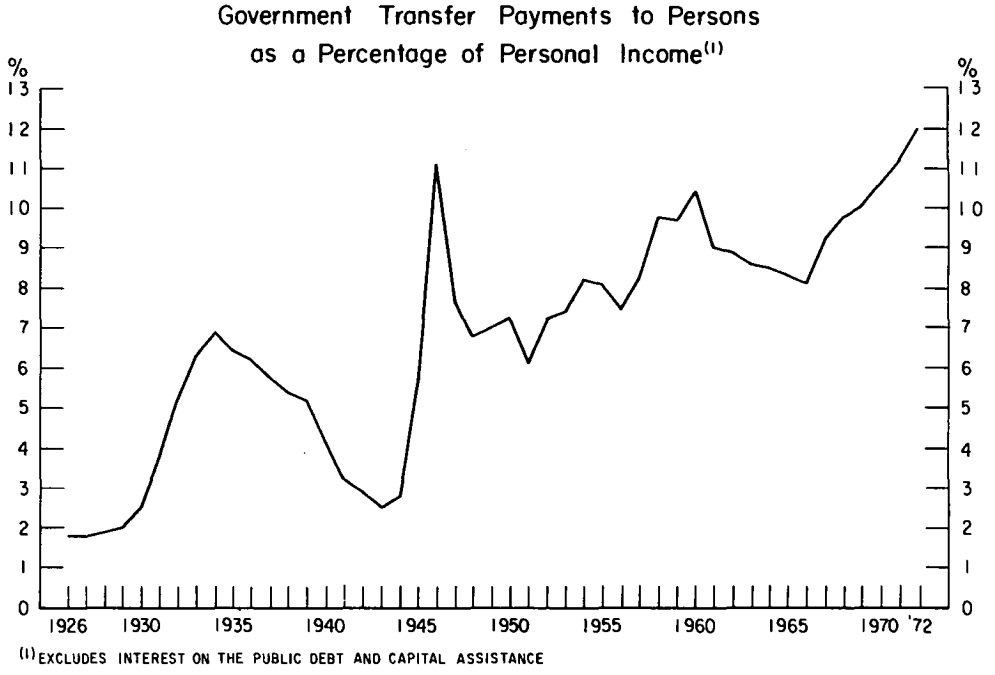
Current Transfer Payments from Government, Corporations and Non-residents (Table 12, lines 11, 12, 13, 14 and 15)

A significant portion of the income of the persons and unincorporated business sector consists of current transfer payments from other sectors – unilateral payments for which there has been no exchange of goods or services. By far the greater part of such payments is made by the government sector in the form of transfer payments to persons – family and youth allowances, unemployment insurance benefits, veterans' pensions, old age security fund payments, Canada and Quebec Pension Plan benefits, direct relief, workmen's

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[40] The figures of farm cash income and of net income of farm operators from farming operations prepared by the Agriculture Division include cash payments from the Wheat Board and the Canadian Cooperative Wheat Producers. The cash payments made in any particular year can differ considerably from the flow of earnings accruing to farmers as a result of the "profits" earned on the operations of these agencies (they can be larger or smaller). The adjustment is designed to convert this portion of the income of farmers from a cash to an "accrual" basis which more closely reflects the timing of the flow of earnings. The basic data are obtained from the reports of the Canadian Grain Commission and the annual reports of the Canadian Wheat Board and the Canadian Co-operative Wheat Producers.

compensation benefits, grants to non-commercial institutions, and many other types of government transfer payments (see Table 50, Volume 1). In recent years, such transfer payments from the government sector have amounted to around 11% or 12% of total Personal Income, as Chart 5-2 indicates. Other current transfers from government – relatively quite small – have taken the form of capital assistance grants to industry.



In these Accounts, charitable and other contributions to non-commercial institutions from corporations are regarded as current transfers to persons and are included with the income of the persons and unincorporated business sector. Similarly, losses incurred by corporations as a result of bad debts of persons are regarded as current transfers to persons from corporations and are included in the income of this sector.

Finally, some current transfers to persons are received from the non-resident sector, and these are also included in the income of the persons and unincorporated business sector. Such current transfers consist of personal and institutional remittances, and pensions received from abroad.

All of the above types of current transfers are recorded in the outlay accounts of other sectors. For a description of the sources and methods underlying these estimates, the reader is referred to Chapter 6 "The Government Sector" (for government transfer payments), Chapter 7 "Corporate and Government Business Enterprises" (for corporate transfer payments) and Chapter 8 "The Non-Resident Sector" (for current transfers from the non-resident sector).

The Income and Outlay Account: Outlay (Table 13 of Volume 1)

The outlay side of the income and outlay account of persons and unincorporated business consists essentially of three main sets of transactions: personal expenditure on consumer goods and services, covering all outlays of persons and households for current consumption; current transfers to other sectors, mainly in the form of direct personal income taxes and other taxes paid to government, but with a small amount representing transfers to the corporate and non-resident sectors; and personal saving (together with the "adjustment on grain transactions") representing the amount of unspent or unconsumed income of the sector after accounting for total consumption outlays, the payment of direct taxes to the government, and transfers to other sectors. The amounts recorded here as personal saving together with the "adjustment on grain transactions" become a "source of finance" for the capital formation of this sector and are transferred to the "sources" side of the capital finance account in Table 14.[41]

Personal Expenditure on Consumer Goods and Services[42] (Table 13, lines 1, 2 and 3)

This component covers all personal outlays on goods and services by Canadian residents for current consumption. It is by far the largest single group of outlays in Gross National Expenditure, accounting for close to 60% of the total. Its includes consumer purchases from business of durable goods such as automobiles and household appliances; semi-durable goods such as clothing and footwear; non-durable goods such as food, alcoholic beverages and tobacco; and all types of services such as payment of shelter rents, outlays for recreation, purchased transportation, and personal care services. It includes direct purchases of labour services by persons and non-commercial institutions (e.g., domestic service and support staff). The estimates also include implied expenditures out of income in kind such as food grown and consumed on the farm and imputed rents on owner-occupied housing.

All of the operating costs of non-commercial institutions (which provide their services collectively to persons and households) and of insurance companies are included, as described in an earlier section. Purchases of houses are not included here since they are regarded as capital goods and included with the estimates of gross fixed capital formation. The estimates include expenditures of Canadian residents temporarily abroad (e.g., travellers and members of the Armed Forces) and exclude expenditures of foreign residents temporarily in Canada.[43] All sales taxes on purchased goods and services are

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[41] It may be noted that the "adjustment on grain transactions" is recorded in Table 12 as income of the sector and in Table 13 as a part of the "saving" of the sector. Thus the figure of "personal saving" as given in Table 13 and as shown in Table 5 is not affected by this adjustment item.

[42] The sum of lines 1, 2 and 3 in Table 13 ($25,930 million in 1961) is identical to the total appearing in line 1 of Table 2, "Gross National Expenditure".

[43] Expenditures of Canadian residents temporarily abroad are entered as a positive entry in personal expenditure on consumer goods and services. This positive entry is offset by a corresponding entry appearing in imports of goods and services, so that Gross National Expenditure (Canadian production) is not affected. Expenditures of foreign residents temporarily in Canada are eliminated in calculating personal expenditures in order to avoid double counting of amounts already counted and included in exports of goods and services in the Gross National Expenditure.

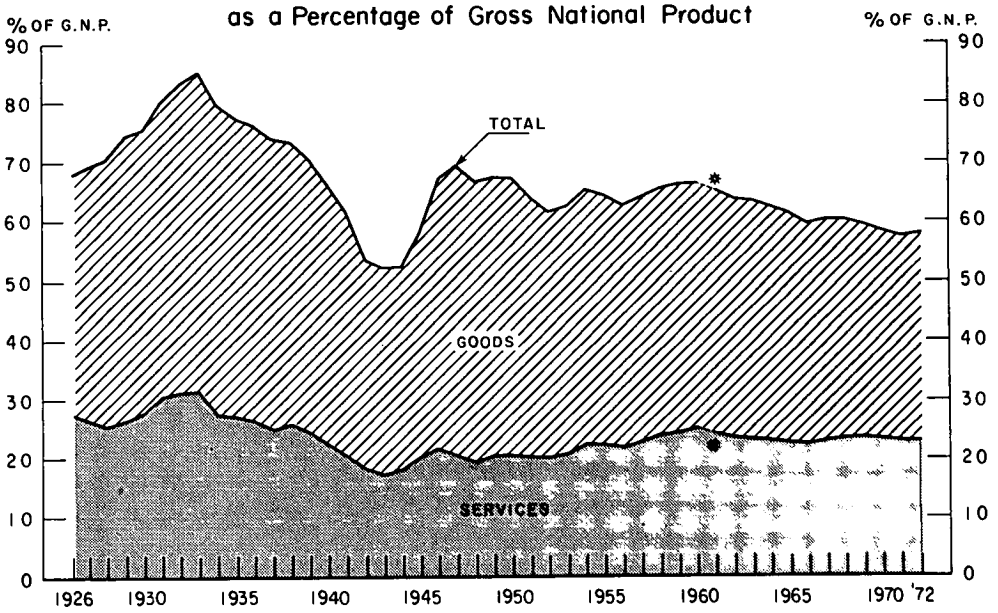
included (these have their counterpart on the income side in indirect taxes). All expenditures that are regarded as business outlays are excluded. Purchases of used goods by persons are also excluded, but allowances are made for dealers' mark-ups and servicing and re-conditioning costs which represent a part of current production. A negative adjustment (deduction) is made in the estimates of personal expenditure to allow for the trade-in value of used goods sold by persons to business. This adjustment is made in order to offset the entry in Gross National Expenditure represented by the addition to business inventories, since the Gross National Expenditure as a whole should not be affected by such transactions in used goods.[44]

The estimates of personal expenditure on consumer goods and services are calculated under three broad categories: personal expenditures on commodities or goods; personal expenditures on services; and net personal expenditures abroad.

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[44] In principle, the value of all used goods sold to persons should be excluded from the Gross National Expenditure. In fact, the necessary data are available to carry out the appropriate treatment only with respect to used cars. An example will serve to illustrate. Assume a dealer buys a used car from an individual for $400, either in trade or in direct purchase. This amount is recorded as a positive entry in the dealer's inventory and a corresponding explicit negative adjustment is made to personal expenditure on consumer goods to offset the entry in inventories. Gross National Expenditure is not affected. Later, the dealer sells the car to a person for $600. At this point, the dealer's inventories are reduced by $-400, and personal expenditure on goods is increased by $600. The difference of $200 represents the "net value added to production" in the transaction and is made up of the dealer's mark-up, and servicing and reconditioning costs.

Personal Expenditure on Consumer Goods and Services
as a Percentage of Gross National Product



*FROM 1961 ON, GOVERNMENT-FINANCED HEALTH CARE SERVICES ARE EXCLUDED FROM PERSONAL EXPENDITURE ON CONSUMER SERVICES.

(a) Personal Expenditure on Goods

This estimate is made up of purchases of commodities by persons, and implied expenditure out of income in kind. As was noted in Chapter 2, the estimates for this group of expenditures have been substantially re-worked, and the classification of the component detail by type of commodity purchased has undergone substantial revision. In the main, this latter development reflects the creation of a new sub-category for "semi-durable" goods which has resulted in a shift of many items out of categories formerly defined as "durables" and "non-durables". A breakdown of the detail of personal expenditure on goods (and also on services) by major commodity group is given in Tables 53 and 53a in current dollars, and in Tables 54 and 54a in constant dollars. Further comment on this commodity classification will be found in Chapter 14, "Notes on Auxiliary Tables".[45]

The method of estimating consumer spending on commodities involves a number of procedures in which basic primary data on total retail sales are adjusted, and supplemented by data from other sources, to build up an estimate of total consumer outlays for goods consistent with the concepts and definitions of these Accounts. Thus, for the period since 1947, benchmark values of **total retail sales** are first established from the censuses of merchandising and services for the years 1951, 1961 and 1966. To these totals are added estimates of the value of commodities purchased by individuals through **non-retail trade outlets**. The totals thus obtained are then broken down into appropriate trade groupings – shoe stores, furniture and appliance stores, hardware stores, clothing stores, grocery and combination stores, and so forth. The sales of each one of these trade groupings are then adjusted where necessary to remove **non-personal commodity purchases at retail**, e.g., business purchases of new passenger cars, commercial vehicles, auto parts, and oil, gas and grease, which should not be included in personal expenditure; and to remove receipts for **services sold at retail**, which should not be included in personal expenditures on goods. In addition, a deduction is made to adjust for the trade-in value of used goods. Further adjustments are made to remove the sales of commodities which are only partially or inadequately reflected in retail sales in order that more complete estimates can be derived independently and added back, e.g., sales of alcoholic beverages and tobacco.

Each of the major trade groups derived as above is in turn broken down into various commodity groupings – food and non-alcoholic beverages, men's and boys' clothing, footwear and repair, household appliances, furniture and carpets, books, newspapers and magazines, drugs and sundries, and so forth. In the majority of cases (except where independent commodity estimates are made) these trade groups are decomposed into their commodity components using the commodity distribution of retail trade establishment sales from the 1951, 1961 and 1966 censuses, together with data from a retail commodity survey taken in 1968.[46] The commodity distribution of sales made through non-retail outlets is also based on census data and on annual surveys.

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[45] The classification structure of these tables follows, in general, the recommendations of the United Nations' Statistical Office in *A System of National Accounts.*

[46] *Retail Commodity Survey,* 1968, Catalogue 63-518.

For the non-census years, annual estimates of consumer spending on goods are derived essentially by taking the census benchmark figures of sales for each trade group as estimated above, and interpolating or projecting the figures using the movement of sales of equivalent kind-of-business groupings found in the annual retail trade publications published by Statistics Canada. A large amount of annual information on retail sales is available from these sources.[47] Matching this annual information to the census benchmark trade groups, and then carrying the benchmark estimates forward (or interpolating) on the basis of the change in the relevant annual series, provides the principal means of deriving annual estimates of consumer spending on goods by major retail trade groups. For the non-retail trade groups, census benchmark estimates are interpolated or projected to non-census years on the basis of data from a variety of sources – surveys of wholesale and service trade, annual surveys of direct selling,[48] and surveys of vending machine sales.[49]

The annual estimates of consumer spending on goods by major trade groups calculated as above are then broken down to yield sales by major commodity groups. For the most part, these breakdowns are based on information from the regular annual retail trade surveys, combined with census estimates of the commodity detail of goods sales.

Finally, provincial and local sales taxes, which are not included in the retail sales figures (only federal taxes are included), are added to the commodity groups on which they apply. Income consumed in kind is also added. The resulting estimates of expenditures on commodities together add up to total personal expenditure on consumer goods.

To summarize briefly, the basic method of calculating personal expenditure on goods for the period since 1947 can be depicted as a series of adjustments to the basic retail sales data, supplemented by information from a variety of other sources. The major steps in the procedure – not always carried out at the same level of aggregation, or in this order – are shown in tabular form in the following table.

Total retail sales
Add: Goods purchased through non-retail outlets
Deduct: Non-personal purchases at retail
Other adjustments:
  Deduct services sold at retail
  Deduct trade-in value of used goods
  Deduct sales of goods estimated directly
  Add direct estimates
Add: Provincial and local taxes
Add: Income in kind, goods
Equals: Total personal expenditure on goods

For the period 1926-46, the method of estimating consumer outlays on goods is broadly similar to that described above. However, there is a good deal more "patchiness" in these earlier estimates, since the basic information is by

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[47] *Retail Trade, 1961-1964*, Catalogue 63-513; *Retail Trade, 1961-1966*, Catalogue 63-517; *Retail Trade, Revisions to 1966-1970 Post-Censal Estimates*, Catalogue 63-519; and *Retail Trade, Monthly*, Catalogue 63-005.

[48] *Direct Selling in Canada*, Catalogue 63-218.

[49] *Vending Machine Operators*, Catalogue 63-213 and 63-506.

no means as comprehensive as for the more recent period. The value of retail sales for the years 1930 to 1953 inclusive is taken from an early reference paper of the Merchandising and Services Division,[50] and is available thereafter on an annual basis from the reports of that Division. Adjustments were made to some years to correct for certain inadequacies. Retail sales, as shown by the 1930 Census of Retail Establishments, were corrected for the volume of sales of establishments which went out of business (at the onset of the Depression) after they had been listed in the census but prior to the enumeration of their retail sales data. This correction was smoothed out to the year 1932 on the basis of related material. For the 1926-30 period, retail sales are projected backward on the trend of retail sales of selected incorporated retail sales establishments as derived from the corporate profits sample survey.

(i) Goods purchased through non-retail outlets – A significant volume of retail sales to individuals occurs through outlets not classified as retail stores. These must be added to the retail sales figures derived from the various surveys of retail trade establishments to arrive at comprehensive totals. Such additions include: direct sales by manufacturing establishments and dairies, sales by book and record clubs, newsboys' sales, and sales by other specialized direct sellers; sales through vending machines; sales by wholesalers and service establishments; and sales through produce markets and roadside farm stalls.

Since 1961, information on direct sales by manufacturing (and some other) establishments has been available from *Direct Selling in Canada*, Catalogue 63-218. This series of reports provides a commodity breakdown for the year 1961 and annual commodity breakdowns from 1966 onward. For the period prior to 1960, independent estimates were made for door-to-door dairy sales and newspaper subscriptions and newsboy sales based upon information obtained from family budget expenditure data and commodity flow estimates.

Sales through vending machines have been available, with a commodity breakdown, since 1961, in *Vending Machine Operators,* Catalogue 63-213. Merchandise sales to persons by wholesalers and service establishments are available by commodity from the 1961 Census. Since no inter-censal data are available, employment in wholesale and service trades is used to project the sales estimates to other years.

Sales through produce markets and roadside farm produce stalls are added, based upon information obtained from family budget expenditure data, and commodity flow estimates.

(ii) Non-personal purchases at retail – Non-personal purchases at retail, which are deducted from the estimate of total retail sales, are, in general, estimated by commodity groups. A part of building materials and hardware sales representing business purchases are deducted, based on information from the censuses of merchandising and services.Business purchases of gasoline, oil and grease are estimated residually. Total gasoline, oil and grease sales by retail establishments are obtained from the decennial censuses of retail establishments. The total is then interpolated or projected on the trend of garage and filling station sales. A personal use portion is determined (based on gallonage data in 1961 and an arbitrary estimate for earlier benchmark years) and extrapolated on a composite index reflecting total retail sales in this group and the proportion of personal and business consumption as indicated by registrations of passenger and commercial vehicles.

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[50] *Retail Trade, 1930-1951,* Reference Paper No. 56 (1955), Catalogue 63-505.

Sales of new commercial vehicles are excluded in their entirety together with a portion of new passenger vehicles for business use. The basic data are supplied by the Merchandising and Services Division of Statistics Canada. The business-use portion of passenger vehicle sales is estimated for selected benchmark years; currently a flat 20% of the sales value of new passenger vehicles is deducted. In the years 1942-45, (a period of war-time stringency), a considerably higher proportion was deducted.

Business purchases of auto parts and accessories must also be excluded from the estimates of retail sales to persons. The figures are obtained by a similar method to that used in estimating the business consumption of gasoline, oil and grease. For the early years, the benchmark data for the personal-use portion are extrapolated on a composite index reflecting the trend of wholesale sales of auto parts and the changing proportion of personal and business consumption as indicated by registration of passenger and commercial vehicles. Since 1961, the personal-use portion (estimated arbitrarily at 25% of the total) is projected on the volume of gasoline used by private vehicles.

In addition to ensuring that the estimates of consumer expenditure include only the personal-use portion of new car sales, the retail sales data must be adjusted to ensure that the net personal-use portion of used car sales is also accounted for. Sales of used cars by motor vehicle dealers (and used car dealers) to both the business and personal sectors are included in the basic source data on retail trade. An adjustment is therefore made to remove that part of used car sales which is sold to the business sector. The balance represents gross sales of used cars to the personal sector. At the same time, however, a further adjustment must be made to take account of the trade-in value received by consumers, which in effect constitutes sales of used cars from the personal to the business sector. These procedures result in the inclusion in consumer expenditure of net purchases of used cars by consumers from the business sector, consisting of dealers margins, servicing, and re-conditioning costs.

The value of meals and beverages charged to business and government expense account must also be excluded from retail sales to persons. The figures are computed by applying the ratio of meals and beverage expenditures to total travel expenditures as indicated by federal government records to the aggregate travel expenditures of business and government.

Wholesale sales by retail establishments are excluded, since these are assumed to be wholly business-use purchases. The census benchmarks (census of merchandising and services) are interpolated and projected on a specially weighted index of retail sales. Business purchases of tractors, farm implements and parts are excluded, since they appear either with the estimates of gross fixed capital formation or with farm operating expenses.

(iii) Provincial and local taxes – In general, retail sales estimates (and the commodity groups), include federal sales and excise taxes, but they do not include certain types of local and provincial sales taxes. These must therefore be added to bring the estimates of retail sales to persons to a market price basis of valuation. Data are obtained in connection with the estimates of indirect taxes. The allocation of these provincial and local taxes to the various commodity groups is a rather involved procedure, but essentially it consists of

deriving a provincial distribution of retail sales by major trade and commodity groups and applying the relevant rates of tax prevailing in the various provinces (these differ quite widely) to the value of expenditures in the province on the particular commodities on which the taxes are levied.

(iv) Income in kind, goods – An imputation is made to personal expenditure for the value of goods consumed out of income in kind. In each case the figures included in expenditure are based on the estimates used for the income side. The item is comprised of food and fuel produced and consumed on farms, food to non-farm workers and issues in kind to the Armed Forces.

The estimate of food and fuel consumed on farms is a part of the calculation of net farm income prepared by the Agriculture Division. It includes the estimated value of all types of home-grown produce consumed by farm families and hired help, based on average farm prices. Food received and consumed by non-agricultural workers is computed in connection with the estimates of wages, salaries, and supplementary labour income. The value of lodging supplied to both farm and non-farm groups is not included here, being classified to the services estimate.

Estimates of food and clothing issued to the Armed Forces are prepared in connection with the figures of military pay and allowances.

(b) Personal Expenditure on Services

This includes the value of services rendered directly to individuals as distinct from those rendered to business or to government. For many classes of services, a preponderant proportion of total revenue is represented by sales to individuals, and the presence of business services is not an important source of error. In those classes where sales to business or government form an important part of total revenue (e.g., air transportation, telephone service) data as to the amount of such sales are not always available and arbitrary allowances must be made.

For certain classes of services, annual surveys, or published reports of Statistics Canada and other agencies give information regarding personal expenditure. Other groups depend upon the decennial censuses (and the 1966 census) of merchandising and services, with projections to other years being made on directly related series. In some cases, benchmark estimates are taken from census data but projections must be made on indirect evidence regarding trends. In a considerable number of cases, the estimates are explicitly articulated with calculations on the income side.

As already noted, services of private non-commercial institutions (universities, charitable institutions, etc.) are measured by the expenses of these institutions rather than by the fees paid by individuals. Services of insurance companies are also measured by their expenses.

(i) Services covered by annual surveys, or published statements – Annual surveys of power laundries and cleaning and dyeing establishments conducted by the Merchandising and Services Division provide data on the total revenue of these establishments.[51] Allowances are made to eliminate non-personal expenditures, to include expenditures on coin operated laundry, dry cleaning and drying machines, and to include provincial taxes.

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[51] *Power Laundries, Dry-Cleaning and Dyeing Plants,* Catalogue 63-205.

Bridge, tunnel and ferry toll revenues are obtained from the Transportation and Communication Division of Statistics Canada.[52] Data on revenue of railways including express, inter-city and urban transit, air and water transport, as well as moving and storage are also obtained annually from this Division.[53] Deductions for non-personal use are made based upon information received from the major operators.

Operating revenues of telegraph and telephone companies are calculated using annual values from the Transportation and Communication Division.[54] An adjustment is made for non-personal expenditures on these services and for provincial taxes. Data on Post Office revenues are taken from the *Public Accounts* of the federal government, with an arbitrary allowance made for non-personal transactions.

As was indicated in Chapter 2, public hospitals, including lay and religious hospitals mainly organized to meet municipal needs, have been transferred from the personal and unincorporated business sector to the government sector beginning in 1961.[55] Prior to 1961, however, public hospitals – defined as institutions not operating for profit and accepting all patients regardless of ability to pay – are treated as non-profit institutions in the personal and unincorporated business sector, with their expenditures regarded as outlays of "associations of individuals" and included in personal expenditure on services. It should be noted that a small amount of public hospital expenses which are charged directly to patients or their agents, such as differential costs of preferred accommodation, continue to be treated as an item of personal expenditure on services after 1961. In addition, privately owned profit-oriented hospitals remain in the business sector.

The estimate of services rendered to persons by public hospitals prior to 1961 is based on annual surveys of the Health and Welfare Division.[56] The amounts under this heading include the total operating costs of such hospitals. In addition, the personal expenditure on services estimates include the receipts of private hospitals organized on a commercial basis for the period both before and after 1961.

Operating costs of privately operated sickness and accident insurance plans are included in the estimates of personal expenditure on services. These are obtained from reports of the Superintendent of Insurance for Canada. Before the advent of publicly administered medical care schemes, individuals paid for the services of medical practitioners either directly or through private

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[52] *Road and Street Mileage and Expenditure,* Catalogue 53-201; *International Toll Bridges, Tunnels and Ferries,* Catalogue 53-202.

[53] *Railway Transport: Part II,* Catalogue 52-208; *Railway Express,* Catalogue 52-204; *Passenger Bus Statistics,* Catalogue 53-215; *Urban Transit,* Catalogue 53-216; *Civil Aviation,* Catalogue 51-202; *Water Transportation,* Catalogue 54-205.

[54] *Telegraph and Cable Statistics,* Catalogue 56-201; *Telephone Statistics,* Catalogue 56-203.

[55] This change does not affect government-owned and operated special treatment hospitals such as mental hospitals, turberculosis sanitaria, and veterans' hospitals. These have always been classified to the government sector, as part of the activities of "general government".

[56] *Hospital Statistics, Volume V, Hospital Revenues,* Catalogue 83-214; *Hospital Statistics, Volume VI, Hospital Expenditures,* Catalogue 83-215.

insurance plans, and outlays in each case are recorded under personal expenditure on services. Since the passage of the Medical Care Act of 1968, each of the provinces has introduced a government administered medical care scheme. (It should be noted, however, that in a number of the provinces universal medical care schemes were in force prior to the passage of this Act.) As these provincial schemes were introduced over the 1962-71 period, expenditures for medical care services in the Accounts were progressively transferred from personal expenditure on services to government current expenditure on goods and services. Almost all medical care outlays are included in the government sector after 1971.

The estimates of services rendered by universities is measured by their total operating costs.[57] The data are obtained from the Education, Science and Culture Division.[58] Personal expenditures for private schools, other educational and cultural services as well as for board and lodging in universities is calculated on the basis of information available from the above-noted Division. The value of services rendered by institutions engaged in life, accident, theft, personal property, casualty and automobile insurance is also measured by their operating costs (including profits); these data are available from the reports of the Superintendent of Insurance for Canada, and are adjusted arbitrarily to exclude the business portion.

(ii) Services estimated on basis of directly related series – A number of the service groups depends upon projection from benchmark data on the trend of directly related series. In most cases, the decennial censuses (and the 1966 census) of merchandising and services provide the benchmark material. Thus, gross receipts from providing hotel accommodation, meals, and the service portion of alcoholic beverages are calculated principally on the basis of census data. Projections are made using a variety of information from the Merchandising and Services Division, the Public Finance Division, and provincial Liquor Control Board or Commissions.[59] Arbitrary allowances are made for the non-personal portion of these services. An adjustment is also made for provincial taxes.

Revenues of commercial recreation establishments, including billiard parlors, bowling alleys, and stadiums are obtained from the censuses of services. Amusement taxes are added to this figure. Projection is made to other years on the trend of salaries and wages earned in this group. A similar approach is used for the estimation of taxi fares: the benchmark based on census data is projected on the basis of salaries and wages earned in this group. A deduction is made for the non-personal use of taxis.

Funeral and burial expenses are based on receipts of funeral and undertaking establishments obtained from the decennial censuses of services (and the 1966 census), and occasional reports issued by the Merchandising and Services Division.[60] An adjustment is made to include receipts of cemeteries

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[57] Total operating costs do not include expenses of university residences.

[58] *Survey of Education Finance,* Catalogue 81-208.

[59] See for example, *Restaurant Statistics, Monthly,* Catalogue 63-011; *Control and Sale of Alcoholic Beverages in Canada*, Catalogue 63-202; and *Traveller Accommodation, Formerly Hotels,* Catalogue 63-204.

[60] See for example, *Funeral Directors, 1964,* Catalogue 63-511; and *Funeral Directors, 1968,* Catalogue 63-520.

and crematories. Projection is on the trend of a composite index of number of deaths and the consumer price index. Operating expenditures of trade unions are calculated using data from the Corporations and Labour Unions Return Act Administration and information published in *Taxation Statistics*.

Receipts of motion picture theatres are obtained from the decennial censuses (and the 1966 census) of services. Projection is made to other years on the trend of motion picture theatre receipts adjusted to include taxes. Cablevision charges are estimated using data from the Canadian Radio-Television Commission.[61]

(iii) Estimates based on indirect evidence – In some cases, projection from reliable benchmark estimates is made on the basis of inadequate information concerning trends. Thus, census benchmark data on barber and beauty parlor care are projected on the trend of population and consumer price index data. In other cases, both the benchmark and the projector are inadequate. Series such as operating expenditures of charitable and benevolent institutions (associations of individuals) and of political parties fall into this category.

(iv) Estimates explicitly articulated with the income side – A number of the estimates required to compute expenditure on services have already been made in connection with the calculations of components of the Gross National Product. Some of these estimates may be used directly without adjustment, but others require modification before they can be integrated with the expenditure side.

Farm and non-farm residential space rents (including garages) paid and imputed are calculated in connection with the rent component of Net Income of Non-farm Unincorporated Business including Rent. Landlord facility expenses (associated with both rented and owner-occupied shelter) such as fuel, electricity, janitor services, and amortization of furniture, stoves, refrigerators and other equipment supplied are included separately in personal expenditure on consumer goods and services in the various separate expenditure categories to which they relate.

Wages and salaries (including income in kind in the form of food received) paid by persons for the services of domestic servants and babysitters are calculated in connection with the estimates of wages, salaries, and supplementary labour income. The estimate is used here without adjustment.

Personal expenditure for the service of board and lodging is taken as being equal to net income from boarding and lodging, which forms a part of the estimate of net income of non-farm unincorporated business. The figure is included on a net basis since expenses relating to boarding and lodging are implicitly included in personal expenditure for food, rent, fuel and so forth.

Estimates of personal expenditure for the services of physicians and surgeons (prior to the introduction of government medical care plans), dentists, nurses and lawyers are all related to the estimates of net income of the professional service groups. It is assumed that the ratios of "gross to net

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[61] See also *Community Antenna Television*, Catalogue 56-205.

income", established by the various surveys conducted in these professions are constant for all non-survey years. Gross income for non-survey years is computed by applying these ratios to the estimates of net income in the various professional groups. Non-personal use deductions are made from these gross estimates based upon information obtained from sample surveys of the individual professions.

The estimates for the operating expenditures of welfare and religious organizations are based on the assumption that the wages and salaries paid represent a fixed percentage of the total expenditures of these organizations.

The value of free lodging supplied to non-agricultural workers occupying non-residential property such as bunk-houses, hotels and steamships is added here as imputed expenditure. The calculation is made in connection with wages, salaries and supplementary labour income.

Personal expenditure for banking services, both paid and imputed, is calculated on the basis of information from the Bank of Canada and the office of the Inspector General of Banks. The imputation for "free" banking services rendered to persons is entered explicitly in the calculations of investment income. Estimates of net personal expenditure on consumer debt interest are based upon calculations made in estimating investment income.

The personal share of brokerage charges and investment counselling costs is included here as a direct expenditure. The net income of unincorporated stock and bond dealers is determined from the estimates of net income of unincorporated businesses. An arbitrary ratio is applied to arrive at the personal expenditure portion.

(c) Net Personal Expenditure Abroad

This net adjustment is necessary to include, in personal expenditure, the expenditures of Canadian residents in foreign countries, and to exclude the expenditures of non-residents in Canada. The adjustment covers net expenditures of members of the Armed Forces, as well as net tourist expenditures. To the extent that gifts in kind sent abroad do not appear in retail sales (e.g., Red Cross parcels) an estimate of their value is also added. An arbitrary adjustment is made to Canadian tourist expenditures abroad to exclude expenditures chargeable to business expense accounts. The basic data are obtained from the Balance of Payments Division, Statistics Canada.

TABLE 5-5. Net Personal Expenditure Abroad

	1961
	millions of dollars
Travel expenditure of Canadian residents abroad	642
Deduct:	
Travel expenditures chargeable to business expense accounts	– 64
Expenditures of members of the armed forces	38
Gifts in kind	1
Receipts from travel expenditures of non-residents in Canada	– 482
Total net personal expenditure abroad	135

Current Transfers to Government and Other Sectors (Table 13, lines 4, 5, 6, 7, 8 and 9)

As was noted at the beginning of this discussion, the disposition of income by persons and unincorporated businesses is essentially accounted for by two main types of outlays – personal expenditure on consumer goods and services, and current transfers of income to government in the form of personal direct taxes along with other transfer-type outlays – plus a third, residual, element consisting of personal saving. The estimates of personal expenditure on consumer goods and services were discussed above. The purpose of the present section is to describe the nature of the current transfer outlays which make up so significant a part of the outlays of the sector.

TABLE 5-6. Current Transfers to Government and Other Sectors

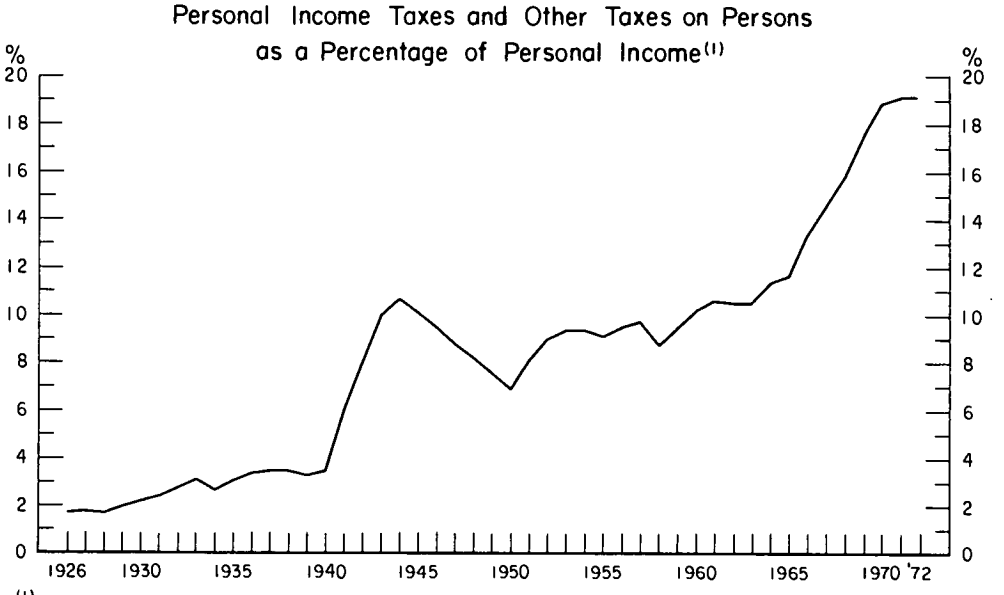
	1961	1972
	millions of dollars	
Personal direct taxes (line 17, Table 44):		
Income taxes (line 4, Table 13)	2,125	11,410
Succession duties and estate taxes (line 5, Table 13)	146	228
Employer and employee contributions to social insurance and government pension funds (line 6, Table 13)	673	2,892
Other current transfers to government (line 7, Table 13 and line 8, Table 47)	256	1,041
Total taxes paid to government by persons and unincorporated business	3,200	15,571
Current transfers to corporations (interest on consumer debt, line 8, Table 13	130	702
Current transfers to non-residents (personal and institutional remittances, line 9, Table 13)	99	176
Totals	**3,429**	**16,449**

As will be apparent from Table 5-6, by far the greater part of these transfer-type payments by persons and unincorporated businesses consists of the payment of personal direct taxes and other tax-type outlays to the government. A breakdown of personal direct taxes is given in Table 44 of Volume 1, by type of tax and by level of government. Included in the figures are taxes on income, succession duties and estate taxes,[62] and employer and employee contributions to social insurance and government pension funds. The latter item includes contributions to unemployment insurance, workmen's compensation, non-trusteed public service pensions, industrial vacation claims, and the Canada and Quebec Pension Plans.[63] "Other current transfers" from

[62] Succession duties and estate taxes are in effect payments out of capital, but since they represent a source of current revenue to government, they are treated in these Accounts as current transfers from persons to government.

[63] Employee contributions to social insurance and government pension funds are in effect a direct tax on the income of the employee. Employer contributions to such funds are treated in these Accounts as a form of labour compensation paid by employers to employees (supplementary labour income) which is then transferred to the government sector and in effect also constitutes a direct tax on the income of the employee.

persons to the government consist of a group of taxes which are not income-related (or wealth-related) but which nevertheless reduce the income available to persons and unincorporated businesses for spending or for saving. Such taxes include the personal share of motor vehicle licenses and permits, hospital and medical care premiums, miscellaneous licenses and permits such as hunting and fishing permits and marriage licenses, and various fines and penalties. A breakdown of "other current transfers" to government from persons is shown in Table 47 of Volume 1.



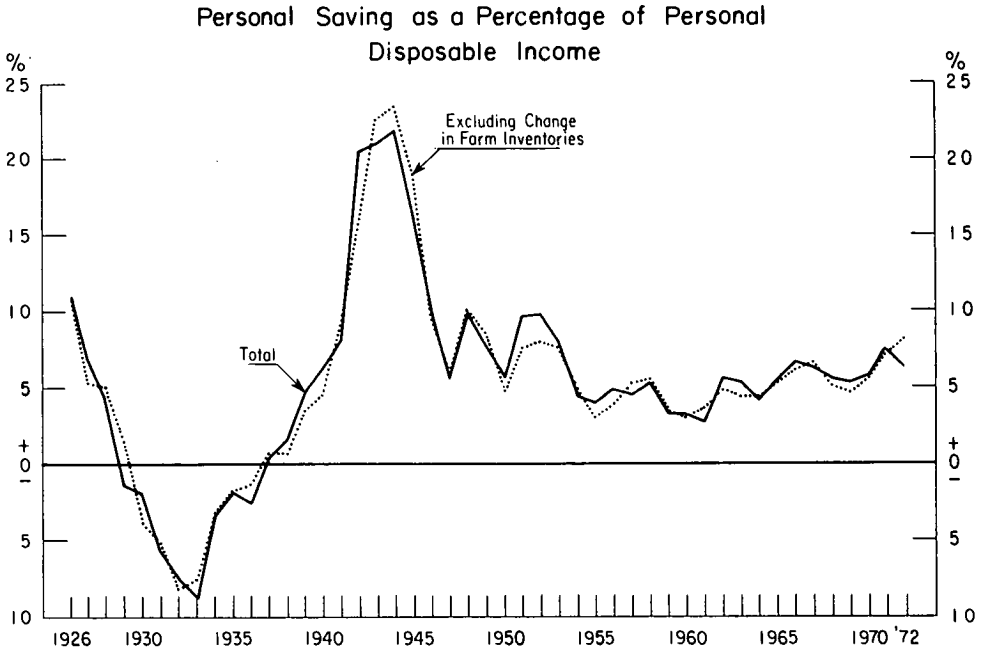
(1) Includes employer and employee contributions to social insurance and government pensions funds, including the Canada and Quebec pension plans, hospital and medicare plans and unemployment insurance. Also includes the personal share of a variety of fees, licences and permits.

Chart 5-4 shows total taxes paid to government by persons and unincorporated businesses as a percentage of Personal Income. The sources used to compile the tax data are discussed in Chapter 6, "The Government Sector" in the section on government revenues.

Under the conventions adopted in these Accounts, the persons and unincorporated business sector also makes a transfer out of current income to the corporate and government business enterprise sector in the form of interest paid on consumer debt. The treatment in this sector accords with the concept as set out in Chapter 3 to the effect that a part of the interest on consumer debt – the so-called "non-productive" portion – is regarded as a transfer payment and is excluded from the National Income. The persons and unincorporated business sector also makes transfers out of current income to the non-resident sector in the form of personal and institutional remittances paid abroad. Both of these types of transfer outlay are discussed further in Chapters 7 and 8, "The Corporate and Government Business Enterprise Sector" and "The Non-resident Sector".

Personal Saving (Table 13, line 10)

Personal saving (and the adjustment on grain transactions) is the residual amount left over after deducting personal expenditure on consumer goods and services and direct personal tax payments and other current transfers from the total income of the sector. Because the personal saving figure is calculated residually, it reflects the net effect of any errors occurring in the component estimates of income, consumer spending, and transfers to the government and other sectors. The error factor in this estimate is therefore likely to be greater than the error factor in any of the component estimates associated with it.



If the personal saving figure were to be disaggregated, it would be seen to consist of many elements of saving by persons and households – the accumulation of bank balances, purchases of stocks and bonds, the repayment of mortgages, the net retirement of bank and finance company loans, accumulations in life insurance and pension funds, changes in farm inventories and inventories of other unincorporated businesses, and many other forms of saving. The *Financial Flow Accounts*, Catalogue 13-002, are designed to show, on a disaggregated basis, the changes in assets and liabilities which underlie the saving and investment figures, and to depict the way in which savings are mobilized to finance the economy's investment in financial and non-financial assets. Personal saving as a percentage of disposable income is shown in Chart 5-5.[64]

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[64] Disposable Income is defined as the amount left over from Personal Income after payment of personal direct taxes and other tax-type outlays to the government (i.e., Personal Income less direct personal and other taxes equals Disposable Income).

The "adjustment on grain transactions" (Table 13, line 11) was discussed at the beginning of this chapter, and also in the section "Accrued Net Income of Farm Operators from Farm Production".

The Capital Finance Account (Tables 14 and 15 of Volume 1)

Sources of Saving (Table 14, lines 1, 2 and 3)

In the capital account of the persons and unincorporated business sector, personal saving and the adjustment on grain transactions are carried down from Table 13 and recorded as a source of finance for the sector's investment in physical and financial assets. Capital consumption allowances and miscellaneous valuation adjustments are also entered here as a source of saving available to finance investment.

The capital consumption estimates are made up of capital consumption allowances on farm buildings and equipment (about one quarter of the total), capital consumption allowances on the housing stock of the sector (about one-quarter),[65] capital consumption relating to non-farm unincorporated business (close to a third), and various valuation adjustments. About half of the estimate, including farm and housing capital consumption, is on a replacement cost basis; the remainder is on an historical cost basis.

The replacement cost estimates of capital consumption in agriculture are calculated by the Agriculture Division of Statistics Canada and form an item of expense in the synthetic operating account from which estimates of farm net income are derived. The replacement cost estimates of capital consumption on housing are based on estimates of fixed reproducible capital at market value made by the Construction Division of Statistics Canada. The historical cost estimates for other unincorporated businesses, including independent professional practitioners, are built up industry by industry, using data obtained from tabulations of the Department of National Revenue. The claim portion of business and residential insurance – the largest part of the miscellaneous valuation adjustments – is based on information from reports of the Superintendent of Insurance.

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[65] Capital consumption allowances on that part of the housing stock which is owner-occupied does not provide a source of funds for the financing of investment activity in the same sense as the other components of capital consumption since the estimates here are imputed and are not reflected in market transactions. Nevertheless, the amounts must be brought down as a source of finance in the capital finance account if the sector's total saving is not to be understated. This is because only imputed net rents (imputed gross rent less imputed capital consumption and other costs) enter into the income of the sector, but imputed gross rents (including capital consumption) are charged to the outlays of the sector. Personal saving is therefore **net** of capital consumption charges, whether such charges are imputed or real. Where such charges are imputed, personal saving is in effect artificially reduced by the amount of imputed capital consumption, and this must be added back in calculating the total flow of saving available to finance investment. Where such charges are real, a transaction corresponding to a market-based income flow has taken place, and these amounts provide a real source of funds for the finance of investment.

Disposition of Saving (Table 15, lines 1, 2, 3 and 4)

The total of the sector's saving as estimated above is available to finance the sector's activity in the following areas: investment in physical assets, that is, gross fixed capital formation in housing, non-residential construction, and machinery and equipment – and investment in farm inventories and grain in commercial channels;[66] capital transfers to non-residents in the form of net inheritances and migrants' funds paid abroad; and investment in financial assets, that is, net lending to other sectors (which also includes an unidentifiable amount of net purchases of existing non-financial assets).[67]

Gross Fixed Capital Formation (Table 15, line 1)

Since the late 1940's estimates of total gross fixed capital investment spending in Canada – on housing, non-residential construction, and machinery and equipment – have been available from annual surveys undertaken by Statistics Canada in cooperation with the Department of Industry, Trade and Commerce.[68] Total estimates are built up for the earlier period from a variety of sources including a background study of private and public investment for the years 1926-51, published by the Department of Trade and Commerce in the 1950's.[69] The estimates of fixed investment spending by persons and unincorporated businesses given in Table 15 constitute only a part of this total of fixed investment spending in Canada, accounting for about one quarter of the total in 1961, and currently accounting for about one-fifth. The discussion which follows is concerned essentially with this particular part of the total estimate.

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[66] Changes in inventories of non-farm unincorporated businesses should also be included in the investment in inventories of this sector. However, the amounts are not separately identifiable in the inventory statistics. The amounts are consolidated with the changes in total non-farm business inventories in the capital finance account of the corporate and government business enterprises sector, Table 23.

[67] Net purchases of existing non-financial assets are implicitly included with the net lending figure which is calculated residually. The matter is discussed more fully in Chapter 4.

[68] Published in the series, *Private and Public Investment in Canada, Outlook and Regional Estimates,* Catalogue 61-205.

[69] *Private and Public Investment in Canada, 1926-1951*, Department of Trade and Commerce, King's Printer, Ottawa, 1951 (now out of print).

TABLE 5-7. Distributions of Gross Fixed Capital Formation by Major Sector

	1961	
	Millions of dollars	% of total
Total gross fixed capital formation (line 3, Table 2)	8,392	100.0
Deduct:		
Government gross fixed capital formation (line 4, Table 2)	1,674	19.9
Equals:		
Business gross fixed capital formation (line 8, Table 2)	6,718	80.1
Deduct:		
Corporate and government business enterprise gross fixed capital formation (line 1, Table 23)	4,462	53.2
Equals:		
Gross fixed capital formation of persons and unincorporated businesses (line 1, Table 15)	2,256	26.9

Table 5-7 shows a breakdown and distribution of total fixed investment spending in Canada by major sector for the year 1961. The government portion is readily identifiable from the basic source material on which the estimates are based, but the primary data do not provide a readily available split of the remaining "business" portion between corporate and government business enterprise, and persons and unincorporated businesses. This latter division is carried out on an industry by industry basis and employs procedures which are in some degree arbitrary.

For example, it is assumed that almost all of fixed capital spending in agriculture (95%) is undertaken by the non-corporate sector. The relevant figure is included with investment spending of persons and unincorporated business. In the area of housing investment, it is assumed that all purchases of single homes plus one half of "doubles" belongs in this sector, with the balance of housing investment undertaken by the corporate and government business enterprise sector. These two components (agriculture and housing) together account for around three-quarters of the estimated total fixed investment spending of persons and unincorporated businesses shown in Table 15. The remaining components are individually much smaller, and are broken down using a variety of similar procedures.

A discussion of basic sources and methods underlying the **total** estimates of gross fixed capital formation in Canada is given in Chapter 7 of this report in connection with the estimates for the corporate and government business enterprise sector.

Value of Physical Change in Farm Inventories and Grain in Commercial Channels (Table 15, line 2)

For inventories held on farms and grain in commercial channels, comprehensive figures on the quantities of physical stocks are available from the Agriculture Division of Statistics Canada. These are valued at appropriate prices (as indicated below), and the value of the physical change is calculated directly. The value of the physical change in inventories of field crops on farms is computed on the basis of annual changes in physical quantities valued at average annual prices for the years 1926 to 1946 inclusive. From 1947 on, use is made of the sum of the physical change in each of the four quarters of the year, valued at quarterly average prices. The physical change in livestock and poultry held on farms is valued for all years on the basis of an average of three price quotations obtained from regular surveys, viz., December, June and December. The sum of the field crop, livestock and poultry estimates provides the total estimate of farm inventory change.

In the case of inventories of grain in commercial channels held by private dealers, the value of the physical change is calculated on the basis of average annual prices 1926-46, and average quarterly prices from 1947. It should be noted, however, that, on the income side of the Accounts, the income of private grain dealers (which is included with wholesale trade) is calculated and recorded in accordance with conventional business practice, that is, on the basis of the change in book values of grain inventories in the hands of such dealers. Accordingly, an inventory valuation adjustment is necessary on the income side to eliminate inventory gains or losses accruing to dealers on account of this particular method of valuation. This inventory valuation adjustment forms a part of the overall inventory valuation adjustment shown in line 8 of Table 1.

The data necessary for the above calculations are available in *The Grain Trade of Canada* and *The Wheat Review* published by the Agriculture Division of Statistics Canada and *Grain Statistics Weekly* published by the Canadian Grain Commission.

Capital Transfers (Table 15, line 3)

This item consists of net inheritances and migrants' funds paid abroad. The amounts are regarded as capital transfers, rather than as transfers out of current income. In 1961, the net amount paid abroad was $72 million, made up of receipts of $104 million and payments of $176 million. The data are published in *The Canadian Balance of International Payments and International Investment Position,* Catalogue 67-201.

Net Lending Plus Net Purchase of Existing Non-financial Assets (Table 15, line 4)

This amount is calculated residually. It represents the amount of the sector's gross saving which is left over after providing for the financing of the sector's gross investment in physical assets (gross fixed capital formation and inventories) and capital transfers. In effect, it constitutes the sector's net lending to other sectors (or net investment in financial assets) after providing for its own physical asset formation (see Chapter 4, and Table 4-4).

The inclusion of net purchases of existing non-financial assets with net lending (or net acquisition of financial assets) reflects the fact that this final element in the disposition of saving is calculated residually. Because purchases of existing non-financial assets (used goods) are not recorded in the expenditure flows in these Accounts, the estimates of total saving will automatically include these amounts. Thus, any "residual saving" after accounting for the financing of gross capital formation (which excludes net purchases of used capital goods) and capital transfers will implicitly include purchases of existing non-financial assets as well as the acquisition of financial assets (net lending).

CHAPTER 6

THE GOVERNMENT SECTOR

Introduction

Government expenditures, and their financing, exert a powerful influence on the level and direction of economic activity, and have important re-distributive effects on incomes. During the past quarter century, government revenues and expenditures have grown greatly, and their composition has been profoundly altered. Thus, in 1950, the combined expenditures of all governments in Canada – federal, provincial and local – amounted to about $4 billion, or 22% of Gross National Product. In 1972, these expenditures amounted to $40 billion, or 39% of Gross National Product. Over this period, government expenditure on goods and services rose from 13% of Gross National Product to 24%, while outlays paid out as transfer payments – welfare and social insurance benefits to persons, subsidies, capital assistance, interest on the public debt, and other transfers – rose from 9% to 15%. Table 6-1 indicates the nature of these changes.

TABLE 6-1. Government Expenditures for All Purposes as a Percentage of Gross National Product[1]

	1950	1972
	% of GNP	
Government expenditure on goods and services	**13.1**	**23.7**
Current expenditure[2]	10.4	19.9
Gross capital formation	2.7	3.8
Transfers of various types	**9.0**	**14.8**
Transfer payments to persons	5.5	9.5
Subsidies	0.3	0.8
Capital assistance	0.1	0.2
Interest on the public debt	2.9	4.0
Transfers to non-residents	0.1	0.3
Totals	**22.1**	**38.5**

[1] Excluding intergovernmental transfers. Figures may not add by + 0.1 or – 0.1 due to rounding.
[2] Includes imputed depreciation on government capital assets equivalent to 1.4% of GNP in 1972.

The increase in total government expenditures has been approximately matched by a corresponding growth in revenues, but the composition of revenues has changed significantly, as Table 6-2 indicates. Direct taxes on persons (and other personal tax-type transfers) accounted for twice as large a share of total government revenues in 1972 as in 1950, having risen to over 40% of the total from around 20% in 1950. On the other hand, direct taxes on corporations accounted for only 10% of total revenues in 1972 compared with

22% in 1950. And the share of indirect taxes also declined sharply in the period, from 48% of the total in 1950 to 39% in 1972. These changes in the shares of govenment revenue accounted for by the various sources of revenue are shown in Table 6-2.

TABLE 6-2. Government Revenues from All Sources as a Percentage of Total Government Revenue[1]

	1950	1972
	% of total revenue	
Direct taxes – Persons	20.6	38.5
Other current transfers from persons	1.4	2.8
Direct taxes – Corporations and government business enterprises	22.4	10.0
Indirect taxes	48.0	38.6
Investment income	6.3	9.2
Direct taxes – Non-residents	1.2	0.8
Totals	**100.0**	**100.0**

[1] Excluding intergovernmental transfers. Figures may not add by + 0.1 or – 0.1 due to rounding.

The above figures indicate something of the magnitude of government transactions in the present-day economy, and also of the striking changes which have taken place in the country's fiscal structure over a quarter of a century. Because of the increasingly important role of government as a provider of goods and services to the community, as a redistributor of the national income, and as a regulator of economic activity through fiscal policy and other measures, large efforts have been made over the past two decades to develop and compile comprehensive data on the details of government revenue and expenditure transactions. The income and outlay and capital finance accounts of the government sector are shown in Tables 16-19 of Volume 1, but a large amount of supplementary information on government transactions is also given in Tables 43-52 inclusive. These latter tables provide information on the composition of the main categories of government revenues and expenditures, by level of government, and in terms of the component detail underlying the main estimates.

Government expenditure on goods and services – both current expenditure and capital expenditure – represents a direct claim on the resources of the economy and is accordingly recorded in the Gross National Expenditure in Table 2.[1] But, as is apparent from Table 6-1, expenditure on goods and services represents only a part of total government expenditure. It does not include the various types of transfer payments which have the effect of redistributing the National Income but which do not add to the National Income. As noted earlier, in 1972 about 39% of the Nation's total income and output (Gross National Product) was passing through the government sector, either as a direct claim on the resources of the economy (government expenditure on goods and services, amounting to 24% of GNP), or as a redistribution of income (transfer payments, amounting to 15% of GNP).

[1] See Table 2, lines 2, 4 and 13.

The revenue and expenditure transactions recorded in the government tables cover **all** revenue and expenditure transactions related to the National Accounts of all levels of government. They include the transactions of extra-budgetary funds such as the Unemployment Insurance Fund, the Old Age Security Fund, and the Canada and Quebec Pension Plans, as well as the transactions of various government boards, commissions and agencies which are mainly financed out of general government revenues. The aim is to encompass all flows of revenue to the public sector from taxation and other sources, and to show how this revenue is spent. The surplus or deficit position on all government revenue and expenditure transactions (both current and capital) represents the net lending or borrowing of the government sector to or from other sectors of the economy.[2]

Definition of Government Sector

In these Accounts, the government sector is defined to cover a very broad range of activities carried out directly by the various levels of government or by their agencies. The essential characteristics of these government activities is that they are non-commercial in nature. They represent activities undertaken by the society on a collective basis and financed for the most part out of taxation or government borrowing. The activities of government business enterprises operating for a profit are not included here. Such enterprises are considered to be a part of the business sector since their method of operation and their motivations are similar to those of private business enterprises.

In general, the government sector as defined here covers three main groups of activity for which the public authorities carry the primary responsibility. These are: the departmental activities of the three levels of government – federal, provincial and local – ordinarily included in the so-called "budgetary" transactions of governments;[3] the transactions of many government-administered social insurance and trust funds, such as the Unemployment Insurance Fund, the Old Age Security Fund, Workmen's Compensation Funds, the Canada and Quebec Pension Plans, and various government employee pension funds – ordinarily regarded as "extra-budgetary" transactions of governments; and the transactions of various government agencies, commissions and boards which are financed out of public funds, receiving all or most of their income from government grants. These three main groups of activity are not always mutually exclusive – for example, a part of the financing of the Unemployment Insurance Fund comes out of government "budgetary" expenditures, and the grants paid out to various boards and commissions are ordinarily charged to budgetary outlays, – but they provide a useful way of summarizing, in broad and general terms, the scope and coverage of the government sector in these Accounts.

The "extra-budgetary" transactions of the social insurance and trust funds comprise a substantial part of the total income and outlay of the public sector. In 1972, employer and employee contributions to such funds amounted to almost $3.0 billion, while other tax revenues such as amounts paid into the

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[2] The surplus (+) or deficit (-) position of the government sector on transactions related to the National Accounts is shown in Table 19, line 4 and in Table 43, line 97.

[3] A notable exception is made in the case of the federal Post Office Department which is treated in these Accounts as a government business enterprise. A full reconciliation of federal "budgetary" revenues and expenditures with federal revenues and expenditures as shown in the National Accounts is given in the Appendix to this chapter.

Old Age Security Fund amounted to over $2.0 billion.[4] The investment income of these funds – mainly in the form of interest paid by governments– is also very substantial, amounting to around $1.0 billion in 1972. The benefits paid out of such funds to persons in 1972 were over $5.0 billion. These transactions, which occur largely outside of the "budgetary" accounts of the various levels of government, have imporant redistributive effects on the flow of income taking place between the private and public sectors of the economy. They are recorded and included in the government sector in this system of Accounts, with corresponding entries in other parts of the sector system to show the source of the revenues or the disposition of the out-payments.

The activities of government agencies, commissions and boards which operate on an essentially non-commercial basis and which carry out various functions delegated to them by the public authorities are included in the government sector. Included here are such federal agencies as Atomic Energy of Canada Limited, the National Research Council, the National Capital Commission, and the National Film Board; such provincial agencies as hospital and health services commissions; and various municipal boards and agencies, including school boards and municipal waterworks authorities.

Certain other activities of government, however, have quite different characteristics in that they involve the production of goods and services for sale on the open market at a price to the consumer which is intended to compensate wholly or largely for their costs or to yield a profit. Such agencies are classified as government business enterprises. The activities of these enterprises are of a commercial or industrial nature; examples of such agencies are the provincial hydro commissions, provincial telephone companies and federal transportation companies. The distinguishing feature of a government business enterprise in contrast to a general government operation is that its motivation and behaviour essentially parallels that of a private business enterprise. Its revenues are derived mainly from the sale of goods and services, it usually aims to be self-sustaining, and it generally maintains control over its transactions in the form of a profit and loss statement. A list of those federal and provincial agencies which are classified as government business enterprises is included at Appendix "B" to this chapter.

As has been noted in earlier chapters, since 1961 the revenue and expenditure transactions of public hospitals (which were treated as private non-commercial institutions prior to 1961) have been included with the government sector. These transactions are shown separately in the government accounts set out in Tables 43-52. The transactions of all government administered medical care plans are also included in this sector, although the transactions are not separately shown. In addition, all of the activities in the field of education coming under locally administered elementary and secondary school systems, and provincially operated community colleges are included.[5] These amounts are ordinarily provided for in the budgetary appropriations of governments. Municipal waterworks, which were treated as government business enterprises in the former system of Accounts, have been reclassified to "general government" in this revised system.

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[4] The Old Age Security Fund is financed by a levy representing a specific portion of three separate tax bases: direct personal taxes; direct corporation taxes; and the federal (indirect) sales tax.

[5] Universities are not included with the government sector, being defined in these Accounts as private non-commercial institutions. In addition, the activities of privately operated schools which operate on a commercial basis for a profit are not included here, but are defined as part of the business sector.

The Cash and Accrual Bases for Recording Transactions

For the most part, government revenues and expenditures are recorded on a "cash received" or "cash paid" basis. In principle, because of the way in which the timing of transactions occurs in other sectors of the economy, it would sometimes be more appropriate to record government transactions on an accrual or "payable/receivable" basis. For example, customs import duties may be received and recorded as government revenues at a time which differs from the time the imports are recorded in private inventories. Excise taxes may be reflected in consumer spending at a time which differs from that at which they are received by the government. Government expenditures for capital works may be made with a time lag which means that the recording of expenditures differs from the timing with which wages and salaries are made by the contractor on the income side. Government retroactive wage payments to its own employees should in principle be carried back and allocated to the period in which the income was earned, but the necessary information is not available to permit this. These types of problems with respect to the timing of transactions are likely to be more severe in the quarterly Accounts than in the annual Accounts, where the timing difference may tend to even out over a full year, but they nevertheless are present in the annuals to some extent.

The most important instance in which the accrual basis is used for recording government transactions occurs in the case of corporation taxes. Because of the way in which corporations remit their taxes to the government, there can be major differences between corporation tax "accruals" and corporation tax "payments". It has seemed desirable in these Accounts to adopt the "accrual" basis for the recording of corporation taxes, since in the business sector it is the liability or amount owing which will largely determine the way in which business decisions are made. In the government sector account (Table 16, lines 5 and 6) the figures on corporation taxes are entered on a "liabilities" basis, but the data are shown in a way which permits both "collections" and "excess of liabilities over collections" to be derived.

Government Capital Spending

In the former system of Accounts, government capital outlays were treated as a part of government current expenditure on goods and services. In this new revised system of Accounts, government capital outlays (government gross fixed capital formation and investment in inventories) are capitalized and treated as a part of the economy's gross capital formation in physical assets. An imputed depreciation or capital consumption allowance is entered in the Accounts of the government sector to record the using-up of the fixed capital portion of these assets. The reason for this change in treatment is simply that government outlays for schools, hospitals, roads, harbours, airports, public buildings, and so forth, add to the country's stock of capital assets, and these assets yield economic services over many years, although such services do not form a part of the transactions of the marketplace. This change in definition brings the treatment of government capital outlays in these Accounts into line with the treatment of capital expenditures in the private business sector.[6] The treatment of investment in physical assets in both the public and private sectors is therefore now symmetrical.

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[6] In the private business sector, annual capital investment outlays are **not** charged off against current year's income (as was formerly done in the case of government capital expenditure). Only the depreciation on the stock of assets held by business is written off against current income.

As a result of this change in treatment, a new entry – the "saving" of the government sector – is recorded in the income and outlay account of this sector, being the difference between current income and current outlay.[7] This "saving" out of current revenue is carried down into the sources side of the capital account and, together with the sector's capital consumption allowance, provides the source of financing for the sector's investment in physical assets. The residual amount of "saving" after allowing for the financing of the sector's gross capital formation in physical assets represents the surplus (+) or deficit (-) on government transactions in relation to the National Accounts. This is a measure of the net lending or borrowing of the government sector to or from other sectors. The figure is identical to the surplus (+) or deficit (-) on government transactions related to the National Accounts as it was defined in the former system of Accounts.

Hospital and Medical Care Services[8]

As was noted in Chapter 5, until 1961, municipal, lay and religious hospitals were treated in these Accounts as private non-commercial institutions and included in the persons and unincorporated business sector. With the introduction of universal hospital care insurance under the Hospital Insurance and Diagnostic Services Act of 1961, the transactions of these institutions were transferred to the government sector beginning in that year. Thus, the current outlays of hospitals are now included with government current expenditure on goods and services and the capital outlays of hospitals are included with government gross capital formation. Prior to 1961, the current expenditures of hospitals were included with personal expenditure on consumer goods and services, and the capital outlays with business gross fixed capital formation. This change in treatment results in a "break"in these statistical series between the years 1960 and 1961. To assist users, separate figures on the income and outlay transactions of public hospitals from 1961 on are shown separately in the government supplementary tables (Tables 43 to 52 of Volume 1).

In connection with medical care services, various provincial plans have come into force over a period beginning in 1962 and extending to 1971, by which time all provinces had entered into agreements under the terms of the Medical Care Act of 1968. As various provincial plans came into force over this period, expenditures for medical care services in the Accounts were progressively transferred from personal expenditure on consumer goods and services to government current expenditure on goods and services. Any premiums paid by individuals under government administered hospital and medical care schemes are now included as a part of the revenues of the government sector (in "other current transfers from persons," Table 6-2).

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[7] See Table 17, line 14, Table 18, line 1, and Table 43, line 80.

[8] In 1972, hospital and medical care expenses under various government administered health schemes (included in government current expenditure on goods and services) amounted to about 4 per cent of Gross National Product. In 1950, hospital and medical care expenses (included in personal expenditure on consumer goods and services) amounted to 2.1% of Gross National Product.

The Canada and Quebec Pension Plans

Since the year 1966, when the Canada and Quebec Pension Plans were introduced, large sums of money have been transferred from the private sector to the public sector in the form of employer and employee contributions to these Plans. For example, in 1972, employer and employee contributions to the Pension Plans amounted to $1.2 billion. With the build-up of surpluses in the Plans (benefit payments having been relatively small in the first years of operation), the investment income of the Plans has also become substantial. In 1972, investment income, mainly in the form of interest on provincial bonds, amounted to $0.5 billion. With total revenues in 1972 of $1.7 billion, and total outpayments of only $0.3 billion, the overall surplus in the Pension Plans in 1972 amounted to $1.4 billion. In the years 1966 to 1972, the cumulative savings or surpluses in the Canada and Quebec Pension Plans has amounted to $7.6 billion.

The surpluses accumulating in the Pension Plans have provided a major source of funds for provincial borrowing. The amounts accumulating in the Canada Pension Plan are immediately loaned out to the provinces, and the provinces deposit bonds as security for these borrowings. In the case of the Quebec Pension Plan, the funds are managed by the Quebec Deposit and Investment Fund and are invested in both government and non-government securities.

In constructing the government sector tables in these Accounts, the revenue and expenditure transactions, and the surplus position, of the Canada and Quebec Pension Plans were set out separately so that they could be readily identified and so that the surplus or deficit position of the federal, provincial and local levels of government could be shown exclusive of the Pension Plan transactions.

However, the Pensions Plans are an integral part of the government sector and their transactions, which are included in all totals shown for the sector as a whole, should be taken into account in evaluating the overall fiscal setting of the government sector on a National Accounts basis.

Employer and employee contributions to the Pension Plans are transfers from the private sector to the public sector. In 1972, these transfers were running in the neighborhood of $1.2 billion a year, with benefit payments amounting to only $0.3 billion. The net transfer from the private sector to the public sector was thus $0.9 billion. Moreover, in 1972, the provinces paid some hundreds of millions of dollars into the revenues of the Pension Plans as debt interest – payments which are reflected in reduced surpluses or increased deficits of provincial governments. The total surplus on Pension Plan transactions in 1972 was $1.4 billion.

As Table 6-2 indicates, the cumulative surpluses of the Canada and Quebec Pension Plans over the period 1966-72 amounted to $7.6 billion. The Pension Plan surpluses have, in fact, been more than sufficient to cover the accumulated deficits of the provincial and local levels of government over this period.

TABLE 6-3. Surplus or Deficit Position of the Government Sector

National Accounts Basis – All Levels of Government

	Total	Federal	Provincial and local	Canada and Quebec Pension Plans
	billions of dollars			
1966	0.4	0.2	– 0.5	+ 0.7
1967	0.1	– 0.1	– 0.7	+ 0.9
1968	0.5	–	– 0.5	+ 1.0
1969	1.9	1.0	– 0.2	+ 1.1
1970	0.8	0.3	– 0.6	+ 1.2
1971	0.1	– 0.1	– 1.1	+ 1.3
1972	– 0.6	– 0.7	– 1.3	+ 1.4
Cumulative 1966-72	3.2	0.6	– 4.9	+ 7.6

Intergovernmental Transfers

In Table 43, which shows government revenues and expenditures by level of government, the totals contain some duplication. This is because, when government sector transactions are shown by level of government, the revenue side will include transfers from one level of government to another (e.g., transfers to the provinces from the federal government, and transfers to local governments from the provinces) involving amounts which have already been received and counted as revenue at the level of government making the transfer. Similarly, on the expenditure side, total expenditures will include current transfers from one level of government to another, again involving some double-counting, since both the expenditures out of such transfers (by the recipient government) as well as the transfers themselves (by the transferring government) will have been counted.[9] In order to obtain an unduplicated figure for government revenue and government expenditure from Table 43, it is necessary to subtract from total revenue and total expenditure the amount of these intergovernmental transfers. Table 6-4 indicates the nature of this adjustment, which is made to both sides of the government account. This problem does not arise in Tables 16 and 17, where the revenues and expenditures of all three levels of government are consolidated, and these intergovernmental transfers cancel out.

The Structure of the Government Sector Accounts

As was noted earlier, the treatment of government capital expenditures in these Accounts as gross capital formation has permitted the construction of a set of income and outlay accounts and capital finance accounts for the

[9] Federal transfers to provincial governments include a variety of statutory grants, equalization payments, and grants under shared cost programs. Provincial transfers to other levels of government consists of transfers to local governments (mainly transfers to school corporations), and, since 1961, to hospitals.

government sector, similar to those in the other sectors. The saving out of current income and outlay, together with capital consumption allowances, provides the source of finance for the sector's gross capital formation in physical assets. The surplus (+) or deficit (-) on these capital financing transactions provides a measure of the overall fiscal posture of the government sector, being the net lending or borrowing of the sector to and from other sectors.

TABLE 6-4. Government Revenue and Expenditure, excluding Intergovernmental Transfers

	1961
	millions of dollars
Total revenue (Table 43, line 34)	13,531
Add:	
Capital consumption allowances (Table 43, line 87)	531
Deduct:	
Current transfers from other levels of government (Table 43, line 27)	– 2,697
Total revenue excluding intergovernmental transfers	**11,365**
Total current expenditure[1] (Table 43, line 73)	13,215
Add:	
Gross capital formation (Table 43, line 92)	1,682
Deduct:	
Current transfers to other levels of government (Table 43, line 66)	– 2,697
Total expenditure excluding intergovernmental transfers	**12,200**
Surplus (+) or deficit (–) on government transactions related to the National Accounts	– 835

[1] Includes capital consumption allowances of $531 million.

The structure of the government sector accounts, which is identical to that of the other sectors, is set out in Table 6-5.

TABLE 6-5. The Government Sector Accounts

	1961
	millions of dollars
Income and outlay account	
Current income (Table 16, line 13)	10,834
Current outlay (Table 17, line 15 minus line 14)	10,518
Saving (Table 17, line 14)	**316**
Capital finance account	
Source:	
Saving (Table 18, line 1)	316
Capital consumption allowances (Table 18, line 2)	531
Total sources of finance (Table 18, line 3)	**847**
Disposition:	
Gross capital formation (Table 19, lines 1, 2 and 3)	1,682
Surplus (+) or deficit (–) on transactions related to the National Accounts (Table 19, line 4)	– 835
Total disposition (Table 19, line 5)	**847**

Sources of Data -- General

Unlike most areas of the Accounts where a wide and heterogeneous range of source material is used, the component estimates of revenue and expenditure in the government sector originate most typically in a common source – the Public Accounts and financial records of the various levels of government, and the financial statements of various government boards, agencies and commissions. Most of the information is compiled in the Public Finance Division of Statistics Canada.

At the **federal** level, for the years from 1938 to the present, data are obtained from the Public Accounts of Canada and from the financial statements of various agencies and boards. These figures are converted to a calendar year basis using monthly information from the published statements of the financial operations of the Government of Canada, together with computer-produced analyses of expenditures supplied by the Department of Supply and Services. For the years 1926 to 1937, the data are based on an analysis of the Public Accounts taken from the report of the Rowell-Sirois Commission;[10] the figures are by fiscal years ending nearest December 31 of the calendar year.

At the **provincial** level, for the years from 1952 to date, the information is obtained from the Public Accounts of the provinces, and from annual reports of provincial boards and agencies. The data are converted to calendar years using quarterly financial statements submitted to Statistics Canada by the various provinces. For the years 1938-1951, the data are also derived from the provincial Public Accounts and other published reports, but information is not available to make the calendar year conversion; the data are by fiscal years ending nearest to December 31 of the calendar year. For the earlier years, the data are based on an analysis by the Rowell-Sirois Commission[10] and supplemented by information from the Public Accounts of each province. All figures from 1926-51 are by fiscal years ending nearest December 31 of the calendar year.

At the **local** government level, the estimates from 1951 to the present were derived from compilations of data received from the various Departments of Municipal Affairs, and from reports to the Tax Structure Committee of the Federal-Provincial Conference on Tax-Sharing Arrangements. Information on the financial operations of school boards was obtained from data assembled by the Education, Science and Culture Division of Statistics Canada. For the years prior to 1951, the estimates were based on the report *Comparative Statistics of Public Finance,*[10] the 1946 supplement to the *Statistical Summary* of the Bank of Canada, and subsequent summary analyses published by the Bank of Canada. In all cases, the local government data are on a calendar year basis.

Beginning in 1961, revenues and expenditures of public general hospitals are included with the government sector. The data are based on annual surveys undertaken by the Health and Welfare Division, Statistics Canada. Data pertaining to the Canada and Quebec Pension Plans are obtained from the reports of those agencies.

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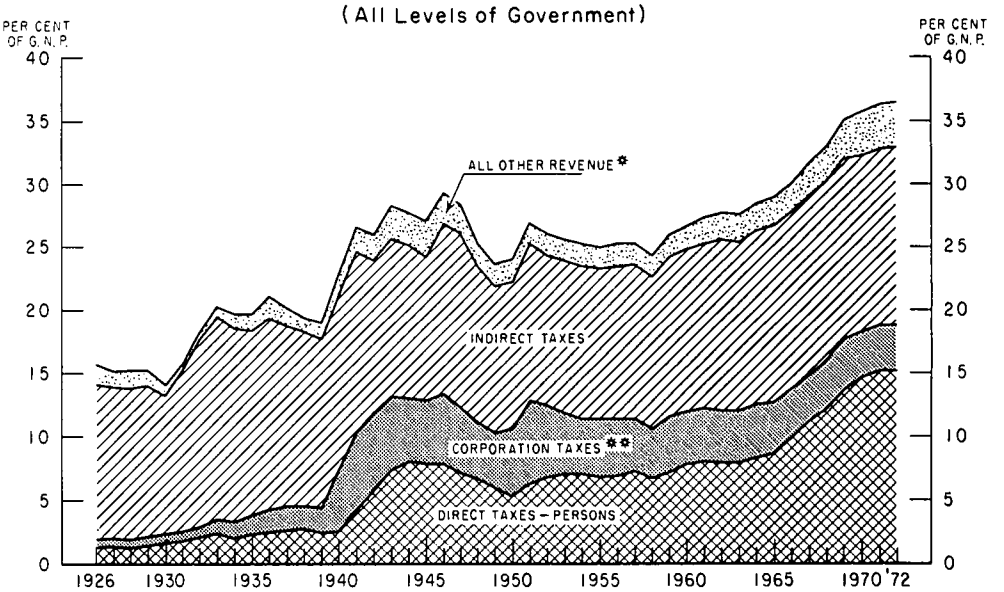
10 *Comparative Statistics of Public Finance,* Appendix "A" of the Report of the Royal Commission on Dominion-Provincial Relations, King's Printer, Ottawa, December 1938.

The remainder of this chapter describes the revenue and expenditure categories of the government sector tables in greater detail, and provides additional information on the sources and methods underlying the estimates.

The Income and Outlay Account: Income (Table 16 of Volume 1)

The revenues of the government sector by major source are shown in this Table. They include personal direct taxes and other current transfers from persons; direct taxes on corporations and government business enterprises; direct taxes on non-residents; indirect taxes; and various types of investment income. An indication of the relative size of these sources of revenue is given in Chart 6-1, where they are shown as a percentage of the Gross National Product. It may be noted that the imputed capital consumption allowance on government fixed capital assets is not included in Table 16, but is entered as a source of finance of investment in Table 18.

Government Revenue as a Percentage of Gross National Product
(All Levels of Government)



*ALL OTHER REVENUE INCLUDES INVESTMENT INCOME AND DIRECT TAXES ON NON-RESIDENTS.
**CORPORATION TAXES INCLUDE TAXES ON GOVERNMENT BUSINESS ENTERPRISES.

Personal Direct Taxes and Other Current Transfers from Persons (Table 16, lines 1, 2, 3, and 9)

This group of taxes was described in Chapter 5 under "Current Transfers to Government and Other Sectors" (see also Table 5-6 and Chart 5-4). It consists of direct taxes on the incomes of persons and unincorporated businesses; succession duties and estate taxes; employer and employee contributions to social insurance and government pension funds; and a variety of fees, licences and permits including hospital and medical care premiums. Essentially, this group of taxes covers those taxes which are paid out of

personal incomes and which reduce the income available to persons for spending or saving.[11] As Table 5 of Volume 1 indicates, it is this group of taxes which is subtracted from Personal Income to arrive at the figure of Personal Disposable Income.

TABLE 6-6. Personal Direct Taxes and Other Current Transfers from Persons

	1961	1972
	millions of dollars	
Personal income taxes (Table 16, line 1)	2,125	11,410
Succession duties and estate taxes (Table 16, line 2)	146	228
Employer and employee contributions (Table 16, line 3)	673	2,892
Direct taxes – Persons (Table 44, line 17)	**2,944**	**14,530**
Other current transfers from persons to government (Table 16, line 9, Table 47, line 8)	256	1,041
Total personal direct taxes and other transfers from persons	3,200	15,571

Personal income taxes (Table 16, line 1) – This category consists of taxes on the incomes of persons and unincorporated businesses. The data are on a net collections basis, after allowing for refunds. At the federal level, an adjustment is made to include taxes on the investment income of life insurance companies, with an offsetting adjustment made to corporation income tax collections. At the provincial level, the personal income tax collections for all provinces other than Quebec are taken as the total of federal collections of provincial income taxes as allocated under the provincial tax collection agreements. For the province of Quebec, where personal income taxes are collected directly by the provincial government, the figures are as reported by that province. The federal-provincial breakdown of personal income taxes is given in Table 44 of Volume 1.

Succession duties and estate taxes (Table 16, line 2) – The federal share of these taxes, and the revenues of the provinces who do not do their own collecting, are available from the Department of National Revenue. All other provincial data are from provincial sources. The federal-provincial breakdown of these taxes is given in Table 44 of Volume 1.

[11] Succession duties and estate taxes are in effect taxes on capital. However, since they are ordinarily regarded as a source of current income of government, they are treated in these Accounts as current transfers from persons to government. Capital gains taxes which came into effect in 1972 are also treated in these Accounts as personal direct taxes, since they cannot be separated statistically from the personal income taxes with which they are collected. Employee contributions to social insurance and government pension funds are in effect a direct tax on the income of the employee. Employer contributions to such funds are treated in these Accounts as a form of labour compensation paid by employers to employees (supplementary labour income) which is then transferred to the government sector and in effect also constitutes a direct tax on the income of the employee.

The treatment of this group of taxes as a current transfer from persons to government is somewhat of an anomaly, since such taxes are ordinarily paid out of capital. The treatment followed here is largely one of convenience since such taxes form a part of the current revenues of government.

Employer and employee contributions to social insurance and government pension funds (Table 16, line 3) – Employer and employee contributions to social insurance and government pension funds are available from the Public Accounts and from the financial records of the various agencies and boards involved. Included here are contributions to the Unemployment Insurance Fund, Workmen's Compensation Funds, the Canada and Quebec Pension Plans, Industrial Employees Vacations Funds, and various public service pension plans. Details of employer and employee contributions by level of government and by principal category are given in Table 44.

Other Current Transfers from Persons to Government (Table 16, line 9) – This is a group of taxes paid by persons out of personal incomes but not based on income. It includes the personal share of motor vehicle licences and permits, hospital and medical care premiums, various miscellaneous licences and permits such as hunting and fishing permits and marriage licences, a variety of fines and penalties, and charitable contributions to hospitals. A breakdown of the data by level of government and principal category is given in Table 47.

Direct Taxes on Corporations and Government Business Enterprises (Table 16, lines 4, 5 and 6)

This category consists mainly of taxes on the profits of corporate enterprises, but it includes in addition a relatively small amount of revenue from taxes on the profits of government business enterprises. Taxes on the profits of corporations are on an accrual basis and are shown in two parts: (i) the amount actually collected during the period by the federal and provincial governments, and (ii) the difference between this amount and the accrued tax liabilities of corporations.

TABLE 6-7. Direct Taxes on Corporations and Government Business Enterprises

	1961
	millions of dollars
Government business enterprises (Table 16, line 4)	20
Corporations:	
Collections (Table 16, line 5)	1,551
Excess of liabilities over collections (Table 16, line 6)	78
Total	1,649

Because of the time lag involved in remitting taxes to the government, and reflecting the volatile nature of corporate profits, corporation tax collections have tended to lag behind corporate tax accruals during periods of rising profits, and to run ahead of corporate tax accruals during periods of falling profits. This means that there is frequently a substantial difference between corporate tax collections and corporate tax accruals in any individual calendar year – in some years these differences have amounted to as much as $300 - $400 million dollars. In the corporate sector, the receivable-payable or "accrual" basis of recording transactions is typically employed in business accounting, and it has seemed reasonable to follow this approach here on the grounds that it is the liability or amount owing which will ordinarily influence business decision-making.

However, the analysis of government accounts usually is made on a cash basis. The inclusion of the excess of tax liabilities over collections in government revenue means that this amount is included in government saving. In the short-run, the excess of tax liabilities over payments by corporations represents funds which the corporation may use for short-term purposes. In the analysis of corporate saving and capital formation, however, the accrual basis seems more appropriate. This breakdown of corporation direct taxes into two components enables the analyst to rearrange the accounts in accordance with whichever treatment is preferred for a particular analysis.

Federal corporate tax collections are derived from official records of the federal government. The federal government also collects corporate taxes on behalf of the other provinces, except Ontario and Quebec, under the provincial tax collections agreements, and these sources are used here. The data for the latter two provinces are obtained from provincial sources.

Federal corporate tax accruals are based on information compiled by the Department of National Revenue or obtained from it by virtue of the Corporations and Labour Unions Returns Act. At the provincial level, estimates for the years 1958-64 were obtained by applying effective tax rates to the amount of taxable income per province as determined by the Department of National Revenue. After 1964, provincial estimates were prepared from analyses of corporate tax returns. Prior to 1958, no estimates of accruals at the provincial level are available.

Table 45 of Volume 1 provides a breakdown, by level of government and type of tax, of direct taxes on corporate and government business enterprises. Table 56 of Volume 1 provides additional information on corporation taxes, on both the collections and accrual basis.

Direct Taxes on Non-residents (Withholding Taxes) (Table 16, line 7)

These federal taxes represent amounts of income withheld from payment and remitted to the federal government on earnings of non-residents. The taxes apply on interest, dividends, rents, royalties and other forms of income payable to non-residents.

The basic information is obtained from the published records of the federal government. The collections data are moved back one month to allow for the "collection lag" – to adjust for timing so that the tax figures conform more closely to the related flows of interest, dividends, and other payments to non-residents.

Indirect Taxes (Table 16, line 8)

Unlike personal income and corporation income taxes which are levied directly on the incomes of factors of production, indirect taxes enter the Accounts as a cost of production. Accordingly, business accounting procedures provide a guide as to whether a tax is to be regarded as direct or indirect. Those taxes which represent a business cost or which are incorporated in prices at the retail level are taken here as indirect. They constitute, in effect, taxes on expenditure. By contrast, all taxes which are levied directly on the incomes of the factors of production are defined in these Accounts as direct taxes.

The figures of indirect taxes included here represent **collections** of indirect tax revenue. They are not adjusted to an accrual basis to allow for the lag between the time the taxes enter business costs and the time the collections are remitted to the government. Adequate information to permit such adjustments is not available. In general, all of the collections data are based on official accounting records of the various levels of government.

Indirect taxes levied by the federal government consist of customs import duties, excise duties, excise taxes, the business share of privileges, licences and permits (where no direct service by the government is involved),[12] the levy against farmers under the Prairie Farm Assistance Act, and taxes on corporations other than on profits (e.g., the bank note circulation tax and the tax on net premiums of insurance companies).

Provincial indirect taxes consists of all retail sales taxes including provincial taxes on liquor and tobacco, gasoline taxes, the profits of liquor commissions, the business share of motor vehicle licences and permits, the business share of other privileges, licences, permits and fees not involving any direct service by the government, real and personal property taxes, taxes on corporations other than on profits, and miscellaneous taxes including taxes on natural resources and amusement taxes.

Indirect taxes of local governments consist mainly of real property taxes. These are treated as indirect whether on owner-occupied or on rented property. Since inclusion of imputed rent on owner-occupied property in these Accounts involves regarding the owner-occupier in the dual role of landlord and tenant, this treatment of property taxes on owner-occupied property as a business cost is consistent with the treatment elsewhere in the Accounts. Local government indirect taxes also include sales and amusement taxes and the business share of licences, permits and fees where no direct service is rendered by the government.

The detail of indirect taxes, by level of government and type of tax, is shown in Table 46 of Volume 1.

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[12] Where a fee is charged for the rendering of a direct service by the government, the amount is treated as a "sale of goods and services" by the government. These amounts are netted out and offset against government current expenditure on goods and services to avoid double counting on the expenditure side of the Accounts.

Investment Income (Table 16, lines 10, 11 and 12)

This category consists of three principal forms of investment income: remitted profits of government business enterprises;[13] interest and miscellaneous investment income received from persons, businesses and governments (which is routed through the corporate and government business enterprise sector because information is lacking which permits an adequate breakdown by sector of origin – see below); and interest and miscellaneous investment income from non-residents. Summary figures for 1961 are shown in Table 6-8. Table 48 of Volume 1 provides a more detailed breakdown of this component of government revenue.

TABLE 6-8. Government Investment Income

	1961	1972
	millions of dollars	
Remitted profits of government business enterprises (Table 16, line 10)	104	604
Interest and miscellaneous investment income from business (Table 16, line 11)	573	2,845
Interest and miscellaneous investment income from non-residents (Table 16, line 12)	33	36
Totals	710	3,485

Remitted profits of government business enterprises (Table 16, line 10) – Governments receive part of their investment income in the form of profits on the operations of government-owned business enterprises. Such enterprises conduct their activities on a commercial basis and are classified with the corporate and government business enterprise sector in these Accounts. Prior to 1949, all such profits (net of losses) are included with the investment income of the government sector. Since 1949, with the availability of more complete data, only that part of the profits of such enterprises which is remitted to the government (net of losses) is included in government investment income. The unremitted portion remains in the "saving" of the corporate and government business enterprise sector as part of "undistributed" profits.

At the federal level, government business enterprises include such agencies as Central Mortgage and Housing Corporation, the Bank of Canada, Canadian National Railways, the St. Lawrence Seaway, and the Post Office. Provincial government business enterprises consist mainly of public utilities such as hydro-electric and telephone systems. At the local level, urban transportation and communication systems, and commercially operated recreational services, are the principal types of government business enterprise.

[13] These are the distributed earnings of government business enterprises, somewhat analogous to the distribution of dividends out of corporate profits. The figures include imputed banking services rendered to government without specific charge.

Interest and miscellaneous investment income from business (Table 16, line 11) – Although this category of investment income is shown as originating in the business sector, it covers interest and other investment income received from persons and governments as well as businesses. The amounts, however, are routed through the corporate and government business enterprise sector, as will be explained later. The category is made up of interest on loans, advances, and investments; interest on government-held public funds; and royalty revenues. A breakdown of the amounts involved is shown in Table 6-9 for the years 1961 and 1972.

TABLE 6-9. Interest and Miscellaneous Investment Income from Business

	1961	1972
	millions of dollars	
Interest on loans, advances and investments[1]	246	1,274
Interest on government-held public funds	173	1,150
Royalty revenues	154	421
Totals	573	2,845

[1] Excludes amounts received from non-residents of $33 million in 1961 and $36 million in 1972.

It may be noted that a substantial part of the interest receipts under this heading represents interest on the public debt **received** by the government sector. For example, interest on government-held public funds (e.g., the federal Public Service Superannuation Account) and the interest revenues of the Canada and Quebec Pension Plan funds (which are mainly invested in provincial bonds) are made up principally of amounts which are paid out by governments as interest on the public debt. The figure of interest on the public debt which appears in the outlay account of the government sector, therefore, is a **gross** figure, and does not take account of the fact that a part of this debt interest is paid to the government sector itself, where it is recorded as investment income. The amounts of interest received on government-held public funds are shown, by level of government, in Table 48 of Volume 1.

It should also be noted that all interest and miscellaneous investment income received by governments (apart from that paid by non-residents) is shown in the sector system as having been paid out by the corporate and government business enterprise sector. In reality, only a part of these revenues is actually received from the corporate and government business enterprise sector – for example, resource royalties, and some part of the interest on loans and advances. Most of the interest on government-held public funds is paid by the government sector to itself (as interest paid on the public debt), and some of the interest received on loans and advances also originates in the government sector (for example, provincial interest paid on federal loans to

the provinces). All of these amounts are nevertheless routed through the corporate and government business enterprise sector (instead of being shown as having been paid directly by the sector in which the payments originate) because the necessary information to permit a complete breakdown of the interest flows within the sector system is not available. In particular, information to clearly distinguish between payments of interest on the public debt which are made to persons from those which are made to business is not adequate. However, it is possible to obtain reasonable estimates of total interest received by persons, by businesses, and by governments without regard to the source of the interest. Accordingly, in these Accounts, all payments of interest on the public debt (except for payments to non-residents)[14] are shown as being paid to the corporate and government business enterprise sector where they are combined with interest revenues and miscellaneous investment income received from all other sources. The totals so derived are then re-routed through the outlay side of the corporate and government business enterprise account to the particular sector receiving the income.

Interest on loans, advances, and investments includes, at the federal level, interest on loans by the federal government to various crown agencies and corporations,[15] and loans to provincial governments. At the provincial and local levels, such revenues include interest on loans to various government-operated public utility systems and other enterprises. The amounts involved are shown in Table 48 of Volume 1.

Revenues from resource royalties (almost entirely provincial) are treated in these Accounts as investment income arising out of government ownership of property beginning with the year 1947. The amounts are shown in Table 48 of Volume 1. Prior to 1947, such royalties are treated as indirect taxes.

Interest and miscellaneous investment income from non-residents (Table 16, line 12) – This category includes interest on federal government loans to foreign governments, which constitutes the largest component of the total. The information is obtained from the Balance of Payments Division of Statistics Canada.

The Income and Outlay Account: Outlay (Table 17 of Volume 1)

The current outlays of the government sector by major type of expenditure are shown in this Table. Included here are current outlays for goods and services (government current expenditure on goods and services); government transfer payments to persons; subsidies; capital assistance from government; government transfers to non-residents; and interest on the public debt. The capital investment outlays of the government sector (gross fixed capital formation and investment in inventories) are not included in Table 17 but are shown as a disposition of saving in the capital finance account, Table 19.

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[14] Flows of interest from and to non-residents are separately distinguishable by sector and are not routed through the corporate and government business enterprise account.

[15] Among these, for example, are Central Mortgage and Housing Corporation, Canadian National Railways, Farm Credit Corporation, Municipal Development and Loan Board, and the Export Development Corporation.

TABLE 6-10. Government Current Expenditures

	1961
	millions of dollars
Government current expenditure on goods and services (Table 17, lines 1, 2, 3, 4 and 5)	6,206
Transfer payments to persons (Table 17, line 6)	2,709
Subsidies (Table 17, line 7)	321
Capital assistance (Table 17, lines 8 and 9)	21
Transfers to non-residents (Table 17, lines 10 and 11)	77
Interest on the public debt (Table 17, lines 12 and 13)	1,184
Total current outlay (excluding intergovernmental transfers)	**10,518**

Government Current Expenditure on Goods and Services (Table 17, lines 1, 2, 3, 4 and 5)

As was noted in Chapter 3, the value of the services rendered by "general government" cannot be measured by the selling price of the services since governments render services to the community without a specific charge being made. No "market price" exists for valuing the production of general government. Moreover, taxes cannot be taken as a realistic approximation of the value of these services. The value of government services is therefore measured by the cost or expense incurred in rendering them. All government expenditure on goods and services incurred in providing goods and services to the community without specific charge is included in Gross National Expenditure. The corresponding factor and other costs are included in the National Income and in other components of the Gross National Product. Where specific fees are charged for government services – for example, hospital fees for preferred accommodation above the standard rates, charges for water services, or grain inspection and weighing fees – or where government departments sell supplies such as books or maps – the receipts are deducted from government expenditure on goods and services to avoid double counting; these amounts will be reflected in other components of the Gross National Expenditure.

The following discussion deals only with government current expenditure on goods and services. Government capital formation expenditures are discussed in the section covering the capital finance account of this sector.

Government current expenditure on goods and services consists of the outlays of federal, provincial and local governments, and hospitals, for currently produced goods and services. Table 49 of Volume I provides a detailed breakdown of the estimates. At the federal and provincial levels, the figures are derived through a residual approach – by eliminating from total government budgetary expenditures all outlays which are not made directly to purchase new goods and services, i.e., transfer payments to individuals and private non-commercial institutions, transfer payments to business, transfers to other governments, losses of government-owned enterprises, provisions for debt retirement, reserves, write-downs and other bookkeeping adjustments,

and purchases of land and used capital assets. A number of adjustments are then made to this residual figure. The extra-budgetary expenditures on goods and services of agencies and boards which are classified to general government (i.e., agencies which are not treated as government business enterprises) are added in. Transfer payments to some government agencies and special funds which appear in budgetary expenditures are eliminated and replaced by the latter's actual expenditures. Sales of goods and services by governments are transferred from revenue and netted out (deducted) here in order to avoid double counting in Gross National Expenditure, since these sales are included as outlays in the expenditures of other sectors. In the war period, refunds of previous years' war expenditures arising from later re-negotiation or cost audits are allocated to the years to which they apply and deducted in order to correct for the overstatement of government budgetary expenditure which was made at that time. Estimates of capital consumption allowances on government-owned assets, and an estimate of imputed banking services to government are added.

The resulting (largely residual) estimates of government expenditures on goods and services include both current expenditures (wages, salaries, supplies, and operating expenses) and capital expenditures (gross fixed capital formation in the form of outlays for new buildings, roads, bridges, airports, machinery and equipment, and so forth). The gross fixed capital formation portion of these estimates is then separately calculated from the reports on *Private and Public Investment in Canada, Outlook*,[16] published jointly by the Department of Industry, Trade and Commerce and Statistics Canada. Government current expenditure on goods and services is taken as the difference between total government expenditure on goods and services (calculated residually as above) and government gross fixed capital formation.

At the local government level, the estimates of expenditure on current goods and services from 1951 on are built up directly on a gross basis from the various data sources described earlier. Revenues from sales of goods and services are then deducted. For years prior to 1951, the estimates are derived residually, following an approach similar to that described above.

In the case of hospitals, deductions are made from the total expenditure data supplied by the Health and Welfare Division to eliminate interest expenditures, to offset revenues from the sales of goods and services, and to replace book depreciation with an estimate of capital consumption at replacement cost.

The sector distribution of government purchases of goods and services given in Table 17 is obtained using additional data on purchases from non-residents from the Balance of Payments Division, and on direct labour services from the Labour Division. For the period 1940-45, purchases from non-residents include only expenditures for the maintenance of Canadian Armed Forces abroad (exclusive of military pay and allowances), and for purchases of military equipment and facilities from other countries. From 1946 on, the item includes contributions to international organizations, costs of government representation abroad, tourist advertising, and other outlays. The estimate of purchases from business is derived residually, by deducting from the total of government current expenditure on goods and services estimates of government purchases from non-residents and government direct labour services and consumption of own capital.

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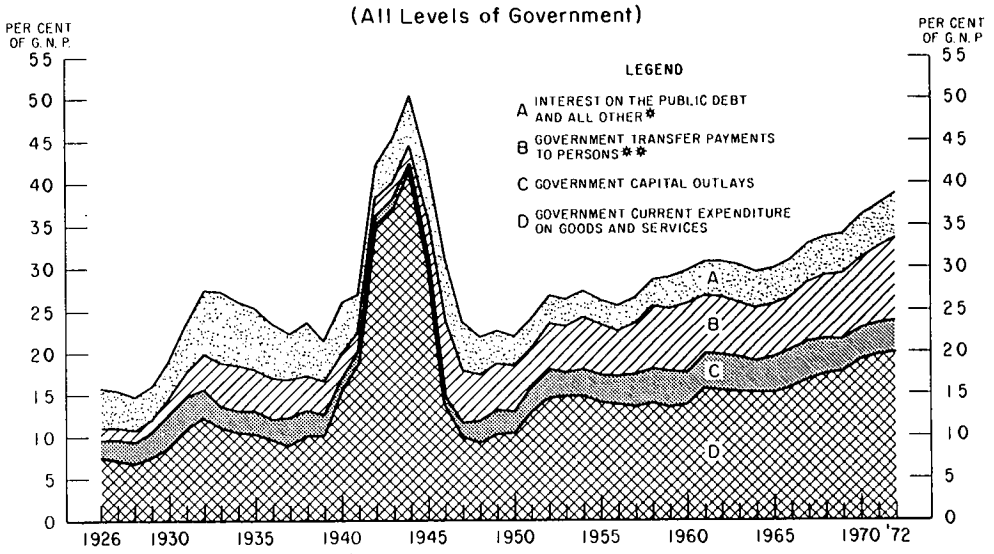
[16] Statistics Canada Catalogue 61-205.

TABLE 6-11. Government Current Expenditures on Goods and Services

	1961
	millions of dollars
Purchases from business (Table 17, line 1)	2,073
Deduct:	
Receipts from sales to business (Table 17, line 2)	– 486
Purchases from government:	
Direct labour services (Table 17, line 3)	3,992
Consumption of own capital (Table 17, line 4)	531
Purchases from non-residents (Table 17, line 5)	96
Total	**6,206**

Government Expenditure as a Percentage of Gross National Product

(All Levels of Government)



* "ALL OTHER" INCLUDES SUBSIDIES, CAPITAL ASSISTANCE, AND CURRENT TRANSFERS TO NON-RESIDENTS.

** UP TO AND INCLUDING 1960, GRANTS TO HOSPITALS ARE INCLUDED IN TRANSFER PAYMENTS TO PERSONS. IN LATER YEARS, HOSPITAL EXPENDITURES ARE INCLUDED IN GOVERNMENT CURRENT EXPENDITURE ON GOODS AND SERVICES.

Government Transfer Payments to Persons (excluding Interest on the Public Debt) (Table 17, line 6)

Government transfer payments to persons and non-profit institutions make up a significant portion of the income of the persons and unincorporated business sector. Such transfer payments have amounted to around 11 or 12% of total Personal Income in recent years (see Chart 5-2). As noted earlier, such transfer payments do not measure currently produced goods and services, but represent simply a redistribution of income already earned and counted. They are unilateral transactions in which there is no "quid pro quo". Included here

are such federal government payments to persons as family and youth allowances, unemployment benefits, old age security benefits, veterans' disability pensions, pensions paid to government employees, various scholarships and research grants, grants to private non-commercial institutions, and adult occupational training payments. At the provincial and local levels, these transfer payments include such items as social welfare payments (e.g., direct relief, old age and blind pensions, and mothers' and disabled persons' allowances), workmen's compensation benefits, grants to post-secondary educational institutions, and grants to other private non-commercial institutions and associations. Pensions paid out under the Canada and Quebec Pension Plans also form a part of the total of government transfer payments to persons.

Table 50 of Volume 1 provides a detailed breakdown of government transfers to persons, by level of government and by type of payment.

Subsidies (Table 17, line 7)

The greater part of the subsidy figure consists of federal production and consumption subsidies. Such payments are made for a variety of purposes – in order that the consumer may benefit from lower prices (as in the case of many of the subsidies paid during World War II), to protect producers against a decline in the price of their products, to encourage certain types of economic production, or to promote certain types of socially desirable activity. Federal subsidies fall generally into three broad classes: **agricultural** subsidies, which include wheat acreage reduction payments, freight assistance on western feed grains for livestock feeding purposes, assistance on storage costs of grain, premiums on livestock, and subsidies on milk and other agricultural commodities; **business** subsidies which include such items as emergency assistance to gold mines, payments to railways under the National Transportation Act, and operating grants to the Canadian Broadcasting Corporation; and **trading losses** on operations of government commodity agencies such as the Agricultural Commodities Stabilization Board and the Canadian Wheat Board.

Provincial subsidies are paid to agriculture in the form of freight assistance on limestone for fertilizer and other products, and various types of production subsidies. Provincial subsidies to business include assistance in the payment of property taxes by homeowners.[17] There are no subsidies paid by local governments.

A breakdown of the principal types of subsidies paid by governments is given in Table 51 of Volume 1.

Capital Assistance (Table 17, lines 8 and 9)

Capital assistance covers grants to industry for plant expansion and improvement or to encourage new construction. Specific examples of such payments are grants under programs of the Department of Regional Economic Expansion, grants towards the construction of fishing vessels, the $500 winter house-building bonus, and grants to foster the technical capability of Canadian industry. The data are shown broken down between amounts paid to unincorporated business (capital assistance to persons) and amounts paid to corporate and government business enterprises.

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[17] In these Accounts, homeowners are regarded in the dual capacity of both landlord (business) and tenant (consumer).

Transfers to Non-residents (Table 17, lines 10 and 11)

Included here are federal pensions and other benefits paid abroad – old age security benefits, public service pensions, and veterans' pensions – and payments for international assistance (official contributions). The estimates are obtained from the Balance of Payments Division.

Interest on the Public Debt (Table 17, lines 12 and 13)

This category of government expenditure is shown in two parts: interest on the public debt paid to corporate and government business enterprises; and interest on the public debt paid to non-residents.

TABLE 6-12. Interest on the Public Debt

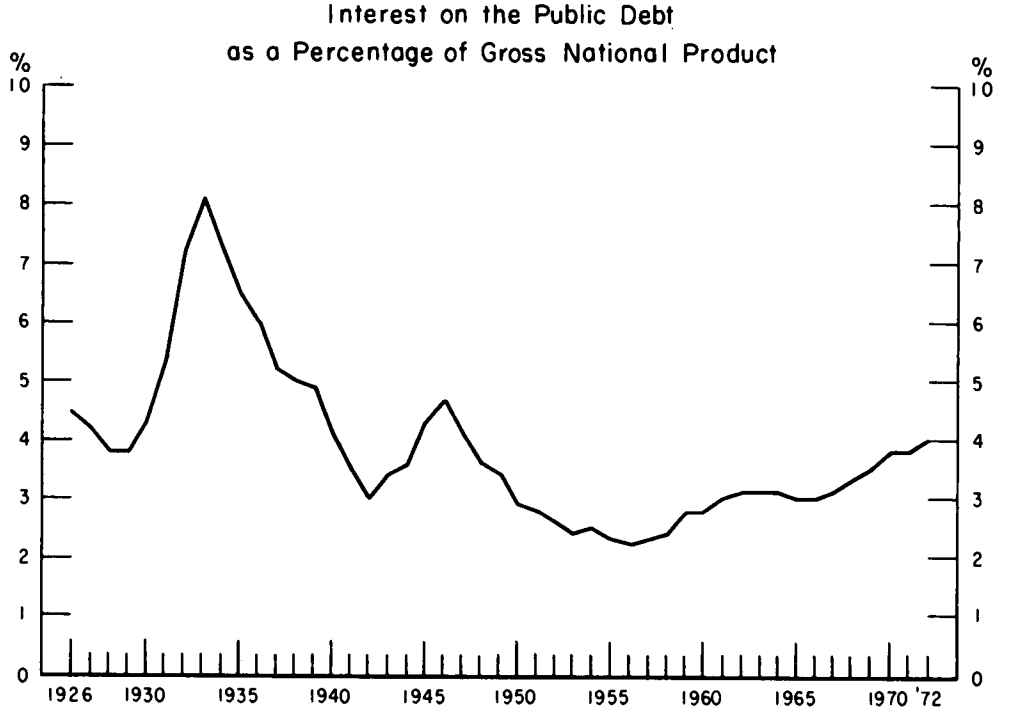
	1961	1972
	millions of dollars	
Paid to corporate and government business enterprises (Table 17, line 12)	1,044	3,568
Paid to non-residents (Table 17, line 13)	140	536
Totals	**1,184**	**4,104**

As noted earlier in this chapter, data are not available to make a full sector distribution of payments of interest on the public debt. In particular, information to distinguish between payments of public debt interest made to persons from those payments which are made to business is not adequate. For this reason, all payments of interest on the public debt which are made domestically (payments to non-residents are separately distinguishable) are shown as being paid to the corporate and government business enterprise account. Here they are consolidated with other receipts of interest and investment income, and the totals, which can be separately estimated by sector, are then re-routed through the outlay side of this account to the particular sector receiving the income.

Chart 6-3 shows total interest on the public debt as a percentage of Gross National Product. It should be emphasized that the figures of debt interest payments are presented on a **gross** basis, and that they do not reflect any netting out to take account of receipts of debt interest paid by the government sector to itself. (Receipts of interest are separately recorded as investment income on the income side of the government account). But, as has been noted earlier in this chapter, large amounts of interest received by government – especially interest on government-held public funds such as the Public Service Superannuation Account and the Canada and Quebec Pension Plans – represent interest on the public debt paid by the government sector to itself.[18]

[18] The Canada and Quebec Pension Plan funds, and most other public funds such as Unemployment Insurance and Workmen's Compensation, are largely invested in government bonds.

Table 48 of Volume 1 provides an indication of the amounts involved – for example, in 1972, interest on public service pension funds and other government held public funds amounted to $0.7 billion, while interest on the Canada and Quebec Pension Funds amounted to $0.5 billion. Most of these revenues represent, on the outlay side of the government account, payments of interest on the public debt. If the appropriate amounts are netted out against debt interest payments, interest on the public debt as a percentage of Gross National Product would be a good deal less than is shown in Chart 6-3. This point is especially relevant to the recent period, for with the introduction of the Canada and Quebec Pension Plans, interest revenues of the government sector representing public debt interest payments have grown rapidly.



At the federal level, interest on the public debt is recorded on an accrual basis from 1951on, and on a "due date" basis prior to1951. At the other levels of government, interest on the public debt is on a "due date" basis for all years.

Current Transfers To (and From) Other Levels of Government

Transfer payments to or from other levels of government are not a category of expenditure or revenue in the consolidated government sector tables. Expenditures financed out of such transfers are included at the level of government which spends the funds in the consolidated sector tables. Revenues out of which these transfers are financed are included with the revenues of the collecting government in the consolidated sector tables. However, in a disaggregation of the government sector by level of government,

these inter-governmental transfers do not cancel out and must be shown explicitly in revenues and expenditures, as is done in Table 43 of Volume 1. The following section discusses this particular category of government revenue and expenditure.

Details of current transfers to other levels of government, by nature of the transfer and by level of government, are shown in Table 52 of Volume 1. Almost all federal transfers to other levels of government consist of federal payments to the provinces under the various shared cost programs, general purpose grants including equalization payments and statutory grants, and specific purpose grants. Included here are transfers under various welfare programs (old age and blind pensions and disabled persons' allowances), transfers relating to taxation agreements and fiscal sharing arrangements, grants for post-secondary education, federal contributions under the Hospital Insurance and Diagnostic Services Act, transfers for unemployment assistance, transfers under the Canada Assistance Plan, the federal share of technical and vocational training costs, and the federal share of medical care services. Federal transfers to local governments are relatively small.

Provincial transfers to other levels of government consist primarily of transfers to local governments, (with the major part going to school corporations), and transfers to hospitals. Transfers from local governments to other levels of government are relatively small and consist of some transfers to the provinces and to hospitals.

The Capital Finance Account (Tables 18 and 19 of Volume 1)

Sources of Saving (Table 18, lines 1 and 2)

In the capital finance account of the government sector, government saving out of current income and outlay is carried down from Table 17 and recorded as a source of finance for the sector's investment in physical and financial assets. Capital consumption allowances are also entered here as a source of saving available to finance investment. In the case of the government sector, all such capital consumption allowances are imputed – they are not reflected in market-based transactions. Nevertheless, the amounts must be brought down as a source of finance in the capital account if the sector's total saving is not to be understated. This is because, in the income and outlay account, current outlays of the government sector include imputed capital consumption allowances, but the revenue side does not include such allowances. Consequently, the figure of government saving (revenues less current outlays) is reduced by the amount of capital consumption allowances. These must be added back in the capital finance account if the **total** saving of the government sector is to be shown. The treatment parallels that in the private sector. In the latter case, however, the bulk of the capital consumption allowances are operating costs which are charged against the operating revenues of business enterprises and which are in turn reflected in the flows of income and expenditure in the market economy.

Disposition of Saving (Table 19, lines 1, 2, 3 and 4)

The total of the government sector's saving as estimated above is available to finance the government sector's investment activity: investment in physical assets, mainly gross fixed capital formation in capital installations and facilities, but including a small amount of investment in inventories; and investment in financial assets in the form of net lending to or borrowing from other sectors, represented by the surplus (+) or deficit (-) on government transactions related to the National Accounts.

Gross fixed capital formation (Table 19, lines 1 and 2) – Government gross fixed capital formation consists mainly of construction-type expenditures – for schools, hospitals, waterworks, sewage systems, roads, harbours, airports, and various other capital installations – but it also includes outlays for machinery and equipment and a small amount of housing. Defence expenditures for military equipment and defence installations are not treated as capital outlays, but are included with government current expenditure on goods and services. All levels of government are covered – federal, provincial and local, including hospitals. The investment spending of government business enterprises is not covered here, but is classified to the corporate and government business enterprise sector.

TABLE 6-13. Government Gross Fixed Capital Formation

	1961
	millions of dollars
Residential construction (Table 2, line 5)	9
Non-residential construction (Table 2, line 6)	1,479
Machinery and equipment (Table 2, line 7)	186
Total	1,674
Of which:	
Purchases from business (Table 19, line 1)	1,594
Direct labour services (Table 19, line 2)	80

Since the late 1940's, overall estimates of total private and public investment in Canada have been assembled each year from a large-scale survey undertaken jointly by Statistics Canada and the Department of Industry, Trade and Commerce. The figures are published annually in the *Private and Public Investment in Canada, Outlook* reports, Statistics Canada Catalogue 61-205. Data on government gross fixed capital formation outlays are taken directly from these reports, with some re-arrangement and adjustment of the information to conform to the definitions and classificatory framework used in the Accounts.

The historical series of government gross fixed capital formation back to the year 1926 are taken from a background study published by the Department of Trade and Commerce in 1951.[19] Again, some adjustments and re-arrangements of the data have been made to conform to National Accounts definitions.

Value of physical change in inventories (Table 19, line 3) – This series includes the changes in inventories held by government commodity agencies (such as the Commodity Prices Stabilization Corporation), and changes in holdings of uranium stocks. The data are obtained from government records.

Surplus (+) or deficit (-) on transactions related to the National Accounts (Table 19, line 4) – The residual obtained by subtracting total government expenditures (both current and capital) from total government revenues is the government surplus (or if negative, the deficit) on transactions related to the National Accounts. This is a measure of the government sector's net lending to or borrowing from other sectors. It shows whether the government sector has been a net contributor to, or a net demander of funds for the finance of investment.

The government surplus or deficit as presented here is frequently taken as an indicator of whether the overall fiscal setting of the government sector taken as a whole is directed toward restraint or toward expansion. A surplus is frequently regarded as having a restraining effect on the level of economic activity, and a deficit, a stimulative or expansionary effect. From an analytical point of view, it is important to be aware that the surplus or deficit is not by itself an adequate measure of the degree of fiscal restraint or stimulation coming from the government sector. This is because the surplus or deficit not only affects the level of economic activity, but is affected by it. Thus, in 1961 the government sector as a whole was running a deficit of $835 million, equivalent to more than 2% of Gross National Product. But in 1961, the economy was experiencing a large amount of economic slack. The GNP "gap" – that is, the shortfall of actual GNP below potential GNP – was in the neighborhood of 6% or 7% of potential (Chart 1-1).[20] The unemployment rate averaged 7% of the labour force. This situation meant that government revenues in 1961 were falling short of where they would have been at relatively full employment by some $800 or $900 million. In other words, the government deficit of $835 million in 1961 was essentially a reflection of the large amount of slack in the economy, not of a basically expansionary fiscal setting.

Year-to-year changes in the government sector position, from surplus to deficit (or from deficit to surplus) do not therefore necessarily reflect discretionary shifts to more expansionary fiscal settings (or to less expansionary fiscal settings) on the part of the public authorities. They may

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[19] *Private and Public Investment in Canada, 1926-1951,* Department of Trade and Commerce, King's Printer, Ottawa, 1951.

[20] See *Perspective 1975*, Sixth Annual Review of the Economic Council of Canada, Queen's Printer, Ottawa, September 1969, p. 13, for an estimate of the GNP "gap".

simply reflect the fact that economic slack is building up (or decreasing) in the economy, leading to larger (or smaller) shortfalls in government revenue collections.[21]

The surpluses or deficits shown in these Accounts differ substantially from the conventional budgetary surpluses or deficits shown in the administrative budgets of the various levels of government. The latter have been adjusted and supplemented to accord with the basic definitions and classificatory arrangements used in these Accounts. Thus the budgetary accounting statements of fiscal year revenues and expenditures are converted to a calendar year basis wherever possible. The figures are adjusted to exclude purely bookkeeping transactions as well as purchases and sales of existing capital assets. The non-budgetary revenues and outlays of various social insurance and welfare funds such as the Unemployment Insurance Fund, Workmen's Compensation Funds, the Old Age Security Fund, government employee pension funds, and the Canada and Quebec Pension Plans are added in as part of the income and outlay of the government sector. Other adjustments are needed to place federal corporation taxes on an accrual basis, to exclude postal revenues and expenditures, and to offset revenues from the sale of goods and services against expenditures.

In Table 58 of Volume 1 a reconciliation statement is provided which shows some of the more substantial adjustments which are made in moving from the budgetary revenues and expenditures of the federal government to the revenue and expenditure figures presented in these Accounts. Appendix "A" to this chapter indicates the nature of these adjustments.

The majority of the adjustments in the above table are self-explanatory. The extra-budgetary revenues of the various social insurance and government pension funds under the administration of the federal government (lines 3,4,5,6 and 7) add very substantially to the revenues of the federal sector in these Accounts. The adjustment for "excess of corporation tax accruals over collections" (line 8) is needed to place corporation taxes on an accrual basis. Remitted profits of government business enterprises (line 9) and interest on loans, advances and investments, and royalties (line 10) are independently calculated estimates, replacing the budgetary figure of return on investments in line 11 (the latter being deducted out of budgetary revenue). Postal revenue (line 12) is also deducted out of budgetary revenue, since the Post Office is treated as a government business enterprise in these Accounts. Budgetary

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[21] To overcome the problem of distinguishing between changes in the fiscal setting of the government sector which simply reflect automatic responses to the amount of slack in the system from changes which reflect discretionary policy actions, the concept of the "high employment budget surplus or deficit" has been developed. For a discussion of this and related points, see *Performance and Potential, Mid-1950's to Mid-1970's*, Economic Council of Canada, Queen's Printer, Ottawa, September 1970, p. 48. See also *Performance in Perspective, 1971*, Economic Council of Canada, October 1971, pp. 19 and 20. It may be noted that government expenditures are also affected by the level of economic activity, particularly outlays for unemployment insurance benefits. Thus the build-up of a large amount of economic slack may produce deficits which reflect not only revenue shortfalls but also larger outlays for unemployment insurance. Changes in the level of economic activity therefore affect the surplus or deficit in two ways – on the revenue side and also on the expenditure side. The "high employment budget" calculation is designed to eliminate these "automatic" effects from the measurements so that discretionary changes in the fiscal setting of the government sector can be more clearly identified.

revenue items offset against budgetary expenditure (line 13) are also deducted from revenue. These consist largely of revenues from the sale of goods and services. These sales appear as final expenditures in the private sector and the amounts involved are eliminated from government expenditure in order to avoid double counting. The entry "all other adjustments to budgetary revenue" (line 14) covers other Public Accounts revenues which are excluded from the National Accounts, mainly revenue from the sale of capital assets.

APPENDIX "A" TO CHAPTER 6

Reconciliation of Federal Budgetary Revenue with Federal Revenue as per National Income and Expenditure Accounts,

Table 58, Volume 1

	1961
	millions of dollars
1. Total budgetary revenue as per public accounts of Canada for fiscal year ended March 31	5,618
2. Adjustment of budgetary revenue from fiscal to calendar year basis	86
Extra-budgetary revenues:	
3. Old age security tax collections	624
4. Prairie Farm Assistance Act Levy	7
5. Unemployment insurance, employer and employee contributions	277
6. Government pension funds, employer and employee contributions	222
7. Interest receipts of social insurance and government pension funds	115
8. Excess of corporation tax accruals over collections	58
9. Remitted profits of government business enterprises	84
10. Interest on loans, advances and investments, and royalties	183
Deduct:	
11. Return on investments included in budgetary revenue	– 322
12. Postal revenue	– 179
13. Budgetary revenue items offset against budgetary expenditure	– 88
14. All other adjustments to budgetary revenue	– 23
15. Total revenue as per National Income and Expenditure Accounts (Table 43, line 35)	6,662

Again, the majority of the adjustments in the above table are self-explanatory. Capital consumption allowances (imputed), line 18, are added in because they do not appear in the budgetary expenditures of the federal government. The outlays of the extra-budgetary funds (lines 19, 20, 21 and 22) – consisting of transfer payments from government to persons – are added to budgetary expenditures. Transfers from the federal government to the extra-budgetary funds (which appear in budgetary expenditures) are eliminated (line 23), since the payment out of such transfers will be recorded in the outlays of the funds themselves.[22] A net adjustment is made in line 24 to replace budgetary appropriations and grants to various agencies with their

[22] Amounts paid into these funds by the government as an employer on behalf of its own employees are not included here. Such payments are treated as government expenditure on labour account (supplementary labour income) and are included in government expenditure on goods and services.

actual expenditures. In line 25, Post Office expenditures are deducted from budgetary outlays. This agency is treated as a government business enterprise in these Accounts, with its total expenditures being offset against its total revenues to determine the operating profit or loss. In line 26, the deficits of various government business enterprises, included as part of budgetary expenditure, are deducted, since they are offset against the profits of government business enterprises in estimating the income of the corporate and government business enterprise sector. Purely bookkeeping entries such as reserves and write-offs are deducted in line 27. In line 28, the amounts which are deducted from budgetary revenue as sales of goods and services in line 13 are carried across and offset against government expenditure since they appear in the expenditures of the private sector. "All other adjustments to budgetary expenditures" (line 29) includes commissions on new bond sales,[2 3] imputed banking services to government, and changes in inventories which are not included in budgetary expenditures. It also includes a negative adjustment to offset amounts of used capital assets sold by the government sector to the private sector.

[2 3] Commissions on new bond sales are ordinarily paid out of the proceeds of the sales and are not recorded as budgetary expenditure in the Public Accounts.

Reconciliation of Federal Budgetary Expenditures with Federal Expenditures as per National Income and Expenditure Accounts

Table 58, Volume 1

	1961
	$ millions
16. Total budgetary expenditure as per public accounts of Canada for fiscal year ended March 31	5,958
17. Adjustment of budgetary expenditure from fiscal to calendar year basis	332
18. Capital consumption allowances	117
Expenditures of extra-budgetary funds:	
19. Old age security fund payments	603
20. Unemployment insurance benefits	494
21. Government pension fund payments	65
22. Prairie farm assistance act payments	35
23. Transfers to extra-budgetary funds	– 64
24. Adjustment to place other government funds and crown agencies on a disbursement basis	5
Budgetary expenditures offset against income of government business enterprises:	
25. Post office expenditure	– 183
26. Deficits of government business enterprises	– 85
27. Reserves and write-offs	– 39
28. Budgetary revenue items offset against budgetary expenditure	– 88
29. All other adjustments to budgetary expenditure	39
30. Total current and capital expenditure as per National Income and Expenditure Accounts (Table 43, line 74 plus line 93)	7,189

Surplus (+) or Deficit (–)

	1961
	millions of dollars
Budgetary surplus (+) or deficit (–) as per public accounts of Canada (line 1 minus line 16)	– 340
Net adjustments to budgetary revenues and expenditures for National Income and Expenditure Accounts, as per above tables	– 187
Add:	
Imputed capital consumption allowances carried into expenditure but not into revenue	117
Equals surplus (+) or deficit (–) as per National Income and Expenditure Accounts, Table 43, line 98 (line 15 minus line 30 plus capital consumption allowances in above reconciliation tables)	– 410

APPENDIX B TO CHAPTER 6

Federal Government Business Enterprises

Air Canada

Bank of Canada

Canada Deposit Insurance Corporation

Canada Development Corporation

Canadian Arsenals Limited

Canadian Broadcasting Corporation

Canadian Commercial Corporation

Canadian Government Elevators

Canadian National Railways

Canadian Overseas Telecommunications Corporation

Canadian Saltfish Marketing Corporation

Canadian Wheat Board

Central Mortgage and Housing Corporation

Eldorado Nuclear Limited

Export Development Corporation

Farm Credit Corporation

Freshwater Fish Marketing Corporation

Industrial Development Bank

National Harbours Board

Newfoundland Coastal Services

Newfoundland Ferry and Terminal

Northern Canada Power Commission

Northern Transportation Company Limited

Polymer Corporation

Federal Government Business Enterprises – Concluded

Post Office

Prince Edward Island Car Ferry and Terminal

Royal Canadian Mint

St. Clair River Broadcasting Limited

St. Lawrence Seaway Authority

Seaway International Bridge Corporation Limited

Trent Rubber Services

Yarmouth-Bar Harbour Ferry

Provincial Government Business Enterprises

Newfoundland

Elizabeth Towers Limited

Harmon Corporation

Hotel Buildings Limited

Labrador Linerboard Limited

Marystown Shipyard Construction Limited

Newfoundland Fibrply Limited

Newfoundland Liquor Commission

Newfoundland and Labrador Housing Corporation

Newfoundland and Labrador Power Commission

Northern Labrador Services Division

Power Distribution Districts

St. John's Housing Corporation

Prince Edward Island

Industrial Enterprises Incorporated

Prince Edward Island Industrial Corporation

Prince Edward Island Liquor Control Commission

Nova Scotia

Deuterium of Canada Limited

Halifax-Dartmouth Bridge Commission

Industrial Estates Limited

Keltic Lodge

Nova Scotia Light and Power Company Limited

Nova Scotia Liquor Commission

Nova Scotia Power Commission

Sydney Steel Corporation

The Pines Hotel

New Brunswick

New Brunswick Development Corporation

New Brunswick Electric Power Commission

New Brunswick Housing Corporation

New Brunswick Liquor Control Commission

Quebec

Handicraft Centre

James Bay Development Corporation

Quebec Autoroutes Authority

Quebec Deposit and Investment Fund

Quebec Hydro-Electric Commission

Quebec Industrial Development Corporation

Quebec Liquor Corporation

Quebec Mining Exploration Company

Quebec Petroleum Operations Company

Quebec Sugar Refinery

Sidbec-Dosco Limitée

Société d'exploitation des loteries et courses du Québec

Ontario

Hydro-Electric Power Commission of Ontario

Liquor Control Board of Ontario

Ontario Food Terminal Board

Ontario Housing Corporation

Ontario Northland Transportation Commission

Ontario Stock Yards Board

Ontario Water Resources Commission

Province of Ontario Savings Office

Star Transfer Limited

Manitoba

Liquor Control Commission of Manitoba

Manitoba Development Corporation

Manitoba Housing and Renewal Corporation

Manitoba Hydro-Electric Board

Manitoba Public Insurance Corporation

Manitoba Telephone System

Manitoba Water Supply Board

Saskatchewan

Province of Saskatchewan Liquor Board

Saskatchewan Economic Development Corporation

Saskatchewan Forest Products

Saskatchewan Fur Marketing Service

Saskatchewan Government Insurance Office

Saskatchewan Government Printing Company

Saskatchewan Minerals

Saskatchewan Power Corporation

Saskatchewan Pulpwood Limited

Saskatchewan Telecommunications

Saskatchewan Transportation Company

Saskatchewan Water Supply Board

Alberta

Alberta Government Telephone Commission

Alberta Housing Corporation

Alberta Industrial Corporation

Alberta Investment Fund

Alberta Liquor Control Board

Alberta Opportunity Fund

Bow River Irrigation District

St. Mary's River Irrigation District

Treasury Branches Deposits Fund

British Columbia

British Columbia Hydro and Power Authority

British Columbia Railway Company

Liquor Control Board of British Columbia

Yukon

Liquor Control Board

Northwest Territories

Northwest Territories Liquor System

Local Government Business Enterprises

These include: urban transit and communication systems; parking authorities; commercially operated recreational services; and a number of miscellaneous activities.

CHAPTER 7

THE CORPORATE AND GOVERNMENT BUSINESS ENTERPRISES SECTOR

Introduction

This sector covers the income and outlay and capital finance transactions of privately controlled corporate enterprises in Canada, together with the transactions of government business enterprises. The enterprises included here make up the greater part of the business sector of the economy and produce the bulk of the nation's output of goods and services. A **complete** business sector would include, in addition to corporate and government business enterprises, both farm and non-farm unincorporated business enterprises. However, as indicated in Chapter 5, the transactions of unincorporated business enterprises (farm and non-farm) are classified in these Accounts with the persons and unincorporated business sector, since it is not possible to distinguish between the business income and the personal income of unincorporated business proprietors.

All business enterprises resident in Canada which are organized as corporations are included in this sector, irrespective of whether they are owned or controlled by Canadians or non-residents. The transactions of both financial and non-financial corporations are covered. In the case of financial corporations, there are special difficulties involved in measuring the contribution to output of the banking system and related institutions, and an imputation is made for the value of the services rendered by such institutions for which they make no specific charge (see below).

All government business enterprises are included. Such enterprises consist in general of government activities which are conducted on an essentially commercial basis – where the operation is designed to be self-sustaining, and where a price is set for the goods and services which is calculated to cover costs. A list of government business enterprises included here is given in Appendix B of Chapter 6. It may be noted that while government business enterprises ordinarily have a large degree of independence from government control in their operations, they do sometimes act in quasi-administrative capacity to promote government policy objectives. In this sense, they may be less strongly oriented toward profit maximization than their counterparts in the private sector.

The income and outlay account of this sector consists mainly, on the income side, of the net profits from productive activity of corporations and government business enterprises, and their receipts of interest and miscellaneous investment income. Transfers from government in the form of capital assistance provide an additional, though relatively small source of income. The outlay side of the account shows how such income is distributed – to equity and debt holders as dividends and interest, to governments in the form of tax payments, and to the personal sector in the form of small amounts of current transfers. The undistributed profits and the other unremitted income of this sector represent the sector's saving, which is carried down to the sector's capital formation account as a source of finance of investment.

It may be noted that there are no current (non-capital) purchases of goods and services shown in the outlay account of this sector, as there are in the outlay accounts of the other three sectors. This is because corporations and government business enterprises are not considered to be final consumers.[1] The current outlays in this sector therefore consist entirely of distributions of income in the form of interest, dividends, remitted profits,[2] taxes paid to government, or transfers to other sectors. Thus, the income and outlay account of this sector is essentially an appropriation account through which receipts of income from productive activity and other sources are routed and distributed to other sectors of the economy.

The capital finance account of this sector consists, on the sources side, of the sector's saving (mainly in the form of undistributed corporation profits and unremitted profits of government business enterprises) and of capital consumption allowances. The treatment here is symmetrical with that described in the discussion of the capital finance accounts in the two preceding chapters. On the disposition side of the capital finance account, the sector's gross capital formation in physical assets is shown, together with its investment in financial assets (i.e., its net lending to or borrowing from other sectors). Thus, the only purchases of goods and services which are recorded in the transactions of this sector relate to the sector's purchases on capital account (including inventories). This is in contrast to the other three sectors of the economy, where persons, governments, and non-residents are regarded as final consumers, and where purchases of goods and services on operating account are recorded in the outlay accounts of each of the three sectors.

It was noted in earlier chapters that it is not possible in the case of farm and non-farm unincorporated business enterprises to differentiate between the use of income for personal as distinct from business purposes. In classifying transactions of unincorporated business proprietors, **all** of the net income of unincorporated businesses is included with the income of the persons and unincorporated business sector – not simply the withdrawals of income for personal use. As a result of this treatment, personal saving as shown in the income and outlay account of persons and unincorporated businesses contains an unidentifiable amount of business retained earnings; at the same time, the saving of the business enterprises sector taken as a whole is correspondingly understated.

Because information is not adequate to permit a complete articulation of the flows of interest on the public debt among the various sectors, payments of public debt interest (except for payments to non-residents) are shown as being paid to the corporate and government business enterprise sector. The amounts are routed through this sector, consolidated with other forms of investment income, and then re-routed to other sectors through the outlay account. This matter was discussed in Chapter 6, and is referred to later in the present chapter.

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[1] All purchases of goods and services on current operating account (except payments to factors of production) by corporations and government business enterprises constitute a form of intermediate production which is embodied in final output.

[2] These are the distributed earnings of government business enterprises, analogous to the distribution of dividends out of corporate profits.

Banks and Other Financial Intermediaries

Banks and other financial intermediaries (e.g., chartered banks, credit unions, and trust and mortgage companies) require special treatment in these Accounts. The conventional procedure for estimating income originating in a particular industry cannot be applied to institutions such as banks. The conventional way of measuring income originating in an industry is by adding together all payments made by the industry to the factors of production in the form of wages, salaries, interest, rents, and profits before taxes, and subtracting interest received. Interest received is subtracted in order to get a measure of **net** factor income originating in the industry. However, when this procedure is applied to banks and other financial intermediaries, the resulting figure of income originating turns out to be very small or negative, (see Table 7-1).

TABLE 7-1. Hypothetical Example of Income and Product Originating in Banking

Before and After Imputation Procedure

	Conventional (Based on monetary transactions)	With imputation (Based on monetary and imputed transactions)		Conventional (Based on monetary transactions)	With imputation (Based on monetary and imputed transactions)
	millions of dollars			millions of dollars	
Wages and salaries paid . . .	350	350	Service charge receipts . . .	150	800
			Monetary	(150)	(150)
Net interest paid	– 650	–	Imputed	. . .	(650)
Monetary interest paid .	(550)	(550)			
Imputed interest paid . .	. . .	(650)	Less:		
Less:			Current account purchases		
Interest received	(– 1,200)	(– 1,200)	from other firms . . .	200	200
Profits	250	250			
Income originating	– 50	600	Product originating	– 50	600

The reason for this anomaly is that commercial banks and similar financial institutions finance the bulk of their activities from the excess of interest income received over interest paid out to depositors, with service charges representing a relatively small proportion of their total revenues. Monetary service charges are small in relation to total revenues received or expenses incurred, leading to measurements of income and product originating as carried out in the conventional way which are low, or even negative. What is obscured in such cases is the fact that financial intermediaries provide a variety of services to their depositors without specific charge (in the form of accounting, checking, and investment services) which they finance by retaining part of the revenues earned from investing the funds of their depositors. The result of this procedure is to effectively short-circuit the income and expenditure transactions which would show up explicitly if all revenues earned by investing funds of depositors were paid out to depositors, and if charges were then levied for all of the services rendered to depositors.

In these Accounts, this problem is met by making an imputation for the short-circuited transactions – for the services rendered by financial intermediaries to their depositors without specific charge. The amount of the

imputation for such services is taken as being equal to the interest income received by the financial intermediaries minus the interest paid out to depositors. The domestic portion of this total applicable to depositors is then allocated between persons, governments, and corporations on the basis of deposit holdings in each group. By far the greater part of the total imputation – about four fifths of it – is applicable to persons, and the amount is included in "interest, dividends and miscellaneous investment income" paid out to persons by the corporate and government business enterprises sector (Table 21, line 1). A relatively small amount is applicable to government, and this is included in "profits remitted by government business enterprises", in the outlay side of the corporate and government business enterprises sector account (Table 21, line 2). The remainder of the imputation is applicable to corporations; since intra-corporate transactions cancel out, this amount isnot explicitly included in the income or outlay account of this sector.[3]

The Income and Outlay Account: Income (Table 20 of Volume 1)

The estimates of receipts and payments of investment income which make up so large a part of the income and outlay account of the corporate and government business enterprise sector involve a greater degree of complexity, both with regard to estimating techniques and with regard to the integration of the figures into the main statistical framework, than will be found with most estimates in these Accounts. For this reason, in the following discussion, special attention is given to the detail of the adjustments required to move from basic source material to the figures incorporated in these Accounts, and to setting out numerically the relationship between the estimates and other parts of the Accounting framework. To facilitate the discussion and the reconciliation of the data, a number of rather lengthy tables have had to be introduced into the text of this chapter.

Profits and Other Investment Income (Table 20, line 1)

This component consists of two parts: corporation profits before taxes; and interest and miscellaneous investment income. The estimates are on a gross domestic product basis, and may be linked and reconciled to the components of the National Income (in Table 1 of Volume 1) as in Table 7-2.

As Table 7-2 indicates, in converting corporation profits to a gross domestic product basis it is necessary to add back some elements of investment income paid abroad (which are eliminated from the figures on a national basis), and to subtract interest and dividends received from abroad (which are included in the figures on a national basis). Similarly, in converting interest and miscellaneous investment income from a national to a domestic product basis, the relevant investment income flows to and from abroad are also reversed. It may be noted that these adjustments correspond, with one exception, to the adjustments which are needed to move from total Gross National Product to total Gross Domestic Product, as illustrated inTable 4-3 of Chapter 4 (see bottom panel of Table 7-2).

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[3] The foregoing discussion is somewhat simplified. Financial institutions also provide some "free" services to borrowers, and an imputation for these services is also incorporated in the calculations.

TABLE 7-2. Profits and Other Investment Income

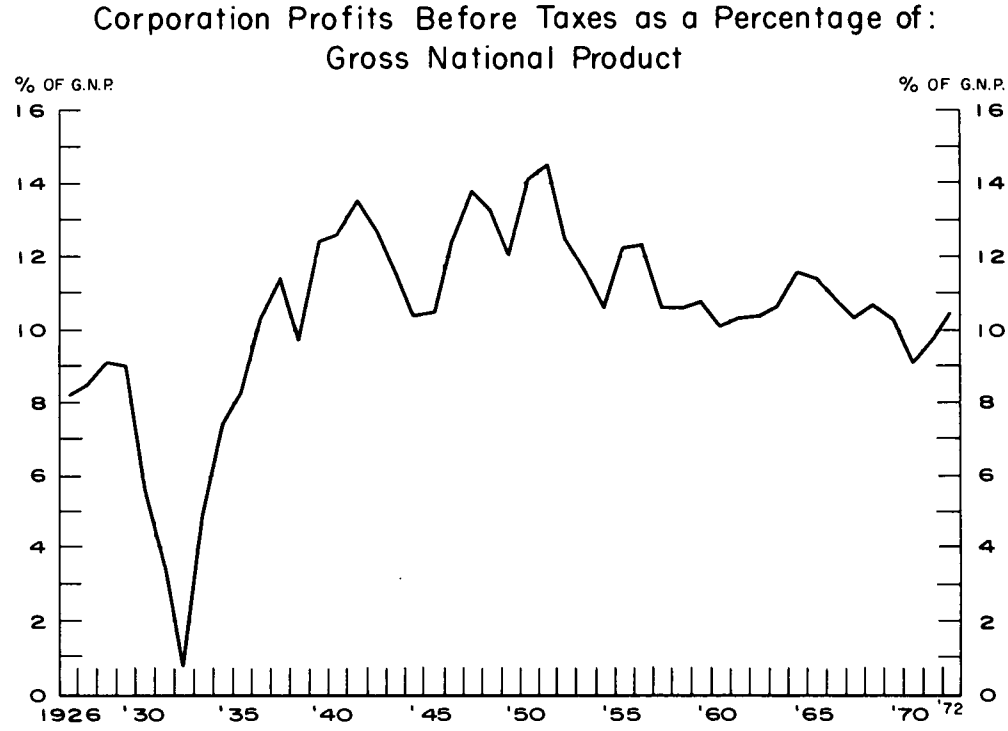
	1961
	millions of dollars
Corporation profits before taxes (Table 1, Volume 1, line 3)	4,066
Add:	
Interest paid abroad	84
Deduct:	
Interest and dividends received from abroad	– 183
Equals:	
Corporation profits before taxes (Gross Domestic Product basis) as included in Table 20, line 1	3,967
Interest and miscellaneous investment income (Table 1, Volume 1, line 5)	1,284
Add:	
Interest paid abroad	316
Deduct:	
Interest and dividends received from abroad	– 117
Equals:	
Interest and miscellaneous investment income (Gross Domestic Product basis) as included in Table 20, line 1	1,483
Profits and other investment income (Table 20, line 1)	**5,450**

	Table 4-3	Table 7-2
	millions of dollars	
Gross National Product, 1961	39,646	
Deduct:		
Interest and dividends received from abroad	– 300	– 183
		– 117
Total		– 300
Add:		
Interest and dividends paid abroad	1,022	84
		316
Total		400[1]
Gross Domestic Product, 1961	40,368	

[1] Excludes dividends paid to non-residents of $622 million implicitly included in the figures of corporation profits.

The exception noted relates to interest and dividends paid abroad. The explicit deduction from Gross National Product of $622 million for "dividends paid to non-residents" (Table 1, line 4) does not need to be added back in Table 7-2 (although it must be added back in Table 4-3), since this amount is implicitly included in the figures of corporation profits before taxes in Table 7-2.

Corporation profits before taxes (Table 20, line 1) – As is indicated in Table 7-2, corporation profits before taxes constitute the larger part of the component "profits and other investment income". The estimates of corporation profits are based essentially on data compiled from the financial statements of corporations filed with the Department of National Revenue under the Income Tax Act, or, in the years since 1964, on tabulations of corporation financial data undertaken by Statistics Canada in collaboration with the Department of National Revenue under the Corporations and Labour Unions Returns Act.



During the period 1944 to 1964 inclusive, the Department of National Revenue compiled corporation financial statistics from the "T2" income tax returns filed by corporations under the Income Tax Act. These statistics were published in the Department of National Revenue reports *Taxation Statistics*, and constituted the basic source of the data on corporation profits entering the National Accounts for the period 1944 to 1964. For the period prior to 1944, a special sample study of corporation financial statistics was undertaken within the Department of National Revenue, drawing upon income tax records. The results of this sample study have provided the basic source of information on corporation profits for the period 1926 to 1944. A note on this special corporation sample study appears in the Appendix to this chapter.

The Corporation and Labour Unions Returns Act (passed in 1962) created a requirement additional to the requirements of the Income Tax Act for the reporting of financial data by a substantial number of corporations in

Canada, involving the necessity to duplicate, to a considerable extent, tabulations of corporation financial data already being carried out by the Department of National Revenue. In order that unnecessary reporting of financial information by corporations might be prevented, and so that duplication in the tabulation and publication of corporation financial statistics might be avoided, legislation was passed that enabled a **joint** statistical operation to be undertaken. An amendment to the Corporations and Labour Unions Returns Act in 1965 relieved corporations from filing financial statements under this Act if they had filed financial statements under the Income Tax Act. At the same time, access to corporation income tax returns was made available to the Chief Statistician of Canada.

Commencing in 1965, Statistics Canada began publication of *Corporation Financial Statistics* (Catalogue 61-207) and *Corporation Taxation Statistics* (Catalogue 61-208) which in combination replace and extend the annual information on corporation statistics previously available in the Department of National Revenue reports. These two publications now constitute the basic source of information for estimating corporation profits as entered in the National Income and Expenditure Accounts. All of the profits estimates since 1965 are based on these sources.

It will be recalled from Chapter 3 that the economic concept of corporation profits as required for the National Income and Expenditure Accounts differs considerably from the accounting view of profits as reported on company books or as required for income tax purposes. A large number of adjustments to the basic source material are therefore necessary to produce figures which are compatible with the concepts and definitions in the Accounts. Table 7-3 shows these adjustments and provides a reconciliation of corporate book profits after tax (as set out in *Corporation Financial Statistics*) with corporation profits before taxes as shown in the National Income and Expenditure Accounts. The year 1967 is taken as a typical year to illustrate the basic methodology which applies to the calculation of the profit series. In the discussion which follows, the adjustments are described in the order in which they appear in Table 7-3. It will be observed that for the most part the adjustments relate to the conceptual treatment of profits outlined in Chapter 3.

It may also be noted that a concept referred to as "base profits" is introduced in Table 7-3 (line 11). Uniform accounting practices are not always followed by business firms in calculating book profits after tax as shown in line 1 of the table. The basis on which book profits are reported for tax or other purposes may differ substantially from corporation to corporation, depending upon the treatment of various items of account over which management exercises a good deal of discretion – for example, provisions for depreciation and amortization, payments of dividends, items of a capital nature charged to current account, write-offs, and so forth. In order to arrive at a greater degree of standardization in the presentation of book profits, the concept of "base profits" has been developed in Statistics Canada. The central notion behind this concept is to produce a basic series of corporation book profits **before** taxes which represents a reasonably consistent measure of the profits of Canadian corporations on a standardized accounting basis, before the recording of transactions which reflect to a greater or a lesser extent the discretionary decisions of management. In the course of arriving at this "base

profits" figure, many of the adjustments required to convert data drawn from business accounting records to a basis compatible to National Accounts concepts and definitions are carried out. The steps in the two operations thus overlap. Further adjustments are then made to this "base profits" figure to arrive at the figures included in the National Income and Expenditure Accounts (line 23). The "base profits" figure essentially serves as an intermediate link between the accounting data taken from *Corporation Financial Statistics* and the figures presented in the Accounts.

TABLE 7-3. Reconciliation of Corporate Book Profits After Tax With Corporation Profits Before Taxes as per National Income and Expenditure Accounts

	1967
	millions of dollars
1. **Book profits (net of losses) after tax**	4,981[1]
Add back:	
2. Depreciation, depletion and amortization	3,611
3. Reported provision for income taxes	2,605
4. Capital losses, write-offs, etc., excluded from book profits	66
5. Charitable and other contributions	78
6. Reported provision for provincial mining and logging taxes	53
7. Other adjustments (net)[2]	453
8. **Sub-total**	11,847
Deduct:	
9. Canadian dividends received by Canadian corporations	– 1,138
10. Capital gains included in book profits	– 234
11. **Sub-total – Base profits (before taxes)**	10,475
Deduct:	
12. Government business enterprises tabulated in above totals	– 183
13. Bank base profits as estimated in above totals	– 311
14. Other adjustments (net)[3]	– 338
15. **Sub-total**	9,643
Add:	
16. Calendar year adjustment	110
17. **Adjusted base profits (before taxes)**	9,753
Add:	
18. Banks and insurance companies	442
19. Co-operatives	66
20. Bad debts	53
21. **Gross profit as per National Income and Expenditure Accounts**	10,314
Less:	
22. Capital consumption allowances as per National Income and Expenditure Accounts[4]	– 3,491
Equals:	
23. Corporation profits before taxes as per National Income and Expenditure Accounts (Table 1, line 3)	6,823

[1] *Corporation Financial Statistics, 1967,* Statistics Canada Catalogue 61-207, Table 2, (p.47).

[2] Includes all mining development and exploration costs charged to current account, and other miscellaneous adjustments.

[3] Includes geological and geophysical survey costs charged to capital account by business but not regarded as gross fixed capital formation in the National Income and Expenditure Accounts.

[4] According to the concepts adopted in these Accounts, all depletion charges should be excluded from this figure. However, it has not been possible to remove them completely because of statistical difficulties.

In the actual preparation of the corporation profits estimates, the adjustments are carried out on an industry basis. Table 7-3 is a summary table which brings together and consolidates all of the adjustments for all industry groups. These adjustments, of course, vary considerably from industry to industry – for example, there are major adjustments made to the mining industry group which are not required in other industry groups.

Corporate book profits, net of losses and after provision for income taxes (line 1) are obtained from *Corporation Financial Statistics*.[4] To this figure is added depreciation, depletion and amortization charges as reported on the company's books (line 2). Depletion charges are added back since, as described in Chapter 3, the exhaustion of natural resources is not regarded as a charge against the National Income. Depreciation and amortization charges are also added back here, but an appropriate deduction for capital consumption allowances as determined for these Accounts is made at a later stage in line 22. Reported provision for income taxes is also added back (line 3). This figure will not agree with the corporation income tax figures shown in the government sector accounts, since the latter reflect actual collections or current tax liabilities, while business book figures may include provisions for deferred taxes. Capital losses, write-offs, and various bookkeeping adjustments which are charged against current income on company books are also added back (line 4). All windfall gains or losses are excluded from these Accounts since they have no counterpart in current productive activity; write-offs and purely bookkeeping adjustments are ignored for the same reason. Charitable and other contributions made by corporations (line 5), also deducted as an expense by business, are added back here on the grounds that they are not a direct cost of production but merely a distribution of earnings (a transfer payment) as noted in Chapter 3. Provincial mining and logging taxes (line 6), which may be treated as an operating expense by business, are also added back here since they are defined in the Accounts as direct taxes paid to the government sector (see Chapter 3). Other adjustments (line 7) include mining development and exploration costs, some of which are written off as current expenses by business, but which are treated in the Accounts as Gross Fixed Capital Formation, as noted in Chapter 3.

Among the deductions required to move to the concept of base profits before taxes, is the deduction of Canadian dividends received by Canadian corporations (line 9). These are eliminated, as noted in Chapter 3, in order to avoid double counting; the dividends received by a corporation and included in its book profits have already been counted in the book profits of the paying corporation. Capital gains included in book profits are also deducted here (line 10), since such capital gains do not reflect incomes earned by the factors of production from current productive activity.

The foregoing adjustments, consisting of both additions to and deductions from the figures of book profits after tax submitted by corporations (published in *Corporation Financial Statistics*), yield the sub-total given in line 11, "base profits" (before taxes). Further adjustments are then made to this figure to arrive at the estimate of corporation profits before taxes included in the Accounts. Any profits of government business enterprises (crown corporations) which have been tabulated in the above totals are

[4] Statistics Canada Catalogue 61-207.

removed (line 12). A deduction is made to eliminate profits of the chartered banks (line 13), and a separately calculated estimate of bank profits, together with the profits of insurance companies, is added back in line 18 of the table. Other deductions include geological and geophysical survey costs charged to capital account by business but which are regarded as current expenses in the National Income and Expenditure Accounts (line 14). An adjustment to convert the estimates to a calendar year basis is made in line 16. In line 19, the profits of cooperatives are added, since these are included with corporation profits in the National Income and Expenditure Accounts, as was indicated in Chapter 3. Bad debts owed by persons to corporations and written off on company books are added back here (line 20) since, as was noted in Chapter 3, they are treated in these Accounts as a transfer payment from corporations to persons. In line 22, capital consumption allowances as per the National Income and Expenditure Accounts are deducted.

The net result of this rather complicated set of adjustments in Table 7-3 is the figure of corporation profits before taxes (line 23) as presented in the National Income and Expenditure Accounts (see also Table 1, Volume 1, line 3). The adjustment of this figure to a Gross Domestic Product basis is shown in Table 7-2 (for the year 1961). A breakdown of this figure into major industrial groups is given in Table 34 of Volume 1. An analysis of corporation profits before taxes, showing the amounts paid out as taxes to governments, the payment of dividends to residents and non-residents, other distributions of earnings, and undistributed corporation profits, is given in Table 56 of Volume 1.

Interest and miscellaneous investment income (Table 20, line 1) – As Chapter 3 has indicated, this component of the income of the corporate and government business enterprise sector is made up basically of three elements: the interest and miscellaneous investment income of persons which originates in this sector; the investment income of governments which originates in this sector; and a major adjustment needed to eliminate from the National Income all interest on the public debt as well as the transfer portion of interest on consumer debt (see Chapter 3, page 72).[5] The figures are not independently prepared for the corporate and government business enterprises sector, but are "derived" by re-grouping and re-arranging estimates which are prepared for other areas of the Accounts. Because of the rather heterogenous nature of this estimate, and the fact that its principal constituent parts are described elsewhere in this report, the simplest way of dealing with it is to show the linkages to other components of the Accounts, with appropriate cross-referencing and explanations. The reader may then turn to the appropriate section of this report. Table 7-4 shows the derivation of the estimates for the year 1961.

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[5] Some interest on the public debt and on consumer debt is included in corporation profits. The total interest on the public debt and the transfer portion of interest on consumer debt are, however, subtracted from interest received by persons and governments. Corporation profits therefore include the amount of interest on the public debt and the transfer portion of interest on consumer debt received by corporations while the interest income of persons and governments is understated by this amount.

TABLE 7-4. Interest and Miscellaneous Investment Income

	1961
	millions of dollars
Interest, dividends, and miscellaneous investment income of persons:	
1. From corporate and government business enterprises (Table 12, line 9). .	2,132
Deduct:	
2. Dividends paid to Canadian residents (Table 56, line 10)[1]	– 426
3. **Sub-total, interest and miscellaneous investment income of persons (excluding receipts from non-residents)**	**1,706**
Government investment income:	
4. Remitted profits of government business enterprises (Table 16, line 10) .	104
5. Interest and miscellaneous investment income from business (Table 16, line 11).	573
6. Direct taxes on government business enterprises (Table 21, line 5)	20
7. Unremitted profits of government business enterprises (Table 21, line 11)	111
8. **Sub-total, government investment income (excluding receipts from non-residents)**	**808**
Adjustments to eliminate interest on the public debt and consumer debt:	
Deduct:	
9. Interest on the public debt (Table 17, lines 12 and 13).	– 1,184
10. Transfer portion of interest on consumer debt (Table 13, line 8). . . .	– 130
11. **Sub-total, adjustments**	**– 1,314**
12. **Total interest and miscellaneous investment income originating in corporate and government business enterprises sector, sum of sub-totals[2]**. . . .	**1,200**
Adjustment to Gross Domestic Product basis:	
Deduct:	
13. Interest and dividends received from abroad	– 33[3]
Add:	
14. Interest paid abroad	316
15. **Total interest and miscellaneous investment income included in Table 20, line 1**	**1,483**

[1] Dividends are implicitly included with corporation profits in Table 20.

[2] Total interest and miscellaneous investment income included in national income of $1,284 in 1961 (as shown in Table 1, line 5) can be derived by adding to this figure the interest and miscellaneous investment income receipts of persons from non-residents ($51 million) and of governments from non-residents ($33 million).

[3] This figure differs from the adjustment of $-117 million shown in Table 7-2 by an amount equal to the receipts of persons and governments from non-residents noted in footnote 2 above.

Estimates of interest, dividends, and miscellaneous investment income of persons are prepared in connection with the calculations of the total income of the persons and unincorporated business sector. The greater part of this component of personal income originates in the corporate and government business enterprise sector, and is paid out by this sector (Table 7-4, line 1). A detailed description of the sources and methods underlying this part of the estimate is provided in the present chapter, in the discussion of the outlay account of the corporate and government business enterprise sector (Table 21, line 1). However, as will be noted in Table 7-4, in assembling the estimates and integrating them with the income side of the corporate and government

business enterprise sector account, it is necessary to eliminate dividends paid to Canadian residents (Table 7-4, line 2). This is because such dividends are already implicitly embodied in the estimates of corporation profits before taxes which are included elsewhere in the income account of this sector.

Estimates of government investment income originating in this sector are prepared mainly in connection with the estimates of government revenue described in Chapter 6. The greater part of the estimate is made up of profits of government business enterprises and interest and miscellaneous investment income paid by business to governments. These estimates, together with the small amount of taxes paid by government business enterprises, are described in Chapter 6 and do not require further elaboration here.

The adjustment to eliminate interest on the public debt and on consumer debt (Table 7-4, lines 9 and 10) requires some explanation. These receipts of interest are implicitly included, in amounts which for the most part cannot be separately determined,[6] in four places in these Accounts; in corporation profits; in interest, dividends, and miscellaneous investment income of persons; in government investment income; and in receipts of non-residents. The adjustment has a three-fold effect. First, it removes all of the transfer portion of interest on the public debt and on consumer debt from National Income. Second, since some interest on the public debt and on consumer debt is included in corporation profits, and since the subtraction is made entirely from the interest received by persons and governments, the interest income of persons and governments as recorded here is understated, and the interest income of corporations (embodied in profits) is overstated. Third, it reduces domestic income and product by the amount of public debt interest paid to non-residents. Interest on the public debt paid to non-residents represents a direct claim by non-residents on the pool of goods and services produced domestically. The deduction is balanced, on the expenditure side of the Accounts, by an entry under "imports of goods and services". The mechanics of these adjustments and their effects on the main aggregates are shown in Table 7-5.

It is emphasized that the adjustments to the income and expenditure flows as indicated in Tables 7-4 and 7-5 are made to those components of the Accounts which enter directly into the National Income and Gross National Expenditure. The primary purpose is to avoid including the "transfer" portion of debt interest payments in the measurement of production, and in the earnings of the factors of production (i.e., the National Income). But this does not mean that the transfer payment elements of debt interest are excluded altogether from the Accounts. Indeed, these amounts must be shown as **transfer payments** within the sectoring system if total incomes and outlays arising from production and earnings as well as from redistributions of income are to be fully reflected in the Accounts. Thus, the transfer portion of interest on the public debt, and on consumer debt, appears explicitly as income in the corporate and government business enterprises sector (Table 20, lines 4 and 5), as a current transfer from the government sector (Table 17, line 12) and as a current transfer from the persons and unincorporated business sector (Table 13, line 8).

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[6] Except for interest on the public debt received by non-residents.

TABLE 7-5. Debt Interest Adjustments in National Income and Gross National Expenditure

	1961		1961
	millions of dollars		millions of dollars
Omitted from National Income flows as a transfer payment:		Omitted from Gross National Expenditure flows as a transfer payment:	
Transfer portion of:		Government current expenditure on goods and services (public debt interest omitted)	1,044
Public debt interest	1,044		
Consumer debt interest	130	Personal expenditure on consumer goods and services (consumer debt interest omitted)	130
Total	1,174	Total	1,174
Deducted from National Income flows:		Deducted from Gross National Expenditure flows as payments to non-residents:	
Public debt interest paid[1] to non-residents	– 140	Imports of goods and services	– 140

[1] Interest on that portion of the public debt which is paid abroad is regarded in these Accounts as a part of the earnings of non-residents. This treatment continues the practice followed in the previous set of Accounts, described in *National Accounts, Income and Expenditure, 1926-1956,* paragraph 83, p. 115. An alternative treatment of this item (which has been considered from time to time) would be to regard such amounts as a part of the earnings of Canadian residents which are paid out to non-residents as transfer payments.

Because information is not available to separately distinguish government debt interest payments made to persons from those made to businesses and to governments, it has been necessary to route all of the transfer payment portion of government debt interest originating in the government sector through the corporate and government business enterprise sector, rather than to have it shown as being paid directly by the government sector to each of the individual sectors involved. It is, however, possible to obtain reasonable estimates of **total** interest received by persons, businesses, and governments without regard to the source of the interest. Accordingly, the transfer payment portion of debt interest is consolidated with all other investment income revenues in the corporate and government business enterprises sector, and re-routed through the outlay side of this account to the particular sector receiving the income.

Inventory Valuation Adjustment[7] (Table 20, line 2)

The nature of the inventory valuation adjustment was described in Chapter 3. As was indicated in that chapter, the change in the value of inventories entered in Gross National Expenditure should be measured in terms of the average market price prevailing in the period, and the estimates of profits of corporations or net incomes of unincorporated business enterprises on the income side should reflect this principle of valuation. In practice, however, the bulk of the inventory figures, and the estimates of profits (and to some extent of net incomes) are based on reported book values from the accounting records of business firms. Business accounting procedures ordinarily involve quite different methods of inventory valuation from those required in the Accounts, and changes in recorded business inventory book values and in profits and net incomes will frequently include an element of capital gain or loss which simply reflects the effects of rising or falling prices on recorded book values of inventory stocks. Thus, in periods of rising prices, the recorded money value of the "book change" in inventories will increase by more than the physical change in inventories valued at average market or replacement cost prices. This is because in computing the book value change, business firms typically record beginning-of-period inventories at original cost, while recording purchases and sales out of inventories at the higher price. The element of capital gain (or stock appreciation) involved and reflected in profits is not related to the measurement of current production, and the valuation procedures are not consistent with the way in which other flows and transactions in the National Accounts system are valued. Conversely, during periods of falling prices, an inventory "loss" may be recorded which again is unrelated to the measurements required in these Accounts.

The inventory valuation adjustment is accordingly designed to remove from the National Income any such capital gains or losses resulting from the inventory accounting procedures of business firms. The adjustment is entered explicitly on the income side of the Accounts as a negative or positive entry (Table 1, line 8, and Table 20, line 2). On the expenditure side, the change in inventories is shown **net** of the inventory valuation adjustment and is called "the value of physical change in inventories".

It may be noted that this adjustment applies almost wholly to the change in business non-farm inventory stocks (Table 2, line 14, and Table 23, line 2), but a very small portion is applicable to stocks of grain in the hands of private commercial dealers. No inventory valuation adjustment is required for changes in farm-held inventories since these estimates are not based on "book values" but rather on a direct calculation of the value of the physical change.

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[7] All of the inventory valuation adjustment is assigned to the corporate and government business enterprise sector in these Accounts. In principle, both the change in non-farm business inventories and the inventory valuation adjustment should be apportioned between the corporate and government business enterprise sector and the persons and unincorporated business sector. In fact, the data are not available to permit the split.

The procedures which are used in these Accounts to estimate the book value holdings of inventories, and to adjust these figures to derive the appropriate "inventory valuation adjustment" and the "value of physical change in inventories" are at present carried out separately for more than 100 components or industry groups. The steps involved essentially require that the book values of each industry group be "deflated" by an appropriate price index for the relevant turnover period and expressed in the "constant" dollar prices of some base year; and that the change in these constant dollar (or physical volume) figures of inventories then be re-valued by the use of price indexes which reflect the average market price prevailing in the period for which the Accounts are being calculated.

In the following discussion, some of the problems which arise in connection with the inventory estimates and the inventory valuation adjustment procedures are outlined. One basic problem is that accounting practices by individual firms may differ. The difficulties caused by this lack of standardization are compounded in these Accounts because of the need to work with data at a considerable level of aggregation, because it is not always possible to obtain information on the commodity composition of inventory stocks, because the available price data may not always be a suitable match for the content of the estimates, and because it is not always possible to determine with accuracy the period of time over which the level of stocks has been built up. Consequently, a good many assumptions must be employed in carrying out the adjustments, and the user should be aware of the approximate nature of the estimates. It is emphasized, too, that the "value of physical change in inventories" which enters these Accounts is based on the **change in the level of stocks** over the period in question – in other words, investment in inventories in 1972 is equal to the change in the level of inventory **stocks** between December 31, 1971 and December 31, 1972. As a result, fairly small errors in estimating the book values of **stocks**,[8] as well as in carrying out the adjustments to these figures, can lead to relatively large errors in the estimates of **changes** in inventory. The inventory estimates must therefore be regarded as being subject to a relatively greater margin of error than the other estimates in these Accounts.

Some comment on business inventory accounting procedures and their relevance to these estimates is appropriate at this point. The FIFO (first in-first out) method of inventory accounting assumes for costing purposes that the goods are charged to production or sales in the order of their acquisition. When prices are changing, therefore, a physical unit of stock is charged out at a different price than that at which its replacement is acquired, with the result that there will be a change in the book value of stock holdings even if there is no change in the number of physical units held. It is implicit in this valuation procedure that the change in book value between the beginning and end of the period will contain an element of gain or loss on inventory account which it is not appropriate to record as a part of the National Income.

The LIFO (last in-first out) method of inventory valuation assumes that the goods charged out first are the goods last acquired. This method of valuation approximates that of charging out withdrawals at replacement cost and is generally more consistent with national accounting requirements.

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[8] For example, at the end of 1972 the book value of non-farm business inventory stocks exceeded $20 billion. Small errors in the stock estimates can lead to very substantial errors in the inventory change estimates.

However, LIFO is not an acceptable method of inventory valuation for taxation purposes in Canada and it does not appear to be used to any significant extent by business firms for carrying an inventory value on their books. The method is at present disregarded in the National Accounts estimating procedures.

The "average cost" method allows for recalculation of the cost of goods through time so that goods charged out to sales or production will reflect in large part most recent prices. There are different techniques by which this cost may be determined, but the effect is to establish a cost for goods consumed somewhere between the original cost of a FIFO method and the replacement cost of LIFO, so that an inventory adjustment is again necessary.

The lower of cost or market method of valuation may be used with any of the above accounting methods and is frequently used in conjunction with the FIFO method. The inventory book value is written down if current market prices are lower than the cost of the inventories as established under the normal accounting procedure in use. But even when market prices are used to value inventories, an inventory valuation adjustment may be necessary since the market price at the end of the period may differ from the average price over the whole period as required for the National Income and Expenditure Accounts estimates.

In preparing the estimates for these Accounts, while the nature of the required adjustments is relatively straightforward, the extent to which they should be applied to the existing book value estimates can only be determined from available information in an approximate way. Generalizations and assumptions must be made in many cases where the method of valuation in use is unclear, where the time period over which the stocks have been built up can only be roughly estimated, where information on the commodity content of inventories and the numerical importance of commodity groups is incomplete, or where imperfectly matching price information must be used to provide the "deflator" or the "revaluer" for the inventory figures.

Table 7-6 outlines the steps involved in carrying out the inventory valuation adjustment. The discussion which follows is built around this Table. It may be noted that the basic data from which Table 7-6 is developed are identical to the figures given in the illustration of the business inventory account in Table 3-7 of Chapter 3. The reader may wish to refer back to this earlier chapter, and to relate these figures to the results set out in Table 7-6.

Step 1 – The first step is to estimate the book values of inventory stocks. This process is carried out in considerable detail for a large number of industry groups. In manufacturing, wholesale and retail trade (which make up about 90% of non-farm business inventory holdings), the estimates are assembled by stage of fabrication, in the case of manufacturing – raw materials, goods in process, and finished goods; and by kind of business in the case of trade. The estimating procedures used to derive inventory book values are described more fully later in this chapter.

Step 2 – The second step is to construct a weighted price index for deflating inventory book values. This step involves knowledge of the commodity composition of inventory book values, the change in the price of

TABLE 7-6. Steps in Inventory Valuation Adjustment Procedure

Based on the hypothetical example illustrated in Table 3-7 of Chapter 3

Step		Dec. 31, 1971	Dec. 31, 1972	Year-to-year change
1.	Enter reported book values . . . . . $	400	650	
2.	Establish the relevant price index for deflating book values . . . . . %	100.0	130.0	
	$	(4.00)	(5.20)[1]	
3.	Calculate the constant dollar book value . . . . . $	400	500	
4.	Calculate year-to-year change in constant dollar book value . . . . . $			+ 100
5.	Establish a "revaluer" price index based on weighted average prices during period . . . . . %	100.0	137.5	
	$	(4.00)	(5.50)[2]	
6.	Calculate value of physical change on basis of weighted average (revaluer) prices . . . . . $			+ 137.50
7.	Enter year-to-year change in reported book values (from Step 1) . . . . . $			+ 250.00
8.	Calculate inventory valuation adjustment as Step 6 minus Step 7 . . . . . $			– 112.50

[1] End of period book value of $650 divided by 125 units equals book value price of $5.20 per unit (see Table 3-7). In actual practice, working with aggregative data, the number of units and price per unit cannot be known. A synthetic "deflator" price index, weighted according to the best information available on composition and turnover period must therefore be constructed in order to arrive at the "quantum" or constant dollar book value estimate in Step 3.

[2] Average current "replacement cost" price prevailing in period equals weighted average of 25 units at $4.00 ($100) and 75 units at $6.00 ($450) to yield $5.50 per unit (see Table 3-7).

these commodities, and the time period over which the stocks have been acquired based on the rate of turnover of inventory holdings. For manufacturing and wholesale trade, the price information is based on components of the wholesale price index compiled by the Prices Division of Statistics Canada. For retail trade, components of the consumer price index are used. Other series are deflated with information from the wholesale price index, or in some cases, industry selling price indexes. Turnover periods are estimated from time-to-time on the basis of information from census of industry or from sample surveys.

Step 3 – This step involves calculating the constant dollar book values in terms of base period prices so that a measure of the change in the physical volume of inventories can be derived in Step 4. This is done by "deflating" the book value figures established in Step 1 with the price deflator established in Step 2.

Step 4 – This step simply records the year-to-year change in the physical volume of inventories expressed in constant base year prices. (In Table 3-7, it will be noted that the number of physical units held at the beginning of the

period – December 31, 1971 – was 100, and at the end of the period – December 31, 1972 – was 125. Expressed in the base year price of $4.00 per unit, this yields constant dollar book values of $400 and $500 respectively, with a change in constant dollar book values of $100.)

Step 5 – This step involves the calculation of an index to reflect average market prices over the period with which to revalue the change in constant dollar book values from Step 4. The method used in the example is to calculate the average weighted "replacement cost" price of the inventories purchased over the period.

Step 6 – This step records the value of the physical change in inventories obtained by applying the revaluer price index from Step 5 to the constant dollar (physical volume) change in inventories established in Step 4. The resulting figure is the appropriate concept for recording changes in inventories in the National Income and Expenditure Accounts. The changes in all non-farm business inventories shown in these Accounts are presented on this basis, as "the value of physical change".

Step 7 – This step simply shows the year-to-year change in reported book values, from Step 1.

Step 8 – The difference between the value of the physical change in inventories (Step 6) and the change in reported book values (Step 7) is the inventory valuation adjustment. This amount – in this case a negative adjustment – must be entered on the income side of the Accounts in order to remove from the National Income (as reflected in corporation profits and net incomes) the element of gain recorded in book figures which reflects stock appreciation.

Capital Assistance from Government (Table 20, line 3)

This component of the income account originates as a transfer from the government sector to the corporate and government business enterprise sector. The sources of the data, and the content of the estimates are described in Chapter 6, "The Government Sector" (Table 17, line 8).

Interest on the Public Debt (Table 20, line 4)

This is the transfer portion of interest on the public debt which is omitted in calculating the National Income. The treatment of this particular component of the Accounts was discussed earlier in this chapter in connection with Table 7-5. It is also discussed in Chapter 6 in connection with Table 6-12, and in Chapter 3. The amount originates as a transfer payment from the government sector to the corporate and government business enterprise sector (Table 17, line 12). The sources of the data are described in Chapter 6.

Interest on Consumer Debt (Table 20, line 5)

A part of the interest on consumer debt is also regarded as a transfer payment and omitted in calculating the National Income. The general treatment was discussed earlier in this chapter in connection with Table 7-5. It

was also discussed in Chapter 5 in connection with the outlays of the persons and unincorporated business sector where it originates (Table 13, line 8), and in Chapter 3. This section provides a brief outline of the sources and methods underlying the estimates.

Interest on consumer debt is divided into two parts in these Accounts: a so-called "non-productive" portion, or transfer portion equivalent to the pure interest charges on the debt which finances consumer goods; and a "productive" portion equivalent to that part of the interest charge which covers the administrative expenses incurred by businesses in rendering consumer credit services to borrowers. The latter portion is included in personal expenditure on consumer goods and services, and in Gross National Product. The transfer payment portion is that portion which is included in this table as a transfer from the persons and unincorporated business enterprise sector to the corporate and government business enterprises sector.

The estimates of total consumer debt interest are assembled from a variety of sources covering sales finance companies, department stores and other retail dealers, small loan companies, chartered banks, Quebec savings banks, and credit unions. Some of these sources provide direct figures of actual interest receipts, and some of them provide only figures on consumer credit outstanding to which interest rates must be applied to obtain estimates of consumer debt interest. Among the sources used are: *Consumer Credit*, Catalogue 61-004; *Credit Unions*, Catalogue 61-209; reports of the Superintendent of Insurance; earnings statements of the chartered banks; and information from the Department of National Revenue. The estimates of total consumer debt interest as calculated from these various sources are then broken down into a "productive" and "non-productive" (or transfer payment) portion on the basis of relationships established between gross interest revenues on consumer loans, administrative expenses, and net interest revenues on consumer loans.

Interest Dividends, and Miscellaneous Investment Income from Non-residents (Table 20, line 6)

This amount represents the business share of total interest, dividends and miscellaneous investment income received from non-residents. It is discussed further in Chapter 8 "The Non-resident Sector".

TABLE 7-7. Interest, Dividends and Miscellaneous Investment Income from Non-residents

	1961
	millions of dollars
Received by business	216
Received by government	33
Received by persons	51
Total	300

The Income and Outlay Account: Outlay (Table 21 of Volume 1)

The outlay side of this account shows how the sector's total income is disposed of – as distributed earnings, in the form of interest, dividends and other types of investment income to persons, governments and non-residents; as taxes paid or owing to the government sector; as transfer payments to persons; or as saving.

Interest, Dividends, and Miscellaneous Investment Income Payments to Persons (Table 21, line 1)

It was noted in the discussion of Table 7-4 earlier in this chapter that this component of the Accounts ($2,132 million in 1961) is prepared in connection with the estimates of the income of persons and unincorporated businesses. While the amounts involved are paid out by the corporate and government business enterprises sector, the calculation of the estimates and the underlying sources and methods are developed and discussed here from the point of view of the income of this other sector.

The estimates are prepared in three parts:

(a) interest income of persons;

(b) dividend income of persons; and

(c) miscellaneous investment income of persons

The section which follows describes the sources and methods on which these estimates are based.

(a) Interest income of persons – Interest income of persons includes **Canadian bond interest** received by persons; **mortgage interest** accruing to persons; **interest on deposits** received by persons; and **imputed interest** of persons.

In estimating **Canadian bond interest** received by persons, a residual technique is employed. The total of bond interest paid out is calculated by assembling data on bond interest paid by corporations, government business enterprises, and the various levels of government. From this total is deducted bond interest received by corporations, government business enterprises, banks, insurance companies, trusteed pension funds, the various levels of governments, and non-residents. The difference is taken to represent net bond interest received by persons.

Estimates of bond interest paid and received by corporations other than banks and insurance companies are based on information from the Department of National Revenue. Estimates of bond interest paid and received by government business enterprises are based on information from *Federal Government Enterprise Finance*, Catalogue 61-203, *Provincial Government Enterprise Finance*, Catalogue 61-204, and unpublished information compiled within Statistics Canada. Estimates of bond interest paid and received by the various levels of government are based on information assembled from the

Public Accounts and financial statements of governments. Estimates of interest paid and received by the chartered banks are based on information from the Bank of Canada and the Inspector General of Banks. The estimates for insurance companies are based on information from reports of the Superintendent of Insurance, and for trusteed pension plans, on information from *Trusteed Pension Plans, Financial Statistics*, Catalogue 74-201. Estimates of bond interest received by non-residents are obtained from the Balance of Payments Division of Statistics Canada.

Mortgage interest accruing to persons is one of the least satisfactory of the estimates included in the investment income figures. For the period from 1952 to the present, figures of mortgage interest of persons were basically derived from information supplied by the Central Mortgage and Housing Corporation on estimated mortgage holdings of individuals. An effective rate of interest for each year was determined (linked to National Housing Act rates and rates charged by mortgage loan companies) and applied to these holdings to arrive at the mortgage interest received by persons. Prior to 1952, the calculations are based on more fragmentary information drawing on data from Central Mortgage and Housing Corporation and other sources.

Interest on deposits received by persons are paid by five different types of institutions: chartered banks; credit unions; Quebec savings banks; trust companies; and mortgage companies. The estimates of chartered bank deposit interest received by persons are prepared in the Bank of Canada. Interest on credit union deposits is based on data from the Business Finance Division's report, *Credit Unions*, Catalogue 61-209. Data on deposit interest paid by Quebec savings banks are taken from the annual reports of those institutions. Deposit interest paid by trust and mortgage companies is estimated from data received from the Bank of Canada and from information in the report *Financial Institutions, Financial Statistics*, Catalogue 61-006.

As was noted earlier in this chapter, financial institutions, (e.g., chartered banks, credit unions, and trust and mortgage companies) render services to their depositors for which no specific charge is made. Accordingly, an imputed value for their services is calculated and added to the estimates of investment income of persons as **imputed interest**.

Total imputed interest paid by chartered banks is calculated in accordance with National Accounts concepts, as the difference between Canadian dollar interest received and interest paid by the chartered banks. This total (excluding the non-resident portion) is then allocated between persons, corporations and government on the basis of the deposit holdings of each sector. The estimates are based on financial statements compiled by the Inspector General of Banks and the Bank of Canada.

Imputed interest paid by credit unions is again essentially calculated as the difference between estimates of interest received and interest paid. The basic data are taken from the report *Credit Unions*, Catalogue 61-209.

Imputed interest of federally supervised trust and mortgage companies is also calculated as the difference between interest received and interest paid. The basic information is from annual reports of the Superintendent of Insurance. The allocation to personal depositors is made by applying the ratio of the personal portion of deposits and guaranteed investment certificates to total deposits and guaranteed investment certificates. The resulting imputed

interest to persons is adjusted to include non-federally supervised trust and mortgage companies, using the ratio of total assets of all companies to assets of the federally supervised companies as obtained in Business Finance Division publication *Financial Institutions, Financial Statistics*, Catalogue 61-006.

(b) Dividend income of persons – Canadian dividends received by persons (including associations of individuals) are estimated residually. The approach is to subtract dividends received by Canadian corporations (except dividends received by life insurance companies) and dividends paid abroad from total dividends paid by Canadian corporations. Basic data on dividends paid and received by corporations and banks (other than insurance companies) are obtained from tabulations of the Department of National Revenue, the Bank of Canada, or in connection with the operation of the Corporations and Labour Unions Returns Act. For insurance companies, the data are obtained from the reports of the Superintendent of Insurance for Canada. The Balance of Payments Division supplies data on dividends paid to non-residents.

(c) Miscellaneous investment income of persons – In addition to investment income received by life insurance companies, fraternal societies and trusteed pension plans, this component includes some miscellaneous categories of income which are relatively small. These are: royalties; interest on the federal government annuities account; and profits and interest of mutual non-life insurance companies.

The personal savings accumulated in the funds of life insurance companies, fraternal societies, and trusteed pension plans give rise to investment income which accrues on behalf of individuals. In order not to omit this investment income from personal income, these institutions are treated as "associations of individuals" in these Accounts insofar as their investment function is concerned. Their investment income is included in "interest, dividends and miscellaneous investment income of persons".

Information on the investment income of federally-registered life insurance companies is obtained from the reports of the Superintendent of Insurance for Canada. Investment income accruing to non-Canadian policy-holders is excluded on the basis of the ratio of assets out of Canada to total assets of Canadian companies. The total thus obtained is adjusted to take into account investment income of provincially-licensed companies. Real estate expenses and taxes, including depreciation, and interest on policy loans are deducted from the total. Dividends received from domestic sources are also deducted since they are included with dividends received by persons.

Investment income of federally-registered fraternal and mutual benefit societies is based on the same source as that of life insurance companies. Income accruing to foreign policy-holders is excluded on the basis of premium income. The investment income of provincially-registered societies is based on information contained in reports of the provincial departments of insurance. Information on the investment income of trusteed pension plans is obtained from *Trusteed Pension Plans, Financial Statistics*, Catalogue 74-201. Dividend income is excluded since it is included with dividends received by individuals.

Royalties received by persons are estimated from information supplied by the Department of National Revenue, the Department of Energy, Mines and Resources and the manufacturing and Primary Industries Division of

Statistics Canada. Interest on the government annuities account is taken from the Public Accounts of the federal government. Since the interest accrues to individuals, it is included here, rather than with government investment income. Data on profits and interest of mutual non-life insurance companies are obtained from the Department of Insurance.

Profits remitted by Government Business Enterprises (Table 21, line 2)

This item of outlay has a counterpart in the income of the government sector. The sources and methods underlying the government estimates are discussed in Chapter 6 "The Government Sector". The nature and content of the item is described in connection with the discussion of Table 16, line 10, in Chapter 6.

Interest on Government Loans, Advances and on Public Funds (Table 21, line 3)

This component of outlay also has a counterpart in the income of the government sector. The content of the item is set out in Table 6-9, and the estimate is furtherdescribed in connection with Table 16, line 11, in Chapter 6.

Interest, Dividends and Miscellaneous Investment Income Payments to Non-residents (Table 21, line 4)

This component consists basically of interest and dividend payments to non-residents by the corporate and government business enterprise sector. It forms a part of the total adjustment for interest and dividends paid abroad required to convert Gross National Product at Market Prices to a Gross Domestic Product basis (Table 4-2), the balance being made up of interest on the public debt which is paid to non-residents. Each of these items has a counterpart in Table 24 (lines 4 and 5) which deals with the income of the non-resident sector, as indicated in Table 7-8.

TABLE 7-8. Interest and Dividends paid to Non-residents

	1961
	millions of dollars
By business (Table 24, line 4)	882
By government (Table 24, line 5)	140
Total	1,022

Direct Taxes (Table 21, lines 5, 6 and 7)

These tax outlays of the corporate and government business enterprises sector consist of direct taxes paid by government business enterprises; direct taxes paid by corporations; and the excess of corporation tax liabilities over

tax collections. The amounts involved are entered as income in the government income account, Table 16 (lines 4, 5 and 6). The nature and content of the estimates are described in Chapter 6 "The Government Sector" in connection with the discussion of Table 16.

Charitable and Other Contributions (Table 21, line 8)

This item of outlay of the corporate and government business enterprises sector forms a part of the income of the persons and unincorporated business sector discussed in Chapter 5. The estimates are based on information from compilations of Department of National Revenue data. Included in the figures are both charitable contributions and other donations such as contributions to political parties made by corporations and deducted as an expense in arriving at book profit.

Bad Debts (Table 21, line 9)

This item of outlay is regarded as a transfer payment from the corporate and government business enterprises sector to the persons and unincorporated business sector, and is mentioned in Chapter 5 in connection with the income of that sector. For most industries, the total of bad debts written off is based on information from surveys and tabulations of Department of National Revenue data by the Business Finance Division. The ratios covering amounts applicable to persons as distinct from businesses are obtained from census information or survey data. For some industrial groups such as banks, bad debt ratios determined by the institutions themselves are applied to outstanding loan or receivable balances.

Saving (Table 21, lines 10, 11, 12 and 13)

The saving of the corporate and government business enterprises sector is made up of undistributed corporation profits, the unremitted profits of government business enterprises, the inventory valuation adjustment, and capital assistance from government. Each of these elements in the sector's saving is discussed below.

Undistributed Corporation Profits (Table 21, line 10)

Undistributed corporation profits are calculated residually, being the amount of corporate earnings retained after payment of taxes, distribution of dividends to Canadian residents and to abroad, and various transfer payments. The derivation of the figures, based on Table 56 of Volume 1, "Analysis of Corporation Profits" is shown in Table 7-9. The sources of all of the data which make up this table are described elsewhere in this report.

Unremitted Profits of Government Business Enterprises (Table 21, line 11)

This component of the sector's saving is simply the retained portion of the profits of government business enterprises after the remission or distribution of earnings to the government sector. The sources and methods underlying the estimates are discussed in Chapter 6, "The Government Sector", in connection with Table 16.

TABLE 7-9. Analysis of Corporation Profits

	1961	1967
	millions of dollars	
Corporation profits before taxes (Table 1, line 3)	4,066	6,823
Deduct:		
Corporation income tax liabilities	– 1,629	– 2,382
Federal excess of liabilities over collections	(– 58)	(+ 65)
Provincial excess of liabilities over collections	(– 20)	(– 27)
Federal tax collections	(– 1,267)	(– 1,809)
Provincial tax collections	(– 284)	(– 611)
Equals:		
Corporation profit after taxes	2,437	4,441
Deduct:		
Dividends paid to non-residents	– 622	– 874
Equals:		
Corporation profits after taxes retained in Canada	1,815	3,567
Deduct:		
Dividends paid to Canadian residents[1]	– 426	– 817
Deduct:		
Transfer Payments:		
Charitable contributions	– 49	– 78
Bad debts	– 26	– 53
Equals:		
Undistributed corporation profits	1,314	2,619

[1] Does not include inter-corporate dividends paid by one resident corporation to another.

Inventory Valuation Adjustment (Table 21, line 12)

The inventory valuation adjustment is explained earlier in this chapter, and in Chapter 3. It is entered here in order to eliminate inventory gains or losses from the saving of the corporate and government business enterprises sector.

Capital Assistance from Government (Table 21, line 13)

This element of saving of the corporate and government business enterprises sector represents contributions by governments toward the financing of the sector's gross fixed capital formation. The item is shown as an outlay of the government sector and is described in Chapter 6 in connection with the discussion of Table 17.

The Capital Finance Account (Tables 22 and 23 of Volume 1)

The capital account of the corporate and government business enterprises sector assembles all elements of the sector's saving, and shows how this saving is used to finance the sector's investment in physical assets, i.e., investment in gross fixed capital formation and in inventories. Any shortfall or excess of saving in relation to these financing requirements for investment in physical assets represents the sector's net borrowing from or lending to other sectors (i.e., net dis-investment or investment in financial assets).

It has been noted previously that investment in physical assets by the corporate and government business enterprises sector covers only a part – though the major part – of total gross capital formation in Canada. Both the government sector and the persons and unincorporated business sector also undertake investment in physical assets, and this activity is recorded in the capital finance accounts of these two sectors. The total of gross capital formation in Canada undertaken by all sectors is shown in Table 7-10, broken down by the sector associated with the investment. Only that part of the total which is undertaken by corporations and government business enterprises is recorded in the capital finance account of this sector. However, as a matter of convenience, the sources and methods underlying **total** gross fixed capital formation are discussed in this chapter, as well as the sources and methods underlying the estimates of changes in non-farm business inventories.

TABLE 7-10. Gross Capital Formation by Major Sector Undertaking the Investment

	1961
	millions of dollars
Undertaken by the corporate and government business enterprise sector . .	4,980
Housing	(385)
Gross fixed capital formation in non-residential construction and machinery and equipment	(4,077)
Change in non-farm business inventories	(518)
Undertaken by the persons and unincorporated business enterprise sector. .	1,846
Housing	(1,404)
Gross fixed capital formation in non-residential construction and machinery and equipment	(852)
Change in farm inventories and grain in commercial channels	(– 410)
Undertaken by the government sector	1,682
Housing	(9)
Gross fixed capital formation in non-residential construction and machinery and equipment	(1,665)
Change in inventories	(8)
Total gross fixed capital formation and inventory investment	8,508

Sources of Saving (Table 22, lines 1, 2, 3, 4 and 5)

The various elements of saving from the corporate and government business enterprises sector's income and outlay account are carried down to the capital finance account as a source of finance for investment: undistributed corporation profits; unremitted profits of government business enterprises; the inventory valuation adjustment; and capital assistance from government. All of these components of saving have been discussed in preceding sections of this chapter. To these amounts are added estimates of the sector's capital consumption allowances, to yield an overall figure of the sector's total saving from all sources. The following section discusses the sources and methods underlying the estimates of capital consumption allowances.

Capital Consumption Allowances and Miscellaneous Valuation Adjustments (Table 22, line 5)

The treatment of capital consumption in these Accounts, and the nature of the various valuation adjustments incorporated in the figures, was outlined in Chapter 3. In that chapter it was noted that, with the exception of the estimates associated with housing investment, government fixed capital formation, and fixed capital formation in agriculture, all of the estimates of depreciation or capital consumption in these Accounts are calculated on an original-cost basis of valuation and are closely linked to the figures of book depreciation reported in the accounting records of business firms. The greater part of the capital consumption estimates entered as saving in the sources side of this sector's capital finance account is therefore based on original cost book depreciation as entered in the records of business firms. Only in the case of the sector's investment in housing are the estimates calculated on a replacement cost basis of valuation.

Information on corporate depreciation as it applies to the stock of business plant and equipment (non-residential construction and machinery and equipment) is obtained essentially from the same sources as the estimates of corporation profits which were discussed earlier in this chapter. For the years prior to 1944, the results of the special corporation sample study were used. For the years from 1944 to the mid-1960's, the estimates are based on information from *Taxation Statistics* as published by the Department of National Revenue up to that time. For the more recent years, the figures are based for the most part on corporate depreciation as reported and published in *Corporation Financial Statistics,* Catalogue 61-207, and *Corporation Taxation Statistics*, Catalogue 61-208. Other sources of information include *Financial Institutions, Financial Statistics*, Catalogue 61-006, and *Industrial Corporations, Quarterly Financial Statistics*, Catalogue 61-003.

While most of the basic data is available from the above-noted sources, in some instances additional sources were drawn on. In the case of banks, the estimates are based on published reports of the chartered banks; estimates of depreciation on real estate holdings and equipment owned by insurance companies are based on reports of the Superintendent of Insurance; and depreciation on co-operatives is derived from information from the Department of Agriculture.

Conceptually, depletion charges are not included in these Accounts with capital consumption allowances, since the exhaustion of natural resources is not regarded as a charge against the National Income. However, because of statistical difficulties, it has not been possible to remove all of depletion charges from the estimates of capital consumption allowances.

A number of adjustments have to be made to the basic figures derived from the above-noted sources. Certain capital outlays may be charged to current expense by business (such as mining development and exploration costs and durable items such as furniture, office equipment, tools, and so forth). Such outlays are included with gross fixed capital formation in these Accounts. The amounts involved are added to capital consumption allowances in order to maintain essential balance between the income and expenditure sides. The estimates are derived from the reports *Private and Public Investment in Canada, Outlook and Regional Estimates*, Catalogue 61-205.

Certain non-capital outlays charged to capital account by business but not regarded as capital formation in these Accounts are also accorded special treatment. Thus, brokerage fees on the purchase and sale of stocks and bonds are frequently capitalized by business, but since they are non-tangible, non-durable items of expenditure they are excluded from capital formation in these Accounts. In order to keep the Accounts in balance, a negative adjustment is made to "capital consumption allowances and miscellaneous valuation adjustments" in order to correct the income side for the over-statement of business profits inherent in the reported book figures. The estimates are based on information compiled from taxation sources.

The claim portion of business and residential insurance paid out to compensate for fire and other types of losses is treated in these Accounts as a form of capital consumption. Insurance premiums paid by business (an operating expense) enter into the market price of goods and services on the expenditure side. The full amount of the premiums paid must therefore be matched on the income side, to keep the Accounts in balance. The factor incomes generated by insurance companies and paid for out of premium revenues (in the form of salaries, wages, profits, etc.) are automatically included in the National Income. However, the "claim portion" of premium revenue does not appear anywhere on the income side. In order to keep the income and expenditure sides of the Accounts in balance, an explicit entry is required in the estimates of capital consumption allowances as recorded here. The estimates are based on information from annual reports of the Superintendent of Insurance, and from data published in *Railway Transport: Part II*, Catalogue 52-208.

Depreciation, or capital consumption allowances charged by government business enterprises are compiled, for the most part, from published reports or accounting statements of the enterprises in question. The estimates are on an original-cost basis. Capital consumption allowances on that part of the housing stock which is included in this sector are calculated on a replacement cost basis, with the figures derived in connection with estimates of the capital stock of housing valued at current market prices prepared in the Construction Division of Statistics Canada.

Disposition of Saving (Table 23, lines 1, 2 and 4)

This table shows the disposition of the sector's saving to finance gross fixed capital formation in residential construction, non-residential construction, machinery and equipment, and the sector's investment in inventories (see also Table 7-10). The shortfall or excess of saving in relation to these financing requirements is a measure of the sector's net borrowing from or lending to other sectors. It will be noted that the residual error of estimate has been arbitrarily assigned to the capital finance account of the corporate and government and business enterprises sector, with one half of the error appearing on the sources of saving side (Table 22) and the other half on the disposition of saving side (Table 23).

Although the corporate and government business enterprises sector accounts for the greater part of total gross capital formation in Canada, as Table 7-10 indicates, it is not the only sector involved in investment activity. Substantial outlays for investment are also undertaken by the persons and unincorporated business sector, and by the government sector. Since the

estimates of gross fixed capital formation for all three sectors are closely similar with respect to basic definitions and methods of estimation, and since they derive essentially from a single major source in recent years (i.e., the survey of private and public investment), it is convenient at this point to review the estimates in total, as they appear in Table 2, the Gross National Expenditure.

Residential Construction (Table 2, lines 5 and 9)

Residential construction outlays included in the National Income and Expenditure Accounts are made up of a number of elements: outlays for new permanent housing in the form of single dwellings, doubles, row housing, and apartment housing; conversion costs; the cost of alterations and improvements; supplementary costs such as architectural and legal fees; and transfer costs on sales of existing fixed assets.

Residential structures are defined as "dwelling units" for purposes of these estimates if they are structurally separate and self-contained, with a private entrance from outside or through a common hall or stairway from inside. One of the main sources of data used in the residential construction estimates, the monthly starts and completions survey undertaken by Central Mortgage and Housing Corporation, enumerates dwelling units according to this definition, for all new structures which are designed for non-transient, year-round occupancy.

The construction of hotels and motels is considered to be non-residential construction. Construction of dormitories by institutions such as universities, churches and schools is also considered to be non-residential construction unless the unit is self-sufficient, and contains a kitchenette; in this case, it is classified as residential construction. Housing construction by agencies classified as government business enterprises is included with business residential construction. Government departmental housing such as that carried out by the Department of Indian and Northern Affairs is regarded as government capital expenditure. The construction of military barracks (not for rent) is excluded from gross fixed capital formation.

A "single" dwelling is defined as a building containing only one dwelling unit which is completely separated on all sides from any other dwelling. A "double" dwelling is one of two dwelling units located one above the other (or side by side) in a building adjoining no other structure. A "row" dwelling is one family dwelling unit in a row of three or more attached dwellings separated by common walls extending from ground to roof. An "apartment" dwelling unit includes all dwellings other than those described above.[9]

"Conversions" are dwelling units created as a result of basic structural changes made to existing buildings. "Alterations and improvements" include expenditures for structural changes which do not create a separate dwelling. Also included here are ancillary structures built subsequently such as garages,

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[9] In the case of apartment dwellings, the cost of major appliances such as stoves and refrigerators is assumed to be included as gross fixed capital formation. In the case of owner-occupied dwellings, such outlays are regarded as personal expenditure on consumer durable goods if they are not included in the original price of the dwelling.

car-ports and in-ground swimming pools. If a garage or an in-ground swimming pool was included in the original contract price of a dwelling, this expenditure will automatically be included in the estimates of residential construction outlays.

"Supplementary costs" include payments for professional and related services such as architectural, financial, legal and surveyors' fees. In addition, an estimate of interest accrued during construction is included, consistent with the practice of purchasers being required to pay these charges on acquiring new dwellings. A separate estimate is also included for the mortgage insurance fee charged for all housing financed under the National Housing Act.

TABLE 7-11. Residential Construction Outlays by Sector

	1961
	millions of dollars
Undertaken by the corporate and government business enterprises sector (included in Table 23, line 1)	385
Undertaken by the persons and unincorporated business sector (included in Table 15, line 1)	1,404
Undertaken by the government sector (included in Table 19, lines 1 and 2)	9
Total, as per Table 2, lines 5 and 9	**1,798**

Table 7-11 provides a breakdown, for the year 1961, of residential construction outlays by the sector undertaking the investment. For all years since 1951, the total figure of housing outlays is obtained from the reports *Private and Public Investment, Outlook and Regional* Estimates,[10] based on the large scale annual survey (covering more than 24,000 establishments) carried out jointly by Statistics Canada and the Department of Industry, Trade and Commerce.[11] The housing estimates in these reports draw heavily on extensive field survey work undertaken by the regional offices of Central Mortgage and Housing Corporation which provides basic information on new housing starts and completions each year. Estimates of the value of housing construction put in place as presented in these reports are obtained by combining these data on starts and completions with information on average construction time, the type and size of dwelling, and average unit costs. For the period prior to 1951, the estimates are built up from a variety of sources, drawing on information from the decennial censuses, annual starts and completions data, building permit records, contract awards data, indices of

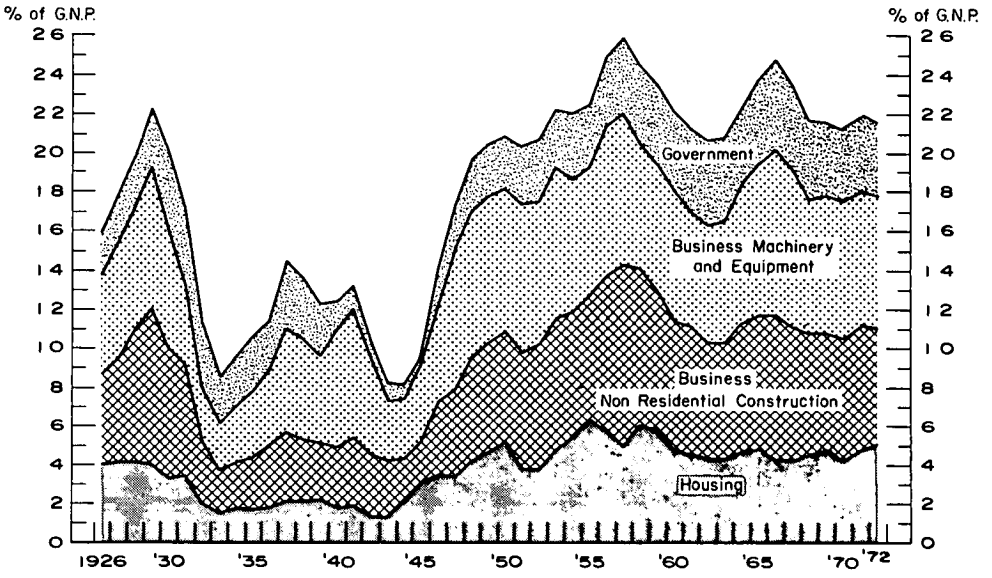
[10] Statistics Canada Catalogue 61-205.

[11] For a reconciliation of the National Accounts figures with these reports, see Table 59 of Volume 1.

construction costs, and other information. Because the information for this earlier period is less complete, the estimates must be considered as having a somewhat lesser order of reliability than the more recent figures.

The breakdown of these total housing outlay figures by sector undertaking the investment is based on arbitrary procedures, as was indicated in Chapter 5. In the area of government housing outlays – a relatively minor part of the total – the estimates are based on the accounting records of governments. The break-out of housing undertaken by the persons and unincorporated business sector from housing undertaken by the corporate and government business enterprises sector is based on the assumption that **all** single unit dwellings plus one half of "doubles" are assignable to the former sector, while the balance is assignable to the latter sector.

Total Gross Fixed Capital Formation as a Percentage of Gross National Product[1]



[1] Includes all Private and Public Gross Fixed Investment as per National Income and Expenditure Accounts

Non-residential Construction (Table 2, lines 6 and 10)

Non-residential construction outlays as defined in the National Income and Expenditure Accounts cover a considerable range of construction and construction-related activities. Included here is the gross value of all new non-residential construction put in place with the exception of defence installations; all additions and major renovations; and all conversions and alterations where structural changes have taken place, or the life of an existing asset is extended beyond its normal life expectancy. The estimates include both contract work and work done by the firm's own labour force (own account). All costs incurred directly or indirectly are included. Thus,

expenditure on permanently built-in equipment is included, as well as the cost of site preparation and land improvement. While the purchase value of land and existing assets is excluded, transfer costs of existing fixed assets are included. The expenditures represent as far as possible the value of construction work put in place within the year irrespective of the time that payment is made. Only construction work carried on in Canada is included. The nationality of the firm undertaking the construction has no bearing on the estimates.

The estimates are classified into four main groups of construction activity:

(a) building construction;

(b) highways, bridges and streets;

(c) railway construction;

(d) other engineering construction.

The "building" group includes industrial, commercial, institutional and other building construction. The "highways, bridges and streets" group includes roads, highways, aerodrome construction, drainage ditches, storm sewers, bridges and trestles. The "railways" group includes railway tracks and roadbeds, signal installations and switching systems. Finally, the "other engineering" group covers a wide range of projects, including: marine construction such as docks and canals; waterworks and sewage systems; dams and irrigation systems; electric power construction projects; telephone and telegraph lines and marine cables; gas and oil facilities such as oil pipe lines, and pumping stations; tunnels and subways; and incinerators.

As has been indicated previously, overall estimates of private and public investment in Canada have been assembled each year since the late 1940's from a large-scale survey undertaken annually by Statistics Canada in collaboration with the Department of Industry, Trade and Commerce. In 1972, the survey covered approximately 24,000 separate establishments. The figures are prepared separately, for residential construction, for non-residential construction, and for machinery and equipment. The estimates are published in the series of reports *Private and Public Investment in Canada, Outlook and Regional Estimates,* Statistics Canada Catalogue 61-205. Virtually all of the data necessary to construct the estimates of non-residential construction which enter the National Accounts are available from this source, although some re-arrangement and adjustment of the information is necessary to conform to the definitions and classificatory framework used in the Accounts.[12] Table 7-12 provides an illustration of how the figures incorporated in the Accounts are derived from this basic source material for the year 1961.

For the years prior to the introduction of the private and public investment survey, the estimates are based on a background study published by the Department of Trade and Commerce in 1951.[13] Again, some

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12 An adjustment to incorporate the transfer costs on the sale of existing fixed assets is based on source material other than the private and public investment survey.

13 *Private and Public Investment in Canada, 1926-1951,* Department of Trade and Commerce, King's Printer, Ottawa, 1951.

TABLE 7-12. Derivation of Non-Residential Construction Estimates as per National Accounts from Private and Public Investment Survey Data

	1961
	millions of dollars
Private and public non-residential construction[1]	4,133
Deduct:	
Direct government outlays as per private and public investment[2]	– 1,368
Adjustment:	
To exclude municipal waterworks and public hospitals (treated as government capital outlay in the Accounts) and to include the transfer costs of existing fixed assets and the capital outlays of the Canadian Broadcasting Corporation	– 154
Equals:	
Total business non-residential construction as per National Accounts (Table 2, line 10)	**2,611**
Direct Government outlays as per private and public investment[2]	1,368
Adjustment:	
To include municipal waterworks and public hospitals, and to exclude defence and capital outlays of the Canadian Broadcasting Corporation	111
Equals:	
Total government non-residential construction as per National Accounts (Table 2, line 6)	**1,479**

[1] Source: *Private and Public Investment in Canada, Outlook and Regional Estimates,* Catalogue 61-205.

[2] In addition to government built, non-rental housing, this category consists of expenditures for provincial hospitals, provincial and local school boards, and those outlays made directly by government departments. It does not include the capital outlays of municipal waterworks or public hospitals, but it does include those of the Canadian Broadcasting Corporation.

adjustment and re-arrangement of the data has been necessary to conform to National Accounts definitions. It may be noted that special capital outlays by foreign governments in Canada during the war years 1939-45 are included with business gross fixed capital formation, since these outlays contributed to the increase in the total stock of fixed capital in Canada. Thus, the non-residential construction series includes the war-time expenditure of the United States in connection with the Alaska Highway and the Northern Staging Routes, and of the United Kingdom in connection with the expansion of plant facilities,[14] all of which drew upon Canadian production but were not originally Canadian capital expenditures. Because they are included with gross fixed capital formation in these Accounts, the amounts are omitted from the "exports of goods and services" series in Table 2.

Machinery and Equipment (Table 2, lines 7 and 11)

Machinery and equipment outlays as defined in these Accounts include expenditures of a capital nature on durable, tangible goods with a productive life of one year or more. Typically, such machinery and equipment is of a type

[14] Part of the amount for expansion of United Kingdom plant facilities is included with machinery and equipment investment.

that can be removed without materially altering the structure in which it is housed. The estimates cover the **installed** cost of machinery and equipment, and not simply the delivered cost. Progress payments on heavy machinery such as aircraft, railway rolling stock, ships, and power generating equipment are included as capital outlays in the year in which they are made regardless of the date of delivery of the equipment. The estimates include expenditures for smaller types of capital goods such as small tools and office furniture and equipment which are often charged by business to operating or current account.

As in the case of the estimates for non-residential construction, the information on which the machinery and equipment estimates are based is derived almost wholly from the large-scale survey of private and public investment which has been carried out each year since the late 1940's as a joint undertaking by Statistics Canada and the Department of Industry, Trade and Commerce.[15] The figures are essentially as reported by business firms, governments, non-profit organizations and other institutions from their own accounting records, with some re-grouping and reclassification of items to conform to the definitions inherent in the Accounts. Some relatively small adjustments to take account of scrap and salvage allowances on used machinery and equipment (including commercial vehicles and ships) are based on sources other than the private and public investment survey.[16] The derivation of the estimates from the survey material is illustrated in Table 7-13 for the year 1961 (see following page).

The estimates of machinery and equipment outlays for the period prior to the introduction of the private and public investment survey are based, as in the case of non-residential construction, on the background study published by the Department of Trade and Commerce in 1951, *Private and Public Investment in Canada, 1926-1951*. Again, some re-arrangement and re-grouping of the figures is necessary to adapt the information to the definitions and classifications adopted in these Accounts.

The estimates of gross fixed capital formation in Canada included in Table 2 of Volume I of these Accounts may now be summarized, drawing together the material assembled in Tables 7-11, 7-12 and 7-13.

A breakdown of total gross fixed capital formation by the industry group undertaking the investment is given in Volume 1, Table 32, "Gross Fixed Capital Formation by Industry".

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[15] *Private and Public Investment in Canada, Outlook and Regional Estimates*, Statistics Canada Catalogue 61-205.

[16] Scrap and salvage allowances on used machinery and equipment sold by business in domestic or export markets are implicitly included in the final expenditure components of Gross National Expenditure. Since these amounts should not be included and counted as current production (having been counted as production in the period in which the goods were produced), a negative adjustment is made to gross fixed capital formation in new machinery and equipment to offset amounts elsewhere included on the expenditure side. See Chapter 2.

TABLE 7-13. Derivation of Machinery and Equipment Estimates as per National Accounts from Private and Public Investment Survey Data

	1961
	millions of dollars
Private and public machinery and equipment expenditure[1]	2,662
Deduct:	
Direct government outlays as per private and public investment[2]	– 160
Adjustments:	
Negative entry for receipts of used ships exported, scrap and salvage allowances, and net sales of used motor vehicles; a deduction to exclude municipal waterworks and public hospitals; an addition to include the Canadian Broadcasting Corporation	– 184
Equals:	
Total business machinery and equipment expenditure as per National Accounts (Table 2, line 11)	**2,318**
Direct government outlays as per private and public investment[2]	160
Adjustment:	
To include municipal waterworks and public hospitals, and to exclude capital outlays of Canadian Broadcasting Corporation	26
Equals:	
Total government machinery and equipment expenditure as per National Accounts (Table 2, line 7)	**186**

[1] Source: *Private and Public Investment in Canada, Outlook and Regional Estimates,* Catalogue 61-205.

[2] This category includes machinery and equipment expenditures made directly by government departments, provincial hospitals, and provincial and local school boards. It does not include the machinery and equipment outlays of municipal waterworks or public hospitals, but it does include those of the Canadian Broadcasting Corporation.

TABLE 7-14. Summary Consolidation of Gross Fixed Capital Formation

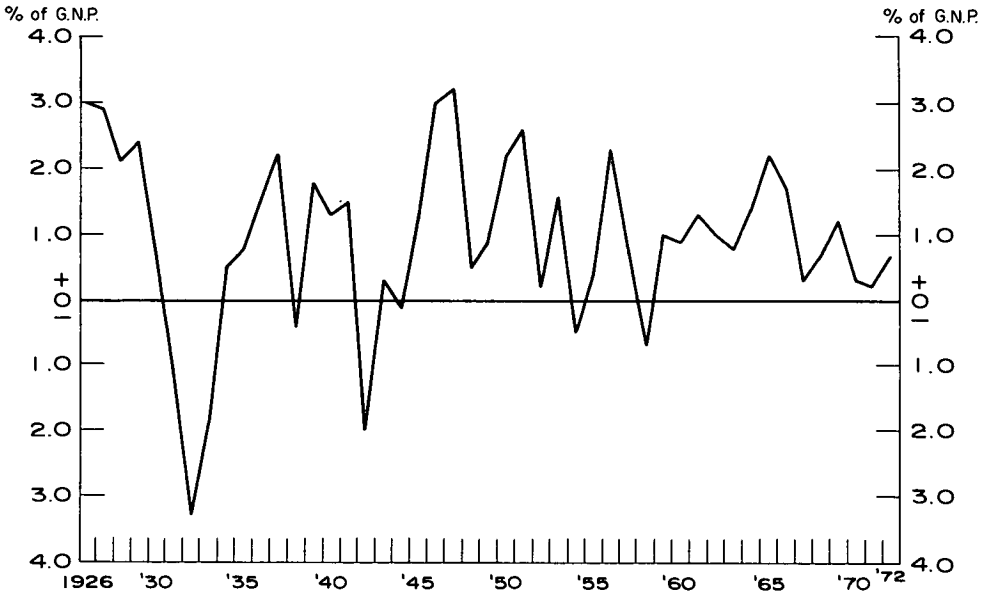
	1961
	millions of dollars
Residential construction:	
Government (Table 7-11)	9
Business (Table 7-11)	1,789
Total	1,798
Non-residential construction:	
Government (Table 7-12)	1,479
Business (Table 7-12)	2,611
Total	4,090
Machinery and equipment:	
Government (Table 7-13)	186
Business (Table 7-13)	2,318
Total	2,504
Total gross fixed capital formation (as per Table 2, line 3, of Volume 1)	**8,392**

Change in Non-farm Business Inventories (Table 2, line 14; Table 23, line 2)

This component of Gross National Expenditure covers all investment or dis-investment in inventories[17] except that for farm inventories and grain in commercial channels, and a small amount of inventories held by governments. In principle, the change in non-farm business inventories should be apportioned between the corporate and government business enterprises sector and the persons and unincorporated business sector. In fact, data are not available to permit this split, and the change in total non-farm business inventories is assigned to the corporate and government business enterprises sector as a part of the sector's gross capital formation in Table 23.

[17] In this terminology, a positive change in inventories (inventory accumulation) represents investment in inventories. A negative change in inventories (withdrawals from stocks) represents disinvestment in inventories.

Change in Non-Farm Business Inventories as a Percentage of Gross National Product



Investment in non-farm business inventories is estimated initially on the basis of reported book values. As a component of Gross National Expenditure, the relevant investment in inventories is the physical change during the period, valued at average prices of that period. The accounting conventions of business are such that withdrawals from inventory are generally at original cost rather than at the average price of the current period and this gives rise to an inventory "gain" or "loss" which is reflected in the change in book values and, being inappropriate for national accounting purposes, is removed by an inventory valuation adjustment. The resulting figure of "value of the physical change in inventories", valued at average prices of the period, is that which is entered in the Gross National Expenditure. (Since 1947, the annual value of the physical change has been taken as the sum of the four quarterly estimates.)

On the income side of the Accounts, the inventory valuation adjustment is made to remove from the National Income these inventory gains or losses wherever corporate profits and net incomes of unincorporated businesses have been computed on the basis of changes in reported book values.

A description of the inventory valuation adjustment procedure has been given earlier in this chapter. The following description of the sources and methods underlying the non-farm business inventory estimates refers to the estimates based on reported **book values**.

Estimates of annual book values of inventories for the majority of industries are available, for current years, from annual censuses or sample surveys carried out by the Manufacturing and Primary Industries Division, the Merchandising and Services Division, or the Business Finance Division of Statistics Canada. When these data are inflated to full coverage for the relevant industries, by the use of inventory to production or inventory to sales ratios, they account for between 80% and 90% of total inventory book values. Estimates for the remaining industries are based on data from a range of other sources including special tabulations in Statistics Canada, summaries of taxation statistics by the Department of National Revenue, and the published annual reports of companies. For earlier years, mainly before 1944, sources include the special corporation sample study (see the Appendix to this chapter), analysis of the records and reports of the Industry Statistics Branch of Statistics Canada, and projections from annual and decennial census data.

In general, before 1947, year-end holdings of inventory are reported on a fiscal year-end basis. Since 1947, data are available for the manufacturing industry which permit adjustment to a calendar year basis. New sample surveys introduced to cover the years from 1954 onward for wholesale and retail trade permit more comprehensive coverage of these groups on a calendar year basis.

It should be noted that for the years 1926 to 1960, the industry classification which is used for the inventory estimates is based on the 1948 Standard Industrial Classification. For the period 1961 to the present, the classification is based on the 1960 Standard Industrial Classification.[18] This change in the classificatory system has involved some re-arrangement and re-grouping of sub-component detail in the more recent period. The nature of the principal changes are noted in the course of the discussion which follows.

In **forestry**, estimates of year-end inventory holdings for the years 1926 to 1944 are made by projecting a 1944 base figure on the trend of a composite index of employment and payrolls in logging. The 1944 base figure is derived from a survey of reported book values, inflated to full coverage by applying the inventory to production ratio of reporting firms to the value of production in forestry. The latter figure is obtained from the publication *Operations in the Woods* Catalogue 25-501, and adjusted to exclude the forest production of farmers and the proportion applicable to other industrial groups. A similar method is employed for the years 1945 to 1948. For more recent years to 1960, the 1948 estimated book value is moved ahead by an index prepared

[18] While the 1960 Standard Industrial Classification was fully implemented in 1961 for all industries, the problem of linking to 1951 Census benchmark data made it necessary in some cases to mechanically convert to the new basis for the years 1952 to 1960.

from a sample report of physical stocks valued at average prices. The price data are based on annual averages available in the publication *Pulp and Paper Mills*, Catalogue 36-204, average weekly earnings, and unit values of exports of certain forest products.

An annual census of logging was begun in 1963, *Logging*, Catalogue 25-201, and the estimates of inventories in forestry have been linked back to and based on this information since the year 1961. The basic data obtained from this survey include book values of total inventories of establishments in the logging industry.

In **mining**, the inventory estimates are prepared from inventory data collected by the Manufacturing and Primary Industries Division of Statistics Canada. Estimates for the earlier years are based on less complete information than is available currently. The estimates for the most current year are made by moving forward the latest available year-end value of inventory holdings on the trend of an index of raw materials and finished goods. This index is prepared from physical stocks data, revalued with appropriate price series and supplemented with employment and payrolls data.

In **manufacturing**, inventory estimates for the years 1926 to 1943 are based on census of industry returns, and for the years 1944 to 1948, on a survey of capital investment. In subsequent years, the estimates are prepared from inventory data collected by the Manufacturing and Primary Industries Division and published in *Inventories, Shipments and Orders in Manufacturing Industries*, Catalogue 31-001. The data include raw materials and supplies, goods-in-process, finished goods and goods purchased for resale.

Beginning with the year 1961, the manufacturing estimates are classified in accordance with the 1960 Standard Industrial Classification. (Estimates for earlier years are based on the 1948 Standard Industrial Classification). Under the 1960 Standard Industrial Classification system, inventories of trading outlets which do not constitute a separate accounting entity are included with manufacturing, but those selling outlets of manufacturing firms which operate as separate reporting units are considered to be a part of wholesale trade. Dental laboratories, electroplating establishments, machine shops and upholstery shops which formerly were classified to the service industries under the 1948 Standard Industrial Classification are now included in manufacturing. Workshops of the Canadian Pacific Railways and the Canadian National Railways are excluded from manufacturing under the 1960 Standard Industrial Classification and are included with the transportation industry. All automobile repair shops are considered to be a part of retail trade under the 1960 Standard Industrial Classification. Where smelting and refining operations include some mining activity, the mining portion has been deleted from the manufacturing industry.

In the **construction** industry, for the years 1926 to 1943, a 1938 benchmark value is projected forward or backward on a combined index of employment in the building industry and prices in the building materials industry. Data are also drawn from the special corporation sample study. The 1938 benchmark book-value figure is obtained from a survey of construction carried out in that year. Since 1944, the main source of information has been data compiled by the Department of National Revenue from taxation records, with the values adjusted to provide coverage for unincorporated business.

Estimates for current years for which taxation data are not yet available are obtained by projecting on a combined index of employment in construction and building material prices.

The **transportation, storage and communications** industry is divided into three main sub-groups for separate estimation, and the results are summed to obtain total estimates for the industry as a whole. The transportation sub-group includes railways, passenger bus systems, water transportation services, motor carriers, urban transit systems, international toll bridges, tunnels and ferries, air transport services, and crude oil pipelines. The storage sub-group includes establishments engaged in moving and storage, and pure warehousing. The communications sub-group includes telephones, radio and TV broadcasting, and telegraph and cable systems. The first reasonably complete benchmark covering all the above-mentioned industries was obtained in 1965. The estimates draw upon a wide range of information which becomes more fragmentary as the estimates are pushed back in time. Among these sources is information on inventory book values in railway transportation and in telephone communication from the Transportation and Communications Division of Statistics Canada; data on electric railways, air, water, and road transportation, storage and communication from compilations of taxation statistics by the Department of National Revenue; and the published annual reports of selected companies.

In the **public utilities** group, the inventory estimates cover electric power utilities and gas utilities. The estimates are based on data collected in annual surveys by the Manufacturing and Primary Industry Division and the Business Finance Division of Statistics Canada, supplemented in some of the early years by data from the *Bank of Canada Statistical Summary* and the published annual reports of individual companies, including those set up as government business enterprises. Since 1960, annual surveys have been conducted of electric power stations *Electric Power Statistics,* Catalogue 57-202, and of gas utilities, *Gas Utilities,* Catalogue 57-205.

In **wholesale trade,** inventories for the years 1926 to 1951 are based on decennial census data, with intervening years estimated using the special corporation sample study material, supplemented by monthly indexes of wholesale inventories of non-durable goods compiled by the Merchandising and Services Division of Statistics Canada, *Wholesale Trade,* Catalogue 63-008. Since 1945, information from the operating results report compiled by the Merchandising and Services Division is also used. The 1951 and 1961 decennial census benchmarks were moved ahead on the basis of a survey of wholesale establishments conducted by the Merchandising and Services Division. Similarly, 1966 census benchmark data were incorporated into the inventory estimates. Stocks held on consignment are deleted from the estimates since their purchase value appears elsewhere in the Accounts. The major change created by the introduction of the 1960 Standard Industrial Classification in the wholesale trade field was the inclusion of lumber and building material dealers, farm implement dealers, feed stores, farm supply stores and harness shops which previously were classified to retail trade. In addition, manufacturers' sales branches which are not established as separate accounting entities were moved from wholesale trade to manufacturing.

In **retail trade,** the estimates are keyed to the 1951, 1961 and 1966 census data, with intervening years estimated from the monthly surveys conducted by the Merchandising and Services Division of Statistics Canada.

The estimates draw on a variety of related source material, including *Chain Store Sales and Stocks*, Catalogue 63-001; *Department Store Sales and Stocks*, Catalogue 63-002; and *Merchandising Inventories*, Catalogue 63-014.[19] A major effect of the introduction of the 1960 Standard Industrial Classification on retail trade was the deletion of lumber and building material dealers, farm implements dealers, feed stores, farm supplies stores, and harness shops from retail trade. In addition, restaurants, caterers, cocktail lounges, taverns, and dressmakers were re-classified from retail trade to the service industries. Automotive repair shops, radio and T.V. repair shops, jewellery repair and engraving establishments, and bicycle repair shops were re-classified from the service to the retail trade industry.

In the **service group**, the estimates are based essentially on the decennial and quinquennial censuses. Prior to 1946, the inter-censal years were estimated on the trend indicated by data from the special corporation sample study. Subsequently, an index of wholesale, retail and manufacturing inventories was used to estimate the level of book values. The introduction of the 1960 Standard Industrial Classification has affected the composition of the estimates. Some new groups such as restaurants, caterers, cocktail lounges, taverns and dressmakers which previously were classified to retail trade are now included with services. On the other hand, automotive repair shops, radio and T.V. repair shops, jewellery repair and engraving establishments, and bicycle repair shops were shifted from the service industry to retail trade; and dental laboratories, electroplating establishments, machine shops, and upholstery shops were shifted from services to manufacturing.

In the **finance, insurance, and real estate** group, benchmark estimates for 1945 and subsequent years are established from taxation statistics data compiled by the Department of National Revenue, with allowance for unincorporated business and banks and insurance companies. The 1945 benchmark estimates are carried back to 1926 on the basis of an index of wholesale and retail trade inventories. For current years, before taxation statistics data become available, the book value figure for the most recent year is carried forward using the trend of employment indexes.

A breakdown of the value of the physical change in inventories by the broad industrial group undertaking the investment (or disinvestment) is given in Table 33 of Volume 1. It should be noted that these figures are not "change in book value" estimates, but have been adjusted for inventory gains or losses to place them on a "value of physical change" basis.

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[19] The latter, more recent publication now includes the information contained in the chain store and department store reports, as well as information on independent retailers not previously published.

APPENDIX TO CHAPTER 7

Note on Special Corporation Sample Study

The text of this note is reprinted from *National Accounts, Income and Expenditure, 1926-1956* (the "Brown Book"), pp. 171-172. It deals with the derivation of the basic data entering the corporation profits estimates for the period 1926-44.

During the years 1946 to 1964 inclusive, the Department of National Revenue published corporation financial data, based on compilations from the "T2" income tax returns filed by corporation under the Income Tax Act, in their annual report entitled *Taxation Statistics.* The first year covered by *Taxation Statistics* was 1944. These data provided the basis for the estimates of corporation profits in the National Income and Expenditure Accounts for the period after 1944 until the time information began to become available under the joint statistical operation established by the Department of National Revenue and Statistics Canada in connection with the Corporations and Labour Unions Returns Act.

For the period prior to 1944, however, basic comprehensive information on which to build the corporate profits estimates for these Accounts was lacking. Financial corporation statistics for the period 1926-44 were therefore made the subject of a comprehensive sample study in the Department of National Revenue. The list of corporations included in *Taxation Statistics* served as the universe for purposes of selecting the sample.

The universe was divided into twenty-three industrial groups, with nine of these groups in manufacturing, eight in finance, and the other six in mining, construction, public utilities, wholesale trade, retail trade, and services. The agriculture, fishing and forestry groups were not covered since they are not significant in size relative to the other industrial groups. Banks and insurance companies were not covered in this sample, complete information on their transactions being available from published sources as indicated above.

A list was made of the corporations in each of these industrial groups, with the companies in each list being arranged in order of size of sales. The largest companies in each list were selected and included in the sample. Smaller companies were picked from the remaining companies in the list, with the chance of selection being proportional to the size of the company. By this method of selection it was possible to get efficient results with a relatively small number of firms. The completed sample covers about 1,000 companies, plus subsidiaries included in consolidated returns.

Approximately the same items were recorded for these sample companies as are tabulated in *Taxation Statistics.*

An effort was made to ensure comparability of the data for the entire period. If a company filed consolidated returns for some years and not for others, all companies included in the consolidation were included for all years, so that the data are not affected by bookkeeping changes. Consolidated

returns, however, brought up problems where the companies entering into the consolidation were not classified in the same industrial group. It was necessary to classify the companies in the industrial group in which the largest percentage of sales were made, and therefore some industrial groups include profits, for example, which might more properly be allocated to other groups.

Since the fiscal years of corporations may end at any time during the calendar year, it was decided to record companies on a "tabulation year" basis. That is, all companies whose fiscal years ended between July 1 of one year and June 30 of the following year were classified in the same calendar year. The purpose of this was to ensure that at least six months of a company's operations would fall into the calendar year in which it was classified. For example, a company whose fiscal year ended August 31, 1940, would have eight months of its operations in 1940, and a company whose fiscal year ended on May 31, 1941, would have seven months of its operations in 1940. Both of these companies would be classified in the year 1940. Since a majority of corporations have fiscal years ending December 31, corresponding exactly with the calendar year, the error in the results due to this method of tabulation is probably not large.

Once the sample companies had been recorded in the Department of National Revenue, the next problem was to arrive at results which would approximate the total of all corporations. This was done by comparing the sales of companies in the sample for the year 1946 with the sales of all corporations for the same year, separately for each industry group, and by groups related to the size of the company. Since large corporations in each industry were recorded completely, no adjustment was necessary for these companies. For the second-largest size group it might be found, for example, that the companies covered in the sample had one-half of the sales of all companies in that group. The results for this group were then multiplied by two to arrive at an approximation of the total for all companies in the group. The same procedure was carried out for other size groups, and these inflated totals for all size groups were then added together to give totals for the industry.

Once these industry totals had been obtained they were examined carefully for errors, and to assess the value of the data. The accuracy of the results obtained varied with the item recorded, and with the industry group. The primary purpose of the sample was to obtain good estimates of profits, and since the sample was specially designed for this purpose, the results for this item are considered generally good.

Items like sales, profits, and dividends paid, which are reported by a large number of companies each year, are considered to be quite accurate. An example of an item for which results are not very satisfactory is mortgage interest paid. Since only a relatively small number of corporations have mortgage debt, too few corporations reported this item to yield accurate results for industrial groups. However, estimates for all corporations combined should be fairly accurate.

For the early years, however, results are not as accurate as those for later years due to the method which had to be used to select the sample. For all groups except manufacturing, companies were picked from a list of all corporations existing in 1946. This means that companies which existed

sometime during the period 1926-45, but were not in existence in 1946, had no opportunity of being selected, so that the estimates of the various items would be too low for these early years. Various sources of information, such as census figures of retail and wholesale sales, were used to estimate the resulting undercoverage, and to make necessary adjustments.

Fortunately, it was possible to obtain a list of manufacturing corporations in existence in 1926 and to use it in selecting the sample for manufacturing, so that this group, which accounts for more than half of the profits of all corporations, needed no adjustment.

The results of the corporation sample are used extensively in this publication. The industrial breakdown of Gross Domestic Product for the years 1926-44 is based on sample figures of profits, depletion, bond interest paid and received, and other items. The analysis of corporation profits and their disposition, for the years 1926-44, is also based on the sample. The sample has made possible the inclusion of estimates of bad debts, and has improved the reliability of estimates of business gross capital formation.

CHAPTER 8

THE NON-RESIDENT SECTOR

Introduction

The income and outlay and capital finance accounts of the non-resident sector cover the transactions of the rest-of-the-world with Canadian residents. In this context, Canadian residents include persons, enterprises, and institutions which are normally resident in Canada. All international transactions taking place between the non-resident sector and the major sectors discussed in the preceding three chapters (persons and unincorporated business, corporate and government business enterprises, and the government sector) are summarized in the accounts of this sector. The basic concepts and principles underlying the inclusion and treatment of these international transactions in the National Income and Expenditure Accounts are discussed in Chapters 3 and 4. The present chapter elaborates more fully on this discussion, and provides specific comment on sources, methods, and some special aspects of these transactions.

In all cases, the basic source of the estimates is the Canadian Balance of International Payments published by Statistics Canada.[1] From 1940 through 1948, certain modifications were necessary to this material to accord with the concepts and definitions in these Accounts. It may be noted that in the Canadian Balance of International Payments, Newfoundland has been treated as a part of Canada since the year 1940. This treatment was adopted to reflect the international financial relations which developed between the two countries during the war. However, since Newfoundland did not become politically a part of Canada until 1949, the Canadian Balance of International Payments material is adjusted in the period 1940-48 for purposes of these Accounts. Entries reflecting Newfoundland's transactions with other countries are deducted from the appropriate items in the Canadian Balance of International Payments, and some estimates of Canada's transactions with Newfoundland are added (see footnotes 3 and 7 to Table 60). In addition, during the war years, major adjustments were made to the Balance of Payments material to exclude from merchandise exports the value of shipments for mutual aid and military relief, and shipments made under the United Nations Relief and Rehabilitation Administration programs. These amounts were included in the Accounts under "government current expenditure on goods and services".

The Structure of the Non-resident Sector's Accounts

The accounts of the non-resident sector (Tables 24-27 inclusive), are structured in the same way as the accounts of the three resident sectors of the economy. The income and outlay account (Tables 24 and 25) summarizes the current transactions of the non-resident sector with Canada. The income side of this account consists of receipts by non-residents from sales of goods and services to Canada, receipts of interest, dividends and miscellaneous investment

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[1] *The Canadian Balance of International Payments and International Investment Position: A Description of Sources and Methods,* Catalogue 67-506; and regular reports on the *Canadian Balance of International Payments,* Catalogue 67-201.

income paid to non-residents by Canada, and receipts of current transfers of income from Canada. The outlay side includes payments by non-residents to Canada for goods and services purchased, payments of interest, dividends and miscellaneous investment income earned by Canadians, and payments representing current transfers.

The surplus (or deficit) of non-residents on current transactions with Canada is carried into the capital finance account of the non-resident sector (Table 26). (A relatively small amount of capital transfers in the form of net inheritances and migrants' funds is added – see footnote 1 of Table 4-4). The total represents a source of finance available for lending by non-residents to Canadians (or, where the total is negative, a requirement for borrowing by non-residents from Canada).

Table 27 shows net lending to Canada by non-residents, or net borrowing from Canada by non-residents. As was noted in Chapter 4, in this system of accounts, a Canadian deficit (or a non-resident surplus) represents a net import of resources by Canada from abroad – a form of non-resident saving which becomes a source of financing for Canada's gross capital formation. Its counterpart on the financial side is a corresponding amount of net borrowing by Canadians from abroad (or net lending by non-residents to Canada). A Canadian surplus (or a non-resident deficit), on the other hand, represents a net export of resources by Canada to abroad and constitutes a form of Canadian "saving" which had been invested abroad. Its counterpart on the financial side is a corresponding amount of net lending by Canadians to non-residents. The way in which these transactions are related to total national saving and investment and to the capital finance transactions of the other sectors of the economy is described in Chapter 4 (see Table 4-4).

Relationship Between National Accounts and Balance of Payments Data

As was indicated earlier, the basic source of all of the estimates in this sector is the Canadian Balance of International Payments. Tables 8-1 and 8-2 show the linkages between the Balance of Payments material and the estimates recorded in these Accounts. There are, in fact, two related areas in these Accounts where the recorded totals are derived from adjusted Balance of Payments data – total receipts and payments as entered in Tables 24 and 25; and total imports of goods and services and total exports of goods and services as entered in Table 2.

In the current reports of the Balance of Payments, efforts have been made to strengthen the integration of the series with the Accounts, and to present the data in a way which permits the Accounts totals to be taken directly from the Balance of Payments publications, or to be derived with a minimum of adjustment.[2] Thus, as shown in Table 8-1, imports and exports of goods and services as recorded in Table 2 of the Accounts are taken directly from the Balance of Payments report. Total receipts of non-residents from Canada, or total payments by non-residents to Canada, as recorded in Tables

[2] Except for the years 1940-1948 where special adjustments continue to be necessary, as described in this chapter.

24 and 25 of the Accounts, can be derived by making one additional adjustment, i.e., the addition of **current** transfer payments. This newly adopted presentation of the data greatly simplifies the steps required to move from Balance of Payments figures to the Accounts. For convenience of users needing to refer to earlier publications, the full set of adjustments required to move from the earlier Balance of Payments presentations to the National Accounts figures is set out in Table 8-2.

Exports and Imports of Goods and Services
as a Percentage of Gross National Product

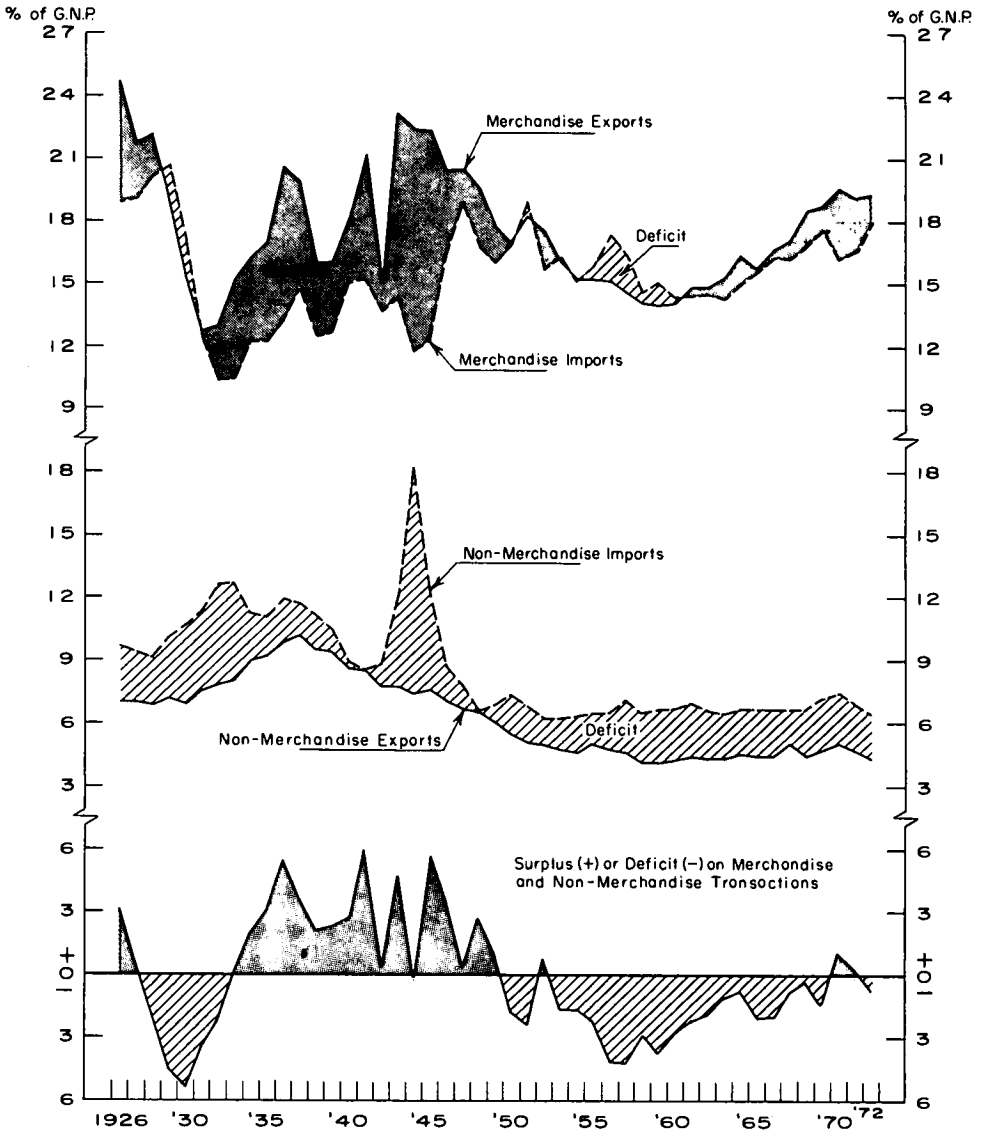


TABLE 8-1. Relationship Between National Accounts and Balance of Payments Data as Currently Presented

	1961	1962
	millions of dollars	
Current payments for goods and services as per Balance of Payments:[1]		
Equals:		
1. Imports of goods and services as per Table 2, line 17	8,480	9,045
Add:		
2. Current transfers paid by Canada to non-residents (official contributions, pensions paid abroad and personal and institutional remittances)[1]	176	158
Equals:		
3. Total receipts of non-residents from Canada as per Table 24, line 9	8,656	9,203
Add:		
4. Capital transfers paid by Canada to non-residents (inheritances and emigrants' funds)[1]	176	175
Equals:		
5. Total current payments as per Balance of Payments[1]	8,832	9,378
Current receipts from goods and services as per Balance of Payments:[1]		
Equals:		
6. Exports of goods and services as per Table 2, line 16	7,624	8,234
Add:		
7. Current transfers received by Canada from non-residents (personal and institutional remittances, pensions received from abroad, and taxes transferred from non-residents)[1]	176	190
Equals:		
8. Total payments by non-residents to Canada as per Table 25 (line 8 minus line 7)	7,800	8,424
Add:		
9. Capital transfers received by Canada from non-residents (inheritances and immigrants' funds)[1]	104	124
Equals:		
10. Total current receipts as per Balance of Payments[1]	7,904	8,548

[1] Source: Data as published in *The Canadian Balance of International Payments 1971*, Statistics Canada Catalogue 67-201.

Total current payments by Canada to non-residents as recorded in the Balance of Payments consist of payments for merchandise imports – imports of "goods" – and payments on non-merchandise account covering a variety of "services" and transfer payments to non-residents. The non-merchandise payments include travel expenditures abroad, interest and dividend payments to non-residents, freight and shipping charges incurred by Canada on foreign

account, inheritances and emigrants' funds paid abroad, official contributions, mutual aid to NATO countries,[3] and a large variety of payments for business services such as professional and management services, patents, copyrights and

[3] In recent publications, this item has been excluded from both the payments and receipts side of the current account.

TABLE 8-2. Relationship Between National Accounts and Balance of Payments Data as Formerly Presented

	1961	1962
	millions of dollars	
1. **Total current payments, as per Balance of Payments**[1]	8,751	9,294
2. Merchandise imports	(5,716)	(6,203)
3. Non-merchandise payments	(3,035)	(3,091)
Adjustments to yield totals in Table 24 (receipts of non-residents from Canada):		
Deduct:		
4. Inheritances and emigrants' funds	– 176	– 175
5. Mutual aid to NATO countries	– 35	– 41
Add:		
6. Investment income withheld for taxes	116	125
Equals:		
7. **Total receipts of non-residents from Canada as per Table 24, line 9**	8,656	9,203
Deduct:		
8. Current transfers paid by Canada to non-residents[2]	– 176	– 158
Equals:		
9. **Imports of goods and services, as per Table 2, line 17**	8,480	9,045
10. **Total current receipts as per Balance of Payments**[1]	7,823	8,464
11. Merchandise exports	(5,889)	(6,387)
12. Non-merchandise receipts	(1,934)	(2,077)
Adjustments to yield totals in Table 25 (payments by non-residents to Canada):		
Deduct:		
13. Inheritances and immigrants' funds	– 104	– 124
14. Mutual aid to NATO countries	– 35	– 41
Add:		
15. Withholding taxes received on investment income of non-residents	116	125
Equals:		
16. **Total payments by non-residents to Canada as per Table 25 (line 8 minus line 7)**	7,800	8,424
Deduct:		
17. Current transfers received by Canada from non-residents[3]	– 176	– 190
Equals:		
18. **Exports of goods and services as per Table 2, line 16**	7,624	8,234

[1] Data as published in *The Canadian Balance of International Payments: A Compendium of Statistics from 1946 to 1965*, Statistics Canada Catalogue 67-505.

[2] Official contributions, pensions paid abroad, and personal and institutional remittances.

[3] Personal and institutional remittances, pensions received from abroad, and withholding taxes transferred from non-residents.

royalties, equipment rentals, and advertising and commissions. The relationship of the Balance of Payments figures to the National Accounts totals as currently developed – shown in Table 8-1, requires little explanation. The balance of this section refers mainly to Table 8-2.

In the National Income and Expenditure Accounts, merchandise imports as recorded in the Balance of Payments are entered directly – there are no adjustments necessary to the merchandise import figures for purposes of these Accounts. All of the adjustments previously necessary and shown in Table 8-2 relate to the non-merchandise side of the Balance of Payments. Thus, in line 4, inheritances and emigrants' funds paid to abroad are deducted since these are transfers of a capital nature (representing accumulations of saving) and do not form a part of the current income and expenditure flows in these Accounts. Mutual aid to NATO countries (line 5) is also deducted, in order to balance the adjustment which is made on the export side (line 14), described below. That part of investment income earned by non-residents but withheld for taxes is added back in order to assign this item to earnings of non-resident factors of production, as described in Chapter 2. These adjustments to the basic Balance of Payments data as formerly presented yield the total shown in line 7 of Table 8-2, and in line 9 of Table 24, "total receipts of non-residents from Canada".

One further adjustment is necessary to yield the figure of "imports of goods and services" as shown in the Gross National Expenditure (Table 2). Current transfers paid by Canada to non-residents (i.e., official contributions, pensions paid abroad, and personal and institutional remittances) must be deducted (line 8) since they do not represent current earnings of foreign factors from the production and sale of goods and services. The resulting figure (line 9) is that which appears as "imports of goods and services" in the main Gross National Expenditure table.

Total current receipts as recorded in the Balance of Payments are adjusted in an almost identical fashion. These receipts consist of merchandise exports – exports of "goods" – and receipts from non-merchandise transactions arising from exports of "services" and transfer payments from non-residents. The non-merchandise items include freight and shipping credits earned on Canadian account, travel expenditures of non-residents in Canada, interest and dividends received from abroad, inheritances and immigrants' funds received from abroad, receipts for various types of business services, gold production available for export,[4] and mutual aid to NATO countries.[5]

The adjustments which are made to this basic Balance of Payments material apply only to non-merchandise receipts. Merchandise exports (exports of "goods") are entered directly in the Accounts without adjustment. In line

[4] Gold production available for export was treated as a current receipt in the Canadian Balance of Payments until 1968. The amounts involved were considered as non-merchandise receipts and reflected for the most part transfers of gold to the Exchange Fund Account, conceptually equivalent to an increase in Canada's external assets. With the introduction of separate monetary and non-monetary markets for gold in March 1968, sales and purchases of non-monetary gold are treated in the normal way as a part of Canada's merchandise trade. In the National Income and Expenditure Accounts, gold production is treated as part of the country's current production whether the gold is exported or sold domestically.

[5] As noted earlier, this item has been excluded from both the receipts and payments side of the current account in recent publications.

13 of Table 8-2, inheritances and immigrants' funds received from abroad are deducted since these are transfers of a capital nature and do not form a part of the income and expenditure flows in these Accounts. Mutual aid to NATO countries (line 14) is deducted, since the amounts represent shipments of goods and services which have already been counted as Canadian production under "government (defence) expenditure for goods and services", either in the current period or in some previous period. (As noted above, this adjustment is balanced by a corresponding entry on the import side. Since both exports of goods and services and imports of goods and services are adjusted by identical amounts, the entries are self-cancelling and the Gross National Expenditure is not affected). In addition, withholding taxes received on the investment income of non-residents is added back (line 15) in order to record the transfer (tax outlay) payment from non-residents to the Canadian government. The resulting figure (line 16 of Table 8-2) equals "total payments by non-residents to Canada", as recorded in Table 25 (line 8 minus line 7).

An additional adjustment is needed to yield the figure of "exports of goods and services" shown in the Gross National Expenditure (Table 2). Thus, all current transfers received by Canada from non-residents are deducted (line 17) since they do not represent current earnings of Canadian factors of production. Such transfer payments include personal and institutional remittances received from abroad, pensions received from abroad, and the tax (transfer) payment received from non-residents represented by the withholding taxes referred to above. The resulting figure (line 18) is that which appears in the Gross National Expenditure as "exports of goods and services".

Sources and Methods – General

The development of Balance of Payments statements covering commercial and financial transactions between Canada and other countries goes back to the inter-war period and precedes by a good many years the development of National Income and Expenditure Accounts. These statements were in fact the first set of "national" accounts to be developed as part of the framework now known as the "System of National Accounts" which embraces the National Income and Expenditure Accounts, the Financial Flow Accounts, the Input-output Tables, and the Domestic Product by Industry Indexes. The Appendix to this chapter provides summary statements of Canada's International Balance of Payments position on current and capital account for the years 1961 and 1962, and indicates the nature of the basic information which is presented in such statements.

All of the information entering these statements is assembled in the Balance of Payments Division of Statistics Canada. A comprehensive description of the sources and methods employed in the preparation of the estimates is given in *The Canadian Balance of International Payments and International Investment Position – A Description of Sources and Methods*, Catalogue 67-506.[6] The present discussion simply reviews briefly some of the principal features of the data.

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[6] An earlier report, now largely superseded, *The Canadian Balance of International Payments, 1926 to 1948,* (King's Printer, Ottawa, 1949) contains useful background material on some of the earlier sources of information and statistical methods.

The merchandise figures in the Balance of Payments statements (merchandise exports and merchandise imports) are basically those obtained from Customs entries and published by the External Trade Division of Statistics Canada. Some adjustments to these figures are necessary in order to reflect more accurately their implications for the balance of payments. Essentially, the trade statistics cover physical movements of goods as they are reflected in Customs documents received in any period, whereas the Balance of Payments are intended to cover, with appropriate timing, all economic transactions between residents and non-residents with financial implications for the Balance of Payments. Such transactions are not always adequately reflected in the commodity flows covered in administrative documents. For example, progress payments on ships and aircraft are entered in the Balance of Payments as they are made during the construction period. Upon delivery, when these commodities appear in the Customs entries for tabulation in the trade totals, they are excluded from the Balance of Payments having already been counted at the time of payment.

In general, the value of exports is taken to be the figure declared on the export entry, which is usually the actual amount received (converted where necessary to Canadian dollars) by the exporter. On the Customs entries, the exports should be valued "free on board point of shipment in Canada", i.e., exclusive of any costs of freight, insurance, taxes and handling incurred beyond the point in Canada from which the goods are consigned for export.[7] Included are domestice exports, i.e., exports of goods wholly produced in Canada and exports of previously imported goods which have been further processed in Canada: and re-exports, i.e., exports of previously imported goods which are exported in the same condition as that in which they were imported.

The value stated on the invoices accompanying imports usually serves to determine the value of the goods for both Customs duty and Balance of Payments purposes. If the value is stated in a currency other than the Canadian dollar, the figure should be converted to Canadian dollars at the exchange rate prevailing on the day the invoice was drawn up. Imports are valued f.o.b. point of shipment in the foreign country.[7] Covered are all goods imported whether cleared by Customs immediately on arrival in Canada or stored in bonded warehouses, including goods which subsequently may be exported.

The estimates of non-merchandise transactions recorded in the Balance of Payments (see Appendix to this chapter) draw upon a wide range of source material. Included here are surveys of business firms (for payments and receipts relating to business services, and for data on investment income flows); records of border crossings and surveys of travellers' expenditures (for information on travel expenditure); statistical information from the Department of Manpower and Immigration and correspondence with foreign governments (for estimates of migrants' funds and inheritances); information reported by railway, shipping, air, truck and pipeline operators (for freight and shipping); information on Canadian gold production and use (for gold production available for export (see footnote 4, page 248)); and many other sources of information. All of these sources of the basic data are described in greater detail in *The Canadian Balance of International Payments and International Investment Position – A Description of Sources and Methods* referred to above.

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[7] Transportation transactions affecting the balance of payments are not included in the totals of merchandise trade, but are mainly covered under the "freight and shipping" item in the non-merchandise account.

War-time Adjustments

As was noted in Chapter 7, special capital outlays by foreign governments in Canada during the war years 1939-45 are included with gross fixed capital formation in these Accounts since such outlays added to the total stock of fixed capital in Canada. The amounts involved must therefore be omitted from "exports of goods and services" in the Gross National Expenditure. Adjustments have accordingly been made to the Balance of Payments data to eliminate from current receipts the amount of investment outlay by the United States Government in Canada in connection with the Alaska Highway and the Northern Staging Routes, and by the United Kingdom Government in connection with the expansion of plant facilities.

In addition, particularly large adjustments have been made to the Balance of Payments data on current receipts in the years 1942-45 inclusive to eliminate amounts represented by shipments of mutual aid and military relief, and shipments under the United Nations Relief and Rehabilitation Administration programs. Since the merchandise exports involved in these shipments were financed by the Canadian government, it has been considered appropriate to show these amounts under "government current expenditure on goods and services" rather than with "exports of goods and services" (although this practice was not adopted with respect to later official contributions). The amounts involved are set out in footnote 3 of Table 60.

The Income and Outlay Account – Income (Table 24 of Volume 1)

This table shows the receipts of the non-resident sector arising from transactions on current account with Canada. The relationship between the Balance of Payments current account figures and the total of receipts of non-residents from Canada as given in this Table is shown in Tables 8-1 and 8-2. A breakdown of these receipts by source is shown in Table 8-3.

TABLE 8-3. Receipts of Non-residents from Canada

	1961	1962
	millions of dollars	
Receipts from sales of goods and services:		
To business (Table 24, line 1)	6,746	7,288
To persons (Table 24, line 2)	616	585
To government (Table 24, line 3)	96	104
Interest, dividends and miscellaneous investment income received:		
From business (Table 24, line 4)	882	922
From government (Table 24, line 5)	140	146
Current transfers:		
From persons (Table 24, line 6)	99	99
From government (Table 24, lines 7 and 8)	77	59
Total receipts	8,656	9,203

Receipts from Sales of Goods and Services to Business (Table 24, line 1)

This component includes receipts from all sales of goods by non-residents to Canada (merchandise imports); the estimated business share of receipts from travel expenditures by Canadians abroad; receipts on freight and shipping account; and receipts from the provision of various business services, including royalties, patents, copyrights, and equipment rentals. The data are provided by the Balance of Payments Division of Statistics Canada. A breakdown of the estimate is shown in Table 8-4. The basic information on which the estimates are based is shown in the Appendix to this chapter.

TABLE 8-4. Receipts from Sales of Goods and Services to Business

	1961	1962
	millions of dollars	
Goods (Canada's merchandise imports as per Balance of Payments)	5,716	6,203
Travel (estimated business share)	64	60
Freight and shipping (as per Balance of Payments)	568	595
Other services	398	430
Totals	6,746	7,288

Receipts from Sales of Goods and Services to Persons (Table 24, line 2)

This component includes the personal share of travel expenditures by Canadians abroad, and payments of military pay and allowances to the Canadian Armed Forces stationed abroad. The breakdown is shown in Table 8-5.

TABLE 8-5. Receipts from Sales of Goods and Services to Persons

	1961	1962
	millions of dollars	
Travel (personal share)	578	545
Military pay and allowances	38	40
Totals	616	585

Receipts from Sales of Goods and Services to Government (Table 24, line 3)

This component covers a variety of payments from government to non-residents, including contributions and membership assessments in

international organizations,[8] expenditures for Canadian government representation abroad, and military expenditures abroad of a service nature other than for military pay and allowances. (Official contributions and pensions paid abroad, which are treated as transfer payments, are **not** included in this component). During the war period, especially in 1944, these payments became very large, reflecting expenditures by the Canadian government to cover the cost of billeting and maintaining Canada's Armed Forces overseas (see peak in non-merchandise imports in Chart 8-1).

Interest, Dividends and Miscellaneous Investment Income received by Non-residents (Table 24, lines 4 and 5)

The amounts shown here represent all payments of interest, dividends, and miscellaneous investment income by Canadian business and governments to the non-resident sector. Table 8-6 provides additional detail on the nature of these payments. All of the information is based on Balance of Payments sources.

TABLE 8-6. Interest, Dividends and Miscellaneous Investment Income Received by Non-residents

	1961	1962
	millions of dollars	
Interest from business	119	128
Interest from government	140	146
Dividends from business	505	509
Sub-totals, interest and dividends as per Balance of Payments	**764**	**783**
Withholding taxes	116	125
Miscellaneous investment income	142	160
Total interest, dividends, and miscellaneous investment income	**1,022**	**1,068**

It may be noted that the total of this table ($1,022 million in 1961) is the same as the total of "interest and dividends paid abroad" shown in Tables 4-2 and 4-3 of Chapter 4 as part of the adjustment required to move from Gross National Expenditure at Market Prices to Gross Domestic Product at Market Prices. The term "interest and dividends paid abroad" was used in these earlier Tables to denote **all** payments of investment income abroad, including withholding taxes and some elements of miscellaneous investment income not elsewhere classified (e.g., profits of insurance companies, and net rents paid abroad).

[8] Included here are the United Nations and its specialized agencies, the North Atlantic Treaty Organization, and the Organisation for Economic Co-operation and Development.

Current Transfers from Persons (Table 24, line 6)

This component consists of personal and institutional remittances to non-residents from Canada.

Current Transfers from Government (Table 24, lines 7 and 8)

Current transfers from government consist of "official contributions" by Canada to non-residents, mainly for foreign aid and development assistance, and pensions paid abroad. The amounts in each case are given in Table 8-7.

TABLE 8-7. Current Transfers from Government

	1961	1962
	millions of dollars	
Official contributions	56	36
Other (pensions)	21	23
Total current transfers from government	77	59

A special note may be in order on the "official contributions" component of this table. Canadian government expenditures abroad in the form of official contributions represent shipments or outlays for Canada's economic and special aid programs. Included under economic aid are bilateral programs featuring the Colombo Plan, international food aid programs, and other schemes in aid of developing countries; and multilateral plans mostly under the aegis of the United Nations through its Special Fund, Expanded Program for Technical Assistance and Children's Fund. Under the special aid programs, Canada has contributed to the relief and resettlement of refugees and to assistance for victims of natural disaster and of famine.[9]

The Income and Outlay Account – Outlay (Table 25 of Volume 1)

This table shows the payments by the non-resident sector to Canada arising from international transactions on current account. The relationship between the Balance of Payments current account figures, and the total of

[9] It may be noted that Canada's contributions to Mutual Aid to NATO countries are in addition to the foregoing government expenditures which have been denoted as "official contributions". Because of the special character of such military assistance, the amounts are not reflected in the current account balances in the Balance of Payments. Until recently, in Balance of Payments presentations, the amounts involved were entered on both the receipts and payments side of the current account statement. Thus, in Table 8-2, an adjustment is made to the basic Balance of Payments data on both the receipts and payments side to derive the appropriate figures for inclusion in the National Accounts. In more recent Balance of Payments publications, this item has been dropped entirely from both sides of the current account, and no adjustment for National Accounts purposes is necessary.

payments by non-residents to Canada (line 8 minus line 7 of Table 25) is shown in Table 8-1. A breakdown of these payments according to whether they are made for purchases of goods and services from Canada, for payments to Canada of interest, dividends and other forms of investment income, or simply as transfer payments, is given in Table 8-8.

TABLE 8-8. Payments by Non-residents to Canada

	1961	1962
	millions of dollars	
Purchases of goods and services from business (Table 25, line 1)	7,324	7,937
Interest, dividends, and miscellaneous investment income payments:		
To Business (Table 25, line 2)	216	210
To Government (Table 25, line 3)	33	29
To Persons (Table 25, line 4)	51	58
Current transfers:		
To government (withholding taxes) (Table 25, line 5)	116	125
To persons (Table 25, line 6)	60	65
Total payments	7,800	8,424
Surplus (–) or deficit (+) of Canada on current transactions with non-residents (Table 25, line 7)	856	779
Grand totals (Table 25, line 8)	8,656	9,203

Purchases of Goods and Services from Business (Table 25, line 1)

This component includes payments for all purchases of goods by or on behalf of non-residents from Canada (Canadian merchandise exports); the total of non-residents' expenditures for travel in Canada; payments on freight and shipping account; payments for the purchase of various business services, including royalties, patents, copyrights and equipment rentals; and gold available for export. The data are provided by the Balance of Payments Division of Statistics Canada. A breakdown of the estimates is shown in Table 8-9. The basic information on which the estimates are based is shown in the Appendix to this chapter.

TABLE 8-9. Purchases of Goods and Services from Business

	1961	1962
	millions of dollars	
Goods (Canada's merchandise exports as per Balance of Payments)	5,889	6,387
Travel (as per Balance of Payments)	482	562
Freight and shipping (as per Balance of Payments)	486	509
Other services	305	324
Gold available for export (as per Balance of Payments)[1]	162	155
Totals	7,324	7,937

[1] See footnote 4 page 248.

Interest, Dividends and Miscellaneous Investment Income Payments by Non-residents (Table 25, lines 2, 3 and 4)

The amounts shown here represent all payments of interest, dividends and miscellaneous investment income by non-residents to Canadian businesses, governments, and persons. Table 8-10 provides further detail on the nature of these payments. All of the information is based on Balance of Payments sources.

TABLE 8-10. Interest, Dividends and Miscellaneous Investment Income Payments by Non-residents

	1961	1962
	millions of dollars	
Interest to business	4	4
Interest to government	33	29
Exchange fund	33	38
Interest to persons	9	9
Dividends to business	92	73
Dividends to persons	42	49
Sub-totals, interest and dividends as per Balance of Payments	**213**	**202**
Miscellaneous investment income	87	95
Total interest, dividends and miscellaneous investment income	300	297

It will be noted that the total of this Table ($300 million in 1961) is the same as the total of "interest and dividends received from abroad" shown in Tables 4-2 and 4-3 of Chapter 4 as part of the adjustment required to move from Gross National Expenditure at Market Prices to Gross Domestic Product at Market Prices. The term "interest and dividends received from abroad" is used in these earlier Tables to denote **all** receipts by Canada from non-residents of investment income, including miscellaneous investment income not elsewhere classified.

Current Transfers to Government (Table 25, line 5)

This component covers the payment of taxes by the non-resident sector to Canada. In these Accounts, the withholding tax on non-resident investment income is treated as though it were a transfer (tax outlay) from the non-resident sector to the Canadian government.

Current Transfers to Persons (Table 25, line 6)

This component includes payments of personal and institutional remittances by non-residents to Canada, and pensions paid to Canadian residents by non-resident governments, businesses and institutions.

Surplus (-) or Deficit (+) of Canada on Current Transactions with Non-residents (Table 25, line 7)

This component of the non-resident sector's income and outlay account is carried down to the capital finance account of the sector and becomes a source of finance for the sector's net lending to (or borrowing from) Canada. The nature of this item, and its relationship to total national saving and investment and to the capital finance transactions of the other sectors of the economy is described earlier in this chapter and also (at greater length) in Chapter 4.

The Capital Finance Account (Tables 26 and 27 of Volume 1)

Sources of Saving (Table 26, lines 1 and 2)

The non-resident sector as incorporated in the structure of these Accounts covers only transactions between Canada and the rest-of-the-world. There is no investment in physical assets (gross capital formation) undertaken by the non-resident sector on its own behalf in this system of Accounts. The contribution of the non-resident sector to the saving-investment flows in these Accounts is only as a source of saving for **domestic** investment activity (gross capital formation), as described in Chapter 4. The typical pattern is for the non-resident sector to be a net lender to Canada – that is, Canada runs a deficit (or the non-resident sector runs a surplus) on current international transactions (see Chart 8-1). There have, however, been times (as in 1970 and 1971) when Canada has run a surplus (and the non-resident sector a deficit) which simply means that the roles are reversed, with the non-resident sector becoming a net borrower of resources from Canada.

It needs to be emphasized that net lending or net borrowing as defined in these Accounts refers to the net physical use of goods and services and not to the financial flows which underlie them. (There is one special case which represents an exception to this generalization, described later). In other words, a Canadian deficit of $856 million with the rest-of-the-world in 1961 means that Canada has drawn on the physical resources (goods and services) produced by other countries to the extent of $856 million as a means of supplementing the resources made available from Canadian production for investment in gross capital formation. This is not the same as saying that Canada's borrowings of financial resources in 1961 amounted to $856 million. As the Appendix to this chapter indicates, net capital movements into Canada in 1961 were $1,220 million. The difference (allowing for adjustments for National Accounts definitions) shows up in the increase in official holdings of gold and foreign exchange and in the change in the net International Monetary Fund position.

Table 8-11 shows the way in which saving, in the form of physical resources (goods and services) appropriated, was made available in 1961 and 1962 from resident and non-resident sources. It may be noted that resources made available from Canadian production include resources related to foreign-owned factors of production in Canada.

Table 8-12 shows the relationship between the saving made available from the non-resident sector in the form of physical resources as above, and the financial flows associated with it.

TABLE 8-11. Gross Capital Formation and Sources of Saving Flows

	1961	1962
	millions of dollars	
Gross capital formation:		
Gross fixed capital formation	8,392	8,885
Value of physical change in inventories	116	667
Residual error of estimate	– 142	126
Totals (Table 9, Volume 1)	8,366	9,678
Source of saving:		
Resources made available from Canadian production	7,368	9,024
Net use (borrowing) of resources from abroad	856	779
Residual error of estimate	142	– 125
Totals (Table 10, Volume 1)	8,366	9,678

TABLE 8-12. Saving, Net Capital Movements and Official Balances

	1961	1962
	millions of dollars	
Net use (borrowing) of resources from abroad as defined in the National Accounts (Table 8-11)	856	779
Adjustment back to Balance of Payments basis	72	51
Current account deficit (Balance of Payments basis)	928	830
Total capital inflow (in short- and long-term forms)	1,220	984
Increase in official holdings of gold and foreign exchange, and other	292	154

It may be noted that in Table 26 of Volume 1, an additional source of non-resident saving is shown, in the form of capital transfers consisting of net inheritances and migrants' funds (line 2). This entry represents the only case in these Accounts where transfers of a capital nature are explicitly recorded. While these amounts represent a source of funds for lending to Canadians in a financial sense, they do not fit readily into the saving-investment identities described in Chapters 3 and 4, and in the foregoing discussion[10] They are omitted in the consolidation of the capital finance accounts (Tables 10 and 11 of Volume 1) and in Table 4-4 of Chapter 4.

Disposition of Saving (Table 27, line 1)

Net lending to Canada by non-residents is taken simply as the sum of the two components recorded in Table 26 and discussed above.

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[10] These saving-investment identities are based on definitions of production, consumption, and investment which are in the following relationship to one another:

Production = Income

Production = Consumption + Investment

Income = Consumption + Saving

Saving = Investment

Since capital transfers in the form of net inheritances and migrants' funds are outside the scope of the transactions underlying these equations, they cannot be fitted into the consolidated saving-investment tables.

APPENDIX TO CHAPTER 8

The Canadian Balance of International Payments

Summary statements of the Canadian Balance of International Payments position on current and capital account for the years 1961 and 1962, as compiled by the Balance of Payments Division of Statistics Canada, are given in the following two tables. The first of these tables provides the data arranged in accordance with the presentation now followed in current Balance of Payments reports. The second table provides a statement of the Balance of Payments as it was formerly presented in earlier publications. The reader may wish to relate the basic source material from these two tables to the adjusted totals shown in Tables 8-1 and 8-2.

TABLE I. The Canadian Balance of International Payments, as Currently presented[1]

	1961	1962
	millions of dollars	
Summary of current account transactions		
Total current receipts	7,904	8,548
Total current payments	8,832	9,378
Current account balance	− 928	− 830
Goods and services:		
Receipts	7,624	8,234
Payments	8,480	9,045
Balance	− 856	− 811
Merchandise trade:		
Exports	5,889	6,387
Imports	5,716	6,203
Balance	173	184
Service transactions:		
Receipts	1,735	1,847
Payments	2,764	2,842
Balance	− 1,029	− 995
Transfers:		
Receipts	280	314
Payments	352	333
Balance	− 72	− 19

See footnote(s) at end of table.

TABLE I. The Canadian Balance of International Payments, as Currently presented[1] – Concluded

	1961	1962
	millions of dollars	
Detail of service transactions		
Service receipts:		
Gold production available for export[2]	162	155
Travel	482	562
Interest and dividends	213	202
Freight and shipping	486	509
Other service transactions	392	419
Total service receipts	**1,735**	**1,847**
Service payments:		
Travel	642	605
Interest and dividends	764	783
Freight and shipping	568	595
Other service transactions	674	734
Withholding taxes	116	125
Total service payments	**2,764**	**2,842**
Detail of transfers		
Transfer receipts:		
Personal and institutional remittances	60	65
Withholding taxes	116	125
Sub-totals, current transfers	176	190
Inheritances and migrants' funds, capital transfers	104	124
Total transfer receipts	**280**	**314**
Transfer payments:		
Personal and institutional remittances	120	122
Official contributions	56	36
Sub-totals, current transfers	176	158
Inheritances and migrants' funds, capital transfers	176	175
Total transfer payments	**352**	**333**
Summary of capital transactions		
Net capital movement (excluding monetary items):		
In long-term forms	930	688
In short-term forms	290	296
Total capital inflow	**1,220**	**984**
Balance to be settled	292	154
Allocation of Special Drawing Rights	–	–
Official monetary movements in the form of:		
Change in official international reserves	296	307
Change in official monetary liabilities	– 4	– 153
Totals	**292**	**154**

[1] Source: *The Canadian Balance of International Payments, 1971*, Statistics Canada, Catalogue 67-201.

[2] *After the first quarter 1968, transactions in non-monetary gold have been included with merchandise trade.*

TABLE II. The Canadian Balance of International Payments, as Formerly presented[1]

	1961	1962
	millions of dollars	
Current receipts:		
Merchandise exports (adjusted)	5,889	6,387
Mutual aid to NATO countries	35	41
Gold production available for export	162	155
Travel expenditures	482	562
Interest and dividends	213	202
Freight and shipping	486	509
Inheritances and immigrants' funds	104	124
All other current receipts	452	484
Total current receipts	**7,823**	**8,464**
Current payments:		
Merchandise imports (adjusted)	5,716	6,203
Travel expenditures	642	605
Interest and dividends	764	783
Freight and shipping	568	595
Inheritances and emigrants' funds	176	175
Official contributions	56	36
Mutual aid to NATO countries	35	41
All other current payments	794	856
Total current payments	**8,751**	**9,294**
Current account balance:		
Merchandise trade	+ 173	+ 184
Other transactions	– 1,045	– 978
Official contributions	– 56	– 36
Totals	**– 928**	**– 830**
Net capital movement (excluding monetary items shown below):		
In long-term forms	930	688
In short-term forms	288	297
Total capital inflow	**1,218**	**985**
Balance to be settled	290	155
Official monetary movements in the form of:		
Change in official holdings of gold and foreign exchange	229	537
Change in net International Monetary Fund Position	61	– 378
Other special international financial assistance	–	– 4
Totals	**290**	**155**

[1] Source: *The Canadian Balance of International Payments: A Compendium of Statistics from 1946 to 1965*, Catalogue 67-505.

CHAPTER 9

THE MEASUREMENT OF OUTPUT AT CONSTANT PRICES: VALUE, VOLUME, AND PRICE RELATIONSHIPS

Introduction

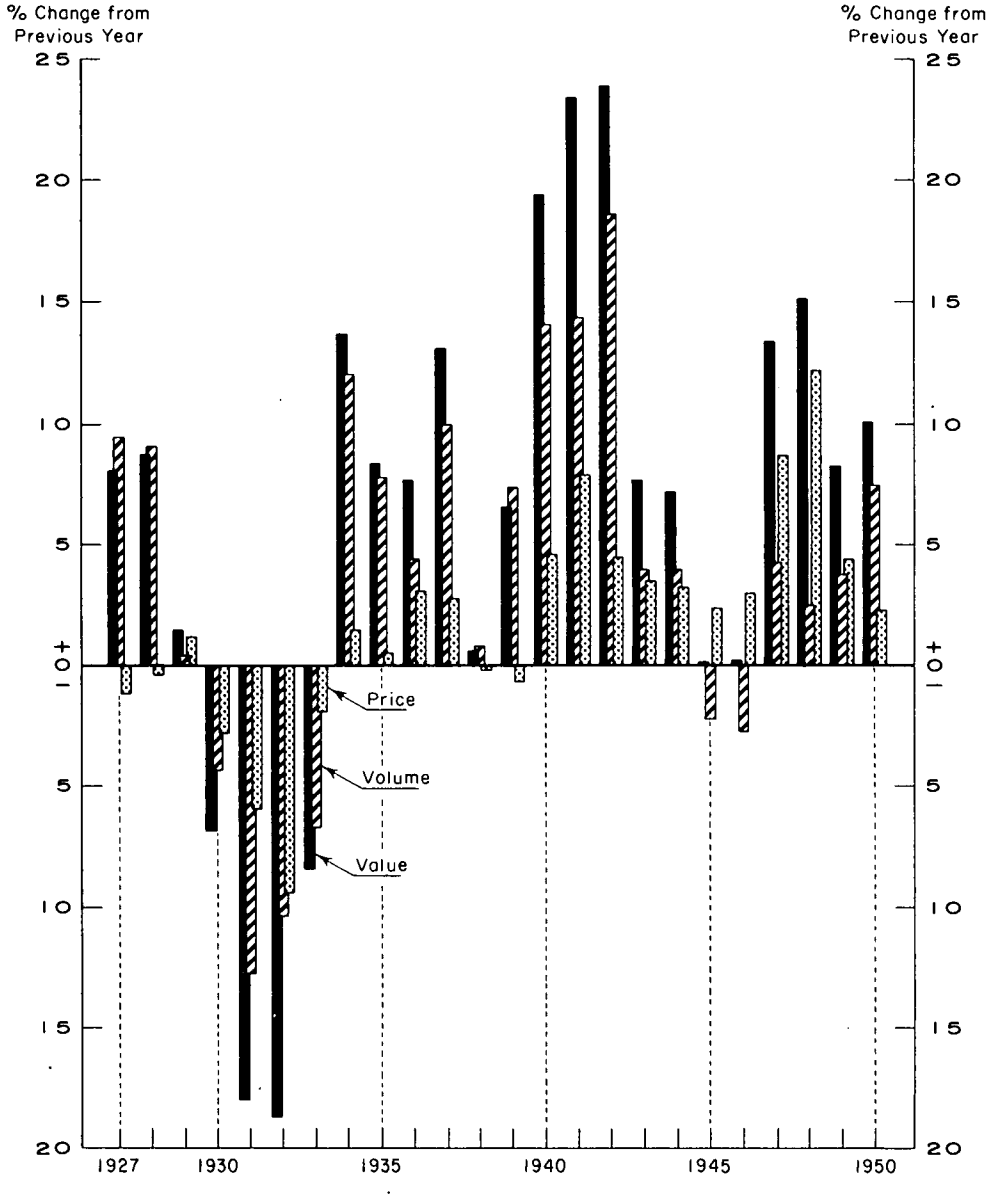
The estimates of Gross National Product discussed in the previous chapters, and the underlying income and expenditure flows, are expressed in current prices – that is, in the prices of the year to which the estimates refer. However, these value estimates of Gross National Product are the product of two interacting elements – changes in the prices at which goods and services are sold; and changes in the physical quantity (volume) of the goods and services sold. For many types of economic analysis it is essential to be able to decompose the value series into their underlying price and quantity constituents. The purpose of this chapter is to describe the procedures employed in disentangling the price and volume constituents. A brief introduction to this matter, outlining the basic principles involved, was given in Chapter 3. The present chapter provides a fuller discussion of the techniques underlying the separation of the volume and price components and describes the nature of the physical volume estimates and the associated price indexes.

The basic objective is to obtain estimates of Gross National Product which express changes in the total physical volume of production, unaffected by what is happening to prices. As was indicated in Chapter 3, all sales of final product shown in Gross National Expenditure (Table 2 of Volume 1), are expressed in market prices. Since it is possible in the majority of cases to construct price indexes which reflect final prices paid in various markets, it also becomes possible to adjust the "value of sales" estimates as reflected in the Gross National Expenditure so as to eliminate the effects of changing prices. The resulting series, known as "deflated Gross National Product" or as "Gross National Product in constant prices", provides a measure of the rate of change in the physical volume of goods and services produced, unaffected by the rate of price change in the economy. The estimates are shown in Table 6 of Volume 1. The associated "implicit price indexes" are given in Table 7 of Volume 1.

These constant dollar Gross National Product estimates, which reflect changes in the physical volume of output, have many important uses. The rate of increase in the physical volume of goods and services produced is one of the primary determinants of the rate of job creation in the economy. It also indicates whether the economy is measuring up to its "potentials" or whether it is falling short of these potentials with a resultant "gap" developing between "actual" and "potential" Gross National Product (see Chart 1-1). The estimates provide the basis for determining how much of the value change in Gross National Product reflects the physical growth of the economy, and how much reflects price inflation (see Chart 9-1). They provide the basis for calculating the economy's productivity performance – for estimating the rates of increase (or decline) in "output per unit of input" – an indicator of performance or of the efficiency of resource use which is sometimes crudely approximated by reference to "changes in output per worker employed" (see Chart 9-2). The estimates are also essential to provide a view of changes in the living standards of Canadians, since they measure changes in the real physical volume of goods and services available to Canadians. They also provide the essential basis for determining long-term rates of economic growth. Since the

procedures involved result in the separation of the price and volume constituents of Gross National Expenditure and its main components, the associated price indexes provide a basis for determining the intensity of inflation in the economy, the extent to which inflationary forces have become widespread, and the principal areas of demand which are involved (see Charts 9-3 and 9-4).

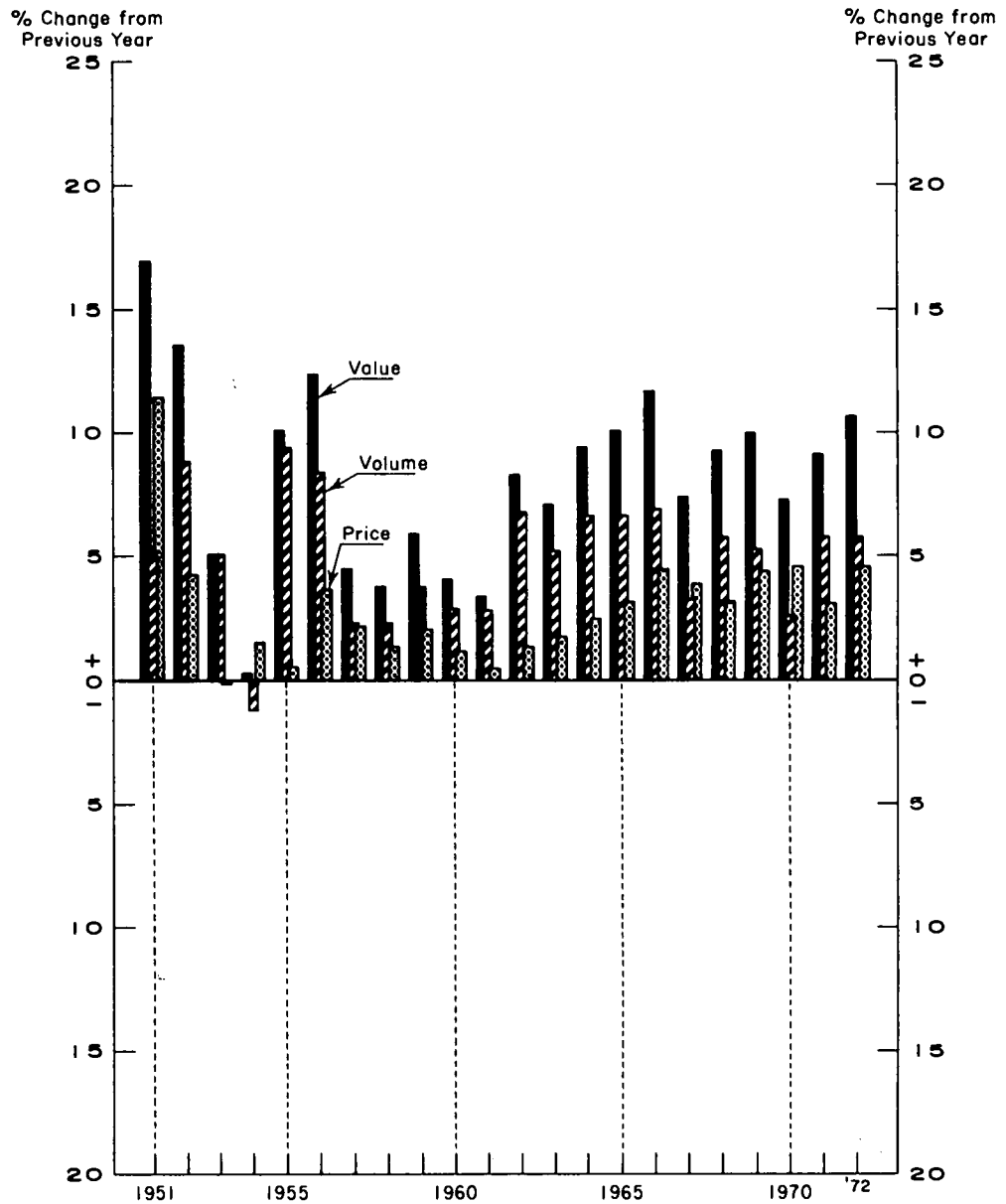
Year-to-Year Percentage Change in Value, Volume and Price Components of Gross National Product, 1927–1950



Two Approaches to the Measurement of Real Output

As was indicated in Chapter 3, the **value** of economic production can be measured through three basic approaches: by summing up all incomes originating in production; by summing up all expenditures on final product; or by summing up the "net values added" of the various industries in the economy. Of these three approaches, only two – the expenditure on final

Year-to-Year Percentage Change in Value, Volume and Price Components of Gross National Product, 1951–1972



product and the value added approach – are amenable to estimation in constant dollars. The "sum of incomes" approach cannot be suitably "deflated" or expressed in constant dollar terms in a way which meaningfully reflects changes in the physical volume of output.[1] Only those economic constructs which are based on commodity or service flows are capable of being expressed in terms which reflect changes in quantity of output. Thus, in the National Income and Expenditure Accounts, the approach which is taken is to "deflate" the components of Gross National Expenditure with appropriate matching price indexes, involving the adjustment of almost three hundred sub-component series to eliminate the effects of price change. This "deflation of expenditure" approach is the principal subject matter which is taken up in this chapter.

There is, however, a second approach to the measurement of real output which is employed in another, related area of the work of Statistics Canada. In the Domestic Product by Industry system (published by Statistics Canada in Catalogue 61-005, *Indexes of Real Domestic Product by Industry*), the basic approach which is taken is to sum up the "deflated net values added" by industry – in other words, to deflate the value of each industry's gross output, subtract from it the deflated value of each industry's material inputs, and sum the results.[2] This procedure is commonly known as the "double deflation" method. Theoretically, if it were carried out on the same conceptual basis as the deflation of the Gross National Expenditure, it should yield identical results, apart from statistical errors and discrepancies reflecting the use of different source material. However, the real product by industry estimates do employ a somewhat different conceptual basis. They are estimated on a factor cost basis of valuation, whereas Gross National Product is at market prices.[3] And they measure Gross **Domestic** Product, not Gross **National** Product.[4] The Appendix to this chapter shows the extent of the differences between the two sets of estimates for recent years. A further discussion of the real domestic product by industry estimates is given in Chapter 12, "The System of National Accounts: Linkages from Income and Expenditure Accounts to Other Parts of the System".

The remainder of this chapter deals with the approach employed to derive real output estimates in the National Income and Expenditure Accounts – the deflation of Gross National Expenditure.

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[1] Estimates of changes in the real purchasing power of incomes can of course be obtained by deflating, say, Personal Disposable Income with the consumer price index. But this is a different concept from that involved in measuring changes in the volume of production. Changes in the physical volume of personal consumption – one of the major uses made of final output – cannot be measured by deflating income since not all income is spent; and that portion which is spent can only be adjusted to volume of expenditure terms when it is known what goods and services the income is spent on.

[2] The result is conceptually equivalent to value added (i.e., wages and salaries, profits, depreciation, etc.) at constant base-year prices.

[3] The difference between the factor cost and market price basis of valuation consists of indirect taxes less subsidies. The domestic product at factor cost concept provides a more suitable framework than Gross National Product at market prices for assembling industrial statistics. The industrial structure of real resource use is more clearly revealed if indirect taxes less subsidies are excluded from the calculations of output originating by industry. Also, there are a good many difficulties involved in assigning indirect taxes less subsidies to the industries on whose output the taxes are levied.

[4] The difference here consists of net interest and dividends paid abroad.

The Deflation of Gross National Expenditure

The main object of the deflation process is to produce volume series in which quantities change from year to year while prices are held constant. To derive such volume series, each individual value series making up the Gross National Expenditure should be deflated with currently weighted price indexes, that is, price indexes whose quantity weights in any given year represent the distribution of expenditures within that year (i.e., Paasche-type price indexes). The sum of these deflated value (or constant dollar, volume) series equals deflated, or constant dollar, Gross National Expenditure. Algebraically, the relationships can be expressed in the following form:

$$\lesssim QxPo = \lesssim QxPx \div \frac{\lesssim PxQx}{\lesssim PoQx}, \text{ where:}$$

Qx = current period quantities;
Po = base year prices;
QxPo = constant-price-weighted quantity aggregate (or constant dollar volume of output aggregate), Laspeyres type;
Px = current period prices;
QxPx = current period values; and

$\frac{\lesssim PxQx}{\lesssim PoQx}$ = a composite price index weighted with current quantity weights, Paasche type.

In actual practice, most of the price indexes available for carrying out the deflation are weighted with base-period quantity weights (Laspeyres-type indexes), in the form $\frac{PxQo}{PoQo}$. The use of such indexes will introduce some inaccuracy into the deflation of the individual value series if the quantity expenditure patterns within the particular value series change substantially from the pattern of the base year, or if price movements of the various items of expenditure covered in the price index show widely disparate changes. This will frequently be the case in an economy in which relative quantities and relative prices are continually shifting,[5] but the problem can be reduced to minimal proportions if two steps are followed in the deflation process:

(a) if the base-weighted price indexes are re-weighted periodically to reflect the changing composition of expenditures within the individual component series. This practice has in fact been followed in these Accounts, and the price indexes have been prepared on four quantity-weight bases, as follows:[6]

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[5] So long as the relative quantities of the various items constituting an individual value series have changed in the same proportion, it is a matter of indifference whether the price indexes used to deflate them are base weighted or currently weighted. However, if changes in the relative quantities purchased within the group take place, and in addition, the relative prices of the items change, then there will be a difference in the constant dollar estimates depending on whether current or base weighted indexes are used. It is for this reason that the deflation is carried out in as much detail as possible, and that the price indexes are periodically re-weighted.

[6] It should be noted that the four distinct time periods involving separately prepared quantity weights are linked together at the overlap years and are on a 1961 time reference base (1961=100).

1935-39 weights for the period 1926-1947,

1949 weights for the period 1947-1956,

1957 weights for the period 1956-1961,

1961 weights for the period 1961 and succeeding years.

(b) if the deflation process is carried out at a sufficiently fine level of detail, to cover individual commodities or services, or relatively homogeneous groups of commodities or services, so that the scope for widely disparate price movements or significant shifts in expenditure patterns **within individual component series** is kept to a minimum. In these Accounts, the deflation process is carried out at a level of around 300 individual series.

The first step in the deflation procedure, then, is to obtain a breakdown of the value series which make up the Gross National Expenditure into as fine a level of detail as possible. For example, personal expenditure on consumer goods and services is deflated in terms of some one hundred and forty separate series such as men's and boys' clothing, women's and children's clothing, tobacco, fuel, and so on. The second step is to deflate each individual series with a price index that has been selected or constructed so that its commodity content and weighting pattern will correspond as closely as possible to that of the value data. Each individual series so deflated can be used to express the change in quantity from year to year in terms of constant prices. The third step is to sum up the deflated or constant dollar series, to derive the main totals of personal expenditure on consumer goods and services, government current expenditure on goods and services, gross fixed capital formation, and so on, all expressed in constant dollars. Gross National Expenditure in constant dollar terms, shown in Table 6 of Volume 1, is arrived at by this summation process. If the current dollar series at the aggregative level (as shown in Table 2 of Volume 1) are then divided by the constant dollars series at the aggregative level, the result will be a set of implicit price indexes which are currently weighted, as presented in Table of Volume 1.[7] Thus, at the aggregative level, these procedures yield a set of constant dollar output indicators of the Laspeyres type, and a set of currently weighted implicit price indexes of the Paasche type, both corresponding to the algebraic formulation set out in the preceding discussion.

Table 9-1 provides an example of the deflation process for clothing, with each of the sub-series "men's and boys' clothing" and "women's and children's clothing" being separately deflated with its own individual (base-weighted) price index. The constant dollar (quantity) series for all clothing is shown in line 8, being the sum of the two deflated sub-series. The implicit price index for all clothing (line 9) derived by dividing the sum of the value series for these

[7] The implicit price indexes of Gross National Expenditure and its major components derived in this way are currently weighted since they reflect changes in the pattern of quantities purchased among the 300 individual sub-series which have been separately deflated. In effect, the implicit deflators are currently weighted at the aggregative level, but incorporate fixed weighting within individual components. One of the purposes of deflating at a fine level of detail is to bring the results as close as possible to a currently weighted price index system at the major group level.

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NATIONAL INCOME AND EXPENDITURE ACCOUNTS
VOLUME 3

A Guide to the National Income and Expenditure Accounts

Definitions - Concepts - Sources Methods

ERRATA

Page 268, 2nd paragraph, line 19:

Reads: currently weighted, as presented in Table of Volume 1.

Should read: currently weighted, as presented in Table 7 of Volume 1.

Last page of Table of Contents:

Reads: PART II, THE ANNUAL ESTIMATES - Concluded

Should read: PART II, THE QUARTERLY ESTIMATES - Concluded

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NATIONAL INCOME AND EXPENDITURE ACCOUNTS
VOLUME 2

A Guide to the National Income
and Expenditure Accounts

Definitions - Concepts - Sources - Method.

ERRATA

Page 268, 2nd paragraph, line 15:

Reads: currently weighted, as presented in Table
of Volume 1.

Should read: currently weighted, as presented in
Table 7 of Volume 1.

Last page of Table of Contents:

Reads: PART II, THE ANNUAL ESTIMATES - Concluded

Should read: PART II, THE QUARTERLY ESTIMATES - Concluded

two items by the sum of the constant dollar series is a currently weighted composite price index, with the weights in each year reflecting the relative quantities of men's and boys' clothing and women's and children's clothing purchases in each year.

TABLE 9-1. Deflation of Personal Expenditure on Clothing and Derivation of Implicit Price Index

1961=100

	1961	1966	1972
		$'000,000	
1. Men's and boys' clothing, current dollars	622	906	1,416
2. Price index, 1961=100	100.0	110.8	129.3
3. Men's and boys' clothing, constant dollars (1) ÷ (2)	622	818	1,095
4. Women's and children's clothing, current dollars	1,225	1,627	2,658
5. Price index, 1961=100	100.0	111.4	125.2
6. Women's and children's clothing, constant dollars (4) ÷ (5)	1,225	1,461	2,123
7. Men's, women's and children's clothing, current dollars (1) + (4)	1,847	2,533	4,074
8. Men's, women's and children's clothing, constant (1961) dollars (3) + (6)	1,847	2,279	3,218
9. Implicit price index, clothing 1961=100 (7) ÷ (8)	100.0	111.1	126.6

The implicit quantity weights with which the implicit price index shown in line 9 is weighted are set out in Table 9-2. It will be noted that over the time period involved, there was relatively little change in the proportion of men's and boys' clothing purchased or in the proportion of women's and children's clothing purchases. In other words, changes in patterns of expenditure over this time period will have had little effect on the movement of the implicit price index.

TABLE 9-2. Implicit Quantity Weights attached to Implicit Price Index for Clothing

	1961	1966	1972
Men's and boys' clothing	33.7	35.9	34.0
Women's and children's clothing	66.3	64.1	66.0
Totals	100.0	100.0	100.0

A further example may help to illustrate the foregoing point. Since the current weights attaching to the implicit price index for clothing have shown relatively little change over time, the behaviour of the implicit price index in

this instance will differ only slightly from that of a composite price index prepared on the basis of fixed weights (i.e., a Laspeyres-type index). Table 9-3 shows the derivation of a composite fixed weight price index for clothing based on the pattern of expenditure which prevailed in 1961. There is very little difference in the movement of this index as compared with the currently weighted index in Table 9-1.

TABLE 9-3. Fixed Weight Price Index for Clothing

1961=100

	1961	1966	1972
1. Men's and boys' clothing, price index 1961=100	100.0	110.8	129.3
2. (1) x 1961 value (1961 = $622 million)	622	689	804
3. Women's and children's clothing, price index 1961=100	100.0	111.4	125.2
4. (3) x 1961 value (1961 = $1,225 million)	1,225	1,365	1,534
5. (2) + (4) sum of price index x 1961 weight	1,847	2,054	2,338
6. (5) ÷ 1961 value ($1,847 million), fixed weight price index, clothing, 1961=100	100.0	111.2	126.6

The Price Indexes used in Deflation

The deflation of the Gross National Expenditure in terms of almost 300 individual series involves the use of a wide range of price information. In the majority of cases, the price indexes used in the deflation process are based on data which are collected and published regularly by Statistics Canada in the course of its reporting in the prices field. Thus, the Consumer Price Index and its components constitute a very important source of price information for the deflation of personal expenditure on consumer goods and services, a category which accounts for well over one-half of Gross National Expenditure. The Industry Selling Price Indexes and some Wholesale Price Indexes also constitute a major source of information, for the deflation of some parts of gross fixed capital formation and a portion of merchandise exports. Specially constructed price indexes, based on Trade of Canada value and volume data, Industry Selling Price Indexes, and United States wholesale price indexes, are used for delfating exports and imports of goods and services. Data on farm product prices, collected by the Agriculture Division of Statistics Canada, are employed in a number of areas. In some parts of the Accounts, where the value of output is measured essentially by the cost of the inputs, as in the case of government and non-profit institutions, the deflators are in effect indexes of wage and salary rates. In other instances, special price indexes have had to be developed to meet particular needs and problems in these areas.

The sources and methods employed in the deflation procedure, and the nature of the price indexes used, are described more fully later in this chapter, in connection with the discussion of the major components of Gross National Expenditure. However, a broad summary view of the principal sources of the information, and of its relative importance in the deflation process, is given in Table 9-4.

TABLE 9-4. Relative Importance of Price Indexes used in Deflation of Gross National Expenditure

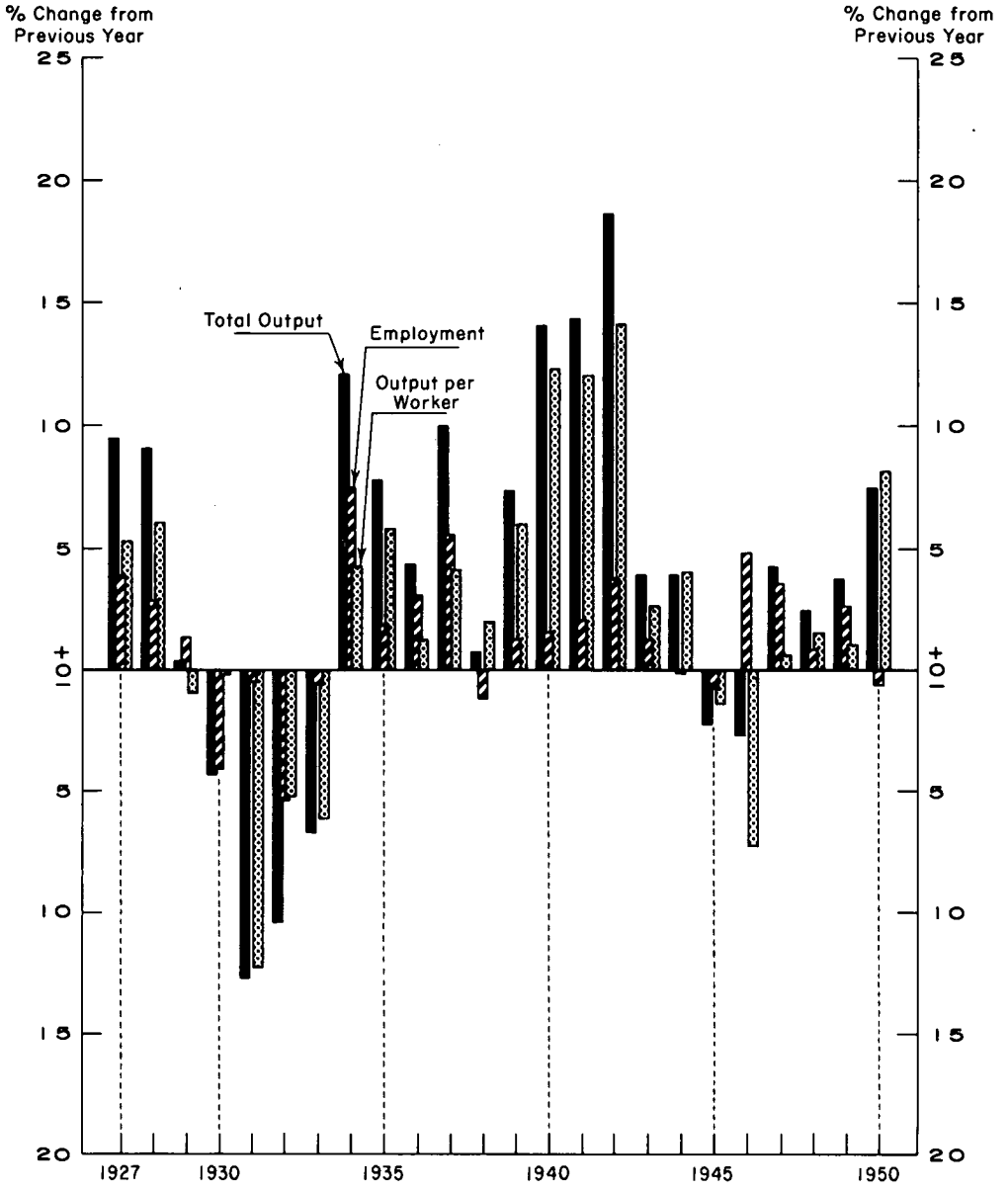
Excluding Inventories and Residual Error

	Per cent importance in terms of 1961 expenditure patterns[1]					
	Implicit price deflator	Consumer price index	Wholesale price index and industry selling price indexes	Agricultural prices	Earnings and wage rate indexes	Other prices
	(1)	(2)	(3)	(4)	(5)	(6)
Gross National Expenditure ex. inventories and error	100.0	57.0	16.0	3.0	20.9	3.1
Personal consumption expenditures	100.0	82.6	–	.5	8.7	8.2
Goods	100.0	96.9	–	.8	2.0	0.3
Services	100.0	58.3	0.1	–	20.2	21.4
Government current expenditures on goods and services	100.0	8.5	3.5	–	66.4	21.6
Gross fixed capital formation	100.0	1.5	51.0	4.0	19.3	24.2
Government	100.0	–	39.9	–	17.2	42.9
Residential construction	100.0	–	51.9	–	30.4	17.7
Non-residential construction	100.0	–	32.2	–	19.4	48.4
Machinery and equipment	100.0	–	100.0	–	–	–
Business	100.0	1.9	53.8	5.0	19.8	19.5
Residential construction	100.0	–	51.9	–	30.4	17.7
Non-residential construction	100.0	–	51.3	–	30.4	18.3
Machinery and equipment	100.0	5.6	58.0	14.4	–	22.0
Exports of goods and services	100.0	6.7	24.4	9.4	10.2	49.3
Of which: Merchandise	100.0	–	31.7	12.1	–	56.2
Imports of goods and services	– 100.0[2]	–	–	–	– 5.8	– 94.2
Of which: Merchandise	– 100.0	–	–	–	–	– 100.0

[1] Percentages indicate the extent to which a particular source of information on prices or costs is used to deflate the indicated expenditure category, based on 1961 quantity weights in implicit price deflators.

[2] Imports of goods and services and the associated implicit price indexes are entered as negative items in the Gross National Expenditure tables, since it is necessary to eliminate from total sales that part which represents the production of non-residents.

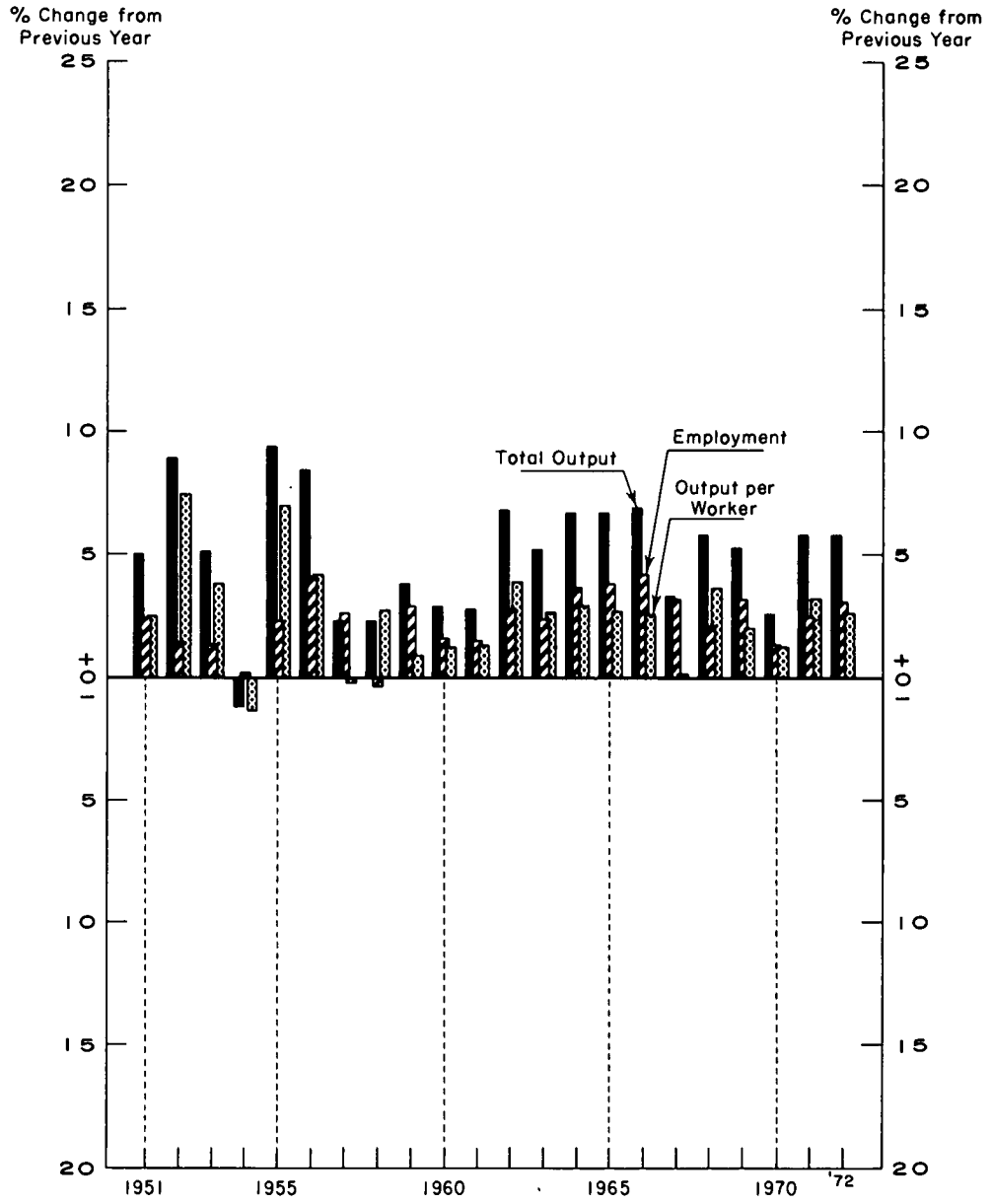
Year-to-Year Percentage Change in Output, Employment and Output per Worker Employed, 1927 – 1950



Problems in the Measurement of Real Output

There are a number of especially difficult conceptual and statistical problems associated with the measurement of real output. Not all of these can be resolved in a satisfactory manner, and partial solutions or conventions have usually had to be adopted. The user should be aware of the nature of these problems and the way in which they affect the constant dollar estimates.

Year-to-Year Percentage Change in Output, Employment and Output per Worker Employed, 1951–1972



In general, four main areas can be identified where particular difficulties are encountered, leading to obvious deficiencies in the measurements:

the non-commercial area;

non-standard products;

quality change; and

cyclical influences on prices.

The following section reviews briefly the types of problem associated with each one of these areas.

(a) Measuring Output in the Non-commercial Area

The services provided by governments and by private non-commercial institutions are not bought and sold in the market but are rendered to the community without charge. Since these services do not have a market price in the conventional sense, they cannot be valued by conventional methods. As Chapter 3 has pointed out, in these Accounts production of governments and non-profit organizations is defined as consisting of the services rendered by the employees of the organizations. And the value of this production is measured "at cost" through the direct payments made to employees in the form of wages, salaries and supplementary labour income, and military pay and allowances.

Since there is no conventionally determined measure of production in the non-commercial area to which a market price valuation can be attached, the problem of measuring the output in constant prices must also be handled in a special way. Constant dollar wages and salaries and military pay and allowances are derived by multiplying the number of employees in each case by average base year wages, salaries, or pay and allowances. This yields a constant dollar wage bill expressed in the "costs" or "prices" of the base year. Essentially, what this comes down to is that the change in the volume of output simply reflects the change in the total number of employees on the payroll.[8] Thus, output per worker, or productivity, is assumed to remain constant in the government sector (and for non-profit institutions) under the conventions which have been adopted in these Accounts. While the treatment is not satisfactory, the conventions adopted are those which are generally followed in international practice.

It may be noted that government expenditure on goods and services (both current and capital) in 1972 amounted to about 20% of Gross National Product, and that about one-half of this amount was made up of wage and salary payments which are deflated as described above. It has been calculated that, if an allowance were made in the government sector for a productivity improvement on the same scale as that which occurs in the commercial non-agricultural sector of the economy, the implicit price index of government expenditure on goods and services as currently calculated would be shown to have an upward bias amounting to about 1% per annum. Given the size of government expenditure on goods and services in the total GNP, an adjustment on this scale would have the effect of reducing the rate of rise in the implicit GNP price index by around 0.2% per year. This would imply a corresponding increase in the measurement of over-all economic growth and of total productivity gains.[9]

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[8] An alternative way of arriving at the same result would be to "deflate" the wage and salary bill with an index of changes in rates of pay. The number of employees in each year times the prevailing rate of pay per employee in each year equals the total wage and salary bill over the period. If this total wage and salary bill were to be deflated with an index of changes in rates of pay, the resulting indicator would reflect changes in numbers of employees.

[9] Economic Council of Canada, *Prices, Productivity and Employment,* Third Annual Review, Queen's Printer, Ottawa, 1966, p.86.

(b) Measuring the Output of Non-standard Products

In some areas of the Accounts, the production consists of non-standard custom-built goods where the units of output vary widely over successive time periods, and where it is not possible to identify an end-product price for any standardized unit of output. This problem is particularly acute in the construction sector, which covers many vastly different types of structures and engineering works, the bulk of which are especially designed to meet a particular need. A closely similar situation applies in the field of military procurement – especially for ships, aircraft, tracked vehicles and various types of ordnance – where the products viewed over successive time periods are seen to vary widely in design or in the technology which they incorporate. There is no representative "unit of output" which can be successfully priced over a continuous span of years.

In the construction sector, which represents about two-thirds of total private and public investment and amounted (in 1972) to 15% of total Gross National Expenditure, there are no wholly adequate measures of price change. Prior to the most recent revision of the Accounts, the measures of price change in the construction sector were based for the most part, on changes in wage rates and building material costs.[10] There is no direct way of preparing an index which will measure end-product prices for such a heterogeneous group of products as is covered in the construction sector – dams, harbours, apartment buildings, houses, shopping centres, factories, and many other kinds of structures and works. The practice of using indexes of labour and material costs to represent changes in end-product prices in construction meant that no allowance was being made for increases in productivity or for changes in profit margins and overhead costs. This in turn meant that the actual amount of price change in construction expenditures was being over-stated, and the physical volume of construction output (as well as productivity in construction) was being under-stated.

In the present, most recent revision of the National Income and Expenditure Accounts, the input-cost price indexes for construction have been adjusted to allow for increases in productivity and changes in profit margins.[11] This adjustment can obviously only be made in approximate terms, but it goes some way to correcting what was previously a significant deficiency in the deflation process and in the measurement of output in the construction sector.

In the area of defence procurement, the problem of deflating non-standard products is more intractable. Rapid technological advance and new types of weaponry have meant that changes in the cost of defence equipment can in no way be attributed to pure price factors. For example, a fighter aircraft purchased in 1972 is almost a totally different product from an aircraft purchased in 1955, embodying many more advanced technological features which should be counted as part of output. The increase in cost thus

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[10] The single exception was the case of highway construction, where an index of actual bid prices for specific types of construction on contracts let had been developed.

[11] For an analysis of the adequacy of construction deflators see Economic Council of Canada, *Prices, Productivity and Employment,* Queen's Printer, Ottawa, 1966.

embodies not only an increase in "price" but also an increase in output. Meaningful price comparisons can only be obtained if the nature of the priced object remains relatively constant.

This problem cannot be adequately dealt with in the deflation procedure. At present, the deflators for defence expenditure combine various material price indexes with average hourly earnings indexes, assuming that such composite price indexes represent a reasonable reflection of the movement of the pure price element embodied in defence equipment outlays. Apart from the war period, the amounts involved are not large in relation to Gross National Product.

(c) The Problem of Quality Change

It is generally accepted that over a period of time there is a general net improvement in the quality of goods and services produced, and that this improvement in quality contributes to the improvement of the nation's living standards. Such quality improvements may take a great variety of forms – for example, an increase in the wearing capacity of a tire, an improvement in the performance characteristics of a radio, an increase in the output capacity of a generator, an increase in the strength and durability of a metal alloy – and many hundreds of other manifestations of constantly improving technology and advanced design. However, much of this quality improvement cannot be taken into account in the output measures as presently calculated. In spite of extensive theoretical discussion in the literature of national income accounting, little real progress has been made in resolving the many conceptual and practical problems involved in incorporating "costless" forms of quality improvement in the output estimates.

The conventional way of allowing for quality change in the real output estimates is to include only quality changes that are reflected in changes in real input costs. In other words, if the price of a new model automobile of a particular make rises by 10% over the price of the old model but the cost of its production rises by 6% to cover certain improvements or additional features, the true price increase as reflected in the price indexes would be only 4%. Deflating with such a price index would produce an increase in output of 6%, being the estimated quality improvement as reflected by the cost of the additional inputs.

In the price indexes produced by Statistics Canada, attempts are made to allow for such changes in the quality and performance characteristics of products insofar as these can be identified and measured in terms of market-based criteria. But no allowance is made for improvements in quality to the consumer or buyer that cannot be readily associated with changes in the price of the item or the cost of producing it. Many types of quality improvements that are continually taking place involve no increase in measurable cost at all and are often in fact accompanied by a decline in cost, as has been the case with radios over the past two decades. Since the price indexes are not adjusted (downward) to reflect such quality improvements, the measures of real output derived by deflating the value series with such indexes fail to capture quality improvements of this so-called "cost-free" type.

The deflation procedure, however, does take into account a special type of quality change which would not normally be reflected in direct measurements of physical production. This quality change results from the fact that groups of commodities, treated statistically as individual products, frequently change in composition. If the proportion of higher quality and more expensive automobiles purchased were higher in 1972, for example, than in 1962, the average quality of the group automobiles may be said to have increased and this would be reflected by a rise in its current dollar value. When this higher value is divided by an index of prices of specified individual autos, the quantity measurement will contain an increase on account of this improvement in group quality.

(d) Cyclical Influences on Prices

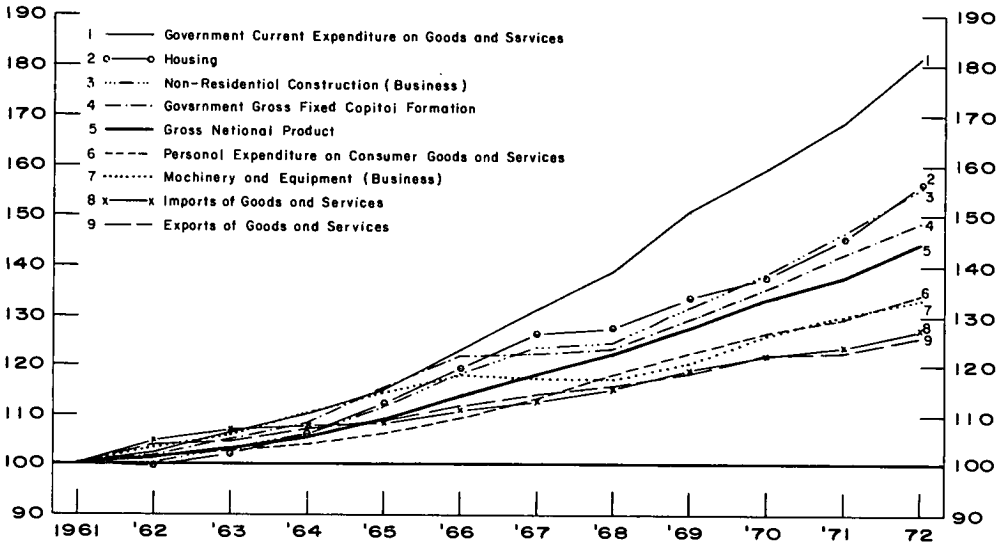
The current values of Gross National Expenditure should be deflated with price indexes which reflect the actual transaction price – the actual price paid for a good or a service. However, the price indexes may not always be a completely accurate reflection of changes in the prices actually paid. This is because, where the price indexes are based essentially on list prices, they may fail to reflect bargain sales and changes in the degree to which premiums and discounts are offered to promote sales during periods of economic slack. Consequently, during such periods, the value series may tend to be somewhat "over-deflated", with a resulting understatement of the real output measurements. Conversely, list prices may be below actual realized prices during highly inflationary boom periods, with the result that the value series would tend to be "under-deflated". To the extent that this problem affects the deflation of Gross National Expenditure, the amplitude of cyclical swings in real output would tend to be exaggerated – over-stated on both the downward and upward side. The problem is not regarded as being of sufficient consequence to impair the analytical usefulness of the estimates in any significant way, but it does probably introduce some small degree of bias into the results.

The Implicit Price Indexes

The implicit price indexes of Gross National Expenditure and its components which are given in Table 7 of Volume 1 are essentially a by-product of the deflation process, but they have important uses in their own right. The overall implicit price index of Gross National Product (the G.N.P. or implicit price "deflator") is the most comprehensive of all the indicators available in Canada for measuring price change, since it covers the entire range of goods and services produced and sold in the economy (Chart 9-3). It is therefore used as a measure of price change taking place in the economy as a whole. Moreover, the fact that implicit price indexes are available for each of the main expenditure components of Gross National Product means that this set of indicators can be used to trace and identify pressure points among the principal areas of demand as they are seen to be associated with inflationary developments in the economy.

There are, however, some points in connection with the use of the implicit price indexes which require explanation. The implicit price indexes are derived by dividing the current value series of Gross National Expenditure

Price Indexes of Gross National Product
and Major Components
(1961 = 100)



It should be noted that the implicit price index of government expenditure on goods and services reflects the arbitrary convention of fixed productivity in the government sector as described in the text.

(given in Table 2 of Volume 1) by the deflated, constant (1961) dollar series (given in Table 6 of Volume 1). The resultant implicit price indexes (which are given in Table 7 of Volume 1) are currently weighted Paasche-type price indexes which reflect not only changes in prices from year to year, but also changes in the pattern of expenditure of the group to which they refer from year to year.[12] Tests have shown that, as a general rule, year-to-year changes in expenditure patterns are not sufficiently important to impair the use of the implicit price indexes for the analysis of price change. The year-to-year change in expenditure patterns **usually** has little effect on the movements of the indexes. However, it should be noted that major expenditure shifts have occasionally occured, with results which have affected the indexes in a significant way. For example, between 1954 and 1955, there was a shift from a small grain crop to a very large crop. This shift had the effect of dampening down the rise of the implicit GNP deflator in 1955; with the change in crop production between 1954 and 1955 excluded, the implicit price deflator would have recorded an increase more than 1 percentage point greater than that which it actually showed. This is not a typical situation, but it points up the fact that the implicit price deflators must be interpreted with some care. Within Statistics Canada, a "base-weighted" set of GNP price indexes is maintained as an internal check on the implicit deflators to ensure that if important weight shifts occur which affect the interpretation of the figures, they can be suitably "flagged" in the analysis accompanying the release of the data.

It may be noted in Table 7 of Volume 1 that there is no implicit price deflator published for the "change in inventory" series. This is because the internal weighting within the inventory series consists of both positive and

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[12] By contrast, a base-weighted, Laspeyres-type price index such as the Consumer Price Index is constructed so as to reflect the price change, from year to year, of a constant fixed (base-year weighted) "basket" of goods and services.

negative components (in contrast to the other expenditure components where the weights are all positive), and the resulting implicit price index for inventory change cannot be regarded as meaningful. In deriving the implicit price index for Gross National Product as a whole, of course, the inventory change component is incorporated in both the GNP value series and the GNP constant dollar series.

Chart 9-3 shows the way in which the implicit price indexes of the main components of Gross National Expenditure tend to "disperse" around the average for GNP as a whole. The implicit deflators for government current expenditure on goods and services, housing, non-residential construction, and government gross fixed capital formation all tend to rise faster than the overall GNP deflator.[13] The implicit price indexes for personal expenditure on consumer goods and services, machinery and equipment, and imports and exports of goods and services all tend to rise more slowly than the overall GNP deflator.

Linking the Series

When constant dollar estimates are put on a new time-reference base, such as 1961 in the present historical revision, the entire constant dollar series from 1926 is not reweighted on the basis of 1961 prices. Although 1961 is the current time reference base for the entire span of years, four different sets of price weights are incorporated in the series, covering four different time segments. The results are linked together mechanically at the overlap years. The four weight bases reflect the prices of 1935-39, 1949, 1957 and 1961. The retention of the early price weights in the new constant dollar series is required in order that the price-weight base will best reflect the patterns of relative prices in the period for which it is used.

As was noted earlier, the period from 1926 to date was deflated in four time segments – 1926-47, with prices based on 1935-39; 1947-56, with 1949 prices; 1956-61, with 1957 prices; and 1961 and later years, with 1961 prices. The resulting constant dollar series are linked together at the level of the published components to a 1961 time-reference base by using the relation between the implicit price indexes in the years of overlap – for example, 1947, 1956 and 1961, as illustrated in Table 9-5. As a result of the linking process, constant dollar Gross National Expenditure and its components retain the same year-to-year volume movements as was shown in each original series.[14] For instance, volume movements for the period 1947-72 will be the same whether expressed in 1949, 1957 or 1961 constant dollars, since the weights are determined by the original base period prices. This linking process

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[13] In particular, price increases in government current expenditure on goods and services have been much more rapid than for the economy as a whole or for other main components of Gross National Product. It may be recalled that output per worker, or productivity in this component of government expenditure is assumed to remain constant.

[14] It should be noted, however, that the statistical break in the series between 1946 and 1947 described in Chapter 2 is carried over into the constant dollar series. Thus, while the linking process to convert to a 1961 time base yields the same year-to-year volume movements within the 1926-46 time segment as the initial 1935-39 based series, there is a discontinuity in the data between the years 1946 and 1947.

gives rise to adjusting entries, however, as the linked components will not add exactly to the Gross National Expenditure totals which are independently linked. These adjusting entries, shown in Table 6 of Volume 1, are primarily a function of differences in the price-weight-base structure at the year of overlap, reflected in the differences in final product shares in the particular year.

TABLE 9-5. An Illustration of the Linking Process

		1947	1949	1956	1957	1961	1965	1972
1. Gross National Expenditure in current dollars	$'000,000	13,473	16,800	32,058	33,513	39,646	55,364	103,407
2. Price Index, 1949=100		85.3	100.0	125.8				
3. Gross National Expenditure in Constant 1949 dollars (1 ÷ 2)	$'000,000	15,795	16,800	25,483				
4. Price Index, 1957=100 (linked back by ratio $\frac{97.9}{125.8}$ times line 2)		66.4	77.8	97.9	100.0	105.3		
5. Gross National Expenditure in constant 1957 dollars (1 ÷ 4)	$'000,000	20,291	21,594	32,746	33,513	37,651		
6. Price Index, 1961=100 (linked back by ratio $\frac{100.0}{105.3}$ times line 4)		63.1	73.9	93.0	95.0	100.0	109.2	144.2
7. Gross National Expenditure in constant 1961 dollars (1 ÷ 6)[1]	$'000,000	21,366	22,735	34,474	35,283	39,646	50,685	71,722
Summary:								
8. Index of Constant 1949 dollar GNE. (line 3) on time reference base 1961=100)		53.9	57.3	87.0				
9. Index of Constant 1957 dollar GNE. (line 5) on time reference base 1961=100		53.9	57.3	87.0	89.0	100.0		
10. Index of Constant 1961 dollar GNE. (line 7) on time reference base 1961=100		53.9	57.3	87.0	89.0	100.0	127.8	180.9

[1] Figures shown in Table 6 of Volume I. Slight differences between these figures and those yielded by the division of line 1 by line 6 are due to the fact that in this table the decimal is only carried to one place.

Share Analysis

Users of constant dollar data should note that the constant dollar percentage shares of Gross National Expenditure for any given year will differ significantly depending upon the base year chosen for the price indexes with which the data are deflated. This is because the quantities incorporated in the constant dollar series are weighted with base-year prices, and between any two base years, the prices of some components will have risen more rapidly than others, resulting in a greater weight being given to the series with the more rapid price rise if a later base-year is used in the deflation. Thus, there is no "unique" share distribution of Gross National Expenditure in constant dollar terms. This will differ depending upon the different price-weights which are incorporated in different base-years (see Table 9-6).

Sources and Methods

The remainder of this chapter provides a more detailed description of the deflation of the main components of Gross National Expenditure and the nature of the price indexes used.

TABLE 9-6. Percentage Distribution of Gross National Expenditure for the Year 1961, expressed in the Prices of Three Different Base Years

	Percentage distribution		
	In 1949 prices	In 1957 prices	In 1961 prices
Personal expenditure	68.4	65.3	65.4
Government current expenditure	12.4	14.5	15.7
Gross fixed capital formation	21.1	22.1	21.1
Exports	21.4	19.7	19.2
Imports	– 23.3	– 21.6	– 21.4
Inventories	0.4	0.4	0.3
Residual error	– 0.4	– 0.4	– 0.3
Adjusting entry	–	–	–
Total Gross National Expenditure	**100.0**	**100.0**	**100.0**

Personal Expenditure on Consumer Goods and Services

This component accounts for about 60% of Gross National Expenditure. In general, the quality of the deflation in this area is better than that of any other major component. A relatively large amount of price data is available for deflating this component, and these data can be matched quite accurately to the detail of the value estimates.

The Consumer Price Index is the source of 80% of the price data used in the deflation of personal expenditure (see Table 9-4). Almost all the goods categories – 97% – are deflated with these final purchase prices. In the case of consumer outlays for services, about 60% of the estimate is deflated with consumer price indexes. Gaps in the coverage of service prices have been filled in part by using earnings and wage rate indexes, which apply to about 20% of the service estimate. In such cases, it is necessary to assume that changes in rates of pay of the employees producing the services reflect changes in the price component of service outlays.

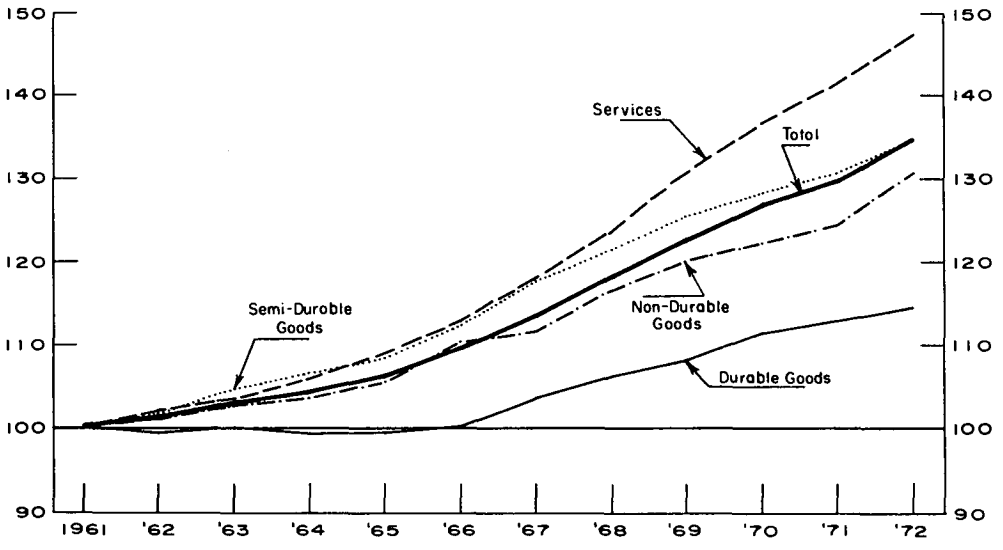
The number of expenditure categories for which constant dollar estimates of consumer spending are prepared is around 140, representing a doubling of the number of items deflated prior to the recent historical revision. While more complete price information for the current period became available from the 1961 based Consumer Price Index, there is basically no new price information for the more remote historical period.

Chart 9-4 shows the implicit price indexes of personal expenditure on consumer goods and services classified by durability of classes. It may be noted that the price of consumer durable goods has risen more slowly than average consumer prices, whereas the price of consumer services has risen much more rapidly than the average. This phenomenon reflects the inter action of a good many factors – the services sector covers a particularly heterogeneous range of activities – but it is probably at least partly related to relatively stronger rates

of productivity growth in the durable goods sector, and the relatively greater difficulty of achieving substantial economies of scale and specialization in the services sector.

Price Indexes of Personal Expenditure on Consumer Goods and Services

(1961=100)



Government Current Expenditure on Goods and Services

The deflation of government current expenditure on goods and services is essentially carried out in two broad segments: the wage and salary bill; and other government current (non-wage) expenditure. Wages and salaries in constant dollar terms are prepared by extrapolating the base year average wage or salary on the number of employees actively engaged in producing government goods and services.[15] The series are separately prepared by level of government. Data on federal, provincial and local government employment are collected by the Public Finance Division. Data on numbers of teachers employed in local school systems are collected by the Education, Science and Culture Division. The number of armed forces personnel is obtained from the Department of National Defence. Supplementary data on government employment is obtained from the Labour Division of Statistics Canada.

Other government current (non-wage) expenditure is broken down into two parts: non-defence expenditures, and defence outlays. The non-defence portion is deflated using a base-weighted composite price index covering major

[15] Hospital and medical care services are now an important part of this total (see Chapter 6).

operating expenditures of governments – freight, postage, and telephones; utility expenses; office supplies and equipment; and building maintenance and repairs. The prices used in deflating these outlays are largely final purchase prices as incorporated in the Consumer Price Index – although some use is made of intermediate input prices in the form of Industry Selling Price Indexes.

The deflation of government defence expenditure presents unusually difficult problems. In the first place, an object breakdown of these expenditures in the type of detail most appropriate for deflation is not available. In the second place, the problem of pricing individual products or commodities within defence expenditure is particularly troublesome. Changes in price can be measured readily if the nature of the priced object remains constant. For example, a bushel of number one northern wheat in 1972 is essentially unchanged from a bushel of that commodity in 1955. But commodities such as aircraft are constantly undergoing technological and structural changes so that an aircraft purchased today is not comparable to an aircraft purchased fifteen years earlier. Consequently, changes in the cost of these goods to the government cannot be regarded wholly as changes in their price. Because of these difficulties the present deflator for defence expenditure combines various material and average hourly earning indexes, with the implicit assumption that these prices move in the same way as do the prices of the final products. This matter was taken up earlier in this chapter in connection with the discussion of the measurement of output of non-standard products.

Gross Fixed Capital Formation

(a) Construction expenditures – As stated earlier, the prices used to deflate construction expenditures are generally of the input-cost type (material and labour costs) adjusted for changes in productivity and gross profit margins. This is the principal approach to the deflation of construction discussed in this section. It should be noted, however, that there are exceptions to this approach, and it may be useful to dispose of these at the outset. In the case of highway construction the price indexes employed in the deflation are based on units of construction work put in place, using actual bid prices on contracts let to indicate the movement of final product prices.[16] In the case of electric utilities and railway construction, the price indexes used continue to be based on inputs of labour and materials, with no adjustment being made for changes in productivity and profit margins. In all other cases, the price indexes are calculated using input-cost type data with adjustments to incorporate estimated changes in productivity and gross profit margins.

The data are deflated by three major types of construction activity – residential construction; non-residential construction; and other engineering construction. A breakdown of the labour, material, and gross profit margin shares in the value of construction expenditures for each one of these three categories is available annually from the Construction Division's survey of Construction in Canada.[17] From these data, labour cost (wage-rate) indexes

[16] This is a substantial improvement over cost or "input-type" indexes for deflating, since variations in overhead costs and profits are reflected in the bid prices, as well as changes in technology.

[17] *Construction in Canada,* Statistics Canada Catalogue 64-201.

are prepared by dividing the wage and salary bill by the number of man-years worked. The material-cost price indexes are prepared from data collected by the Prices Division on residential and non-residential building material costs, and for other engineering construction, from specially weighted industry selling price indexes. The index of gross profit margins is taken as the ratio of gross profits to the total value of construction. These indexes of wage costs, material input prices and profit margins are combined on the basis of weights derived from the base year value breakdown *(Construction in Canada)* and adjusted to reflect the estimated change in productivity. The proxy productivity index is calculated by dividing deflated material inputs by the number of man-years worked, on the assumption that total real output moves in the same way as the real input of materials.[18]

An explicit adjustment to take account of changes in both productivity and gross profit margins in deflating construction outlays has been made in these Accounts only since 1957. For the period 1950-57, an explicit adjustment has been made for productivity only. The same price data are used for both the government and business share of construction outlays.

(b) **Machinery and equipment** – The machinery and equipment component of gross fixed capital formation is deflated with end-product prices based on the purchased cost of machinery and equipment by Canadian business and government. Since a high proportion of machinery and equipment (close to 50%) is imported, the price indexes are constructed so as to reflect the import content. The imported portion is priced with United States wholesale prices for machinery and equipment, adjusted for import duties and exchange rates. The price data are prepared in the Prices Division of Statistics Canada.

The deflation of machinery and equipment expenditures is carried out in considerable detail – about 35 series in all – based on an industrial breakdown of machinery and equipment purchases derived from the survey of private and public investment undertaken by the Construction Division of Statistics Canada. The following main industrial groups are deflated annually only; forestry; agriculture and fishing; mining; manufacturing; construction; trade (wholesale and retail); finance, insurance and real estate; non-government institutional services; utilities; commercial services; and government. Within a number of these broad industrial groups, the deflation is carried out in terms of detailed sub-components. Manufacturing, for example, is deflated in terms of eleven individual sub-groups covering various types of industrial machinery and equipment purchased by the manufacturing sector.

Value of Physical Change in Inventories in Constant Dollars

For purposes of converting the current dollar estimates into a constant dollar series, inventories are separated into two main sectors: farm inventories

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18 This productivity adjustment is based on a technique developed by D.C. Dacy and described in "A Price and Productivity Index for a Non-Homogeneous Product", *American Statistical Association Journal,* June 1964, pp. 469-480. For a more complete discussion of the Canadian application of this technique, see P.S.K. Murty, "Revised Price Indexes for Construction Expenditures for GNE Deflation", *Canadian Statistical Review*, November 1970.

and grain in commercial channels; and non-farm inventories. The deflation procedure for these two series differs because of the nature of the basic data.

For farm inventories and grain in commercial channels, the constant dollar series is derived by valuing, in prices relevant to the base period chosen, the physical quantities of stocks. Data on prices, physical quantities of grain stocks held in inventory, and numbers of poultry and livestock are obtained from the Agriculture Division of Statistics Canada. The procedures in this area are therefore quite straightforward.

The procedure for the conversion of non-farm inventories differs from the above because detail on physical quantities is not available. The information given consists of current dollar book values only, from which it is necessary to remove the effect of price changes relevant to the base period.

The method of deflating book values of inventory holdings of non-farm inventories, and of calculating the year-to-year change in constant dollar book values is described in Chapter 7, in the discussion of the inventory valuation adjustment procedure. The relevant figure of the change in constant dollar non-farm inventory stocks is that obtained from Step 4 of the calculations set out in Table 7-6 of Chapter 7.

Exports and Imports of Goods and Services

Both exports of goods and services and imports of goods and services consist of two major groups of transactions: merchandise trade; and non-merchandise (invisibles or service) transactions. Each of these major categories is separately deflated. The deflation of merchandise trade is carried out at a level of detail consisting of about 35 sub-component groups for both merchandise exports and imports.

Prior to this most recent revision of the Accounts, merchandise exports and merchandise imports were deflated, in large part, with unit value price indexes obtained by dividing the value of commodity exports (or imports) by the number of units sold, as recorded by the External Trade Division. Price indexes based on the specific pricing of commodities were available only in the case of end-products. It was known that the unit value price indexes were, in several respects, deficient from the point of view of the deflation requirements, but alternative deflators had not been developed.

In this most recent revision of the Accounts, the objective has been to replace the unit value price indexes with more appropriate indexes based on specified pricing procedures. To this end, price data from the industry selling price indexes and from the general wholesale price index have been used to construct deflators for the export series, and price data from the United States' wholesale price index from the U.S. Bureau of Labor Statistics (adjusted for exchange rates) have been used to construct deflators for the import series. Generally speaking, this type of pricing for deflation is to be

preferred to the use of unit value price indexes, but it has not been possible to adopt it for the entire historical series. The new pricing procedures apply only to the period beginning in 1961.[19]

The unit value price indexes are thus still used rather generally in the deflation of the historical series and – to a much more limited extent – in the deflation of the more recent estimates. One of the principal deficiencies of these indexes is the fact that they reflect quantity weight shifts as well as changes in prices. If the content of the particular commodity group as classified for statistical purposes is completely homogeneous, the price index obtained by dividing the value of the commodity group by the number of units sold will measure pure price change. But if the content of the group is not homogeneous and the product mix changes, then the unit value price index will reflect quantity weight shifts as well as changes in prices. Thus, where several different grades or types of goods, grouped together for statistical classification purposes, undergo compositional shifts in the product mix toward the higher priced commodities, the average unit price for the group will register an increase although no price change has actually occurred. Using such a price index to deflate the value series will have the effect of under-stating the increase in volume. Another deficiency of unit value price indexes is that increases in value which reflect higher production costs resulting from quality improvements or additional features show up as increases in the price of the commodity or commodity group. Such quality improvements should be reflected in the volume estimates, and they would be under adequate specific pricing procedures.

The deflation of the components of exports and imports of services (invisibles) presents a variety of problems because there are no satisfactory ways of deflating income-type components. Interest and dividend payments are deflated with the implicit price index of merchandise exports, while interest and dividend receipts are deflated with the implicit price index of merchandise imports.

Tourist expenditures abroad are deflated with indexes based on the prices of goods and services normally purchased by tourists. Prices of such types of Canadian goods and services are used to deflate tourist expenditures in Canada, while the prices of United States goods and services (after adjustment for changes in the exchange rate) are used to deflate tourist expenditures abroad.

Other components of the services group are deflated with price indexes which have been constructed to approximate as closely as possible the price movements embodied in the value data.

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[19] The new specified pricing procedures are basically designed to reflect the actual transaction prices at which particular commodities or groups of commodities are bought or sold. Thus, where the value of merchandise exports and imports are recorded in terms of actual transaction prices, the value and price data are appropriately matched. However, it should be noted that the value of merchandise exports and imports may in some instances reflect long-term contract prices rather than the actual transaction prices of the commodity moving in ordinary trade. In addition, inter-corporate transactions may take place at values which differ substantially from market prices.

APPENDIX TO CHAPTER 9

A Comparison of Year-to-year Changes in Deflated Gross National Expenditure with Changes in Real Domestic Product at Factor Cost

During the 1960's, there was a tendency for real output as measured by deflated Gross Domestic Product at Factor Cost to run somewhat ahead of real output as measured by deflated Gross National Product, but in recent years this tendency has been reversed. As was noted in Chapter 9, the definitional basis on which the two sets of estimates are prepared is not identical,[20] and in addition, discrepancies can arise because of inadequacies in the basic source material which is substantially different in each case. The figures are compared in the following table:

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20 Deflated Gross National Expenditure is at market prices and includes indirect taxes less subsidies. Real Gross Domestic Product is at factor cost and excludes indirect taxes less subsidies. Deflated Gross National Expenditure is on a "national" basis and excludes net interest and dividends paid abroad. Real Domestic Product is on a "domestic" basis and includes net interest and dividends paid abroad.

Year-to-year Percentage Change in Constant (1961) Dollar Gross National Expenditure at Market Prices and Real Domestic Product at Factor Cost

	Gross National Expenditure in constant (1961) dollars	Real Domestic Product at factor cost (1961=100)	Difference (line 1 minus line 2)
	(1)	(2)	(3)
1961-62	6.8	7.0	– 0.2
1962-63	5.2	5.8	– 0.6
1963-64	6.7	7.2	– 0.5
1964-65	6.7	7.2	– 0.5
1965-66	6.9	7.2	– 0.3
1966-67	3.3	3.4	– 0.1
1967-68	5.8	5.8	–
1968-69	5.3	6.0	– 0.7
1969-70	2.6	2.5	+ 0.1
1970-71	5.8	5.9	– 0.1
1971-72	5.8	5.2	+ 0.6

CHAPTER 10

INCOME AND PRODUCT BY INDUSTRY

Introduction

Tables 28 to 31 of Volume 1 constitute a group of tables which show the industrial origin of Gross Domestic Product at Factor Cost, and the main forms of factor incomes generated in each industry in the course of producing this product. In effect, Table 28 – Gross Domestic Product at Factor Cost by Industry – shows the "value-added" by each industry to the total value of the country's production.[1] The succeeding Tables (29-31) show the factor incomes originating in each industry as a result of this productive activity. It should be noted that the Tables are not fully additive since not all components of Gross Domestic Product are shown separately, notably capital consumption allowances and miscellaneous valuation adjustments, and the inventory valuation adjustment (Table 10-1).

TABLE 10-1. Data on Income and Product Originating by Industry shown in Tables 28 to 31 of Volume 1

	1961
	millions of dollars
Wages, salaries and supplementary labour income (Table 29)	21,009
Profits and other investment income (Table 30)	5,450
Accrued net income of farm operators from farm production and net income of non-farm unincorporated business including rent (Table 31)	4,087
Capital consumption allowances and miscellaneous valuation adjustments (not shown)	4,883
Inventory valuation adjustment (not shown)	– 41
Gross Domestic Product at factor cost (Table 28)	**35,388[1]**

[1] To obtain Gross Domestic Product at market prices of $40,368 million, (Table 8 of Volume 1 – Consolidated Production Account), add indirect taxes less subsidies ($4,838 million) and residual error of estimate ($142 million).

The industrial composition of Gross Domestic Product at Factor Cost is shown in Table 10-2. It will be observed that the concept of production used for this industrial distribution is **domestic** product since, as noted in Chapter 2, this is in general a more suitable concept for the assembly and analysis of industrial statistics (Gross Domestic Product deals with production originating within the country's geographical boundaries).[2] In addition, the

[1] It was observed in Chapter 3 that economic production could be measured in three ways – as the "sum of incomes" originating in each industry, as the "sum of net values added" by each industry, or as the "sum of all sales to final users". Table 28, which is constructed by assembling factor incomes and other costs on an industry of origin basis, can therefore also be viewed as showing the "value-added" by each industry to total production.

[2] Apart from providing a more logical basis for the assembly and classification of industrial statistics than national product, the use of the domestic product concept avoids the statistical problem of having to allocate net interest and dividends paid abroad by industrial origin.

concept of production used here is on a factor cost basis of valuation, reflecting the fact that the structure of resource use is more clearly revealed if indirect taxes less subsidies are excluded from the calculations of output originating by industry.[3]

TABLE 10-2. Gross Domestic Product at Factor Cost by Industry[1]

	1961	Percentage share of total	1972	Percentage share of total
	$'000,000		$'000,000	
Agriculture	1,498	4.2	3,025	3.3
Forestry	388	1.1	683	0.7
Fishing and trapping	74	0.2	143	0.2
Mines, quarries and oil wells	1,398	4.0	3,279	3.6
Manufacturing	9,182	25.9	21,226	23.1
Construction	2,090	5.9	5,819	6.3
Transportation	2,449	6.9	5,447	5.9
Storage	94	0.3	230	0.3
Communication	899	2.5	2,650	2.9
Electric power, gas and water utilities	1,036	2.9	2,693	2.9
Wholesale trade	1,708	4.8	4,641	5.1
Retail trade	2,774	7.8	6,460	7.0
Finance, insurance and real estate[2]	4,195	11.9	10,421	11.4
Public administration and defence	2,511	7.1	6,913	7.5
Community, business and personal service	5,092	14.4	18,086	19.7
Total Gross Domestic Product at factor cost	35,388	100.0	91,716	100.0

[1] For a reconciliation between Gross National Product at market prices and Gross Domestic Product at factor cost, see Table 3 of Volume 1.

[2] Includes imputed net rent and depreciation on farm and non-farm owner-occupied dwellings.

It will be seen from Table 10-2 that about one-quarter of the value of economic production measured in this way originates in the manufacturing industry. Agriculture accounts for only about 3% or 4% of the total value of production, with retail and wholesale trade accounting for around 12%, and transportation, storage and communication for almost 10%. The fastest growing industries have been those making up the community, business and personal service group (which includes hospital and medical care services, and education), which has increased its relative contribution to the value of

[3] Indirect taxes which are levied by governments with respect to purchases and sales of goods and services bear much more heavily on the products of some industries than on others, for example, they bear particularly heavily on the products of the tobacco industry and the alcoholic beverages industry. The relative share of an industry's contribution to total production in terms of factor use is therefore more clearly depicted if indirect taxes less subsidies are excluded from the calculations. Apart from this, however, there are a good many difficulties involved in assigning indirect taxes, which are passed on through various stages of production, to the industries on whose output the taxes are levied.

production over the past decade from about 14% to close to 20%. In 1972, 60% of the value of economic production originated in the "service" industries, compared with 56% a decade earlier.[4]

The Nature of the Industrial Classification

The industrial classification of Gross Domestic Product is designed to depict the structure of industry in the economy by grouping together all operating units (e.g., establishments or companies) according to whether they are engaged in the same or a similar kind of economic activity.[5] In effect, it shows the way in which the Gross Domestic Product is produced by principal type of economic activity. In this context, the industrial grouping does not depend upon whether the activity is carried on by a government agency or by a business enterprise, or whether for profit or on a non-profit basis. An industry is defined for this purpose simply as a group of establishments or operating units whose activities have sufficient common characteristics that they may be usefully grouped together for analytical purposes.

Thus, in Table 10-2, agriculture includes not only establishments engaged in commercial farming activity, but also experimental farms operated by federal or provincial governments, university farms, and institutional farms operated in connection with penitentiaries or religious orders.[6] Forestry includes establishments engaged in forestry patrol, fire inspection, fire fighting, forest nurseries, reforestation and other forestry services whether conducted by government organizations or commercial enterprises. Fishing includes establishments engaged in operating fish hatcheries and fishery inspection and protection services, whether operated by government departments or not. Transportation includes government services incidental to air transport such as establishments engaged in the operation and maintenance of civil airports; government services incidental to water transport, such as the establishments engaged in the operation and maintenance of piers, docks, wharves and associated facilities; and government establishments providing services associated with the operation and maintenance of highways, bridges and tunnels.[7] The community, business and personal service industry includes all government establishments engaged in education and in the delivery of hospital and medical care services; in the sectoring system described in Chapter 4 and in Chapter 6, the bulk of this type of activity would be classified to "general government".

Because so much of the activity which is classified to "general government" in the sectoring system is re-allocated and assigned to its related industrial group in the industrial distribution, the "public administration and defence" industry shown in Table 10-2 provides a very much truncated view of the full range of government activity. It includes only those establishments of government which clearly do not belong in any other branch of economic

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[4] The "service" industries are here defined to include: transportation; storage; communication; wholesale trade; retail trade; finance, insurance and real estate; public administration and defence; and community, business and personal service.

[5] *Standard Industrial Classification Manual, Revised 1970,* Catalogue 12-501, p.7.

[6] It is not always possible to obtain complete statistics in all of these areas.

[7] An additional point should be made here. In the National Accounts, the Post Office is treated as a government business enterprise and not as part of "general government". In the industrial distribution, the Post Office is included in the communications industry.

activity, but which are essentially concerned with general administration, the internal service agencies of the public service, and defence, e.g., the enactment of legislation, law enforcement and administration, the collection of public revenues, and controlling the disbursement of public funds. Defence services maintained primarily for the protection of the state are in the same general category. The industrial classification of an establishment is thus not dependent on whether it is owned privately or publicly, or on whether it is organized on a commercial or a non-commercial basis. The classificatory system is based essentially on the concept of type of activity.

Ownership and own-account occupancy of farm and non-farm dwellings is considered in the industrial distribution (as elsewhere in the Accounts) to be a form of economic activity, and imputed net rents and depreciation on owner-occupied dwellings are included with the finance, insurance and real estate industry.

The Unit of Classification: Establishments, Companies and Enterprises

To produce an industrial classification of Gross Domestic Product according to "type of activity" involved, the unit of classification should in principle be an operating entity which engages in only one type of economic activity. For statistical purposes, the smallest unit that is a separate operating entity capable of reporting all elements of basic industrial statistics is the "establishment". Almost all establishments, of course, contain smaller subdivisions (departments) engaged in particular activities such as delivery or purchasing, but data cannot ordinarily be obtained which would make it possible to classify the activity of these smaller units separately. The establishment is usually engaged in only one **major** kind of activity, and since it is the smallest statistical unit capable of collecting all the essential elements of industrial statistics, it is the preferred unit of classification in the industrial distribution. Some establishments, however, are rather complex and engage in a number of activities. In such cases, the establishment is assigned wholly to the industry of its principal activity, and its total output is included in the measure of output for that industry.

In the industrial distribution of Gross Domestic Product, the largest single component – wages, salaries, and supplementary labour income – is classified industrially on the basis of establishment data. Net income of non-farm unincorporated business is partly on an establishment basis; and accrued net income of farm operators from farm production is on an activity basis[8] which is probably not too far removed in the majority of cases from the concept of the establishment. Other major elements of Gross Domestic Product which cannot be obtained by establishment are corporation profits, corporate capital consumption allowances, and some elements of investment income. In these cases, the data are reported, not by individual establishments, but by the company (which may include one or more establishments), and the unit of classification must perforce be based on this broader statistical entity.

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[8] For example, in the case of a farmer who operates a tourist business in addition to operating a farm, only the income from farming activity is recorded as income originating in agriculture. His other business income would ordinarily be recorded as income originating in the service industries.

A company as defined here results from a legal arrangement – a corporation, or some other form of organization such as a cooperative. Most companies consist of only one establishment, in which case the preferred principle of classification described above is not violated. But in a good many cases the company is made up of a number of establishments which may or may not be engaged in the same kind of economic activity – for example, a pulp and paper company may have establishments both in forestry (operations in the woods) and in manufacturing; a mining company may have establishments in mining (ore extraction) and in smelting and refining (manufacturing); a manufacturing company may have establishments operating both in manufacturing and in wholesale trade (manufacturers' sales outlets). There are also many cases of more complicated arrangements than those discussed above. Ordinarily the profits, investment income, and capital consumption allowances of such multi-establishment organizations will be reported on a company basis, and these particular components of Gross Domestic Product have to be assigned to the industry in which the company is principally engaged, as determined by the industry that accounts for the principal share of its "census value added".[9] Thus it is possible, where a company is engaged in two or more activities, for the income from employment in the company (wages and salaries, reported on an establishment basis) to be assigned to two or more industries, but for profits and capital consumption allowances to be allocated to only one (the principal) industry. Obviously, these differences in classification give rise to some distortion in the industrial distribution of Gross Domestic Product but there is at present no alternative method of dealing with this problem. It is believed that the amount of this distortion is relatively small and that it does not seriously compromise the use of the industrial classification for the analysis of industrial structure and changes in industrial structure over time.

A word should be said about the concept of the enterprise. An enterprise is a company or family of companies which, as a result of common ownership, are controlled or managed by the same interests. For statistical purposes, it is almost always possible to obtain financial data relating to the operations of multi-company enterprises on an individual company basis – and for each company to make much of the information relating to its particular operations available on an establishment basis. The existence of the enterprise as an operating organization therefore does not introduce any new problems into the industrial classification of Gross Domestic Product beyond those which have always been present.

Ownership Versus Use

A basic question of where economic production originates is raised in the case of leased equipment and rented property.[10] If a real estate operator, for

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[9] "Census value added" is a concept developed from the Census of Manufactures as a measure of output applied to an establishment or to an industry. It is obtained by deducting from the value of gross output in a period, the value of materials used (including raw materials, processing and maintenance supplies, packaging materials and office supplies), the cost of light, heat and power, the cost of goods purchased for re-sale, and some service expenses (such as janitorial, custom processing, and others commonly incurred at the establishment level).

[10] For a discussion of this matter, see Gordon J. Garston and David A. Worton, Problems in the Estimation of Industry Output in Current and Constant Dollars in Canada, published in *The Industrial Composition of Income and Product,* Studies in Income and Wealth, Volume 32, National Bureau of Economic Research, New York, 1968.

example, rents a building to a group of retail establishments, present practices call for showing the net rents and capital consumption allowances as originating in the real estate, or **owning** industry. This practice, of course, reflects a practical reality – namely, that it is not ordinarily possible for the using industry to report data on capital consumption allowances and net rents. However, if a retail establishment owns the premises out of which it operates, the income originating (production) will be assigned to retail trade, or the using industry. (In this case, the using industry and the owning industry are the same). A case can be made that since renting is simply an alternative way of obtaining capital equipment for use in the production process, the net rental income from such capital and the associated capital consumption allowances should, in principle, be treated as originating in the using industry. This issue has not been resolved in an unambiguous way. As a practical matter, the production and income associated with leased equipment and rented property are at present assigned to the industry owning the assets.

Imputations

As was noted in Chapter 3, there are a number of instances in which an "imputation" is made in the National Income and Expenditure Accounts to include certain types of non-market activity which results in the production of useful goods and services. This imputed income must be allocated to the appropriate industry of origin in the industrial classification of Gross Domestic Product. Thus, imputed net rents (and capital consumption allowances) on owner-occupied housing are classified to the finance, insurance and real estate industry. Farm products consumed directly in farm households are assigned to Gross Domestic Product originating in agriculture. Food and lodging provided to employees in lieu of wages is allocated to the industry in which the particular "income in kind" originates. Depreciation on government fixed assets is allocated largely to three main industrial groups: public administration and defence (general government assets); community, business and personal service (primarily schools and hospitals); and electric power, gas, and water utilities (municipal water systems). All imputed banking services rendered without charge to persons and governments is shown as originating in finance, insurance and real estate.

Revisions to the Standard Industrial Classification

An industrial classification system for the organization of economic statistics should be designed to reflect the actual structure of industry at the time of its application. However, in a dynamic economy, this industrial structure is continually changing, reflecting the decline of some industries, the emergence of new industries, changes in technology, and re-alignments resulting from industrial mergers and amalgamations. Accordingly, an industrial classification system needs to be revised periodically to take account of these new developments and to ensure that it continues to be relevant to current circumstances.

The first edition of the Standard Industrial Classification Manual was published in 1948. A second, revised edition was published in 1960, and a third, revised edition in 1970. With few exceptions, the 1970 revisions are not reflected in the statistics presented in this report since such changes have not yet been fully incorporated into the basic data stream. Prior to the year 1948,

the classification system reflects the arrangements underlying the 1948 Standard Industrial Classification. For years since 1948, the classification system reflects, for the most part, the arrangements underlying the 1960 Standard Industrial Classification, although some differences exist among series in the span of years covered by the two systems, reflecting the fact that the 1960 classification could not be uniformly implemented for all series.

Sources and Methods

Most of the components of Gross Domestic Product at Factor Cost are built up from industry data in the first instance, and no special allocative procedures are required to derive the industry estimates. Thus, wages, salaries, and supplementary labour income, net incomes of farm and non-farm unincorporated businesses, corporation profits, and capital consumption allowances are essentially built up by assembling data on an industry-by-industry basis. The sources and methods underlying the preparation of these estimates have been described in earlier chapters of this report. In the case of some categories of investment income, such as net bond and mortgage interest paid by industry (i.e., interest paid less received) and miscellaneous elements of investment income, separate estimates on an industry-by-industry basis have had to be developed.

CHAPTER 11

INCOME AND PRODUCT BY REGION

Introduction

Tables 35 to 42 inclusive of Volume 1 show provincial[1] breakdowns of Personal Income, Personal Income per Person, Disposable Income, and the principal component estimates which make up these basic aggregates. This group of tables constitutes the only regionally oriented information presented in the National Income and Expenditure Accounts. All of the other information in the Accounts deals with country-wide aggregates which embrace, in the broadest geographical sense, the entire nation – with some of the information presented on a national product basis and some of it on a domestic product basis.[2] Thus, it is the nation as a whole, and not its geographical components, around which most of the information appearing in the National Income and Expenditure Accounts is organized.

There have been frequent requests that Statistics Canada develop and publish on a regular basis official estimates of Gross Provincial Product. Such estimates might be viewed as constituting a first step in moving toward a more fully integrated set of regional economic accounts. This matter is now being pursued further and estimates are presently being developed by Statistics Canada in collaboration with provincial statistical authorities.

Heretofore, Statistics Canada had not attempted to develop direct estimates of Gross Provincial Product, partly because there were conceptual issues in this area which had not been fully resolved, partly because in some cases the requisite data to make well rounded estimates were not available, and partly because it was felt that the resources of the central statistical agency might be more effectively employed in developing a regional data base which would permit the provinces to undertake their own estimates with a greater degree of flexibility in responding to their individual needs. The provinces themselves have in fact carried out a good deal of developmental work in this field, and considerable progress has been made. A number of the provinces now prepare estimates of Gross Provincial Product to meet their particular needs. However, the bases on which the various provincial estimates are prepared tend to differ fairly widely from province to province, and it is desirable to have such provincial estimates fully integrated with the official national aggregates as they appear in the National Income and Expenditure Accounts.

In this latest revision of the Accounts, a new consolidated production account (Gross Domestic Product at Market Prices) has been created which provides a comprehensive measure of production originating within the geographical boundaries of Canada, and which constitutes an overall reference

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[1] Including estimates for the Yukon and Northwest Territories.

[2] As noted elsewhere, domestic product includes all production arising within the strictly geographical boundaries of Canada. National product includes some production originating in other countries as a result of Canadian factors of production located abroad (interest and dividends received from abroad), and similarly excludes some production originating in Canada as a result of non-resident factors of production located in Canada (interest and dividends paid abroad).

framework within which estimates of Gross Provincial Product could be coherently related. The concept of **domestic** product appears to be more suitable than **national** product for the purpose of developing provincial estimates of production. This is because the domestic product measure reflects the output of factors of production located in each province, irrespective of the province of ownership of the means of production. The domestic concept is thus geared to the physical location of the resources and not to the province of residence of the legal owners of the resources (national concept) which would be much more difficult to implement statistically. In addition, the domestic product concept yields a more suitable figure to use with provincial employment data, since the production measure would dovetail directly with the employed labour force used to produce it.

It may be noted that although Statistics Canada does not prepare official estimates of Gross Provincial Product, approximately 75% of the data which are used in preparing the published estimates of Personal Income by province (e.g., labour income and net income of unincorporated businesses) are common to both Gross Domestic Product by province and Personal Income by province.[3]

The following section discusses briefly some of the problems which arise in constructing estimates of Gross Provincial Product. The discussion is not exhaustive, but is designed simply to indicate some of the special areas of difficulty. The balance of the chapter then deals with the regional distributions of Personal and Disposable Income published by Statistics Canada.

Problems in Developing Estimates of Gross Provincial Product

There are three potential methods by which one might approach the measurement of Gross Domestic Product by province:

(a) the net value added by industry approach;

(b) the expenditure approach; and

(c) the income approach.

The first of these, net value added by industry, involves the measurement, province by province, of the net value added to production by each industry located within the geographical boundaries of the province. Essentially, this method involves obtaining the total gross value of production of all establishments located within the provincial boundaries and deducting from this the value of goods and services purchased from other industries, so that the **net** value added in the production process by the particular establishment is obtained. At the present time, Statistics Canada publishes a set of data in its reports, *Survey of Production*, Catalogue 61-202, which covers the net value added[4] of all of the commodity-producing industries in each

[3] This calculation is based on some experimental work which was carried out at Statistics Canada in 1960 and which is described in an unpublished working paper, *Provincial Allocation of National Accounts Aggregates.*

[4] The figures are not truly an unduplicated measure of output, since some purchased services, such as advertising, legal, and repair expenditures, cannot be identified and deducted from the gross value of output.

province. However, all of the service producing industries, covering over one-half of the total economy, are omitted from this survey, and no comprehensive information on the net value added to production in the service industries within each province is available.[5]

The expenditure approach, similar to that employed in calculating the figures of Gross National Expenditure for the National Accounts, provides a second potential approach to the measurement of production by province. However, again there are difficulties in the way of developing provincial data through this approach, mainly the absence of information on interprovincial exports and imports of goods and services. For example, goods imported from Ontario by Saskatchewan would appear in consumer expenditure, inventory changes, and fixed capital investment of Saskatchewan; these would have to be deducted in order to get at the amount of Saskatchewan's output contained in the total expenditure data of that province. At the same time, any exports shipped from Saskatchewan to other provinces would have to be added back, as these form a part of Saskatchewan's production of goods and services. At the national level, a large administrative apparatus exists through which movements of goods and services across national boundaries can be recorded. At the provincial level, no such arrangements exist. While this is the main statistical gap, there are other elements on the expenditure side which are not readily available on a provincial basis, for example, federal government expenditure on goods and services.

A third approach to the measurement of production by province would be to break down the income components of Gross Domestic Product on a province-by-province basis. However, this method too has its drawbacks. The problem here is principally a question of how to allocate the financial data of large-scale firms whose activities cut across more than one province. For example, in what province or provinces do the profits of national transportation systems – air carriers, national railways, and ships – originate? How does one allocate capital consumption allowances on trans-national operations? These are simply examples of some of the problems which arise in attempting to break down income-type estimates on a province-by-province basis.

There are, of course, ways of circumventing these difficulties by developing new sources of data, by using information on related activities to break down national totals into provincial components, or by making fairly arbitrary allocations based on some rule of thumb. Future work in the area of developing nationally integrated estimates of Gross Provincial Product will obviously have to be heavily focussed on the resolution of such problems.

The remainder of this chapter describes the provincial breakdowns of Personal and Disposable Income, with the bulk of the discussion centered around underlying sources and methods.

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[5] There are, of course, a number of surveys carried out by Statistics Canada which yield information on particular aspects of the operations of selected service industries on a province-by-province basis, but the material is not usually available in a form which would permit the calculation of net value added estimates.

Personal and Disposable Income by Province
(Tables 35 to 42 of Volume 1)

Personal Income is defined in Chapter 3 as the sum of all incomes received by persons resident in Canada irrespective of whether these incomes represent factor earnings of persons from current production or whether they are received as unrequited current transfers of income from the government and other sectors. The provincial breakdown of the Personal Income aggregate is shown in Table 35 of Volume 1, and the provincial breakdowns of the principal component estimates which make up this aggregate are given in Tables 38 to 42 inclusive. Table 36 shows Personal Income **per person** by province, and Table 37 shows Personal Disposable Income by province. Personal Disposable Income is defined simply as Personal Income less personal direct taxes and other current transfers to government from persons.

TABLE 11-1. Personal Income, Geographical Distribution

	1961		1972	
	Millions of dollars	Per cent of total	Millions of dollars	Per cent of total
Newfoundland	440	1.5	1,310	1.6
Prince Edward Island	102	0.3	276	0.4
Nova Scotia	946	3.1	2,375	2.9
New Brunswick	671	2.2	1,793	2.2
Quebec	7,828	26.0	20,350	24.9
Ontario	12,187	40.5	33,835	41.3
Manitoba	1,436	4.8	3,551	4.3
Saskatchewan	1,084	3.6	2,719	3.3
Alberta	2,199	7.3	6,217	7.6
British Columbia	3,091	10.3	9,164	11.2
Yukon and Northwest Territories	59	0.2	188	0.2
Foreign countries	61	0.2	77	0.1
Total,Canada	30,104	100.0	81,855	100.0

It will be seen from Table 11-1 that about 40% of all Personal Income received in Canada is received by persons resident in Ontario, and about one-quarter of the total is received by persons resident in Quebec. These of course are the two most populous provinces, and it is to be expected that their share of total Personal Income will be much greater than that of the other less heavily populated regions of the country.

TABLE 11-2. Personal Income per Person, Geographical Distribution

	1961		1972	
	Dollars	Per cent of Canada average[1]	Dollars	Per cent of Canada average[1]
Newfoundland	961	58.2	2,462	65.7
Prince Edward Island	971	58.8	2,442	65.1
Nova Scotia	1,284	77.8	2,991	79.8
New Brunswick	1,122	68.0	2,793	74.5
Quebec	1,488	90.1	3,359	89.6
Ontario	1,954	118.4	4,324	115.3
Manitoba	1,557	94.3	3,580	95.5
Saskatchewan	1,172	71.0	2,968	79.1
Alberta	1,651	100.0	3,756	100.2
British Columbia	1,897	114.9	4,078	108.7
Yukon and Northwest Territories	1,595	96.6	3,418	91.1
Canada average	1,651	100.0	3,750	100.0

[1] These ratios tend to move rather irregularly over time and small changes from one period to the next should not be considered to be significant. In addition, events such as a bumper crop, or a crop failure, in the Prairie provinces can have a substantial effect on the ratios.

A useful and different perspective on regional distributions of income is obtained when the figures of Personal Income **per person** are compared on a province-by-province basis, as is done in Table 11-2. Here it can be seen that Ontario's per capita income, as well as that of the province of British Columbia, tend to run substantially above the all-Canada average, while per capita income in almost all the other provinces is below the Canadian average, sometimes very substantially below it. Such figures are of interest in forming a view of the extent and location of regional income disparities existing across the country, and of the relative income generating capabilities of the various regions.[6]

Sources and Methods

The concluding section of this chapter deals with the sources and methods underlying the provincial breakdowns of the various component estimates which make up the Personal and Disposable Income totals.

[6] It should be noted that Personal Income per person figures by province are not accurate reflections of differences in the "welfare" of the inhabitants of the various provinces. The price structure differs substantially across the country with respect to many items which enter the cost of living. In addition, the age-structure of the population is not uniform across the country, and patterns of expenditure and needs vary according to the age distribution of the population.

Wages, Salaries and Supplementary Labour Income (Table 38 of Volume 1)

Since 1961, about 82% of the total of wages and salaries has been derived on a province-by-province basis from relatively comprehensive annual or monthly surveys of payments made on labour account. The sources and methods used in preparing these estimates are described in Chapter 5. Industries included in this category are: agriculture; forestry; fishing and trapping; mines, quarries and oil wells; manufacturing; construction; bus, urban and pipeline transportation; storage; radio and television broadcasting and telephone communications; electric power, gas and water utilities; retail and wholesale trade; community and business services including education and hospitals; and provincial and local government administration. Approximately 14% of the total is distributed by province using partial-coverage monthly (and sometimes quarterly) employment and payroll data. In this group are air, water and rail transportation; telegraph, cable and post office communication; finance, insurance and real estate; and federal government admininistration. The partial-coverage monthly employment and payroll data are obtained from the establishment survey of larger firms, published in *Employment, Earnings and Hours,* Catalogue 72-002, while the quarterly data used are published in *Federal Government Employment,* Catalogue 72-004. The remaining 4% of wages and salaries is distributed using decennial census data. Industries in this group include truck and taxicab transportation; welfare and religious organizations; and domestic services.

With regard to supplementary labour income, employers' contributions to private pension funds and employee welfare funds are estimated provincially by distributing the national totals in proportion to wages and salaries paid in each province. This is done separately for each of several industries. Estimates of employers' contributions to the unemployment insurance fund by province are based on a sample of the number of persons insured, conducted at a certain month of each year. Employers' contributions to Workmen's Compensation Board funds are based on provincial government accounting statements. Employers' contributions to the Canada Pension Plan by province are obtained from the Department of National Revenue.

Wherever possible, methods of estimation similar to those described above are also used to derive provincial breakdowns for the period 1938 to 1960 inclusive. However, survey and payroll data are not available for some industries in the earlier years, and in these cases the allocation is made on the basis of employment reported.

Estimates for the years 1926 to 1937 are obtained by interpolation using 1921 and 1931 decennial census data and 1938 statistics obtained from the sources outlined above.

Military Pay and Allowances (Not shown explicitly in Tables 35-42)

For the years from 1946 to the present, the provincial allocation of military pay and allowances is based on data supplied by the Department of

National Defence. For the years 1940 to 1945, navy and air force pay and allowances are distributed on the basis of provincial enlistment figures; army pay and allowances by province for the same period were supplied by the Department of National Defence. Provincial allocations of military pay and allowances for the period 1926 to 1939 inclusive are based on data for the year 1940.

Net Income Received by Farm Operators from Farm Production (Table 39 of Volume 1)

Provincial data on farm cash receipts, income in kind, farm-held inventory change, and farm expenses are estimated annually for each province by the Agriculture Division of Statistics Canada. These data are then adjusted to conform to National Accounts concepts, to yield a provincial classification of net income received by farm operators from farm production.

Net Income of Non-farm Unincorporated Business, including Rent (Table 40 of Volume 1)

Provincial distributions of net incomes in non-farm unincorporated business are made separately for each industry. For fishing, hunting and trapping, synthetic operating accounts are constructed for each province from data available within Statistics Canada. Expenses are deducted from gross revenue to yield net income.

Beginning with 1946, data on net unincorporated business income from *Taxation Statistics* are used to obtain provincial breakdowns of net income in: construction; transportation; wholesale trade; and finance, insurance and real estate. Prior to 1946, the provincial allocations in these industries were based on information from decennial censuses and the *Report of the Royal Commission on Dominion-Provincial Relations.*[7]

Decennial census data, in conjunction with surveys, are used for the provincial allocation of the net incomes of certain professional groups. Since the late 1950's, data from the Department of National Health and Welfare have provided the basis for the provincial distribution of the net incomes of doctors and dentists. Decennial census data are used for the mining and personal service industry. For the remaining industries, such as retail trade and manufacturing, estimates are based on information on sales and production derived from annual censuses of industry, income tax tabulations, and operating results surveys.

Provincial breakdowns of net rents received by persons (which are included with net income of non-farm unincorporated business) are obtained from a variety of sources. Net farm rents received by persons are obtained on a provincial basis from the Agriculture Division of Statistics Canada. From 1926 to 1937, net non-farm rents are distributed on the basis of information from the *Report of the Royal Commission on Dominion-Provincial Relations.* From 1938 on, gross non-farm residential rents are obtained by multiplying

[7] King's Printer, Ottawa, 1940.

the number of dwellings in each province by the average rent per dwelling. The Canada average ratio of net rents to gross rents is used to derive net rents by province. Net non-farm non-residential rents received by persons are based on information published in *Taxation Statistics*.

Interest, Dividends and Miscellaneous Investment Income of Persons (Table 41 of Volume 1)

Since 1970, interest income of persons from chartered bank deposits, savings bank deposits, and trust company deposits has been allocated on a province-by-province basis using the provincial distribution of bank interest received by persons as reported annually in *Taxation Statistics*. For prior years, *Taxation Statistics* was also the source of the information, but for these years the allocation was based on the provincial distribution of both bank and bond interest received, since bank interest was not reported separately.

Deposit interest (and imputed interest), paid by credit unions has been allocated by province since 1965 on the basis of information contained in the publication *Credit Unions*, Catalogue 61-209. For earlier years, information in the Department of Agriculture publication, *Credit Unions in Canada*, was used.

Since 1946, the provincial distribution of mortgage interest received by persons, as reported annually in *Taxation Statistics,* is used to allocate mortgage interest on a province-by-province basis. For earlier years, information on the provincial distribution of mortgage holdings by insurance and trust companies is used as the basis of the allocation, on the assumption that the relative distribution of private mortgage holdings would tend to change in much the same way.

Since 1970, bond interest received by persons is allocated by province on the basis of the provincial distribution of bond interest received by persons as reported annually in *Taxation Statistics*. For prior years, the allocation is based on the provincial distribution of both bank and bond interest as reported annually in *Taxation Statistics*.

Imputed interest "paid" by financial institutions (except credit unions) is allocated by province on the basis of the provincial distribution of total cheques cashed against individual deposit, savings, and personal chequing accounts.

Interest on government annuities, and investment income of life insurance companies and fraternal societies, are distributed, since 1936, on the basis of the amount of insurance in force by province, as shown in the reports of the Superintendent of Insurance. The percentage distribution for earlier years is assumed to be the same as for the year 1936.

Investment income of trusteed pension plans and profits and interest of mutual non-life insurance companies are pro-rated on the basis of the distribution of the total of the above items.

Canadian dividends received by Canadians are distributed, since 1946, on the basis of the amount of gross dividends received by persons as reported annually in *Taxation Statistics*. From 1926 to 1940, they are allocated on the

basis of information contained in the *Report of the Royal Commission on Dominion-Provincial Relations*. Interpolations are employed for the years 1941-45.

Bond interest and dividends received by persons from non-residents have been allocated by province since 1963, on the basis of the amount of foreign investment income received by persons as reported annually in *Taxation Statistics*. Prior to 1963, the national totals are allocated on the basis of the provincial distribution of gross dividends received by persons.

Government Transfer Payments to Persons (Table 42 of Volume 1)

Most **federal** transfer payments are distributed by province on the basis of the records of the various federal departments and agencies administering these payments, such as the Departments of National Health and Welfare, Veterans' Affairs, Manpower and Immigration, and the Unemployment Insurance Commission.

Information on **provincial** government transfer payments is obtained from provincial public accounts. Transfer payments from **local** governments are distributed, from 1951 to the present, using the basic source data employed in the construction of the annual estimates; for the years 1926 to 1950 inclusive, local government transfer payments are distributed in the same proportion as the corresponding provincial government transfer payments.

Current Transfers from Corporations and Non-residents (Not shown explicitly in Tables 35-42)

These amounts are allocated by province on the basis of the population of the various provinces.

Personal Direct Taxes and Other Current Transfers from Persons to Government (Not shown explicitly in Tables 35-42)

This is the amount deducted from Personal Income to arrive at Disposable Income. The figures are shown in Table 5 (lines 7 and 8), Table 13 (lines 4, 5, 6 and 7), Table 16 (lines 1, 2, 3 and 9), Table 43 (lines 1 and 15), and in Chapter 6, Table 6-6.

(a) **Income taxes: Federal** income taxes for the years 1926 to 1945 are allocated on the basis of reported individual income tax collections by provinces. From 1946 on, the allocations are based on the tax payable reported on income tax returns filed by province. At the **provincial** level, the distribution of income taxes is based on the amounts allocated to the provincial tax collection agreements account for provinces who do not do their own collecting and from provincial public accounts for those provinces which do their own collecting. **Local** government income taxes, levied in the years 1926 to 1941 inclusive, are distributed on the basis of provincial estimates for selected years made by the Royal Commission on Dominion-Provincial Relations, and by the Dominion-Provincial Conference on Reconstruction.

(b) Succession duties and estate taxes: The **federal** data are allocated on the basis of succession duties and estate taxes collected by province. The distribution of **provincial** succession duties is derived in the same manner as provincial income taxes – for provinces which do their own collecting, provincial public accounts are used, while for provinces which do not do their own collecting, federal government data sources are used.

(c) Employer and employee contributions to social insurance and government pension funds: From 1951 to the present, **federal** government employer and employee contributions to pension funds are allocated by province on the basis of the wages and salaries paid provincially. For earlier years, they are allocated on the basis of the estimated number of federal public servants employed in each province. Employer and employee contributions to the Unemployment Insurance Fund are allocated on the basis of a sample, taken annually, of the number of persons insured. Provincial breakdowns of employer and employee contributions to the Canada Pension Plan are available from the Department of National Revenue.

Employer and employee contributions to **provincial** government pension funds, Workmen's Compensation Board funds, and industrial vacation plans, are obtained from the provincial public accounts. Payments into **local** government pension plans are distributed on the basis of data for the year 1948 obtained from a special study of local government pension plans.

(d) Other current transfers from persons: The **federal** series are allocated on the basis of the distribution of federal income and succession duties by province. The **provincial** data are obtained from the provincial public accounts. For the years from 1951, the **local** government data are obtained from the basic annual sources noted in Chapter 6, while for the years prior to 1951 they are distributed using the provincial distribution of all tax collections.

CHAPTER 12

THE SYSTEM OF NATIONAL ACCOUNTS: LINKAGES FROM INCOME AND EXPENDITURE ACCOUNTS TO OTHER PARTS OF THE SYSTEM

Introduction

The preceding chapters have described the basic concepts, definitions, sources, methods and classificatory arrangements underlying Canada's National Income and Expenditure Accounts. They have also given an account of the background leading to the development of this set of economic statistics for the economy as a whole (Chapter 1). Historically, the National Income and Expenditure Accounts were the first set of major economic statistics to be developed after the end of the Second World War under the title "National Accounts". However, over the post-war period, the statistical coverage of the economy has been extended in a number of directions, and there now exist several basic sets of economic information – all of them integrated with the National Income and Expenditure Accounts in one way or another – which make up an inter-related system of national economic accounts. The purpose of this chapter is to describe, in a general way, the nature of this inter-related system – its constituent parts, their uses, the linkages to the National Income and Expenditure Accounts, and the basic source publications containing the statistical information and the descriptions of underlying sources and methods.

The constituent parts of this System of National Accounts are:

(a) The National Income and Expenditure Accounts, described in the foregoing chapters (Catalogue Nos. with the prefix 13-);

(b) The Canadian Balance of International Payments, which pre-dates the Income and Expenditure Accounts but which is fully integrated with them, providing the basic information for the non-resident sector account (Catalogue Nos. with the prefix 67-);

(c) The Financial Flow Accounts, which show changes in the network of financial claims underlying net lending and borrowing activity as summarized in the capital finance accounts of the National Income and Expenditure Accounts[1] (Catalogue Nos. with the prefix 13-);

(d) The Real Domestic Product by Industry indexes, which show changes in the industrial composition of real "constant dollar" output, with total real output measured on a gross domestic product at factor cost basis (Catalogue Nos. with the prefix 61-);

(e) The Productivity indexes, which show changes in output per person employed and output per man-hour for the commercial sector of the economy and various industry groups, using Real Domestic Product by Industry data to provide the constant dollar measures of changes in output (Catalogue Nos. with the prefix 14-); and

(f) The Input-output tables, which display the industry and commodity structure of economic production and which provide a special focus on the inter-industry transactions and technological relationships underlying intermediate production; in the National Income and Expenditure

[1] In the capital finance accounts of the National Income and Expenditure system, net lending and borrowing includes net purchases of existing and intangible assets (see Chapter 4). This becomes an item of reconciliation in moving from the National Income and Expenditure Accounts to the Financial Flow Accounts (see line 6, Table 12-1).

Accounts, these inter-industry transactions and relationships are lost from view since sales and purchases between industries cancel out and only the transactions associated with **final** sales (and output) are recorded (Catalogue Nos. with the prefix 15-).

As will be apparent, the development of these various sets of statistics has taken place within a conceptually integrated framework. As a broad generalization, it would be fair to say that the work in these areas (the Canadian Balance of International Payments being the outstanding exception) was either initiated, shaped, or at least strongly influenced by a need to supplement or extend the information contained in the National Income and Expenditure Accounts. Accordingly, to maintain essential coherence and compatibility between the various sets of data, the basic concepts, definitions and general classification systems employed throughout these areas are the same as those which underlie the National Income and Expenditure Accounts.[2] Thus, the various sets of data are developed within a common frame.

It has been observed that one of the principal advantages of a centralized statistical agency is a capacity to enforce uniformity of concept, definition, and classification across different areas of statistical development.[3] Although such uniformity in the basic building blocks is obviously an essential condition for attaining coherence and comparability between related systems of statistics, it by no means resolves all of the problems of integration in the economic accounts. A major problem in this regard is the time-consuming and cumbersome nature of the statistical revision process, with the phasing of major revision programs occurring at different times in different parts of the system. Thus, users will find that a considerable time lag occurs between revisions of National Income and Expenditure Accounts data and the corresponding changes required to bring most other constituent parts of the system into line with them.

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[2] It should be noted, however, that industrial classifications continue to present problems of comparability. For example, direct comparisons of industry data among those parts of the National Accounts System which use the establishment as the basic unit of classification and those which use the legal entity can be carried out only at broad industry group levels of aggregation. Statistics Canada is continuing research on enterprise-company-establishment relationships and it may eventually be feasible to reclassify the data which are on one basis (say the establishment basis) to correspond to the units employed on another (the company or enterprise basis).

[3] It may be of interest to note that one of the principal recommendations of the National Accounts Review Committee established to review the national economic accounts of the United States in the 1950's concerned this question of integration. The Committee recommended that: "The five segments of the national economic accounts (i.e., flow-of-funds, input-output, balance of payments, balance sheet and national wealth statements, and income and product accounts) which have hitherto led rather independent lives, should be integrated into a single national economic accounting system. This recommendation for the development of a conceptually integrated system of national economic accounts is one of the main recommendations of the Committee, if not the most important one" (see *The National Economic Accounts of the United States*, Hearings Before the Subcommittee on Economic Statistics of the Joint Economic Committee, Congress of the United States, October 29 and 30, 1957, United States Government Printing Office, Washington, 1957, p.112). The Canadian System of National Accounts was able to evolve from the outset on the basis of a commonly agreed upon set of concepts and definitions.

The Canadian Balance of International Payments

As previously noted, this system of statistics pre-dates the development of the National Income and Expenditure Accounts. Official statistics date back to 1926, and work in the field began considerably earlier, reflecting emerging demands and awareness of the special economic significance of the external sector in Canada's open economy. The relationship of the Balance of International Payments to the National Income and Expenditure Accounts is described elsewhere in this report (Chapter 8, "The Non-resident Sector"), and no further discussion is undertaken here. Needless to say, the publications in this area contain much more detailed statistical information than is shown in the non-resident sector of the National Income and Expenditure Accounts, together with extensive analytical material. The data are available on both an annual and quarterly basis. For convenience, the principal sources of the information are repeated here: *The Canadian Balance of International Payments and International Investment Position: A Description of Sources and Methods,* Catalogue 67-506; *The Canadian Balance of International Payments*, Catalogue 67-201 (annual); and *Quarterly Estimates of the Canadian Balance of International Payments*, Catalogue 67-001 (quarterly).

The Financial Flow Accounts

The Financial Flow Accounts are an extension of the National Income and Expenditure Accounts, focusing on transactions in financial markets which are associated with the acquisition of financial assets or the assumption of financial liabilities. Conceptually, they constitute a deconsolidation of the net lending and borrowing activity recorded in the capital finance accounts of the various sectors of the economy, revealing the pattern of changes in financial claims underlying this lending and borrowing activity. Since lending and borrowing represent the processes through which available financial resources are channelled to areas of investment need, the Financial Flow Accounts in effect provide a link between saving and investment.

In this connection, it may be useful to recall that in the National Income and Expenditure Accounts, saving and investment (in physical assets) are always equal for the economy as a whole, but this equality of saving and investment does not hold true for individual sectors. Thus, in Chapter 4, in the section on "Capital Finance Accounts", it was observed that in 1961, two sectors – persons and unincorporated business and the non-resident sector – had an excess of saving over investment which they made available, through net lending, to the other two sectors of the economy to cover the shortfall in their savings (see Table 4-4). The latter two sectors (government and corporate and government business enterprises), in turn, became net borrowers, drawing upon the savings of the other sectors to meet that part of their investment requirements which could not be met out of their own saving. The Financial Flow Accounts are designed essentially to articulate these net lending and borrowing activities taking place between sectors, and to show the detail of the financial transactions behind them.

Table 12-1 is basically a re-arrangement of the data on saving and investment and net lending and borrowing set out in Table 4-4, extended to show in a more explicit way the linkages between the capital finance accounts of the National Income and Expenditure system and the Financial Flow Accounts. It also indicates the nature of the information on changes in financial assets and liabilities which emerges when the net lending or

TABLE 12-1. Saving, Capital Formation and Net Lending or Borrowing by Major Sectors, 1961[1]

	Persons and unincorporated business	Government	Corporate and government business enterprise	Non-residents	Total economy
	millions of dollars				
1. Gross saving as per National Income and Expenditure Capital Finance Accounts	2,389	847	4,274	856	8,366[2]
2. Less: Gross capital formation as per National Income and Expenditure Capital Finance Accounts	– 1,846	– 1,682	– 4,980	–	8,508
3. Adjust for capital transfers	– 72	–	–	72	–
4. Adjust for residual error	–	–	+ 142	–	+ 142
5. Equals: Net lending or borrowing plus net purchase of existing and intangible assets as per National Income and Expenditure Capital Finance Accounts	471	– 835	– 564	928	–
6. Less: Net purchase of existing and intangible assets[3]	– 144	38	157	– 51	–
7. Equals: Net lending or borrowing as per Financial Flow Accounts	327	– 797	– 407	877	–
8. Net increase in financial assets:					
Official international reserves					
Currency and deposits					
Receivables					
Loans					
Government of Canada treasury bills					
Finance company and short-term commercial paper					
Mortgages					
Bonds					
Life insurance and pensions					
Claims on associated enterprises					
Stocks					
Foreign investments					
Other					
9. Net increase in liabilities:					
Official international reserves	This part of the table is illustrative of the detail contained in the Financial Flow Accounts. Statistics are not available for the year 1961				
Currency and deposits					
Payables					
Loans					
Government of Canada treasury bills					
Finance company and short-term commercial paper					
Mortgages					
Bonds					
Life insrance and pensions					
Claims on associated enterprises					
Stocks					
Foreign investments					
Other					
10. Net financial investment:					
Net increase in financial assets, line 8, less net increase in liabilities, line 9. This total (line 10) is conceptually equivalent to net lending or borrowing in line 7. Differences between line 7 and line 10 are the result of errors and ommissions, and are reflected in an entry which records the size of this statistical discrepancy					

[1] Adapted from the Financial Flows matrix table, *Financial Flow Accounts*, Catalogue 13-002, Table 1-4. Figures given are re-arrangements of data in Table 4-4 of Chapter 4.

[2] This figure is the total saving figure shown in Table 10 of Volume 1, Consolidated Capital Finance Account.

[3] Data for 1961 are not available. The figures are estimates for 1962.

borrowing transactions are deconsolidated (details underlying line 8 and line 9).[4] The table is purely illustrative, and is designed simply to highlight the basic principles, linkages, and relationships which bind the National Income and Expenditure Accounts and the Financial Flow Accounts together. In actual presentation, the Financial Flow system is much more complex and detailed than is shown here, with the four-way sector system divided into a large number of sub-sectors, with separate accounts developed for the various sub-sectors and categories of assets and liabilities. The sectoring system is institutionally oriented. The legal entity (company) is the basic unit of account where transactions in financial claims are involved, although the Financial Flow Accounts incorporate both company and enterprise (multi-company) data.

It will be noted in Table 12-1 that the net lending and borrowing transactions cancel out when summed across sectors for the economy as a whole. This is simply a reflection of the fact that what is lending for one sector becomes borrowing for another, with the increase in financial assets of the lending sectors matched by an increase in the liabilities of the borrowing sectors.

The Financial Flow Accounts are published on a quarterly and annual basis. The sources of the information are *Financial Flow Accounts, 1962-67, A Preliminary Report*, Catalogue 13-530 (occasional), and *Financial Flow Accounts*, Catalogue 13-002 (quarterly).

Real Gross Domestic Product at Factor Cost by Industry

This system of indexes shows the industrial composition of changes in the physical volume of output.[5] Its principal feature is that it portrays the pattern

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[4] The **net** increase in financial assets in Table 12-1 – for example, any net increase in bonds held by persons and unincorporated businesses – would of course be the result of a two-way flow of gross purchases and gross sales of bonds by the sector. Similarly, the **net** increase in financial liabilities for a sector would be the result of a two-way set of gross flows involving the assumption of new liabilities and the discharge of old liabilities. These gross flows are consolidated to show only **net** changes in financial assets and liabilities in the Financial Flow Accounts.

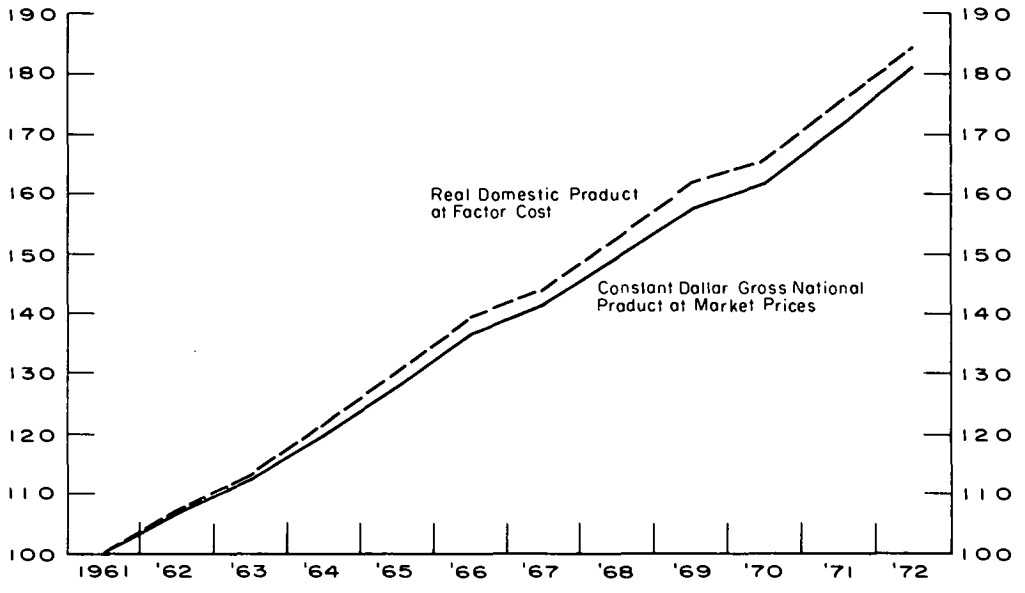
[5] In referring to constant dollar measures of output (e.g., Real Domestic Product at Factor Cost, or real Gross National Product), the terms "physical volume of output" or "physical quantity of production" are often used. The word "physical" in this context is somewhat of a misnomer – it is difficult, for example, to conceive of a quantum of services in actual physical terms. Moreover, as the economy becomes more "service-oriented", the term becomes even less appropriate. However, common usage has served to establish this terminology fairly firmly in the lexicon of economists and statisticians, and we use it here with due regard to the fact that it is somewhat imprecise. It serves principally to provide a double emphasis in differentiating between the current dollar **value** of production and the **real** or constant price value of production.

A discussion of the concept of economic production underlying the Real Domestic Product by Industry series may be found in "The Measurement of Constant Price Aggregates in Canada" by Betty J. Emery and Gordon J. Garston, *The Review of Income and Wealth*, Series 15, Number 1, March 1969, and in *Problems in the Estimation of Industry Output in Current and Constant Dollars in Canada* by Gordon J. Garston and David A. Worton, *The Industrial Composition of Income and Product*, Studies in Income and Wealth, Volume 32, National Bureau of Economic Research, New York, 1968.

of industry advances or declines behind the increases or declines in total real output, and permits the contribution of each industry to the total change in output to be measured.

Indexes of Real Gross Domestic Product at Factor Cost and Deflated Gross National Product at Market Prices

(1961 = 100)



The system of real output by industry indexes was originally developed in conjunction with the constant dollar estimates (deflation) of Gross National Expenditure, to provide an independent check on the results of the deflation procedure,[6] and to supplement and extend the measurement of the change in real output with information on its industrial composition. A brief description of the relationship between these estimates and the constant dollar estimates of Gross National Expenditure is given in Chapter 9.

A special feature of this system of economic statistics is that the information is available on a monthly as well as on a quarterly and annual basis. Prior to the development of the monthly estimates, the most comprehensive **monthly** indicator of changes taking place in the economy was the index of industrial production, which covered the manufacturing, mining, and electric power, gas and water utilities industries, accounting for about one-third of the total economy. The monthly indexes of Real Domestic Product by Industry are in effect an extension of the index of industrial production to cover the entire economy. They thus constitute the most current and up-to-date set of **overall** measures of the state of the economy that are available in Canada.

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[6] See Appendix to Chapter 9, where the year-to-year percentage changes in constant (1961) dollar Gross National Expenditure at Market Prices are compared with the year-to-year percentage changes in Real Gross Domestic Product at Factor Cost, for the years 1961-72.

TABLE 12-2. Indexes of Real Domestic Product by Industry[1]

1961=100

Industry	1961 Industry weights	1961	1962	1963	1971	1972
Agriculture	4.525	100.0	122.0	136.9	152.7	137.6
Forestry	1.231	100.0	106.4	108.3	135.0	133.8
Fishing and trapping	0.259	100.0	106.9	106.4	107.9	95.8
Mines, quarries and oil wells	4.564	100.0	106.2	112.1	182.9	191.8
Manufacturing	24.943	100.0	109.3	116.7	181.7	193.9
Construction	5.803	100.0	105.6	107.1	165.6	166.5
Transportation	6.873	100.0	103.8	111.6	185.8	199.9
Storage	0.299	100.0	87.1	105.2	125.8	131.2
Communication	2.738	100.0	106.8	111.3	181.2	193.2
Electric power, gas and water utilities	2.908	100.0	105.3	111.6	207.6	228.9
Wholesale trade	4.906	100.0	106.0	112.0	183.6	197.0
Retail trade	8.067	100.0	106.2	110.7	162.6	173.8
Finance, insurance and real estate	11.831	100.0	106.1	112.2	179.3	191.2
Public administration and defence	7.232	100.0	103.1	104.0	132.4	138.9
Community, business and personal service	13.821	100.0	105.2	111.6	187.0	194.8
Total Gross Domestic Product at factor cost	100.0	100.0	107.0	113.2	175.0	184.3

[1]Source: *Indexes of Real Domestic Product by Industry, 1961-1969*, Catalogue 61-510; and *Indexes of Real Domestic Product by Industry, 1973 Supplement*, Catalogue 61-005.

As was indicated in Chapter 9, the indexes of Real Domestic Product by Industry are built around the concept of Gross Domestic Product at Factor Cost. This aggregate provides the principal link from the National Income and Expenditure Accounts to the real output indexes. Thus, the Consolidated Production Account (Tables 8 and 9 of Volume 1), which is presented in the National Income and Expenditure Accounts on a Gross Domestic Product at **Market Prices** basis, can be converted to a Gross Domestic Product at **Factor Cost** basis simply by deducting indirect taxes less subsidies and eliminating the residual error:

	1961
	millions of dollars
Gross Domestic Product at market prices (Tables 8 and 9 of Volume 1)	40,368
Less:	
Indirect taxes less subsidies	– 4,838
Residual error[1]	– 142
Gross Domestic Product at factor cost	35,388

[1] Gross Domestic Product at Factor Cost, derived as the sum of industry value-added data (Tables 28 to 31 of Volume 1), and the system of indexes described here, do not contain a residual error of estimate. There is no independently derived calculation on the expenditure side in the case of these two sets of data which would generate a residual error of estimate.

The indexes of Real Domestic Product by Industry are designed to show the changes, in total and by industry, in Gross Domestic Product at Factor Cost in terms of constant 1961 base-year prices.

It may be noted that in Table 28 of Volume 1, figures are presented showing the **value** of Gross Domestic Product at Factor Cost by Industry (net-value added by industry). The industrial classification used in this table is based, for reasons which have to do with the nature of the primary data, on a mixture of company and establishment information, with profits, investment income, and capital consumption allowances classified on a company basis and most other components classified on an establishment basis. By contrast, the basic unit of classification employed throughout the indexes of Real Domestic Product by Industry is the establishment, the primary data being available in this form. Thus, the industry classifications in Table 28 of Volume 1 are not fully in accord or compatible with the industry classifications underlying the Real Domestic Product by Industry System. The principal differences in the two sets of industry classifications concern the relationship between manufacturing, and forestry, mining, and wholesale trade. For example, a manufacturing company whose profits, investment income, and capital consumption allowances would be classified to manufacturing in Table 28 might well have establishments producing output in forestry (e.g., pulp and paper manufacturing companies with their own forestry operations) or in mining (e.g., smelting and refinery companies with their own mining or oil and gas operations), or in wholesale trade (e.g., manufacturers' sales branches). In the Real Domestic Product by Industry indexes, the output of these manufacturing companies would be classified in four places – manufacturing, forestry, mining, and wholesale trade. In Table 28, the profits, capital consumption allowances, and other investment income would be classified to manufacturing. The user should be aware of this problem if industry information in Table 28 is used in conjunction with industry information provided by the Real Domestic Product indexes.[7]

The indexes of Real Domestic Product by Industry are derived by a process of "double deflation" – deflating each industry's gross output and subtracting from it the deflated value of each industry's material inputs (see Chapter 9). A full description of concepts, sources and methods is given in *Indexes of Real Domestic Product by Industry of Origin, 1935-61*, Catalogue 61-505 (occasional).[8] The basic statistical information is published in *Indexes of Real Domestic Product by Industry*, Catalogue 61-005 (monthly) and in *Indexes of Real Domestic Product by Industry*, 1961-1969, Catalogue 61-510 (occasional).

Indexes of Productivity Trends

Closely related to the measurements of real output by industry described above are the estimates of productivity change in the economy published by Statistics Canada as a part of the System of National Accounts. Productivity is defined for this purpose as output per unit of **labour** input, and the indexes of productivity are derived by dividing indexes of real output by indexes of

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[7] For example, the two sets of data are sometimes matched up to derive rough estimates of implicit price change on an industry-by-industry basis.

[8] See also Gordon J. Garston and David A. Worton, Problems in the Estimation of Industry Output in Current and Constant Dollars in Canada, published in *The Industrial Composition of Income and Product*, Studies in Income and Wealth, Volume 32, National Bureau of Economic Research, New York, 1968.

numbers of persons employed, or by indexes of man-hours worked. These "productivity" indexes of output per person employed or output per man-hour (see Table 12-3) are therefore no more than basic measurements of the physical relationship existing between the growth in the quantity of labour employed and the growth of output. No attempt is made to allow for changes in the **quality** of the labour inputs (e.g., changes in levels of education or changes in the age and sex composition of the labour force) or for the contribution of capital to the growth of output.[9]

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[9] In studies of economic growth, productivity growth is typically defined as a measure of the improvement in the "efficiency" with which the factors of production are combined and used in the economy. This approach to the measurement of productivity would need to encompass, on the input side, changes in **total** factor inputs – that is, changes in the physical **quantity** of resources used, both labour and capital, – and changes in the **quality** of these inputs, e.g., changes in the educational and skill levels of the labour force, and changes in its age and sex composition. Such a measure of "**total** factor input per unit of output" would more accurately measure efficiency factors such as increases in output arising from shifts in men and capital from less productive to more productive lines of activity, increases in output arising from economies of scale and specialization, and increases in output arising from advances in knowledge and improved organization and management practice. See Dorothy Walters, *Canadian Growth Revisited, 1950-1967*, Economic Council of Canada, Staff Study No. 28, Queen's Printer, Ottawa, 1970; and *Perspective 1975*, Sixth Annual Review, Economic Council of Canada, September 1969.

TABLE 12-3. Indexes of Aggregate Productivity, 1961-72

1961=100

	Output	Persons employed	Man-hours	Output per person employed	Output per man-hour
	Commercial industries				
1961	100.0	100.0	100.0	100.0	100.0
1962	107.5	102.5	102.3	104.9	105.1
1963	113.9	104.7	103.7	108.8	109.8
1964	122.5	108.4	106.8	113.0	114.7
1965	131.7	113.0	110.4	116.5	119.3
1966	141.4	116.8	112.8	121.1	125.4
1967	145.5	119.0	114.2	122.3	127.4
1968	154.1	119.5	113.3	129.0	136.0
1969	163.5	123.4	116.0	132.5	141.0
1970	167.2	123.4	114.8	135.5	145.7
1971p	177.3	125.7	116.2	141.0	152.6
1972p	187.2	128.5	117.8	145.6	158.9
	Annual rate of change				
1966-72	4.8	1.6	0.6	3.2	4.2
1961-72	5.8	2.3	1.5	3.4	4.2
1971-72	5.6	2.2	1.4	3.3	4.1

The output data employed in constructing these indexes are taken directly from the indexes of real domestic product. Only the commercial sector of the economy involving the "commercial" industries is covered. As noted elsewhere in this report, under the conventions adopted in National Accounting for measuring the output of the government sector and non-commercial organizations, an assumption of constant productivity is made in these areas. The data on employment and man-hours which are matched to the output estimates represent a blending of the information from the Labour Force survey of households with information from the Employment Survey of establishments, and information from the census of manufactures.

It is frequently noted that increases in labour compensation per man-hour (wage rates) which exceed increases in productivity (as measured by output per man-hour) must result in an increase in labour costs per unit of output. This is simply a statement of the arithmetic relationships which underlie the data set out in Table 12-4, and it is useful to be aware of the way in which these numerical relationships arise. The table shows the connection between changes in productivity, changes in labour compensation per man-hour, and changes in labour costs per unit of output. (The latter are widely regarded as a significant indicator of cost pressures in the economy.) Thus, in 1962 and 1963, productivity advanced more rapidly than labour compensation per man-hour and labour costs per unit of output declined. In 1972, however, labour compensation per man-hour rose considerably faster than productivity, and labour costs per unit of output increased. The information assembled in the productivity reports permit these relationships to be examined systematically for the commercial sector of the economy and for its main constituent parts.

TABLE 12-4. Relationships Between Productivity, Labour Compensation and Labour Costs per Unit of Output

Commercial Industries – 1961=100

	1961	1962	1963	1971	1972
1. Output index	100.0	107.5	113.9	177.3	187.2
2. Manhours index	100.0	102.3	103.7	116.2	117.8
3. Labour compensation index[1]	100.0	105.5	111.5	223.4	246.1
4. Productivity index (line 1 ÷ line 2)	100.0	105.1	109.8	152.6	158.9
Percent change from previous year		(+ 5.1)	(+ 4.5)		(+ 4.1)
5. Labour compensation per manhour index (line 3 ÷ line 2)	100.0	103.1	107.5	192.3	208.9
Percent change from previous year		(+ 3.1)	(+ 4.3)		(+ 8.6)
6. Labour cost per unit of output index (line 5 ÷ line 4)	100.0	98.1	97.9	126.0	131.5
Percent change from previous year		(– 1.9)	(– 0.2)		(+ 4.4)
7. Labour cost per unit of output index (line 3 ÷ line 1)	100.0	98.1	97.9	126.0	131.5
Percent change from previous year		(– 1.9)	(– 0.2)		(+ 4.4)

[1] Wages, salaries and supplementary labour income, plus imputed labour income for employers and own account workers in the commercial industries.

At the time of writing, indexes of aggregate productivity are being prepared on a regular basis each year for the commercial industries in total (Table 12-3); for agriculture; for commercial non-agricultural industries; for manufacturing; for non-manufacturing industries excluding agriculture; for the

commercial goods-producing industries; for the commercial goods-producing industries excluding agriculture; and for the commercial service-producing industries. The statistical information is published in *Aggregate Productivity Trends*, Catalogue 14-201 (Annual). A description of concepts, sources and methods is given in *Indexes of Output per Person Employed and per Man-hour in Canada, Commercial Non-Agricultural Industries, 1947-63*, Catalogue 14-501 (occasional).

The Input-output Accounts[10]

In Chapter 3, it was shown how the production accounts of individual firms can be consolidated to yield an unduplicated measure of economic production for the economy as a whole. In this consolidation, all inter-business purchases and sales on current operating account associated with intermediate production are cancelled out – purchases by one producing unit from another (debits) being matched and offset by sales from one producing unit to another (credits). The process is not unlike that of the cancellation of net lending and borrowing activity between sectors which occurs in the Financial Flow Accounts when such transactions are consolidated for the entire economy. Thus, only transactions representing "final" production are recorded in the consolidated production account for the economy as a whole. All intermediate production is netted out, and the various inter-industry relationships and details underlying the production process are lost to view.

The Consolidated Production Account for the economy as a whole is presented in Tables 8 and 9 of Volume 1. In these tables, the nation's consolidated production – Gross Domestic Product at Market Prices – is measured in two ways – through the summation of all of the **primary expenses** arising from production – and through the summation of all **sales of production to final demand uses.** But, in line with what has been said above, this consolidated production account can be viewed conceptually as a bringing together and consolidation of all of the production accounts of the various firms, industries and other producing units in the economy. If this production account can now be presented in an unconsolidated form and the information arranged in an appropriately classified framework, a great deal of valuable knowledge can be gained about the way in which production is organized in the economic system – and especially about the inter-relationships in the flows of goods and services among producing industries. Further, if the industry information can be extended and classified to show the major commodities used (inputs) by individual industries, and the major commodities produced (outputs) by individual industries, a fairly complete picture of the structure of economic production begins to emerge.

The Canadian input-output system of accounts constitute in effect a "disaggregation" of the nation's production account. The basic input-output matrix brings back into the record the inter-industry flows of goods and services which are lost when the transactions underlying

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[10] This section relies heavily on the material published in *The Input-output Structure of the Canadian Economy, 1961*, Volume 1, Catalogue 15-501.

"intermediate" production are consolidated. Conceptually, this system is fully integrated with the National Income and Expenditure Accounts, with Gross Domestic Product at Market Prices providing the basic aggregate around which the system is constructed. Input-Output tables at present are constructed on an annual basis only. Input-Output tables have been published for the years 1961-1966 inclusive, and work is in process for the years 1967-1971. The accounting relationships embodied in the tables describe the structure of demand (intermediate and final) and of productive activity in that particular year.

Table 12-5 provides a highly simplified numerical example of the input-output accounting framework and shows the relationship with the National Income and Expenditure Accounts. The table contains two sets of inter-related accounts – a set of commodity accounts (columns and rows 1 – 5) – and a set of industry accounts (columns and rows A, B and C).

The first set of accounts – the commodity accounts – show the **supply of** and the **demand for individual commodities** (goods and non-factor services). The supply of a commodity, shown in its column, is broken down to show the amount produced by each domestic industry, and the amount imported. The demand for a commodity, shown in its row, is broken down to show the consumption by each domestic industry that uses it as an intermediate input, and the demands of final users – persons, governments, industries (on capital account, i.e., gross fixed capital formation) and non-residents (exports).

The second set of accounts – the industry accounts – show the total **gross output** of each industry, and each industry's total **inputs**. The gross output of an industry, classified by commodity, is shown in the industry's row. The total inputs of an industry are shown in the industry's column, and are classified into **intermediate** and **primary inputs**. In this example, intermediate inputs consist of current account inputs of commodities consumed in the process of production. Primary inputs consist of indirect taxes, wages and salaries, and "surplus" (defined as the sum of "costs" associated with the use of capital, i.e., profits and other investment income plus depreciation).

Gross Domestic Product at Market Prices which provides the basic link to the National Income and Expenditure Accounts, appears in this table in two forms. In its first form, it can be derived as the sum of the column totals under the heading "Final Demands", minus the entry for Imports (i.e., Total Final Demand of 103 minus Imports of 23 equals Gross Domestic Product at Market Prices of 80). In its second form, it can be derived as the sum of the row totals for all primary inputs (i.e., Indirect Taxes of 19 plus Wages and Salaries of 47 plus Surplus of 14 equals Gross Domestic Product at Market Prices of 80).

There are many ways of presenting the basic information provided by input-output accounts. The tables published in the Canadian system involve various adaptations and re-arrangements of the data set out in the above illustration, but the information they contain is based on the same underlying principles and relationships. A major feature of the 1961 input-output presentation is that the inputs and outputs of industries are published in separate tables, and both inputs and outputs are classified by commodity.

TABLE 12-5. Hypothetical Example of a Simplified Set of Input-Output Accounts

(for an economy in which there are three industries which produce five commodities)

		Commodities					Industries			Final Demands				TOTAL	
		1	2	3	4	5	A	B	C	P	G	CF	X		
Commodities	1						3	3	1	3	1		7	18	Demand for Commodities (131)
	2		Demanded By →				7	4	2	10	2	5	11	41	
	3						2	2	1	5		4		14	
	4		Supplied By ↓			↓	8	10	4	10	3			35	
	5						3	3	1	10	1	2	3	23	
Industries	A	15	22	8	1									46	Industry Gross Outputs (108)
	B		1	4	30									35	
	C			2	3	22								27	
Imports		3	18		1	1								23	
Indirect Taxes							3	2	1	9	2	2		19	Gross Domestic Product at Market Prices (80)
Wages & Salaries							14	8	12		13			47	
Surplus							6	3	5					14	
TOTAL		18	41	14	35	23	46	35	27	47	22	13	21		

Supply of Commodities (131)

Industry Inputs (108)
– Intermediate (54)
– Primary (54)

Total Final Demand (103)
– For Domestic Production (80)
– For Imports (23)

Final Demand Categories

P – Personal Expenditure on Consumer Goods and Services
G – Government Expenditure on Goods and Services
CF – Business Gross Fixed Capital Formation
X – Exports of Goods and Services

A good many different uses can be made of input-output tables, but they are especially effective for measuring the industrial effects of changes in final or intermediate demand. Extensive use of the information in this way has been made in the course of constructing the CANDIDE Model[11] of the Canadian economy, for example, to convert final demand categories into final commodity requirements, or into industry requirements. The following description of the economic production process provides a useful statement of the basic logic underlying such exercises:

> "The construction of economic models based on the information contained in input-output tables rests on the observation that the process of production, in modern technological societies, is roundabout. To produce an automobile, for example, requires the efforts not only of those who are in the automobile industry, but also of those who are concerned with the production of steel, aluminum, rubber, textiles and the myriad of other materials and services which are embodied in automobiles. In turn the production of steel, aluminum, rubber, etc. is only possible if yet other materials and services have been produced and are available. Thus the production of automobiles, and indeed of any other product, implicates a long chain of production which links many of the human, material and technological resources of the economy.
>
> Now if the human, material and service inputs into automobiles are stable in relation to the output of automobiles, and if, in turn, the requirements for producing steel, aluminum, rubber, etc., are stable, and so forth, then through mathematical models based on input-output tables it is possible to estimate the impact of the demand for automobiles not only on the production of the automobile industry but also on the production of all the other industries which are involved, however indirectly, in the production of automobiles; similar estimates can be made for any other commodity. Input-output models thus make it possible to study technological interdependence and to trace the propagation of demand through the economic system. Moreover, these models can be formulated so that the incomes and revenues generated by industrial activity in turn determine the level and composition of a large proportion of final demand. In this way, input-output models can be made to simulate the circular flow of economic activity."[12]

A complete description of the concepts, sources and methods involved in the construction of the Input-Output Accounts is contained in *The Input-Output Structure of the Canadian Economy, 1961, Volume 1*, Catalogue 15-501. The tabular information is contained in both Volume 1 and Volume 2 of the study.

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[11] Canadian Disaggregated Interdepartmental Econometric model.

[12] *The Input-Output Structure of the Canadian Economy, 1961*, Catalogue 15-501, pp. 17-18.

Family Income and Income Size Distributions

While not now formally denoted as a part of the System of National Accounts, estimates of incomes of Canadian families and individuals classified by size of incomes, published by Statistics Canada in a series of occasional and annual reports,[13] are closely related to the concept of Personal Income in the National Income and Expenditure Accounts. The data show income size distributions by families, individuals, sex, regions, metropolitan and non-metropolitan areas and other characteristics of income recipients. This information is largely based on sample surveys and now refers to both farm and non-farm families and individuals (up to 1965 it dealt only with non-farm recipients). The concept of income employed in these statistics is somewhat narrower than the concept of Personal Income employed in the Income and Expenditure Accounts. In the latter Accounts, the concept of Personal Income includes the income of private non-profit institutions such as trade unions, universities, charitable organizations, and so forth. It also includes investment income from private trusteed pension funds and life insurance investments accruing on behalf of individuals as well as certain imputed incomes in kind. [14]

The income size distribution concept of income excludes all these particular items and restricts itself to monetary income flowing to persons. Because of this difference in concept, however, the monetary flows explicitly include actual outpayments from annuity and private pension funds (in the National Income and Expenditure Accounts these would be inter-personal transfers which cancel out). The coverage in the two systems also is slightly different since income size distribution data do not include information on members and families of the Armed Forces, residents of the Yukon and Northwest Territories, and inmates of institutions.

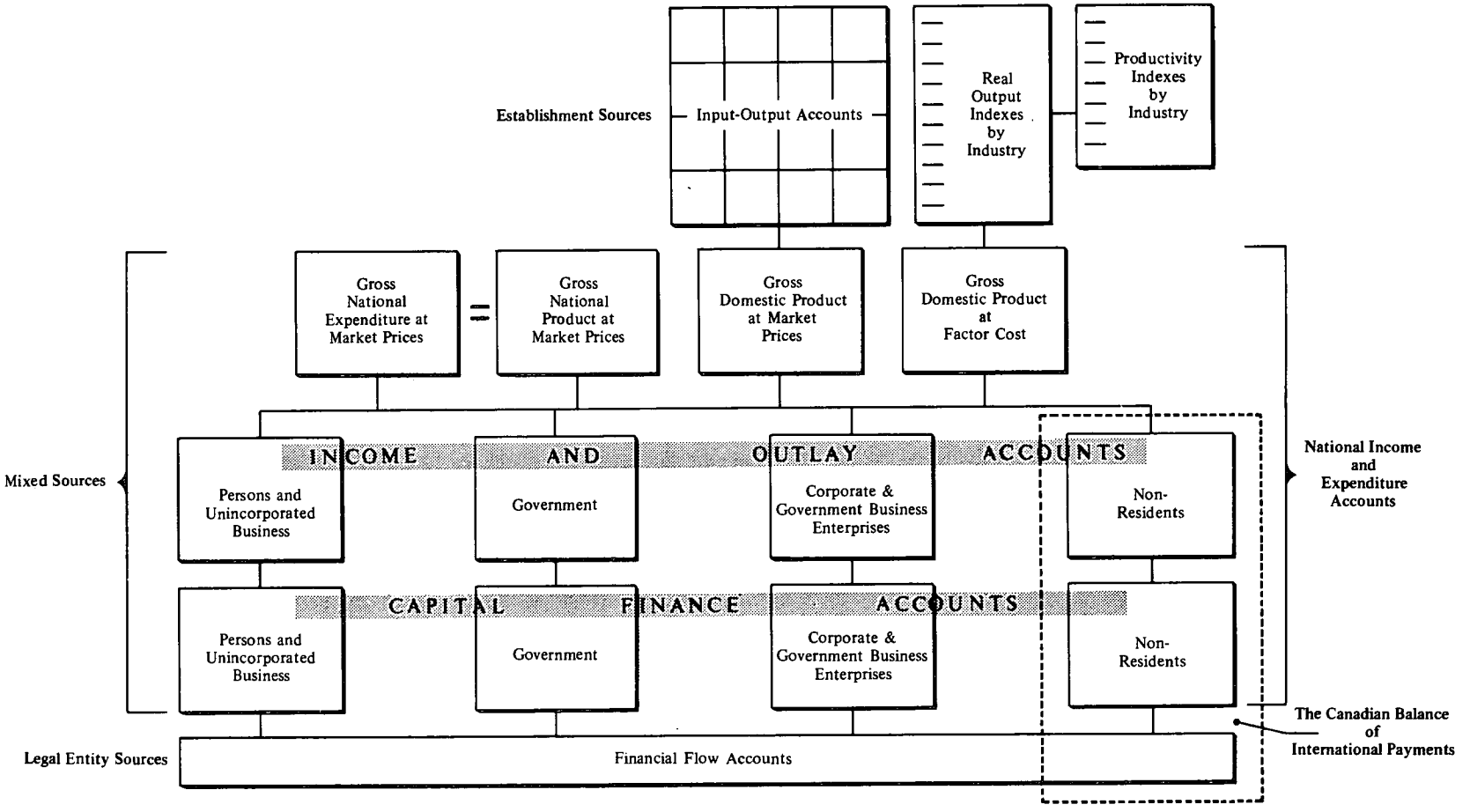
The United Nations Statistical Office has been working on the development of a "Complementary System of Income and Expenditure Accounts", and the report on this matter is now nearing completion. This work centres around the development of a conceptual framework for household income and expenditure, with distributions of income by size, and with personal savings estimates and household balance sheets developed by family and personal characteristics, such as age, family size and so forth. The system would be based upon the personal income concepts as set out in the United Nations System of National Accounts. The United Nations System of National Accounts is discussed in Chapter 13.

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[13] See, for example, *Econometric Study of Incomes of Canadian Families, 1967,* Catalogue 13-537; *Household Facilities by Income and Other Characteristics, 1968,* Catalogue 13-540; *Income Distributions by Size in Canada, 1969,* Catalogue 13-544; *Comparative Income Distributions, 1965 and 1967,* Catalogue 13-539; *Family Incomes (Census Families), 1969,* Catalogue 13-546; and *Statistics on Low Income in Canada, 1967,* Catalogue 13-536. Beginning with statistics for the year 1971, **annual** reports on *Income Distribution by Size in Canada* are to be published on a regular basis under Catalogue 13-207.

[14] See chapter 3, page 63.

The System of National Accounts



CHAPTER 13

INTERNATIONAL COMPARISONS OF NATIONAL INCOME AND EXPENDITURE STATISTICS

Introduction

This chapter focuses briefly on the uses and applications of National Income and Expenditure Accounts in an international context. It describes some of the problems involved in achieving international comparability, and gives an account of the work which has been undertaken by two major international organizations – the United Nations and the Organisation for Economic Co-operation and Development – to promote standardized systems of Accounts in the various countries and to construct estimates in a form designed to facilitate international comparability. Some of the principal differences between the Canadian and the United States systems of National Income and Expenditure Accounts are also discussed, since the interdependence of these two economies make Canada-United States comparisons of special significance for many analytical purposes. A brief comment on the United Nations standard System of National Accounts is included.

Many countries now produce National Income and Expenditure Accounts, and the number of uses of the data involving comparisons between countries is steadily increasing. In part, this reflects the growing interdependence of the world economy and the establishment of international organizations to promote collectively agreed upon international objectives. But it also reflects to an increasing degree an interest on the part of economists and policy-makers to better understand the processes of economic growth and development and the principal features which differentiate the structure and performance of one country's economy from that of another's. There is interest, for example, in such questions about other nations' economies as: how much of Gross National Product is allocated to defence? how much to investment? how much to private consumption? how dependent are the economies of the different countries on export trade? what is the share of taxes in relation to total Gross National Product? what form do these taxes take? why do some economies grow faster than others? what are the principal elements of demand involved? what countries have achieved the highest levels of per capita Gross National Product? what countries remain below the average? These are simply illustrative of the type of questions on which information is sought as a means of building up a body of knowledge about the nature of the world economy and the anatomical features of the individual economies which comprise it.

Applications and Uses

A list of actual applications of National Income and Expenditure data in an international context would include the following important examples:

(a) In 1961, the Organisation for Economic Co-operation and Development set as a collective growth target for the twenty countries then constituting the OECD, the growth of their combined Gross National Product by 50%, in real terms, during the decade 1960 to 1970. (In fact, this growth rate was exceeded, and amounted to about 60%, or 4.8% per annum, in the

combined national product of the member countries.) For the period 1970 to 1980, the Organisation has projected that the combined Gross Product of the OECD area as a whole might increase by about 68% – an average annual rate of increase of about 5.3% per annum.[1]

(b) The Organisation for Economic Co-operation and Development undertakes a collective forecasting exercise twice each year, in which member countries provide assessments of the outlook for their various economies over the course of the next 12 to 18 months. These assessments are adjusted and combined by the OECD Secretariat to provide a quantitative assessment of the economic outlook and prospects in the OECD area as a whole – an area which includes all of the major industrial countries in the non-communist world (see Table 13-1).[2]

(c) The National Institute of Economic and Social Research in the United Kingdom uses this information for its periodic assessment of developments and prospects in the world economy – an assessment which includes not only a retrospective appraisal of world economic events, but also a forecast of prospective developments over the next 12 to 18 months.[3]

(d) The United Nations objective for the "development decade" of the 1960's was set out in terms of achieving a 5% annual rate of growth in the aggregate national income of the developing countries at the end of the decade.[4]

(e) Member countries' contributions to the financial support of international organizations such as the United Nations are often assessed on the basis of criteria which include as a factor the size of each country's National Income.[5]

(f) The relative burden of defence expenditures of various countries organized under treaty arrangements is frequently compared on the basis of the share of defence outlays in total Gross National Product (see Table 13-2).

(g) The United Nations General Assembly has urged that the flow of international assistance and capital to the developing countries should be increased substantially so as to reach as soon as possible approximately 1% of the combined national incomes of the economically advanced countries.[6]

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[1] Organisation for Economic Co-operation and Development, *The Growth of Output, 1960-1980, Retrospect, Prospect and Problems of Policy,* OECD, Paris, December 1970, pp. 76-79.

[2] Organisation for Economic Co-operation and Development, *OECD Economic Outlook,* Paris, published twice each year in July and December.

[3] National Institute of Economic and Social Research, *National Institute Economic Review,* London, published quarterly in February, May, August and November.

[4] United Nations, *Yearbook of the United Nations, 1961,* New York, 1963, p.231.

[5] Conference on Research in Income and Wealth, *Problems in International Comparison of Economic Accounts,* Studies in Income and Wealth, Volume 20 (Princeton, N.J., Princeton University Press for the National Bureau of Economic Research 1957).

[6] United Nations, *Yearbook of the United Nations, 1961,* New York, 1963, p. 244.

(h) Comparisons of absolute levels of Gross National Product and of per capita production of goods and services in the various countries are sometimes made in international studies to provide some indication of the income or development gap existing between the wealthier and the poorer countries (see Table 13-3). Such comparisons are also sometimes used as rough approximations to relative standards of living,[7] although the United Nations notes in its statistical reports that such figures are not intended as measures of the standard of living of the inhabitants of the various countries.

(i) The structures of different economies are frequently compared in terms of National Income and Expenditure Accounts, with a view to determining how much of a particular country's output may go into exports; how much is allocated to investment; how much is allocated to private consumption; and so forth (see Table 13-2).[8]

(j) Studies of the sources of economic growth such as those undertaken by the American economist Edward F. Denison are based on international comparisons of National Income and Expenditure data.[9]

(k) The relative level of taxation in various countries is frequently compared by expressing total taxes as a percentage of Gross National Product at Market Prices.[10]

To amplify somewhat this discussion of the application and uses of National Income and Expenditure data in an international context, a number of tables are included at this point, with brief comment on their nature and content. The purpose here is simply to illustrate in a concrete way some of the forms in which international comparisons are made and presented, and to direct the reader to the source publications where such information may be found.

Table 13-1 simply shows the way in which the growth rates of the various member countries of the Organisation for Economic Co-operation and Development are presented and combined as part of the appraisal and assessment of the economic outlook in the OECD area (figures for 1971 are OECD "forecasts" as of July 1971). This information has important uses in assisting member countries to assess their individual economic circumstances and prospects in the light of economic developments and prospects in other countries, and to make whatever adaptations or adjustments to their own policies that may be deemed to be necessary. It may be noted that the United

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[7] See, for example, Samuel Hays, *National Income and Expenditure in Britain and the OECD Countries,* Heinemann Educational Books Ltd., London, 1971, p. 96.

[8] Organisation for Economic Co-operation and Development, *Expenditure Trends in OECD Countries, 1960-1980,* OECD, Paris, 1972.

[9] Edward F. Denison (assisted by Jean-Pierre Poullier), *Why Growth Rates Differ: Post-War Experience in Nine Western Countries,* The Brookings Institution, Washington, 1967.

[10] See, for example, the table of comparative tax ratios in the December 1972 issue of the *OECD Observer,* published by the Organisation for Economic Co-operation and Development. See also *Revenue Statistics of OECD Member Countries, 1968-1970, A Standard Classification,* OECD., Paris, 1973.

TABLE 13-1. Growth Rates of Real Gross National Product in the Area covered by Member Countries of the Organization for Economic Cooperation and Development

	Weights in total[1]	Average growth rate, nine-year period, 1958-59 to 1967-68	Annual growth rate		
			1969	1970	1971[2]
	(1)	(2)	(3)	(4)	(5)
		%	per cent change from previous year		
United States	51.0	4.6	2.8	– 0.4	3.0
Canada	3.7	4.8	5.1	3.3	5.0
Japan	8.3	11.0	11.9	10.9	8.0
France	7.4	5.6	7.7	5.9	5.5
Germany	8.0	4.8	8.1	4.9	3.5
Italy	4.4	5.7	6.1	5.2	3.0
United Kingdom	6.3	3.2	2.3	2.0	0.5
Total, seven major countries	**89.1**	**5.3**	**4.8**	**2.3**	**3.7**
Other Northern European countries[3]	7.9	4.7	6.0	5.2	3.7
Other Southern European countries[4]	3.0	6.2	6.9	6.2	6.5
Total, all OECD countries[5]	**100.0**	**5.3**	**5.0**	**2.6**	**3.8**

[1] Member countries' GNP for 1969 in current prices converted into United States dollars at 1969 rates of exchange.

[2] OECD forecast for 1971.

[3] Austria, Belgium, Denmark, Finland, Iceland, Ireland, Luxembourg, Netherlands, Norway, Sweden and Switzerland.

[4] Greece, Portugal, Spain and Turkey.

[5] Australia and New Zealand became members of the OECD in 1971 and 1973 respectively. These two countries are not included in the totals of this table.

Source: *OECD Economic Outlook, July 1971,* Organisation for Economic Co-operation and Development, Paris.

States accounts for over 50% of the output of the OECD area (Column 1) and that developments in that country are a dominant factor in the growth of output for the OECD area as a whole. Canada accounts for only about 4% of the output of the OECD group of countries.[11]

Table 13-2 shows the composition of expenditures on Gross National Product in the majority of the member countries of the OECD.[12] It will be apparent that among the countries shown, Japan has the highest ratio of fixed

[11] The combined Gross National Products of the OECD countries in 1970 amounted to $2,040 billion, in United States dollars at 1970 exchange rates. Canada's Gross National Product adjusted to a comparable basis and expressed in U.S. dollars amounted to $76 billion, or 3.7 per cent of the total. (Source: *National Accounts of OECD Countries 1960-1970,* OECD, Paris, 1972, p. 10.)

[12] Greece, Portugal, Spain and Turkey are omitted from this table.

TABLE 13-2. Composition of Expenditures on Gross National Product at Current Market Prices in Selected Member Countries of the Organization for Economic Cooperation and Development

As percentages of Gross National Product at market prices, 1967-69 averages

	Private consumption (consumer spending)	Public consumption (government current expenditure on goods and services)		Fixed investment				Exports of goods and services	Imports of goods and services	Change in inventories	Total Gross National Product[1]
		Defence	Non-defence	Residential construction	Non-residential construction	Machinery and equipment	Total				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Seven major countries:											
United States	61.2	9.0	11.9	3.5	6.3	6.8	16.6	5.8	5.4	0.9	100.0
Canada	60.7	3.1	12.0	3.9	11.4	9.2	24.6	23.7	24.9	1.0	100.0
Japan	52.1	8.4		6.9	27.0		33.9	10.9	10.1	4.7	100.0
France	60.6	3.7	8.7	6.9	7.8	10.5	25.2	14.7	14.7	1.9	100.0
Germany	56.2	3.4	12.4	5.4	7.8	10.3	23.6	23.0	20.0	1.4	100.0
Italy	63.8	3.8	9.6	6.6	6.2	6.8	19.7	19.4	17.0	0.7	100.0
United Kingdom	62.8	5.4	12.6	3.5	5.7	8.6	17.9	22.8	22.0	0.6	100.0
Other Northern European countries:											
Austria	58.5	1.3	13.9	4.4	7.9	11.5	23.9	26.9	27.7	3.3	100.0
Belgium	62.8	2.8	11.1	5.7	7.7	8.1	21.5	41.5	40.8	1.1	100.0
Denmark	62.7	2.6	15.0	4.8	7.4	9.2	21.4	29.0	30.9	0.2	100.0
Finland	55.5	1.6	14.8	5.4	10.4	7.9	23.7	24.4	24.6	4.5	100.0
Iceland	66.2	–	9.9	6.5	16.1	6.5	29.1	38.4	43.5	– 0.1	100.0
Ireland	69.2	0.8	12.0	3.9	7.2	9.3	20.4	39.1	42.4	0.8	100.0
Luxembourg	58.7	1.0	10.6	8.7	9.2	6.7	24.7	81.0	76.1	0.2	100.0
Netherlands	56.4	3.4	12.4	5.5	9.5	10.8	25.8	46.6	46.3	1.7	100.0
Norway	54.5	3.5	14.3	4.8	9.6	13.0	27.4	42.8	42.6	0.1	100.0
Sweden	55.5	3.9	16.9	6.1	9.8	8.0	23.9	23.0	23.6	0.3	100.0
Switzerland	58.2	2.2	9.5	6.3	10.1	8.9	25.3	35.9	31.8	0.7	100.0

[1] Figures may not add exactly due to rounding and the fact that the residual error of estimate is not included in the Table.

Source: *Expenditure Trends in OECD Countries, 1960-1980.* Organisation for Economic Cooperation and Development, July 1972, p.18.

investment to Gross National Product (Column 7) and the lowest ratio of private consumption to Gross National Product (Column 1). The United States assigns a larger part of its Gross National Product to defence expenditures than any other country (Column 2), and has the lowest ratio of fixed investment to GNP. Many countries are heavily dependent on exports, in some cases with over 40% of all goods and services produced being sold in export markets (Column 8), but in the United States exports account for only about 6 per cent of Gross National Product. In all countries, consumer spending is the largest single component of national expenditure, accounting for over one-half of total Gross National Product in the countries shown in the table. This type of information, which sheds light on the principal structural differences

between various national economies, is of considerable interest in explaining how the world economy functions in terms of resources allocated to private consumption, public consumption, investment, or international trade.

TABLE 13-3. Gross National Product at Market Prices, per Capita, in United States Dollars, OECD Countries

At current prices and current exchange rates

Country	1960	1965	1970
United States	2,830	3,580	4,830
Canada	2,080	2,450	3,550
Japan	460	900	1,910
Austria	890	1,320	1,940
Belgium	1,250	1,800	2,670
Luxembourg	1,570	2,000	2,940
Denmark	1,290	2,130	3,160
Finland	1,110	1,740	2,220
France	1,340	2,040	2,910
Germany	1,300	1,950	3,030
Greece	420	680	1,060
Iceland	1,380	2,570	2,340
Ireland	650	970	1,320
Italy	700	1,110	1,700
Netherlands	980	1,560	2,400
Norway	1,260	1,880	2,930
Portugal	280	400	640
Spain	340	670	950
Sweden	1,740	2,660	3,840
Switzerland	1,590	2,330	3,230
Turkey	190	260	350
United Kingdom	1,370	1,840	2,170
Yugoslavia	580	510	..
Totals	**1,470**	**2,030**	**2,910**

Source: *National Accounts of OECD Countries, 1960-1970,* Organisation for Economic Co-operation and Development, Paris, 1972. All the estimates used for the construction of these totals follow standardized definitions, and the totals are measured in United States dollars at the exchange rate prevailing in the particular year. It is emphasized however, that exchange rates used to convert national currencies into U.S. dollars do not necessarily reflect the relations between the internal purchasing power of currencies in the various countries. Consequently, the estimates may tend to distort comparisons of relative levels of real purchasing power among countries. They should be considered essentially as useful approximations.

Table 13-3 simply shows Gross National Product per capita in twenty-three OECD countries, expressed in United States dollars and converted at official exchange rates. In 1970, the United States and Sweden were the two countries with the highest per capita Gross National Products. As will be explained later, however, it is important to note that there is no necessary equivalence between exchange rates and the actual internal purchasing power of national currencies within countries. The figures must be interpreted with this reservation in mind, as explained in the footnote to the table.

Problems in International Comparisons

While many countries now produce National Income and Expenditure Accounts, in many cases the concepts, definitions and underlying classification frameworks differ significantly from country to country. Most often these differences reflect different institutional arrangements and practices in the various countries. As a result, before one can begin to make international comparisons based on National Income and Expenditure data, it is necessary to ensure that the basic concepts, definitions and classification systems are uniform and comparable. In this respect, a great deal of progress has been made in recent years. In 1953, the United Nations produced a standardized *System of National Accounts and Supporting Tables* aimed at providing a coherent framework for recording the main flows relating to production, consumption, investment, and external trade. This system was essentially a step toward setting out a clearly defined structure around which the statistical information needed to analyse the economic process in its various aspects could be organized and related. Many countries have been encouraged to build their own systems of National Income and Expenditure Accounts around this basic framework, and over the post-war period there has evolved a large degree of agreement and comparability in the way in which member countries prepare and present their Accounts. The Organisation for Economic Co-operation and Development has also been instrumental in promoting the development and use of a uniform and standardized system of National Accounts based on the U.N. Standard System. In 1968, the United Nations published a **revised** *System of National Accounts* based on experience in working with the old SNA, and incorporating modifications to clarify concepts and definitions beyond what had been possible earlier.

Despite these considerable efforts, and a significant degree of progress in promoting international comparability, there still remain a good many problems in making direct comparisons of the official statistics published by individual countries. As a service to member countries, both the United Nations and the Organisation for Economic Co-operation and Development therefore publish adjusted country estimates which have been converted (insofar as possible) to a standardized, uniform, and comparable basis. These standardized estimates are essentially based on the framework outlined and recommended in the United Nations System of National Accounts. Every effort has been made in adjusting these official estimates of the various countries to present them in a form designed to facilitate international comparability. Where important differences in concept, scope, coverage and classification remain, they are described in notes which accompany the tabular material. The United Nations material is published in the *Yearbook of National Accounts Statistics*, issued annually by the Statistical Office of the United Nations. In addition, the Organisation for Economic Co-operation and Development publishes a regular series, *National Accounts of OECD Countries*, which brings together the National Accounts statistics for OECD member countries on a comparable basis. These international tables are prepared from statistical information reported to the United Nations and the OECD by member countries in answer to an annual economic statistical questionnaire based on the United Nations System of National Accounts. The statistics

published in the OECD reports follow the concepts and definitions adopted in the United Nations System.[13]

Once the official country estimates of National Income and Expenditure have been adjusted to uniform, comparable concepts and definitions, it becomes possible to make certain types of comparisons between countries – comparisons of the structure of demand and of the shares of Gross National Product going to the major expenditure categories; comparisons of the composition of the National Income and of the industrial structure of Gross Domestic Product; and comparisons of rates of growth among the various countries. These types of comparisons, expressed in terms of structural shares or rates of growth, can be carried out in terms of each country's own national currency, and it is not necessary to convert the data to a common unit of valuation, (see Tables 13-1 and 13-2 for examples). However, if one wishes to combine the Gross National Products of the different countries, or to compare the absolute levels of the various components, the data must be converted to some common unit of valuation. The United Nations *Yearbook of National Accounts Statistics* presents estimates of total and per capita Gross Domestic Product for member countries (and of total and per capita national and disposable income), expressed in United States dollars at official exchange rates.[14] The OECD also provides tables of Gross National Product at Market Prices and Gross National Product per Capita for member countries (as well as a good many combinations and re-arrangements of the data), expressed in U.S. dollars converted at official exchange rates.[15] It is emphasized by both of these agencies that there are major problems of comparability involved in converting estimates expressed in each country's individual currency to a common basis of valuation (i.e., U.S. dollars) using exchange rates. The reason for this is that the exchange rate between any two countries does not necessarily reflect the relationship existing between the internal purchasing power of the currencies in the two countries. Exchange rates can be affected by many factors unrelated to internal price levels including international flows of capital and temporary swings in current account balances brought about by demand management policies or various types of controls. In addition, in most countries that part of production which is traded internationally represents only a small – sometimes a very small – part of Gross National Product so that the exchange rate is applicable only to a part of the country's total economic production (see Table 13-2).[16]

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[13] While member countries have accepted in principle to apply the new system of National Accounts adopted by the 15th Session of the Statistical Commission of the United Nations with the support of the OECD, in practice very few countries are yet in a position to supply data according to the new revised SNA for a period of more than 3 or 4 years. Therefore, much of the statistical information relating to member countries is still given according to the old standardized system.

[14] United Nations Statistical Office, *Yearbook of National Accounts Statistics 1971*, Volume III, New York 1973, pp. 3-16.

[15] Organisation for Economic Co-operation and Development, *National Accounts of OECD Countries, 1960-1970*, OECD, Paris, 1972, p. 10 and pp. 17-39.

[16] Alternative methods for making international comparisons of national and domestic product have been developed, although owing to the practical complexity of the procedures involved they are not at present in widespread use. For a discussion of this matter, see Milton Gilbert and Irving B. Kravis, *An International Comparison of National Products and the Purchasing Power of Currencies*, OEEC, Paris, 1954; and Milton Gilbert and Associates, *Comparative National Products and Price Levels*, OEEC., Paris, 1958. An International Comparison Project designed to establish systematic procedures for making international comparisons of Gross Domestic Product and of the purchasing power of currencies is presently being carried out by the U.N. Statistical Office in cooperation with a group at the University of Pennsylvania which has been financed mainly by the Ford Foundation.

Canada-United States Comparability

Since the United States is Canada's most important trading partner, comparisons of the structures of the two economies and of the rates and patterns of economic growth are frequently made between the two countries. These comparisons have been greatly facilitated by the adoption of closely similar organizing frameworks and almost identical national accounting concepts and definitions in the two countries. As was noted in Chapter 1, in 1944, representatives of the statistical agencies of the United States, Canada, and the United Kingdom met in Washington to exchange views on the design and presentation of national income accounts, and a large measure of agreement on concepts and definitions was reached at that time. Since then, there have been frequent and continuing interchanges of views between the two countries, and the development of Canada's National Income and Expenditure Accounts in the post-war years has been strongly influenced by the parallel work which has been going on in the United States.

The present United States national income accounting system consists of five summary accounts – National Income and Product Account, Personal Income and Outlay Account, Government Receipts and Expenditures Account, Foreign Transactions Account, and Gross Saving and Investment Account – along with many supporting tables providing a large amount of underlying detail. The most current data on the United States National Income and Product Accounts are published in the regular issues of the *Survey of Current Business* (U.S. Department of Commerce),[17] with the July issue generally containing the latest revisions to the data for recent years. The historical data can be found in the Supplement to the Survey of Current Business of August, 1966, *The National Income and Product Accounts of the United States, 1929-1965 Statistical Tables.* [17]

Despite the close similarities in basic approach and underlying concepts, there are some differences in definition and presentation between the Canadian and United States national income statistics which the user should be aware of. For the most part, these differences occur in areas related to the treatment and presentation of data for government and government business enterprises. Perhaps the most significant difference – and one where adjustments to achieve comparability are readily made – is the way in which gross fixed capital formation of general government is handled. In the United States accounts, all fixed capital spending on new construction and machinery and equipment by government is included with government expenditure on goods and services. In the Canadian accounts, these amounts are shown as government gross fixed capital formation. (In addition, for consistency, in the Canadian accounts capital consumption allowances on government fixed assets are included in Gross National Product and Expenditure.) At the same time, in the United States accounts the capital expenditures of government business enterprises (both fixed capital expenditure and inventory change) are classified to government expenditure on goods and services, whereas in the Canadian accounts these amounts are included with business capital formation.

There are other less significant differences. In the United States accounts, interest on the public debt is shown on a net basis (i.e., after deduction of

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[17] Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C.

interest received by government) whereas in the Canadian accounts interest on the public debt is shown on a gross basis. Also, in the United States accounts the profits of government business enterprises are treated as "negative" subsidies (i.e., as an offset to subsidy payments by government), whereas in the Canadian accounts such profits are included as a part of factor income originating in the corporate and government business enterprise sector. In addition, in the United States accounts, these profits which are treated as negative subsidies are calculated before deduction of depreciation charges and interest payments. As a result, depreciation charges of government business enterprises are not included in capital consumption allowances in the United States accounts, and interest payments by government business enterprises are not regarded as interest payments by business.

The concept of Personal Income is also slightly different between the two countries. In Canada, employer and employee contributions to social insurance and government pension funds are included as a part of Personal Income on the income side, and are regarded as a part of current transfers to government (taxes) on the outlay side of the persons and unincorporated business account. In the United States, employer and employee contributions to social insurance and government pension funds are not included in Personal Income, and are not therefore shown on the disposition side of the Personal Income and Its Disposition account. These differences in treatment affect the levels of Personal Income between the two countries, but they do not affect the estimates of Disposable Income, personal net saving, or the savings ratio (personal saving as a percentage of disposable income).

With the exception of the treatment of government gross fixed capital formation (which can be added to government current expenditure on goods and services in the Canadian accounts to achieve comparability) and the Personal Income estimates, these differences in the official statistics are not regarded as sufficiently significant to invalidate comparisons of structural shares and patterns of growth between the two countries. But the user may also wish to consult for this purpose the standardized tables published in the reports of the United Nations and the Organisation for Economic Co-operation and Development.

The United Nations System of National Accounts

The first and subsequent editions of the United Nations *System of National Accounts and Supporting Tables* (SNA) published in the 1950's provided a basic framework for organizing and reporting national income and product statistics. The elaboration and extension of work in the field of national accounting, and the construction of more detailed systems in a number of countries, led to the publication by the United Nations in 1968 of a new, more comprehensive *System of National Accounts* to encompass these later developments. This new System constitutes a broader framework for the development of a fully integrated set of economic accounts. The traditional income and expenditure accounts are extended to include input-output tables, financial flow accounts, and as far as possible, comparable constant price data. Although other aspects of the System, such as national balance sheets, are left for later development, links are provided so that they can be added. Experience in using the old SNA has also led to improvements in presentation and to the clarification of some of the issues relating to concepts and definitions.

The new System, like the former, is designed to provide international guidance to national statistical organizations in the development and extension of their national economic accounts and underlying systems of basic statistics. It is designed also to serve as the basis for the reporting of comparable national accounting data to international organizations, and to provide international guidelines and standards in respect of more specialized bodies of economic, financial and other statistics. It is recognized, however, that it will be a number of years before many countries will be able to present their national statistics on the basis of the complete system as proposed in the United Nations report.

In the development and integration of the Canadian System of National Accounts, an attempt has been made to come as close to the United Nations System as the statistical source material, analytical requirements, and Canadian custom and usage permit. Many of the definitional changes introduced in the new Canadian National Income and Expenditure Accounts – for instance, the new treatment of government capital formation; the elimination of net imputed rent on government-owned assets; the new classification system for consumer expenditure; the treatment of the profits of liquor commissions as indirect taxes; and the revised treatment of withholding taxes and bad debt allowances – were all made to accord more closely to internationally recognized concepts and practices as recommended by the United Nations. The structure of the Canadian sector accounts was changed in order to provide a framework for the closer integration of the constituent parts of the Canadian System of Accounts, along the lines of the United Nations recommendations.

Despite these accommodations, a number of conceptual and presentational differences remain. For example, the Canadian National Income and Expenditure Accounts continue to feature the "national" concept in the main summary tables, although the "domestic" concept (as followed in the United Nations System) is featured in the consolidation of the sector accounts. Data difficulties have also prevented the full sectoring system proposed by the United Nations. The Canadian system has retained the established treatment of imputed banking services. And there are other differences. For purposes of international comparability, adjustments are made, where possible, to the officially published Canadian estimates in the annual submissions made each year to the United Nations and to the Organisation for Economic Co-operation and Development.

CHAPTER 14

NOTES ON AUXILIARY TABLES

Introduction

This final chapter on the annual estimates is essentially a gathering up of residual matters which were not covered in earlier chapters of this report. It consists essentially of descriptive notes on three sets of ancillary tables which are designed to show the content and supplementary detail underlying certain basic component estimates:

(a) Detail of Personal Expenditure on Consumer Goods and Services –

  (i) In Current Dollars (Table 53 of Volume 1);
  (ii) In Constant (1961) Dollars (Table 54 of Volume 1);

(b) Detail of Imputed Items Included in Gross National Product and Expenditure (Table 55 of Volume 1);

(c) Analysis of Corporation Profits: Corporate Taxes, Dividends Paid Out, Current Transfers to Persons, and Undistributed Corporation Profits (Table 56 of Volume 1).

Personal Expenditure on Consumer Goods and Services (Tables 53 and 54 of Volume 1)

As was noted in Chapter 2, the estimates of personal expenditure on consumer goods and services have undergone very major revisions since the old Brown Book series. Not only have there been statistical revisions and definitional changes which have affected the total, but the whole internal structure of the personal expenditure estimates has been re-arranged. It is this internal re-arrangement of the classificatory detail underlying the estimates with which this section is principally concerned.

The new classification system for presenting the detail of personal expenditure on consumer goods and services is shown in Tables 53 and 54. These new classificatory arrangements were introduced essentially to conform in broad outline to the United Nations recommended classification of household goods and services as set out in *A System of National Accounts*.[1] It will be noted in Tables 53 and 54 that there is a "break" in the series between the two periods 1926-46 and 1947 to the present. As explained in Chapter 2, the second stage statistical revisions which followed publication of the "Green Book" (August 1969) were not carried back to the 1926-46 period. In addition, the desired classificatory system based on the United Nations recommendations could not be as fully developed for this earlier period as for the more recent period, with the result that the detail is less complete (47 items as compared with 53 items) and the nomenclature is accordingly somewhat different than for the period from 1947 to the present.

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[1] Statistical Office of the United Nations, New York, 1968, p. 105.

The major single change from previous practice which is involved in applying the United Nations classification system has been the introduction of a new category for "semi-durable" goods, and the elimination of many items from the former "non-durables" goods group. Changes in the classification of some durable goods as well as some service items have also been involved. A number of the principal differences between the old and new system are set out in Table 14-1.

TABLE 14.1. Some Principal Differences Between "Old" Brown Book Classification of Personal Expenditure and the "New" Classification adapted from United Nations System

1. Creation of a new category of "semi-durable goods" which includes:

   men's and boys' clothing,
   women's and children's clothing,
   footwear and repairs,
   semi-durable household furnishings, (ie. Household textiles, glassware, tableware, etc.),
   books, newspapers and magazines,
   jewellery, watches and repairs.

   These items were formerly assigned mainly to the non-durable goods category, with jewellery and watches being assigned to the durable goods group.

2. Expenditure on electricity, and on gas, formerly classified to the service group, is now classified to the non-durable goods category.

3. Automobile repair charges, formerly classified to services, are now classified to the durable goods category; other repair charges are similarly classified to the category of the group in which the object repaired belongs.

4. Expenditures on food in restaurants and hotels, formerly classified to non-durable goods expenditures, are now classified to services. (In the former classification, outlays on restaurant and hotel meals were arbitrarily divided between expenditures on food (non-durables) and the services content (services)).

5. Provincial and local sales taxes, formerly unallocated, are now distributed over the respective categories to which they apply.

6. The large miscellaneous non-durable goods category, formerly a major "unallocated" item in the Table, is now assigned to specific categories within the durable, non-durable and semi-durable goods groups.

7. Beginning with the year 1961, expenditures of non-profit hospitals, formerly included as personal expenditure on hospital care services, are transferred to government current expenditure on goods and services in line with the introduction of universal government-administered hospital care insurance. In addition, as various government-administered medical care service plans have come into effect, personal expenditures on medical care services have progressively shifted to government current expenditure on goods and services (see Chapter 6). These changes are "definitional" and do not basically result from the use of a new classificatory system for organizing the detail of consumer expenditures. But since these "definitional" changes nevertheless affect the classification of consumer outlays in a significant way, they are again noted here for the record.

In applying the United Nations classification system, a number of departures from the recommended treatment have necessarily had to be made. These have arisen either because suitable Canadian data were not available to permit the required breakdowns to be carried out or because in some cases observation and practice suggested that an alternative treatment was more appropriate and useful in the context of Canadian experience. An example of the first case involved the inclusion of "writing and drawing equipment and supplies" in the "recreation" category rather than in the "goods not elsewhere classified" category as recommended by the United Nations. In this case, suitable data were not available to break out the requisite information, and the writing and drawing equipment and supplies group was left as part of the major category "reading and writing material" which is assigned to the recreation group. An example of the second type of departure from United Nations usage was the classification of motorcycles and bicycles to "recreation" rather than "transportation". In this case it was felt that in Canada the principal use element of these particular goods was more strongly on the side of recreation than transportation and the classification was carried out accordingly. Other, similar-type examples of departures from the United Nations system could be noted, but these will serve to illustrate the nature of the decisions which have had to be made in adapting the U.N. system to Canadian circumstances.

Table 54 of Volume 1 is simply the constant dollar counterpart of Table 53, with the amounts expressed in terms of 1961 constant dollars. All of the comments which apply to Table 53 are also applicable to this table.

Imputed Items included in Gross National Product and Expenditure (Table 55 of Volume 1)

It was observed in Chapter 2 that there are a number of transactions included in the National Income and Expenditure Accounts which do not pass through the money-exchange economy but which nevertheless represent the production of useful goods and services. A value is therefore "imputed" to these transactions and they are counted as part of the nation's economic production in measuring Gross National Product and Expenditure. In general, such "imputations" are made only in situations where the transactions have a counterpart in, or are closely similar to, activities taking place in the money-exchange economy so that there exists a reasonably satisfactory basis for placing a value on such transactions.

At various points in the preceding chapters – notably in Chapters 5, 6, and 7 – the nature of these imputations has been described in the context of the discussion of the estimates underlying the sector accounts. Table 55 of Volume 1 simply draws together in convenient summary form all of the various imputations which are made throughout the National Income and Expenditure Accounts so that the reader can obtain a broad overall view of the "non-money exchange transactions" which are included in the system. In 1961, the total value of these "imputations" amounted to $2,212 million, or 5.6% of Gross National Product.

Imputed Food Expenditures (Table 55, lines 1 and 2)

The value of farm products consumed directly in farm households is included in Gross National Product and Expenditure on the basis that such production is part of total farm output, and it is appropriate to count it as a

part of economic production irrespective of whether it is sold for cash or consumed in kind. The estimate of food consumed on the farm by farm proprietors is included on the income side as part of the calculation of accrued net income of farm operators from farm production, and on the expenditure side, as a part of personal expenditure on consumer goods (food).

Other imputations under the heading of "food" include food provided to employees in lieu of wages (i.e., income in kind), in such industries as agriculture, forestry, water transportation, hospitals, religious institutions, and domestic service. These amounts are included as a part of the wage and salary estimates on the income side of the Accounts, and as a part of personal expenditure on consumer goods on the expenditure side. Food supplied "free" to the Armed Forces is also regarded as employee income and is included, on the income side, with military pay and allowances.

Imputed Shelter Expenditures (Table 55, lines 3 and 4)

An imputed rent on owner-occupied housing – both farm and non-farm – is made in the Accounts on the basis that the owner-occupier is the beneficiary of the services rendered by the building in the same way a landlord would receive rent from a tenant for the services of the same building. In effect, the owner-occupier is considered to be in the real estate business, receiving rental income as a landlord which is paid by himself as a tenant. The imputed "net rent" figure appears on the income side of the Accounts as a part of net rental income of persons. It appears on the expenditure side as a part of personal expenditure on gross imputed rent. Since an imputation is also made to cover the capital consumption allowances (depreciation) on owner-occupied dwellings, these latter amounts are also included in personal expenditure on gross imputed rent on the expenditure side of the Accounts.

As in the case of food, an imputation is made for the value of lodging provided to employees in lieu of wages, on the basis that this represents a payment for productive services rendered. On the income side, the amounts are included in wages and salaries. On the expenditure side, they are included in personal expenditure on "other lodging".

Other Imputed Items included in Personal Income and Expenditure (Table 55, line 5)

There are a number of other imputations made in the Accounts which are included in both Personal Income and Personal Expenditure on consumer goods and services. These imputations cover clothing issued to members of the Armed Forces, wood fuel cut and used on farms, and the estimated value of services rendered by banks and other financial intermediaries to persons without specific charge. This latter imputation is described in detail in Chapter 7.

Imputed Government Consumption of Own Capital (Table 55, line 7)

In this revised system of Accounts, government fixed capital expenditures are now treated as a part of gross fixed capital formation. To accord with this new treatment, an imputation is made to provide for the current consumption

(depreciation) of government capital assets. These amounts are included with government current expenditure on goods and services on the expenditure side of the Accounts, and with capital consumption allowances and miscellaneous valuation adjustments on the income side. In addition to being shown in Table 55 of Volume 1, the figures also appear in Table 18, line 2, and in Table 43, line 87.

Analysis of Corporation Profits (Table 56 of Volume 1)

Table 56 is designed to show the various ways in which corporation profits before taxes are distributed – as taxes paid out or owing to governments, as dividends paid out to non-residents and to Canadian persons, as current transfer payments to persons, and as saving in the form of undistributed profits. The table is largely self-explanatory, and the component estimates shown in it have been described elsewhere in this report. The following notes are therefore abbreviated and serve mainly to provide cross-references to material presented in earlier parts of the report.

Corporation Profits Before Taxes and Before Dividends paid to Non-residents (Table 56, line 1)

This aggregate is one of the principal components of National Income and Gross National Product, as set out in Table 1, line 3 of Volume 1. The basic concept is described in Chapter 3, and the sources and methods underlying the estimates are described in Chapter 7.

Corporation Income Tax Liabilities (Table 56, line 2)

These figures are derived as a part of the revenue estimates of the government sector income account, and are given in Table 16, lines 5 and 6. It should be noted that taxes on government business enterprises are **not** included with these figures – the figures relate to taxes on **corporation** profits only. The sources and methods underlying the estimates are described in Chapter 6.

Dividends paid to Non-residents (Table 56, line 8)

This estimate ($622 million in 1961) represents that portion of corporate earnings which is paid out as dividends to non-residents, as shown in Table 1, line 4, National Income and Gross National Product. The amount forms a part of total interest, dividends and miscellaneous investment income paid abroad ($1,022 million in 1961)[2] as set out in Table 24, the non-resident sector income account, lines 4 and 5. All of this information is based on Balance of Payments sources as described in Chapter 8.

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[2] It may be noted that this amount of $1,022 million in 1961 forms a part of the reconciliation between Gross National Product and Gross Domestic Product as shown in Tables 4-2 and 4-3 of Chapter 4.

Dividends paid to Canadian Residents (Table 56, line 10)

The sources and methods underlying the calculation of dividends paid to Canadian resident persons are described in Chapter 7. The way in which these estimates fit and are reconciled with the other elements of investment income in the National Accounts is portrayed in Tables 7-2 and 7-4 of Chapter 7. Since the estimates in the investment income area involve a greater degree of complexity than in most areas of the Accounts, the relationships between the different components is set out in considerable detail in Tables 7-2 and 7-4.

Current Transfers to Persons (Table 56, lines 11 and 12)

These consist simply of charitable and other contributions from corporations to persons, and of bad debt write-offs which are regarded as a form of income transfer from corporations to persons (see Chapter 3). Since they have the effect of reducing the retained earnings of corporations, they are deducted in Table 56 in arriving at the figure of undistributed corporation profits.

The sources and methods underlying the estimates are described in Chapter 7.

Undistributed Corporation Profits (Table 56, line 13)

This is the amount of corporate saving out of profits after provision for taxes, distribution of dividends, and current transfers made to persons. The figures appear in Table 21, line 10 (corporate and government business enterprises account – outlay), and in Table 22, line 1 (the capital finance account of the corporate and government business enterprise sector).

PART II

THE QUARTERLY ESTIMATES

CHAPTER 15

THE QUARTERLY FRAMEWORK: CONCEPTS, DEFINITIONS AND PROBLEM AREAS

Introduction

Annual estimates of Gross National Product and Expenditure provide an essential guide to public policy and business decision-making, but they suffer from two major limitations. The first of these is that the information becomes available only at intervals of a full year, which means that action taken in response to a changed situation may come very late.[1] The second limitation is that the annual figures are in effect annual averages which tend to mask and conceal changes in direction and shifts in patterns of income and outlay taking place **within** the year. The identification of such intra-annual changes in direction or in composition is crucial to the analysis and understanding of the forces affecting the underlying cyclical performance of the economy. Annual averages are simply too broad to fully reveal the nature of cyclical developments.

The development of quarterly estimates of National Income and Expenditure in the early 1950's was designed to overcome these limitations – to reduce the time lag with which information on the broad course of the economy became available from 12 months to 3 months – and to provide an array of intra-annual quarterly information with which to monitor and analyse more clearly the cyclical fluctuations of the economy. The first basic document on the quarterly estimates was published in the fall of 1953 with the report *National Accounts, Income and Expenditure, by Quarters, 1947-1952;* since that time, quarterly estimates have been prepared and published regularly each quarter.

It is emphasized that, except for the time interval involved, the objectives of both the quarterly and annual estimates of Gross National Product and Expenditure are identical – that is, to measure the value of goods and services produced by Canadian residents in a given period (a quarter or year) and to portray the interrelated structure of transactions which underlies this productive activity. Thus, the broad conceptual framework upon which the quarterly estimates are built is identical to that for the annual estimates. This basic conceptual system is described in Part I of this report and is not further elaborated here. However, there are a number of special problems which arise when this basic conceptual system is translated into a set of quarterly estimates. The purpose of this chapter is to describe the nature of these problems which are peculiar to the quarterly estimates.

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[1] It has been pointed out that there are in fact three types of lags operating to affect the timing with which policy decisions can have an impact on the economy. The first of these is the "recognition" lag, reflecting the time which elapses before statistical information becomes available and it is recognized that a change in the course of the economy is under way. The second lag is the "action" lag, or the time which elapses between the recognition of a change of course in the economy and the taking of some form of appropriate action. The third type of lag is the "impact" lag, or the time which elapses between the taking of compensatory action and the economy's response to this action. See *Performance and Potential, Mid-1950's to Mid-1970's*, Economic Council of Canada, September 1970, p.57.

It should be noted at the outset that the quarterly estimates do not cover the full range of tables given in the annual data. The main Gross National Product and Expenditure tables are given, but not the complete sector accounts system. Basically, only the current income and outlay accounts are shown for the persons and unincorporated business sector, and for the non-resident sector. The government sector table combines both current and capital transactions. There are no quarterly accounts shown for the corporate and government business enterprises sector. A consolidated saving and investment account, and constant dollar Gross National Expenditure estimates are provided as well as the derived implicit price deflators. All of this material (except the implicit price deflators) is presented both in terms of "raw" unadjusted data and in terms of estimates which have been adjusted to remove the effects of seasonal influences. For the most part, it is the seasonally adjusted quarterly estimates which have proven to be most useful (for reasons which are discussed later) and which are typically employed by the users of the quarterly data for current economic analysis.

Problems Relating to the Quarterly Measurement of Economic Activity

Although the concepts and definitions which underlie the annual estimates are identical to those required for the quarterly estimates, a number of special problems of application arise when an attempt is made to convert this conceptual system to a quarterly basis. It will be appropriate at this point to comment briefly on some of these problems.

(a) The Accrual Principle

Quarterly estimates of Gross National Product and Expenditure aim primarily at measuring the value of production in specific quarters. As indicated in Part I, this can be achieved in two ways – by summing the factor and other costs involved in production, on the one hand (GNP), and by tracing the disposition of production through sales adjusted for imports and changes in inventories, on the other hand (GNE). To arrive at a measurement of production arising in any particular quarter, it would be theoretically desirable to record all of the factor incomes (and other costs) generated in the quarter, and all of the expenditures made in the quarter, on an accrual or payable/receivable basis. This method of recording the transactions would ensure consistency between the income and expenditure sides, and it would, in addition, relate the timing of the transactions directly to the quarter in which the economic activity occurred. Bond interest, for example, which is normally paid only once or twice a year, accrues continuously throughout the year, and is, therefore, in principle, allocable to the production of all four quarters.

In practice, however, the factor incomes and other costs, and the expenditure estimates, are drawn from a variety of different sources which are, in many cases, independent of each other in an accounting sense. For example, quarterly corporation profits (and in some cases, net incomes of unincorporated businesses) reflect prevailing practices in industry with respect to the treatment of business expenses (mainly accrual), while the bulk of wages and salaries, and indirect taxes, are reported to Statistics Canada on a cash basis. Customs import duties may be received and recorded as government revenues at a time which differs from the time the imports are recorded in

private inventories. Sales taxes may be reflected in consumer spending at a time which differs from that at which they are received by the government. Government expenditure for capital works may be made with a time lag which means that the recording of expenditures in government accounts differs from the timing with which wages and salaries and other expenses are paid by the contractor on the income side. (A timing adjustment to government expenditure is made which is designed to replace cash payments with an estimated value of work put in place.) Government and business retroactive wage payments should in principle be carried back and allocated to the quarter in which the income was earned but the necessary information is not available to permit this. In all of these cases, there are problems of discrepancies in the timing with which interrelated series are recorded, leading to inconsistencies in the results.

It will therefore be seen that there is necessarily a mixture of both cash and accrual elements in the quarterly estimates of Gross National Product and Expenditure. In general, the principle of computing expenses on an accrual basis has been adhered to wherever the data permit it to be done. However, even within this general objective, consistency with related series has had to be an over-riding consideration.

From the foregoing it will be clear that failure to apply the accrual principle uniformly throughout the estimates of Gross National Product and Expenditure stems mainly from the manner in which data are reported to Statistics Canada. Comparability in the estimates from quarter to quarter need not be affected by this situation, even though differences between the levels of Gross National Product and Gross National Expenditure may exist within each quarter because individual series are not mutually consistent in an accounting sense. The differences are reflected, together with other errors and omissions, in the item called "residual error of estimate". It will be noted that the latter is small relative to the magnitude of the aggregates included in the tables.

To some extent the problem of the "accrual" versus the "cash" basis of calculation applies to annual estimates as well. However, since the year rather than the quarter is regarded as the standard unit of time for production and accounting purposes, cash payments and accrued expenses coincide to a very large extent over the full year.

In contrast to the Gross National Product which is linked to the accrual principle through the "measurement of production" approach, Personal Income is defined in terms of "receipts" of income. Thus, in general, the quarterly components of Personal Income are shown on a "receipts" basis except in the case of certain elements of interest and net rental income of persons where the statistical information permits only an accrual method of calculation.

(b) Quarterly Farm Production

The measurement of farm inventories (and thus of net income of farm operators from farm production) on a quarterly basis presents a difficult theoretical problem which is closely related to the accrual principle discussed

above. Farm production has marked seasonal characteristics associated particularly with plant growth, and in such cases it is difficult to assess the production represented by growing inventories not yet in marketable form. The harvesting of a grain crop in the fall of the year represents the culmination of the productive activity of previous periods. In a theoretical sense the value of this production might be "accrued" throughout the ploughing, seeding and growing periods. It is, of course, impossible to assess the potential "market" value of growing inventories in a way which would incorporate knowledge of future climatic conditions and future market prices. But the growing crop could in principle be valued at the cost of the "inputs" in the form of hired labour, seed, gasoline, and so forth.

In the case of "goods in process" in manufacturing, we can obtain a reasonable measure of production by evaluating the "inputs". Thus in the broadest sense, non-farm inventories of "goods in process" appearing in Gross National Expenditure are evaluated at cost, being matched on the Gross National Product side of the Accounts by factor shares and other costs. Theoretically, it would be desirable to carry over this procedure to the treatment of agricultural inventories. A considerable part of agricultural activity takes place in the first half of the year, and it should be the objective to measure the value of "inputs", or factor shares and other costs generated in these periods as part of the production of the period. This approach does not imply any attempt to place a "market" value on crops growing in the field – these generally have no "market" value until the crop is harvested and sold – but is simply a recognition of the fact that unless inventories are measured on an "input" basis, Gross National Product is understated in the first half of the year by the amount of factor and other costs chargeable to the production of this period, and overstated in the third (harvest) quarter by an equivalent amount. Thus, to take account of grain inventories only in the third (harvest)

TABLE 15-1. Accrued Net Income of Farm Operators from Farm Production, 1961 and 1962

Not seasonally-adjusted

	1961					1962				
	1Q	2Q	3Q	4Q	Annual	1Q	2Q	3Q	4Q	Annual
	millions of dollars									
Cash receipts from the sale of farm products	604	632	773	748	2,757	576	608	842	906	2,932
Income in kind	90	87	84	93	354	90	86	87	94	357
Value of inventory changes[1]	– 303	– 84	492	– 385	– 280	– 233	– 87	998	– 482	196
Profits of the Canadian Wheat Board	19	33	50	58	160	39	49	43	54	185
Equals:										
Gross farm income	410	668	1,399	514	2,991	472	656	1,970	572	3,670
Less:										
Operating expenses (including depreciation)	– 441	– 606	– 571	– 464	– 2,082	– 471	– 640	– 602	– 494	– 2,207
Investment income items included elsewhere in the Accounts	– 20	– 21	– 21	– 21	– 83	– 21	– 21	– 22	– 22	– 86
Equals:										
Accrued net income of farm operators from farm production	– 51	41	807	29	826	– 20	– 5	1,346	56	1,377

[1] Includes changes in livestock inventories.

quarter can result in farm net income showing losses in the early part of the year (see Table 15-1), with net income in the third quarter sometimes greater than that for the year as a whole. On the other hand, the "input" method would eliminate such losses in the early part of the year, and reduce the amount of net income in the third quarter by whatever expenses are incurred in the early part of the year.

At the present time, statistics are not available which will permit the quarterly allocation of farm expenses to grain inventories on an "input" basis. The operating expenses incurred throughout the year, as shown in Table 15-1, are not matched by any corresponding increase in the value of inventory holdings in each quarter. As a consequence, grain inventories have to be counted as production only when they reach marketable form, that is, after harvesting. (In Table 15-1, the value of inventory change is positive only in the third (harvest) quarter.) Consequently, the level of Gross National Product in the first half of the year does not vary according to the intensity of crop-production activity. The factor incomes, depreciation and indirect taxes generated by such activity are offset in the Gross National Product by the operating expenses charged against gross farm income, there being no counter-balancing increase in grain inventories. In the third quarter, however, accrued net farm income (and thus Gross National Product) is overstated to the extent that the expenses incurred earlier in the year are not charged against the harvested crop at this particular point of time.

The concentration of crop production in the third quarter of the year presents a special problem of seasonal adjustment which cannot be adequately handled by standard techniques. The treatment accorded this item in the seasonally adjusted data is described later in this chapter, under the heading "The Seasonal Adjustment of the Quarterly Estimates".

(c) The Step-adjustment Problem

Quarterly estimates are frequently calculated by projecting forward the previous year's quarterly figure on the basis of the year-over-year percentage change in some related indicator, or on the basis of the year-over-year percentage change in data derived from a sample survey. When all four quarters of the year have been successively calculated in this way, a preliminary annual estimate for the year is available, obtained as the sum of the four quarterly estimates (Table 15-2, Column 3).

A problem which arises where such methods of estimation are used is the problem of keying the quarterly estimates to new revised annual benchmark data when **final** annual tabulations are made. The monthly sample surveys or related indicators on which the quarterly projections are based may, for various reasons, be deficient as indicators of year-to-year change. For example, sample surveys may fail to reflect the entry of new establishments into the field, and the percentage change indicated by the sample may not be fully representative. Indicators of expenditure which are built up from employment, hours, wage rate, and prices data (as in the case of non-residential construction expenditures) may fail to reflect year-to-year gains in productivity, profit margins or overhead costs, or be deficient for other reasons. When a more complete count is taken for the year as a whole, the full coverage survey may

reveal a higher (or lower) annual figure than the preliminary figure derived as the sum of the four projected quarters (Table 15-2, Column 4). The problem is to know how to allocate this difference by quarters in the absence of any more complete information about the quarterly estimates.

TABLE 15-2. A Hypothetical Illustration of the "Step" Problem

	"Final" 1961	Year-to-year percentage change in projector	Preliminary 1962	"Final" 1962	"Final" 1962 allocated by quarters on pro rata basis
	(1)	(2)	(3)	(4)	(5)
	$'000,000	%	millions of dollars		
1Q	400.0	50.0	600.0		644.4
2Q	450.0	44.4	650.0		698.1
3Q	500.0	40.0	700.0		751.9
4Q	550.0	36.4	750.0		805.6
Year	**1,900**	**42.1**	**2,700**	**2,900**	**2,900**

Note: 4Q-1Q change, "final" 1961 to preliminary 1962, + $50 million. 4Q-1Q change "final" 1961 to "final" 1962, + $94.4 million. Discontinuity, or "step", + $44.4 million.

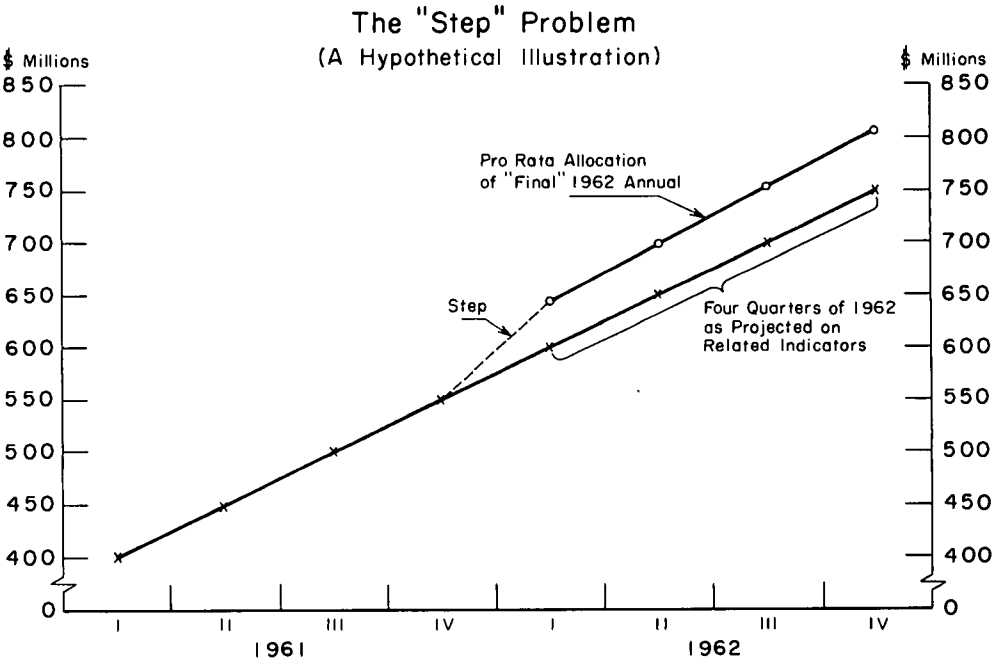
If the quarterlies are simply adjusted up (or down) to the new annual level on a pro rata basis following the old pattern, there will be a discontinuity or "step" in the series between the fourth quarter of the preceding year and the first quarter of the current year, as in the hypothetical illustration in Chart 15-1. This is therefore not an acceptable solution. Since there is no additional quarterly information to indicate how to allocate the "step" between the levels of the two years, the course taken is to arbitrarily "smooth" the amount out over the course of several quarters in the current and preceding years in a way which leaves the "final" annual figures unchanged. There are various techniques for accomplishing this, and the calculations involved are now almost always carried out on the electronic computer. The effect is to modify the quarterly pattern in a way which spreads the adjustment out over several quarters and avoids a break between the fourth and first quarters of successive years.

The Seasonal Adjustment of the Quarterly Estimates

Seasonal variation may be viewed as a "repetitive intra-annual fluctuation".[2] The majority of the time series given in Volume 2 of this report exhibit clearly defined seasonal patterns, which recur with characteristic regularity. Thus, in Chart 15-2, the Gross National Product is seen to "peak"

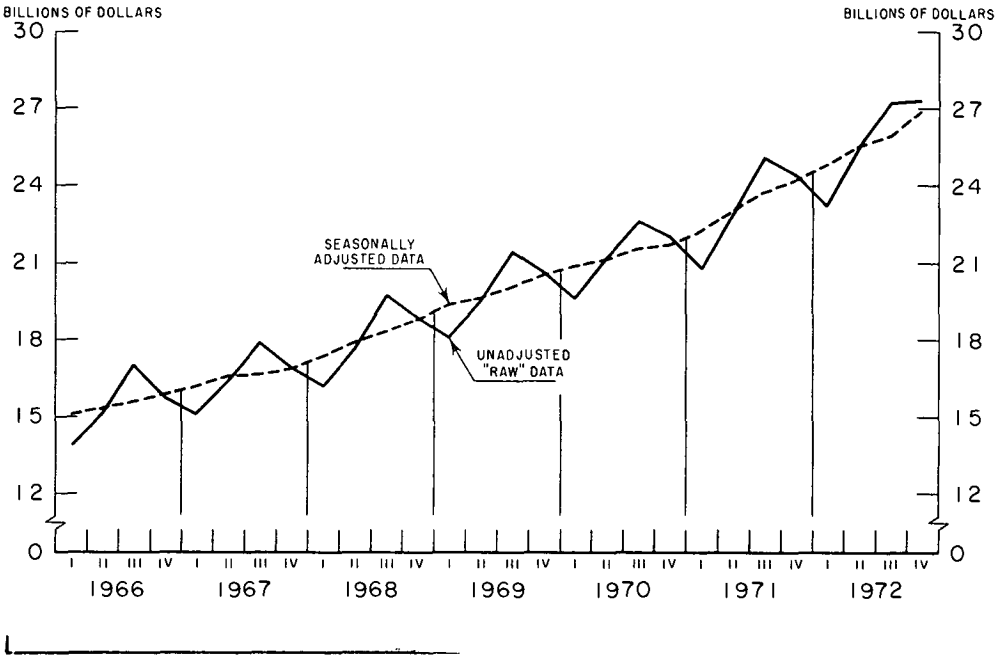
[2] Burns and Mitchell, *Measuring Business Cycles*, National Bureau of Economic Research, New York, 1946, p. 44.

in the third quarter of each year, and to be at its lowest level in the first quarter of each year. Such fluctuations in economic time series reflect the influence of a variety of factors. Climatic conditions, for example, influence the production and marketing of crops, the intensity of cutting operations in the woods, the purchase of winter and summer clothing, the shipment of commodities through the St. Lawrence River, and so on. The observance of Christmas and Easter is reflected in the buying habits of consumers, with levels of purchasing fluctuating sharply in these periods. Trade practices also exert their influence – for example, the dates of the annual appearance of new automobiles are an important factor in the seasonal movement of automobile purchases. Thus, climate, social institutions, trade practices and a myriad of other factors all generate repetitive intra-annual fluctuations in statistical time series.



In dealing with a time series in which such seasonal fluctuations occur, it is usually difficult to detect the basic underlying movements of the data since these are often obscured or hidden by the regular seasonal upswing or downturn. Thus, in order to isolate turning points or trends in the basic economic situation, it is necessary to eliminate the effects of seasonal movements from economic data. This is done by calculating seasonal factors based on averages of past patterns, and adjusting the data in a way which removes the seasonal fluctuations. Although this elimination, or seasonal adjustment, can be made in approximate terms only, seasonally adjusted data nevertheless provide an important aid in the analysis of time series and can shed a great deal of light on underlying trends or tendencies in the economy. For this reason, in the quarterly National Accounts the seasonally adjusted data are almost universally used for economic analysis in preference to the "raw" unadjusted data.

Gross National Product by Quarters, Unadjusted and Seasonally Adjusted at Quarterly Rates, 1966 – 1972



The general approach to the seasonal adjustment of economic time series adopted by Statistics Canada is the ratio-to-moving-average technique. A detailed outline of problems and methods in seasonal adjustment was given in DBS Reference Paper No. 77 – *Seasonally Adjusted Economic Indicators, 1947-1955*, published in 1957. During the 1950's, developments in the application of electronic computers to the problem of seasonal adjustment resulted in the adaptation of the ratio-to-moving-average technique to machine methods. At the present time, the quarterly Accounts are seasonally adjusted by electronic computer using a variant of Census Method II developed by the United States Bureau of the Census.[3]

The adaptation of electronic computers to the seasonal adjustment of economic time series by no means disposes of the need for careful professional scrutiny of the final seasonally adjusted series. While the machine technique has been thoroughly tested and found to provide a seasonal adjustment at least as good as that of the best hand series in the great majority of cases, there are still problem areas which require the judgment and professional scrutiny of the trained statistician. All of the material which has been processed on an electronic computer has been subjected to the most careful testing to ensure

[3] The program of seasonal adjustment by electronic computer techniques was developed by the U.S. Bureau of the Census, in Washington, D.C., under the leadership of Julius Shiskin, Chief Economic Statistician. A basic paper in this field is *Seasonal Adjustment by Electronic Computer Methods*, by Julius Shiskin and Harry Eisenpress, Technical Paper No. 12, National Bureau of Economic Research, New York, 1957. The variant of Census Method II now used at Statistics Canada is described in Technical Paper No. 15, U.S. Department of Commerce, Bureau of the Census, *The X-11 Variant of the Census Method II Seasonal Adjustment Program.*

that the quality of the seasonally adjusted data met acceptable standards. It has been found that some 90% of series processed are successfully handled by the machine, but that a small number of cases still require adjustment by hand.

The advantages of electronic computers in the seasonal adjustment of economic time series are, first, that they can perform mass operations on economic data quickly and economically, where formerly laborious and costly manual operations had to be carried out; and secondly, that they tend to narrow the subjective element in seasonal adjustment by enforcing uniformity and standardization across areas where formerly individual statisticians carried out their own hand seasonal adjustment, with the possibility that differing evaluations might be made.

It is emphasized that the seasonal factors used in the seasonal adjustment process are based on averages of **past** seasonal patterns. These seasonal factors are therefore subject to periodic revision as new observations which embody modifications to earlier seasonal patterns are incorporated into the averages.

Special Problems of Seasonally Adjusting Crop Production and Farm Inventories

In the case of crop production, the standard methods of adjusting the series for seasonal movements are inadequate. Crop production is characterized by concentration of output in the third quarter of the year, and by large and erratic fluctuations in amplitude from year to year. Ordinary techniques of seasonal adjustment do not appear to be appropriate for time series of this nature, and give rise to results which are capable of misinterpretation. A simple expedient has therefore been employed to handle the problem of seasonally adjusting crop production. The annual value of crop production is divided into four parts and allocated equally to each of the four quarters of the year in the seasonally adjusted tables. In going into a new year, before the crop is known, production is estimated on the basis of average yields of preceding years, estimated acreage and initial prices. This preliminary first quarter estimate is revised later in the year as actual data become available.

More specifically, the treatment is based on the following procedure:

Step 1 – The change in grain inventories is broken down into two parts – (a) depletions, which are continuous throughout the year; and (b) additions, which are single events occurring in the third quarter of each year, i.e., the harvesting of the crop.

Step 2 – The depletions data are seasonally adjusted by a standard technique. (The current value data can thus be used analytically in conjunction with the farm cash income series, the export series, changes in grain in commercial channels, and so on, all of which are also seasonally adjusted by a standard technique.)

Step 3 – The additions to grain inventories, i.e., the crop, is divided by four and allocated equally to each of the four quarters of the year. All of the data are available in terms of physical quantity units, and can be valued both in terms of base year prices for constant dollar series and current year prices for current dollar series. This treatment of the crop is arbitrary, but it has the advantage of isolating the problem and treating it independently of all other items in the system.

TABLE 15-3. Seasonally Adjusted Estimates of the Value of Physical Change in Farm Inventories and Grain in Commercial Channels, at Annual Rates (With Crop Production, or Additions to Stocks of Grain, Arbitrarily Adjusted)

	1961					1962				
	1Q	2Q	3Q	4Q	Year	1Q	2Q	3Q	4Q	Year
	millions of dollars									
Value of grain crop production (additions to farm stocks of grain)	624	624	624	628	625	1,184	1,184	1,184	1,184	1,184
Depletion of farm stocks of grain	– 1,028	– 1,032	– 924	– 776	– 940	– 848	– 872	– 1,160	– 1,236	– 1,029
Changes in other farm-held inventories	24	156	12	– 52	35	176	– 128	56	60	41
Grain in commercial channels	– 4	– 8	– 196	– 312	– 130	– 152	– 220	240	312	45
Value of physical change in farm inventories and grain in commercial channels (line 15, Table 12, Volume 2)	– 384	– 260	– 484	– 512	– 410	360	– 36	320	320	241

It may be noted that the divided-by-four technique is used in the case of crop production only, since it is only here that the special difficulties noted above arise. Livestock and other items in the farm sector are estimated on a quarterly basis and seasonally adjusted by standard techniques.

In order to depict more clearly movements in the value of production in the non-farm sector of the economy, an additional line in italics has been inserted in Tables 1 and 11 of Volume 2 which shows "Gross National Product at Market Prices, excluding accrued net income of farm operators". Details of the seasonally adjusted farm inventories series (including the item crop production) are shown in Table 12 of Volume 2.

Annual Rates

It will be noted that in the seasonally adjusted estimates in these Accounts, all of the components of income and expenditure are expressed "at annual rates" – that is, the seasonally adjusted quarterly figures have been multiplied by four to bring them to an "annual rate" basis. This method of presentation at annual rates, quite apart from providing the data in a more familiar dimension, has two basic advantages over quarterly rates in facilitating analysis, namely:

(a) Going into a new year, it gives the user a working base from which to calculate what the results for the year as a whole would be if the level of activity observed in a particular period (a quarter, half year, or nine-month period) were to prevail throughout the balance of the year. Thus, if the Gross National Product in the first half of 1961 is seen to be running at a seasonally adjusted annual rate of $38.9 billion, then the Gross National Product for the year 1961 as a whole could be expected to be $38.9 billion **if the underlying level of activity (after discounting seasonal factors) were to remain unchanged in the last half of the year.** With annual rate data, users can more readily make their own assumptions

about prospective levels of activity and derive continuously up-dated readings of the probable outcome for the year as a whole. The "annual rate" method of presentation simply facilitates this type of exercise.

(b) It permits users to make direct comparisons of levels of activity prevailing in any particular quarter with the average level of activity prevailing in a particular year. Thus, in the final quarter of 1962, Gross National Product was running at a seasonally adjusted annual rate of $44.1 billion, some 11.2% higher than the average level of economic activity which prevailed during the year 1961 as a whole. For certain types of "position-plotting", this kind of information can be highly useful.

TABLE 15-4. Gross National Product, by Quarters, 1961

	1Q	2Q	3Q	4Q	Year
	millions of dollars				
1. Not adjusted for seasonality	8,869	9,682	10,814	10,281	39,646
2. Seasonally adjusted at quarterly rates	9,572	9,861	10,001	10,212	39,646
3. Quarter-to-quarter rate of change in (2), at quarterly rates %		+3.0	+1.4	+2.1	
4. Seasonally adjusted at annual rates	38,288	39,444	40,004	40,848	39,646
5. Quarter-to-quarter rate of change in (4), at quarterly rates %		+3.0	+1.4	+2.1	

The use of estimates which express quarterly **levels** of economic activity at annual rates is a widely adopted practice in the analysis of current economic conditions and in forecasting. The quarter-to-quarter **rates of change** in such estimates are, of course, the same whether the basic data are presented at quarterly rates or at annual rates because the annual rate data have simply been inflated by a factor of four (see lines 3 and 5 of Table 15-4). Some users, wishing to obtain an approximate rate of growth which would be achieved if the rate of growth in a particular quarter were to prevail over a full year, also multiply the quarter-to-quarter rate of change by four, or calculate the compound annual rate. This practice is not recommended, however, since it has the effect of magnifying errors in growth rates by the same amount.[4]

The Quarterly Constant Dollar Estimates and Implicit Deflators

The deflation process attempts to remove the price element from current value data, and the seasonal adjustment process attempts to remove the seasonal component from both the current value and the constant dollar series,

[4] Errors in growth rates are commonly considered in additive instead of percentage terms. Thus, a growth rate of 1.2% which is later revised to 1.5% is said to be in error by 0.3%, which becomes at least 1.2% at annual rates.

by means of mathematical techniques employing the use of price indexes and indexes of seasonality. Because both the techniques and the underlying price and seasonal information are subject to some imperfections, the quarter-to-quarter changes in the seasonally adjusted constant dollar series and the associated implicit price indexes are subject to a relatively greater margin of error than would be the case if such adjustments were unnecessary. This point should be borne in mind in interpreting the data, and little significance should be attached to small changes in either the seasonally adjusted constant dollar series or in the seasonally adjusted implicit price indexes.

For any published component of Gross National Expenditure, as well as for the total, the current dollar series divided by the corresponding constant dollar series will yield an implicit price index that is currently weighted. Such price indexes may be derived both for the unadjusted and for the seasonally adjusted data. Quarter-to-quarter changes in these indexes reflect not only pure price change, but also changing expenditure patterns within and between groups. For the unadjusted data, these changes in expenditure patterns are significant because of seasonal variation. The implicit price indexes based on the unadjusted data, therefore, should not be used for price analysis. In the case of the seasonally adjusted data, however, only small changes in expenditure patterns occur over adjacent quarters and the implicit price indexes usually provide a reasonable measure of price change.

Method of Seasonal Adjustment of Constant Dollar Data

A seasonally adjusted constant dollar series may be obtained by one of two methods. The first, direct method, involves the seasonal adjustment of the constant dollar estimates directly. The second, indirect method, involves the deflation of seasonally adjusted current dollar estimates with price indexes which have also been adjusted for seasonality. The latter, indirect method was employed for the entire span of years covered by the quarterly estimates (except for farm inventories where the constant dollar series is directly seasonally adjusted).

A problem inherent in the indirect method of seasonally adjusting the constant dollar data is the difficulty of seasonally adjusting price indexes. The irregular component of price indexes is generally large in relation to the size of the usually small seasonal component; the latter is, therefore, at times hard to identify. On the other hand, the direct method of seasonal adjustment requires that basic inconsistencies do not occur in the estimation of the seasonal component as between the current and constant dollar series. If such incompatabilities do occur, the use of the seasonally adjusted implicit price deflators as measures of price change is vitiated.

Experience has indicated that, on balance, the indirect method possesses greater practical advantages and creates fewer problems than the direct method. Accordingly, the procedure followed is to deflate the seasonally adjusted value series with a set of price indexes, which have been seasonally adjusted or left unadjusted if there is little or no seasonality present, rather than to directly seasonally adjust the raw constant dollar estimates.

CHAPTER 16

THE QUARTERLY ESTIMATES: SOURCES AND METHODS

Introduction

This chapter provides a summary outline of the sources and methods underlying the quarterly estimates set out in Volume 2. The chapter is designed to give users of the data a general view of the way in which the quarterly estimates are prepared. Since in all cases the concepts and definitions employed in the quarterly estimates are identical to those of the annual estimates, the discussion of the basic conceptual framework is not repeated here. The reader is referred to the earlier chapters for a description of basic concepts and definitions.

In the discussion which follows the material is presented essentially in the order in which the component estimates appear in the main Gross National Product and Expenditure tables. Brief comment is also given on the methods of preparing quarterly estimates for a number of the components of Personal Income and Outlay which are not covered elsewhere. The discussion is necessarily fairly broad, in line with the objective of providing a general summary view of the basis on which the quarterly estimates are constructed. As was noted previously, it is not possible in a volume of this nature to describe the complete methodology of the estimates, or to provide the worksheet detail which would permit users to re-construct the basic aggregates.

For the most part, the quarterly estimates fall into three general classes:

(a) where quarterly estimates are calculated on the basis of quarterly movements or trends in some related indicator which has been chosen because it closely reflects quarterly changes in incomes or expenditures in the area covered by the annual estimates. This is by far the most common class of estimate in the quarterly Accounts. The types of indicators used vary considerably, but in a great many cases they are directly related indicators based on monthly or quarterly sample or partial coverage surveys of the area covered by the annual estimates. In the example given in Table 15-2 (and illustrated in Chart 15-1), the annual benchmark figure for the year 1961 is allocated by quarters on the basis of the quarterly pattern of a specific related indicator. Going into the year 1962, this related indicator is used to "project" each of 1961's quarters ahead into 1962 on the basis of the year-to-year percentage change in the indicator. The sum of the four projected quarters yields a preliminary annual estimate for 1962. Subsequently, a final annual "benchmark" figure becomes available, based on full coverage surveys or a census count. Because of deficiencies in the quarterly projector (or related indicator), the preliminary annual 1962 estimate is seen to differ from the final "full coverage" estimate for 1962. When the related indicator (or quarterly projector) is used to allocate the "final" 1962 annual figure by quarters, a discontinuity or "step" is created between the fourth quarter of 1961 and the first quarter of 1962. This "step" is then adjusted or "smoothed out" over several quarters to eliminate the fourth-first quarter break.

(b) where monthly (or quarterly) accounting information is available, as in the case of federal government revenues and expenditures. In such cases, the quarterly estimates are taken as the sum of the three monthly figures,

and the annual estimates are taken as the sum of the four quarterly figures. The problem of the step-adjustment (see Chapter 15) does not arise here because the annual figure is derived simply as the sum of the four quarterly figures. There are no quarterly "estimates" based on interpolation or projection techniques, and no independently derived annual figures based on more complete information to which the quarterly estimates must be reconciled.

(c) where the characteristic of the series is that of a receivable or payable amount which accrues steadily over the year on a continuing, day-to-day basis – as in the case of mortgage interest accruing to persons, or replacement cost depreciation – and the quarterly estimates are derived by straight-line interpolation between annual benchmarks. This class of estimate involves an implied forecast going into the current year, with the quarterly estimates being projected forward on the basis of steady, straight-line growth. While there are a considerable number of series which possess this "steady growth" characteristic, in practice this straight-line method of quarterly estimation is closely limited to areas where the treatment can be carried out consistently for all related series.[1] It would, for example, be inappropriate to treat interest revenues on an accrual basis if the corresponding expenditure items (some of which are entered in costs and affect the level of profits and net incomes) are recorded on a cash paid basis elsewhere in the Accounts.

The majority of the quarterly estimates in these Accounts are of the first type, where related indicators are used. Within this class of estimate, the quality of the quarterly projectors (or related indicators) varies considerably. As noted above, in a great many cases, the projectors used are **direct** indicators based on sample or partial coverage surveys, as is the case with the bulk of the wages and salaries estimate where indexes of aggregate payrolls of firms with 20 or more employees derived from a monthly survey are used. Similarly, the bulk of the quarterly estimates of personal expenditure on consumer goods is based on a monthly sample survey of retail sales. In such cases, the quarterly projections are usually of a fairly high quality. In some cases, the projectors are composite indexes built up from several related series, as in the case of non-residential construction outlays where a combination of indexes of employment, building material prices, average hours worked per week, and average hourly earnings are used to constuct the projectors. Such indicators are likely to be deficient in some ways – for example, in the case noted, the indicator does not include changes in productivity, overhead costs, or profit margins. In other instances – as in the case of estimates of the change in inventories in some service industries – the quarterly projector which is used to extrapolate the book value figures is simply the quarterly index of employment in the industry. Such an indicator is only very indirectly related to the change in the book value figures, but it may nevertheless provide a fairly good approximation to changes in inventories.

It will be clear from what has been said above that the quarterly estimates are likely to be subject to a relatively larger margin of error than the annual

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[1] Straight-line interpolation is also used in cases where relevant quarterly information is entirely lacking. In such cases, the series involved may not possess the characteristics of steady growth as would normally be the case where accrual procedures are applied, but alternative methods of estimation are not available.

estimates, for several reasons. First, the problem of coordinating the timing with which income and expenditure flows derived from separate sources are recorded in the Accounts is relatively more difficult. Second, many of the quarterly indicators which are used to interpolate between annual benchmarks or to project forward into the current year must be regarded as no more than approximations to actual quarterly trends or patterns, even though they are based on the best information available. Third, the estimates are of limited analytical interest until they have been seasonally adjusted, and the seasonal adjustment process itself introduces an element of "estimation" into the calculations in the sense that seasonal factors are averages of past patterns, subject to revision when more recent observations indicate that the seasonal patterns have changed. For all of these reasons, the quarterly estimates should be interpreted in a fairly broad way – as depicting basic underlying trends or tendencies in rates of output growth, as indicating changes in levels and patterns of income generated by productive activity, and as a means of identifying and monitoring changes in the basic configuration of demand. A high degree of precision in the numbers is a less valuable feature of statistical estimates of this type than the fact that the estimates reveal such basic information on underlying trends and tendencies in the economy.

Gross National Product

Wages, Salaries and Supplementary Labour Income

Monthly estimates of wages and salaries are prepared for each province for eighteen industry groups. The general method employed is to distribute the estimated annual totals on the basis of related monthly indicators. Going into the current year for which no independent annual totals are yet available, the monthly estimates are obtained by projecting the monthly estimates for the previous year forward into the current year, again using the related monthly indicators. The quarterly estimates are obtained by summing the three relevant monthly estimates.

The overwhelmingly greater part – about 75% – of the total quarterly wages and salaries estimate is interpolated between annual totals or projected forward into the current year on the basis of the movement of payroll indexes which measure month-to-month changes in the gross earnings of employees of firms with 20 employees or more. Such payroll indexes are available for the following industries: forestry; mining; manufacturing; construction; transportation, communications and other utilities; retail and wholesale trade; finance, insurance and real estate; and commercial services. In these industries, a full coverage survey is undertaken each month of all of the larger firms, and the payrolls data derived from these large firm surveys is used to construct the indexes. The source of the data is the publication *Employment, Earnings and Hours,* Statistics Canada,Catalogue 72-002.

Wages and salaries paid by educational institutions, and hospitals and welfare organizations are interpolated or projected monthly using indexes of employment derived from special monthly surveys, combined with an index measuring changes in average earnings from the survey of larger firms in the industrial sector. Wages and salaries paid by private households and religious organizations are interpolated or projected monthly using an index measuring changes in average earnings from the survey of larger firms in the industrial sector. These groups account for somewhat more than 15% of the total wages and salaries estimate.

Wages and salaries paid by federal, provincial, and local governments are interpolated or projected monthly using information collected on wages and salaries from full coverage monthly surveys in these three areas. The sources of the information are: *Federal Government Employment,* Catalogue 72-004; *Provincial Government Employment,* Catalogue 72-007; and *Local Government Employment,* Catalogue 72-009. The wage and salary figures collected monthly in this way are not used directly in the labour income estimates because differences in definition and classification affect the level of the estimates; they are used essentially as interpolators or projectors to distribute or extrapolate the annual benchmark figures. This group of estimates accounts for somewhat less than 10% of the total.

In agriculture, and hunting and trapping, the methods employed to derive the monthly estimates of wages and salaries consist basically of straight-line interpolations between annual benchmarks, with seasonal patterns imposed. In fishing, the annual estimates are distributed or projected on the basis of monthly estimates of the value of fish caught and landed *(Monthly Review of Canadian Fisheries Statistics,* Catalogue 24-002). The estimates in these areas amount to less than 1% of the total.

Monthly estimates of supplementary labour income, except in the case of employer contributions to the Canada and Quebec Pension Plans, are derived by interpolation or projection using monthly trends of wages and salaries in each of the eighteen industry groups. Monthly estimates of employers' contributions to the Canada and Quebec Pension Plans are derived by interpolation or projection using monthly estimates of numbers of employees covered by the Plans in various income groups.

Military Pay and Allowances

Cash pay and allowances to the Armed Forces are available on a monthly basis from the Department of National Defence. Income in kind is calculated on the basis of quarterly statements of strengths of the three armed services, and estimated man-day costs for food and clothing. In recent years, this latter component has become very small since earnings from armed services employment are now largely on a cash paid basis. Estimates of supplementary labour income are also available from monthly government accounting records.

Corporation Profits Before Taxes

Quarterly information on corporation profits has been collected by Statistics Canada through regular quarterly surveys since the early 1950's. Currently, this information is published in *Industrial Corporations Quarterly Financial Statistics,* Catalogue 61-003, and *Financial Institutions Financial Statistics,* Catalogue 61-006. The information collected in these surveys provides the basis for the projection (or interpolation) of the quarterly estimates of corporation profits included in these Accounts.

Essentially, the quarterly projections of base profits and capital consumption allowances are made for three separate groups of corporations: industrial (non-financial) corporations, which make up the bulk of the estimate; financial corporations (except banks and insurance companies); and banks and insurance companies. The adjusted base profits of industrial

corporations (see Table 7-3) are projected into the current quarter at the aggregative level only, using information from the quarterly survey of industrial corporations. From the adjusted base profits figure, capital consumption allowances are deducted to arrive at a figure for net profits. Again, the data are from the quarterly survey of industrial corporations.

Similarly, a projection is made of the adjusted base profits and capital consumption allowances (see Table 7-3) of financial corporations (except banks and insurance companies) using the results of a special compilation made from data obtained from the financial institutions survey. A good deal of unpublished information from the survey is drawn on for this purpose. Finally, an estimate is made of the profits of banks and insurance companies, drawing largely on published quarterly revenue figures of the chartered banks; profits of insurance companies are assumed to follow a similar pattern.

The estimates of quarterly corporation profits prepared in this way cover the period 1951 to the present. For the period 1947-50, before a quarterly survey became available, the average quarterly pattern for the years 1950-56 was employed to distribute annual profits by quarters.

Dividends paid to Non-residents

This figure is based on estimates made each quarter by the Balance of Payments Division of Statistics Canada.

Interest and Miscellaneous Investment Income

This component of the National Income is made up of three items: interest income of persons (discussed in Chapter 7); government investment income (discussed in Chapter 6); and a major adjustment needed to eliminate from the National Income interest on the public debt, accruing to canadian residents, as well as the transfer portion of interest on consumer debt (discussed in Chapters 3 and 7). The reader is referred back to Table 7-4 for the detail underlying these component estimates.

(a) Interest and miscellaneous investment income of persons – The annual estimate of **bond interest** received by persons is broken down into its constituent parts, with each part distributed by quarters on the basis of a related indicator. Such indicators include total interest on the government debt, interest on guaranteed and non-guaranteed debt of the Canadian National Railways, and interest on funded corporate debt. An adjustment is made for quarterly interest paid to non-residents.

Quarterly estimates of **mortgage interest** accruing to persons (including interest on agreements of sale) are derived by straight line interpolation between the annual totals. For current years, the annual interest is forecast and the quarterly estimates are again obtained by interpolation.

Quarterly estimates of **deposit interest** received by persons from the chartered banks are based on information from the Bank of Canada. Annual data on deposit interest paid to persons by the Quebec Savings Bank and trust and mortgage companies are distributed by quarters in accordance with quarterly data on deposit liabilities.

Quarterly **imputed interest** of banks accruing to individuals is allocated according to the numbers of cheques cashed in clearing centres *(Cheques Cashed in Clearing Centres,* Catalogue 61-001). Deposit liabilities data are used to distribute by quarters the imputed interest of credit unions. The difference between quarterly interest earned and interest paid by trust and mortgage companies is used for the quarterly distribution of the imputed interest of these institutions. The latter information is obtained from *Financial Institutions Financial Statistics,* Catalogue 61-006.

The **investment income** of associations of individuals – life insurance companies, fraternal and mutual benefit societies, and trusteed pension plans – is divided into two parts: interest received from government bonds; and other investment income. The interest received from government bonds is projected (or allocated) by quarters on the basis of total payments of government direct debt interest. Investment income arising from other sources is distributed according to quarterly estimates of corporate bond interest paid.

Quarterly figures of interest and dividends received by persons from **non-residents** are based on estimates made by the Balance of Payments Division. **Royalties** received by persons, the interest credited to persons from federal government annuities accounts, and the profits and interest of **mutual non-life insurance companies** are interpolated or projected on a straight line basis.

(b) Government investment income – Government investment income is made up basically of two components: profits of government business enterprises; and interest and miscellaneous investment income. The former component can be sub-divided into remitted profits; taxes paid; and saving (or unremitted profits). The latter component can be sub-divided into interest on loans, advances and investments; interest on government-held public funds; and royalty revenues (see Table 6-9).

The quarterly figures of investment income of the federal government are derived from actual government accounting records. For the most part, quarterly data on the profits (losses) of most of the federal government business enterprises are available on a regular basis from such sources. Interest on loans, advances and investments received from business are allocated quarterly by distributing the annual figures over the four quarters of each year; going into the current year, a forecast of the annual is made. The portion of interest on government-held public funds received by the Unemployment Insurance Commission is obtained quarterly from that agency, while the interest on other government-held public funds is available from quarterly statements of the Department of Supply and Services. A straight line interpolation is used for the quarterly allocation of imputed banking services to the federal government.

At the provincial level, current quarterly data on the profits of most provincial government business enterprises are obtained from the enterprises themselves. Quarterly information on interest on loans, advances and investments are also available from the financial returns supplied quarterly by the various provinces. Annual estimates of interest on government-held public funds are distributed quarterly using the pattern of interest on the public debt; this procedure involves a forecast of the annual figure for the current year. Quarterly estimates of royalty revenues are obtained from the quarterly provincial statements.

At the local government level, profits of local government business enterprises are allocated by straight line interpolation between annual estimates. Interest on loans, advances and investments and on public funds are allocated quarterly on the pattern of interest on the public debt. This procedure involves a forecast of the annual figure for the current year.

Quarterly estimates of investment income of hospitals is obtained by straight-line interpolation between annual figures. The investment income of the Canada and Quebec Pension Plans is available quarterly from the accounting records of these organizations.

(c) **Debt interest adjustments** – As noted above, the interest and miscellaneous investment income component of National Income includes a major adjustment (negative) designed to eliminate from the National Income all interest on the public debt as well as the transfer portion of interest on consumer debt. The nature of this adjustment is described in Chapter 3, and also in Chapter 7 in connection with the discussion of Table 7-5.

Quarterly data on the federal content of interest on the public debt are obtained from monthly statements of the Department of Supply and Services. From 1951 on, the data are on an earned or accrual (liabilities) basis; prior to 1951, they are on a "due date" (payable when due) basis. At the provincial level, actual quarterly data are available from 1951 on, but for the years 1947 to 1950 the pattern prevailing in 1951 was employed. Quarterly estimates of interest on the public debt at the local level are based on a quarterly sample survey of municipalities from 1964 on; for the prior years, a pattern based on a five-year average, as indicated by the survey, is used. The quarterly distribution of debt interest paid by hospitals is based on the quarterly pattern of local government interest payments.

Quarterly estimates of interest on consumer debt are calculated by applying a rate of interest to the estimated volume of consumer credit outstanding at the end of each quarter. The transfer portion of this debt interest is distributed accordingly. The credit outstanding data are obtained from the report *Consumer Credit*, Catalogue 61-004, while the appropriate interest rate is calculated from data reported in the *Bank of Canada Review*.

Accrued Net Income of Farm Operators from Farm Production

The quarterly estimates of accrued net income of farm operators from farm production are computed in the same way as the annual estimates, that is, by constructing a synthetic operating account for the agriculture industry. Table 15-1 (in Chapter 15) provides an example of such a synthetic operating account, and the reader is referred back to this table to illustrate the present discussion. The procedure employed begins with the calculation of quarterly farm cash receipts from the sale of farm products. These data are available on a monthly basis from the Agriculture Division of Statistics Canada. Quarterly estimates are then made of the value, at farm prices, of land and forest products grown and consumed on farms, and these, together with imputed gross rents on owner-occupied farm dwellings constitute the value of income in kind received by farmers. The value of physical change in inventories of field crops and livestock held on farms is then computed, at prevailing quarterly prices. The sum of the above items constitutes gross farm income.

Farm operating expenses are deducted from this figure. These include taxes on owned land and buildings, paid farm rents, wages to farm labour, interest on indebtedness, machinery expenses, crop expenses, feed and other livestock expenses, repairs to buildings, depreciation charges and other costs. The resulting figure, after deduction of these expenses, corresponds closely to the annual concept of "net income of farm operators from farming operations" as published by the Agriculture Division of Statistics Canada.

For National Accounts purposes, certain adjustments are made to this figure. Imputed net rents on owner-occupied farm dwellings, and profits of agricultural enterprises organized as corporations, are deducted, since these are included in investment income. An adjustment on grain transactions is then made in two parts. The first part is an estimate of the undistributed earnings of the Canadian Wheat Board and the second allows for the fact that the earnings of the Canadian Wheat Board are calculated on the basis of change in the book values of inventories, whereas the value of physical change is required for the National Accounts.[2] The resulting figure reflects the earnings of farm operators from current production, which is the appropriate aggregate for inclusion in the Gross National Product.

To obtain the quarterly distribution of the above items, a number of special procedures have had to be adopted. As already noted, farm cash receipts are available monthly from the Agriculture Division of Statistics Canada. Quarterly estimates are made for each of the items of income in kind consumed on farms, and these are then summed to obtain a total quarterly "income in kind" figure; when necessary, the four quarters are adjusted to bring them into line with the final annual estimate. Specifically, the value of dairy products consumed on farms in each quarter is calculated from monthly price and quantity data supplied by the Agriculture Division of Statistics Canada. Estimates of the quantity and value of poultry consumed on farms are also supplied by the Agriculture Division. Consumption of hens and chickens is allocated throughout the year, while other types of poultry consumed are assigned arbitrarily to the fourth quarter. The value of eggs consumed on farms is published monthly by the Agriculture Division. Estimates of the value of cattle, calves, sheep, lambs and hogs killed and eaten on farms are computed from number and price data. Numbers are available for each six-month period from the semi-annual livestock surveys of the Agriculture Division, and these are arbitrarily allocated by quarters; for current periods a forecast is made until the semi-annual livestock survey becomes available. Current prices per head of livestock are obtained by projecting a Census benchmark figure of average price per head on an index of prices per hundred-weight.

The annual estimates of fruits and vegetables consumed in kind are allocated quarterly by straight-line interpolation between annual benchmarks. For current periods, this method involves a forecast of the annual figure. The value of forest products consumed on the farm is assigned to the period October through to April.

Quarterly changes in farm inventories are calculated as follows: the Agriculture Division of Statistics Canada prepares estimates of stocks of field crops held on farms at the end of each quarterly period. The quarterly quantum change is then valued at the average farm price prevailing during the

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[2] Data obtained from weekly reports published by the Canadian Grain Commission.

quarter. Similarly, estimates of the number of head of livestock on farms, by type and age groups, are prepared quarterly by the Agriculture Division. The quarterly quantum changes in the case of livestock are valued at farm prices prevailing at the end of each quarter.

Quarterly farm operating expenses are obtained essentially by allocation of the annual estimate. Various methods of allocation are used. Taxes on owned land and buildings and paid farm rent are distributed equally across the four quarters of the year. Wages to farm labour are estimated monthly by the Labour Division of Statistics Canada using interpolation techniques. Interest on farm indebtedness, building repair expenses, depreciation charges, and miscellaneous farm expenses are computed by straight line interpolation between annual benchmarks. Other farm operating expenses are allocated on the basis of quarterly patterns supplied by the Agriculture Division of Statistics Canada. For example, the quarterly distribution of feed purchases is derived by allocating 30% of the annual estimate to the first quarter, 25% to the second and fourth quarters, and 20% to the third quarter. In all cases, for the current period, such methods involve a forecast of the annual figure.

Net Income of Non-farm Unincorporated Business, including Rent

This component of the National Income consists of three groups of estimates: net professional income; net income of other unincorporated non-farm businesses; and net rental income of persons. Each of these groups of estimates is discussed separately in the following section.

(a) Net professional income – This group includes independent professional practitioners such as doctors, dentists, accountants, lawyers and engineers. In general, there is little quarterly information available on professional incomes. Quarterly net incomes are therefore apportioned on the basis of a straight line trend between annual benchmarks; current quarterly figures are derived on the basis of a forecast of the annual.

(b) Net income of other unincorporated non-farm business – This group of estimates covers a heterogeneous range of industries where, again, little systematic information of a quarterly nature is available. Various methods are used to construct the quarterly net income estimates for these industries, including synthetic operating accounts, allocation or projection on the basis of related indicators, or straight line interpolation. Where related indicators are used, the relationship to the net income estimates is sometimes rather loose and tenuous.

In **forestry**, quarterly estimates of net income are derived by distributing annual figures on the basis of the change in the number of working proprietors;[3] current quarterly figures are obtained by projections of these estimates.

In fishing, estimates are obtained by the synthetic operating account method. Gross revenue is based on the value of fish caught and landed as compiled monthly by the Manufacturing and Primary Industries Division of

[3] *Labour Force*, Catalogue 71-001.

Statistics Canada *(Monthly Review of Canadian Fisheries Statistics,* Catalogue 24-002). From this figure, the expense items are deducted. Quarterly estimates of depreciation are derived by straight line interpolation between annual estimates; for the current period this involves forecasting the annual figure. Other expenses are moved according to the pattern of the value of fish caught and landed.

In **hunting and trapping**, the annual estimate is distributed evenly over the fall and winter months. For the current period this involves a forecast of the annual.

In **manufacturing**, the annual estimates are distributed or projected on the basis of the change in the number of working proprietors.[4]

In **construction**, net income of working proprietors is allocated and projected on the basis of the change in the volume of new residential construction as estimated for these Accounts.

The quarterly distribution of net income of **unincorporated retail stores** is based on the value of total retail sales;[5] the latter is also used as the current projector. The quarterly allocation and projection of net income in **wholesale trade** is based on the value of wholesale sales.[6]

In **finance, insurance and real estate,** quarterly net income is obtained by a straight line interpolation between annual estimates; currently this involves a forecast of the annual.

The various **service industries** constitute an important segment of the unincorporated business field, but information respecting quarterly movements of net income for this group is fragmentary. In **laundry and dry-cleaning, and barbering and hairdressing,** the quarterly estimates are linked to the quarterly movement of consumer expenditures on these services. Net income in **undertaking** is based on a composite index combining the number of deaths with the consumer price index. Net income in **hotels and tourist camps** is based on an index of employment in hotels. In **restaurant service**, an index of total restaurant sales is used. Net income from **boarding and lodging** is derived by straight line interpolation between annual estimates. **Miscellaneous business and personal service** is adjusted according to the movement of the totals of business and personal service as calculated above.

(c) Net rental income of persons – The calculation of the quarterly net rent estimates of persons and unincorporated businesses is divided into three parts:

(i) non-farm rents, residential;

(ii) non-farm rents, non-residential;

(iii) farm rents, both residential and non-residential.

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[4] *Labour Force*, Catalogue 71-001.
[5] *Retail Trade*, Catalogue 63-005.
[6] *Wholesale Trade*, Catalogue 63-008.

Of these three classes, the first is the most important in size. It is also the only area in this group of estimates where quarterly information is available as a basis for preparing the estimates.

Residential non-farm rents (including garages) are divided into rents paid on tenant-occupied dwellings and rents imputed on owner-occupied dwellings. The steps followed are similar to those employed for the annual estimates and can be outlined as follows:

Gross paid rents
Less: Expenses of facilities supplied by landlords and included in paid rent.
Equals: Gross space rent paid by tenant occupants.
Plus: Gross space rent imputed to owner-occupants.
Equals: Gross paid and imputed rent for space.
Less: Space expenses for tenant and owner-occupied dwellings (repair and maintenance; municipal property taxes; depreciation; insurance premiums; mortgage interest).
Equals: Net paid and imputed rents.
Less: Net rents paid to non-personal sectors.
Equals: Net rent paid and imputed, received by individuals.

Gross paid residential non-farm rents are estimated quarterly on the basis of quarterly estimates of occupied non-farm dwellings obtained from Central Mortgage and Housing Corporation. The figures are broken down into estimates of tenant-occupied dwellings and owner-occupied dwellings using rather arbitrary assumptions.[7] The average rent paid is obtained from monthly data collected by the Prices Division of Statistics Canada.

Quarterly estimates of landlord heating costs are allocated or projected on the basis of estimates of all residential fuel consumption. Other landlord facility expenses are interpolated on a straight-line basis between the annual benchmarks. Current quarterly figures are projected on the basis of the past trends.

Imputed gross space rent on owner-occupied dwellings is calculated by multiplying the average space rent paid by tenants by an estimate of the number of owner-occupied dwellings, adjusted to take account of differences in the number of rooms in owner-occupied dwellings compared to tenant-occupied dwellings.

The quarterly space expense estimates are, with one exception, essentially straight-line interpolations between annual benchmarks. Expenses such as repair and maintenance, depreciation, insurance premiums, and mortgage interest can be viewed as accruing steadily from year to year. A forecast of the annual for the current year is involved, in order to derive current quarterly figures. The exception to this procedure is the case of municipal property taxes, where each year's annual average is divided by four. The rationale for

[7] It is assumed that all single detached dwellings and one-half of semi-detached dwellings are for owner-occupancy. The balance of semi-detached dwellings, apartments and flats are assumed to be for tenant-occupancy.

this procedure is that while real property tax liabilities accrue fairly evenly throughout the course of any particular year, there can be significant year-to-year changes in tax rates. Where such tax changes occur, it is appropriate to record this as a discrete "break" between annual levels, in contrast to the straight-line interpolation techniques which implies steady growth from year to year.

Net rents paid to the non-personal sector (a deduction) are allocated according to the pattern of total net paid and imputed rents.

Non-residential non-farm rents received by persons are allocated or projected quarterly by straight-line interpolation between annual benchmarks. This procedure involves a forecast of the annual in all cases. The same procedures are employed to derive quarterly estimates of **farm rents, both residential and non-residential.**

Inventory Valuation Adjustment

The procedures involved in calculating the inventory valuation adjustment on a quarterly basis are identical to those for the annual estimates, apart from the time period covered. These procedures are described in Chapter 7, and the reader is referred back to this chapter for detailed comment. The single difference is that whereas in the case of the annual estimates the time period covered runs from December 31 to December 31, in the case of the quarterlies the book value data must be assembled and deflated, and the change in constant dollar book values "revalued", in terms of a time frame which runs from December 31 to March 31, for the first quarter; March 31 to June 30, for the second quarter; June 30 to September 30, for the third quarter; and September 30 to December 31, for the fourth quarter. The methods of estimating the inventory book values on a quarterly basis are described in Chapter 7.

Indirect Taxes Less Subsidies

At the federal level, data on customs import duties, excise duties and excise taxes, and the business share of privileges, licences and permits are available monthly on a collections basis from statements of the financial operations of the Government of Canada published in the Canada Gazette; quarterly figures relating to the Prairie Farm Assistance Act levy are obtained from the Department of Agriculture.

Provincial indirect taxes on a quarterly basis are mainly derived, since 1951, from the quarterly returns submitted by the provinces and territories to Statistics Canada. Quarterly profits of liquor commissions are available for some of the provinces, but for others the annual figures are allocated on the basis of quarterly provincial sales of liquor, wine and beer.

For the years 1947 to 1950, before quarterly returns were available from the provinces, the provincial quarterly estimates, for the most part, are derived by allocating the annual figures according to the movement of related indicators. Gasoline taxes are allocated in accordance with quarterly sales of taxable gasoline for those years, as reported to the Transportation Division of

Statistics Canada. Retail sales taxes are distributed according to the quarterly value of taxable retail sales in the province in which the tax is levied, with the basic information obtained from the Merchandising and Services Division of Statistics Canada. Tobacco taxes are allocated according to quarterly releases of tobacco, as reported to the same Division. Other taxes, including the business share of motor vehicle licences and permits, amusement taxes, taxes on corporations other than on profits, miscellaneous taxes, and licences, permits and public domain revenues, are allocated according to the 1951 pattern of collections.

Local indirect taxes consist mainly of real property taxes on owner-occupied and rental property. These taxes are allocated equally across the four quarters of each year since they accrue on a day-to-day basis within each year but are affected by changes in tax rates between years. Local retail sales taxes are allocated according to the quarterly value of taxable retail sales in the provinces where they are levied. A straight-line interpolation between annual figures is used for the quarterly allocation of licences, fees and permits. Amusement taxes and miscellaneous taxes are spread equally across each year. Fines and tax penalties of various types are allocated arbitrarily on the basis of averages of past patterns. For current quarterly periods, these procedures almost always involve a forecast of the annual figure.

Federal subsidy payments are available on a monthly basis from monthly statements of expenditures supplied by the Department of Supply and Services. Provincial subsidy payments are obtained from the quarterly statements which have been submitted to Statistics Canada by the provinces since 1951. Prior to 1951, provincial subsidies are allocated on the basis of the pattern prevailing in the year 1951.

Capital Consumption Allowances and Miscellaneous Valuation Adjustments

The estimates of capital consumption allowances include depreciation on the stock of fixed assets held by the corporate and government business enterprises sector, the persons and unincorporated business sector, and the government sector. The miscellaneous valuation adjustments include certain capital outlays charged to current expense, certain non-capital outlays charged to capital account, and the claim portion of business and residential insurance.

Quarterly estimates of corporate depreciation are derived essentially from the same sources and employ the same approach as the quarterly corporation profits estimates. Financial statistics on the operations of corporations have been collected through regular quarterly surveys by Statistics Canada since the early 1950's. This information is currently published each quarter in *Industrial Corporations, Quarterly Financial Statistics,* Catalogue 61-003, and Financial *Institutions Financial Statistics,* Catalogue 61-006. The information on corporate book depreciation collected in these surveys forms the basis of the corporate depreciation estimates entered in these Accounts. As in the case of the calculation of quarterly corporation profits, the estimates are prepared for three separate groups of corporations: industrial (non-financial) corporations, which make up by far the greater part of the estimate; financial corporations (except banks and insurance companies); and banks and insurance companies. In the latter case, little quarterly information on depreciation is available and the figures are derived by straight-line interpolation between annual totals.

Quarterly estimates of depreciation on the stock of assets held by the persons and unincorporated business sector are also basically derived by straight-line interpolation between annual benchmarks. There are no reported book figures of depreciation available in this area on a quarterly basis. Where synthetic operating accounts are prepared as in the case of agriculture, the quarterly depreciation estimates are derived by interpolation techniques.

Quarterly estimates of depreciation in the government sector are also derived by straight-line interpolation between annual figures. The imputed depreciation on the stock of fixed assets held by governments is on a replacement cost basis of valuation.

All of the miscellaneous valuation adjustment items are allocated by quarters on the basis of straight-line interpolations between annual totals, with one single exception. The exception relates to brokerage fees on the purchase and sale of stocks and bonds, a type of non-capital outlay charged to capital account by business. The negative valuation adjustment which is made to "capital consumption allowances and miscellaneous valuation adjustments" to correct the income side of the Accounts for the over-statement of business profits is allocated by quarters on the basis of the quarterly pattern of the volume of trading on the Toronto Stock Exchange.

Gross National Expenditure

Personal Expenditure on Consumer Goods and Services

As is the case with the annual estimates, the quarterly estimates of personal expenditure on consumer goods and services are calculated under three broad categories: personal expenditure on goods; personal expenditure on services; and net personal expenditure abroad. The following discussion is organized along these lines.

(a) Personal expenditure on goods – Quarterly estimates of consumer spending on goods are calculated separately for each of about twenty individual commodities or commodity groups. The commodity groups which form the classificatory framework for the quarterly estimates of goods consumption are identical to those of the annual estimates as presented in Table 53 of Volume 1 (see also Table 16-1). Each of these individual annual estimates is allocated by quarters on the basis of a related indicator or set of indicators which reflects the quarterly pattern of personal expenditure on that particular good or group of goods. Going into the current year, the quarterly figures derived in this way are projected forward on the basis of the year-to-year percentage change shown in the relevant quarterly indicator. A majority of the indicators used to interpolate or project the basic data are derived directly from the monthly sample survey of retail sales of chain and independent stores, or the monthly survey of department store sales.[8] In other cases, the indicators are based on material from special-purpose surveys in specific areas.

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[8] *Retail Trade*, Catalogue 63-005; *Department Store Sales and Stocks*, Catalogue 63-002.

Table 16-1 provides a summary view of the commodity groups for which quarterly estimates are obtained by interpolation or projection. It also shows the related indicators which are used to derive the quarterly estimates, and the sources of this information. It may be noted that the 1961 values shown in this table include provincial and local sales taxes, and imputed expenditures on income in kind, in line with the annual data shown in Table 53 of Volume 1. However, in the actual calculation of the quarterly estimates, the quarterly figures are computed exclusive of the provincial and local taxes and imputed expenditures in the first instance. The sales taxes and imputed expenditures, which are not ordinarily reflected in retail sales, are separately estimated by quarters for each commodity group and are added in at a later stage, after the basic interpolation or projection has been carried out on the basis of the related indicators.

TABLE 16-1. Principal Quarterly Indicators used to Derive Quarterly Estimates of Personal Expenditure on Consumer Goods

Line No.	Table 53 of Volume 1			Principal quarterly indicators or projectors
	Durability class	Commodity group	1961 value[1]	
			$'000,000	
2	N-D	Food and non-alcoholic beverages	4,811	Retail sales of grocery and combination stores, and all other food stores *(Retail Trade,* 63-005).
3	N-D	Alcoholic beverages	960	Sales of provincial liquor control boards and commissions (unpublished data from Merchandising and Services Division).
4	N-D	Tobacco products	790	Sales of tobacco products *(Tobacco and Tobacco Products Service Bulletin,* 32-022); and the consumer price index of tobacco products (62-002).
6	S-D	Men's and boys' clothing	631	Retail sales of men's clothing stores *(Retail Trade,* 63-005), 50% of retail sales of family clothing stores *(Retail Trade,* 63-005), and department store sales of men's clothing, men's furnishings, and boys' clothing and furnishings *(Department Store Sales and Stocks,* 63-002).
7	S-D	Women's and childrens' clothing	1,234	Retail sales of women's clothing stores *(Retail Trade,* 63-005), 50% of retail sales of family clothing stores *(Retail Trade,* 63-005), and department store sales of women's and childrens' clothing *(Department Store Sales and Stocks,* 63-002, items 1 through 11).
8	S-D	Footwear and repair	395	Retail sales of shoe stores *(Retail Trade,* 63-005) and department stores sales of footwear *(Department Store Sales and Stock,* 63-002, items 12 and 16).
13	N-D	Electricity	371	Electric power generated by utilities *(Electric Power Statistics,* 57-001).
14	N-D	Gas	125	Sales of pipeline gas *(Gas Utilities,* 55-002).
15	N-D	Other fuels	584	Sales of fuel oil to houscholds *(Refined Petroleum Products,* 45-004) and retail sales of fuel dealers *(Retail Trade,* 63-005).
17	D	Furniture, carpets, etc.	539	Retail sales of furniture (unpublished survey detail) and department store sales of furniture, floor coverings, draperies, etc. *(Department Store Sales and Stocks,* 63-002).

See footnote(s) at end of table.

TABLE 16-1. Principal Quarterly Indicators used to Derive Quarterly Estimates of Personal Expenditure on Consumer Goods – Concluded

Line No.	Table 53 of Volume 1			Principal Quarterly Indicators or Projectors
	Durability class	Commodity group	1961 value[1]	
			$'000,000	
18	D	Household appliances	421	Domestic consumption (factory shipments plus imports minus exports) of refrigerators and freezers, washing machines and clothes dryers, and other electrical appliances. Factory shipments are based on 43-001, 43-002, 43-003 and 43-006. Imports and exports are from Trade of Canada data.
19	S-D	Semi-durable household furnishings	936	Department store sales of piece goods, linens, smallwares, china and glassware, lamps and pictures, etc., and hardware *(Department Store Sales and Stocks,* 63-002); and retail sales of hardware stores *(Retail Trade,* 63-005).
20	N-D	Non-durable household supplies[2]	362	Shipments of soaps, detergents, and other related products *(Soaps and Synthetic Detergents,* 46-003).
28	N-D	Drugs and sundries	334	Retail sales of drug stores *(Retail Trade,* 63-005).
30	D	New and used (net) automobiles	1,301	*New Motor Vehicle Sales* (63-007) and unpublished data from the Merchandising and Services Division on used car sales.
31	D	Vehicle repairs and parts	474	Retail sales of service stations and garages *(Retail Trade,* 63-005) and wholesale sales of automotive parts and accessories *(Wholesale Trade,* 63-008).
32	N-D	Gasoline, oil and grease	711	Retail sales of service stations and garages *(Retail Trade,* 63-005).
37	D	Recreation, sporting and camping equipment	630	Domestic consumption of radio and television receiving sets (factory shipments from 43-004 and exports and imports from Trade of Canada data); and department store sales of toys and games, and sporting goods and luggage *(Department Store Sales and Stocks,* 63-002).
38	S-D	Books, newspapers and magazines	351	Department store sales of stationery, books and magazines *(Department Store Sales and Stocks,* 63-002).
42	S-D	Jewellery, watches and repairs	151	Retail sales of jewellery stores *(Retail Trade,* 63-005) and department store sales of jewellery *(Department Store Sales and Stocks,* 63-002).
43	N-D	Toilet articles, cosmetics	172	Department store sales of toiletries, cosmetics and drugs *(Department Store Sales and Stocks,* 63-002).
		Total personal expenditure on consumer goods	16,283	

[1] The commodity groups shown here for the year 1961 include provincial and local sales taxes, and imputed expenditures on income in kind. In the quarterly calculation, the estimates are computed using the various related indicators exclusive of those sales taxes and imputed expenditures in the first instance. The sales taxes and imputed expenditures are separately calculated by quarters for each commodity group and added in at a later stage.

[2] Includes soap and cleaning supplies.

In adding back provincial and local sales taxes to bring the commodity estimates up to a market price level of valuation, the procedure followed is broadly similar to that for the annual figures. Estimates of personal expenditure by commodity group for each province are first calculated on a quarterly basis on the assumption that provincial shares of the national total and its commodity breakdown have remained relatively unchanged from the previous year. The tax rate currently in force in each province is then applied to the provincial estimate of the particular commodity groups on which such taxes are levied.

An imputation is made to include in the estimates of personal expenditure on goods the value of goods consumed out of income in kind. In each case the figures are based on the quarterly estimates used for the income side. The estimate of food and fuel consumed on farms is a part of the calculation of net farm income prepared by the Agriculture Division. Food received and consumed by non-agricultural workers is computed in connection with the estimates of wages, salaries and supplementary labour income. The value of lodging supplied to both farm and non-farm workers is not included here, being classified to the services estimate. Estimates of food and clothing issued to the Armed Forces are prepared in connection with the figures of military pay and allowances.

(b) Personal expenditure on services – Like the goods estimates, the quarterly estimates of consumer expenditure on services are also calculated separately, for each of about 20 individual groups of services. The various service groups which form the basis of the quarterly estimates are identical to those of the annual estimates as presented in Table 53 of Volume 1. Table 16-2 shows the breakdown and provides a synoptic view of the way in which the quarterly estimates for services are derived. The descriptions accompanying each major group are not exhaustive but cover the principal sub-component series.

In a good many cases, as Table 16-2 indicates, the quarterly estimates of personal expenditure on services are taken directly from or are based on calculations which have been prepared in connection with the income side of the Accounts. Thus, farm and non-farm residential space rents, paid and imputed, are calculated in connection with the net rental income component of the Accounts. Wages and salaries paid by households to domestic servants, included in "domestic services", are calculated in connection with the estimates of wages, salaries and supplementary labour income. Personal expenditure on lodging is based on estimates prepared in connection with the quarterly figures of net income from boarding and lodging. Estimates of personal expenditure for the services of physicians, surgeons, dentists, and nurses are basically related to the estimates of net income of the professional service groups. Estimates of paid and imputed banking services, and estimates of net personal expenditure on consumer debt service, are based upon calculations made in connection with the estimates of interest and miscellaneous investment income.

In those cases where quarterly estimates of spending on services are not available as a result of an explicit link to the income figures, the methods of estimation vary a good deal. Wherever possible, the procedure followed is to allocate the annual benchmark figure to the various quarters on the basis of an indicator or series which closely reflects the quarterly movement of the basic data, and to carry the resulting quarterly estimates forward into the current period by projection, using the same indicator. For certain classes of services fairly reliable data are available to serve as the interpolating or extrapolating series. Expenditures for transportation on steam railways, buses, and air carriers are distributed or projected in accordance with monthly passenger operating revenues. Expenditures for postal service are distributed or projected in accordance with monthly post office revenues. Expenditures on laundry and dry-cleaning services are distributed or projected on the pattern of man-hours and earnings data (adjusted for price increases) in laundry and dry-cleaning establishments. Expenditure on restaurant meals is distributed or projected on

the movement of the receipts of chain and independent restaurants. In such cases, a reasonably realistic approximation to actual quarterly expenditures can be obtained through the use of these related indicators.

However, a number of components of the services estimate are based on methods of estimation which are clearly unsatisfactory. The methods used for this group of estimates include straight-line interpolation and projection of trend, distributions based on changes in population and the consumer price index, and in some cases, purely arbitrary allocations. Among the major components to be found in this group are personal expenditure for taxi service, expenses of insurance companies, expenditures for recreational services, and expenditures for hotel accommodation.

TABLE 16-2. Principal Quarterly Indicators used to Derive Quarterly Estimates of Personal Expenditure on Consumer Services

Line No.	Table 53 of Volume 1		Principal Quarterly Indicators or Projectors
	Commodity Group	1961 Value	
		$'000,000	
10	Gross imputed rent	2,545	Estimates derived directly from the income side, in connection with the calculations of the quarterly rental income estimates.
11	Gross rent paid	1,099	Estimates derived directly from the income side, in connection with the calculations of the quarterly rental income estimates.
12	Other lodging	61	Estimates based on calculations made in connection with the quarterly estimates of net income of other unincorporated business from boarding and lodging.
21	Laundry and dry cleaning	180	Annual estimates allocated quarterly and projected on the basis of a combined index of manhours and average hourly earnings in laundry and dry cleaning establishments *(Employment, Earnings and Hours,* 72-002). A price factor is incorporated from the Consumer Price Index.
22	Domestic service	197	Calculated in connection with the estimates of wages, salaries, and supplementary labour income.
23	Other household service	68	Mainly the administrative expenses of insurance companies (premiums minus claims) associated with personal property and theft insurance. Quarterly estimates based on straight-line interpolation or projection of trend.
25	Medical care	595	Estimates based on calculations made in connection with the quarterly estimates of net income of professional practitioners.
26	Hospital care and the like	163	Straight-line interpolation or projection of trend. The bulk of hospital care expenditure is now (since 1961) included with government expenditure on goods and services.
27	Other medical care expense	39	Mainly the administrative expenses of insurance companies (premiums minus claims) associated with private accident and sickness insurance schemes. Straight-line interpolation or projection of trend.

TABLE 16-2. Principal Quarterly Indicators used to Derive Quarterly Estimates of Personal Expenditure on Consumer Services – Concluded

Line No.	Table 53 of Volume 1		Principal Quarterly Indicators or Projectors
	Commodity Group	1961 Value	
		$'000,000	
33	Other auto related services	206	Includes mainly the administrative expenses of insurance companies (premiums less claims) associated with automobile insurance, plus the estimated portion of rents paid and imputed for garages. The former estimate is derived by straight-line interpolation or projection. The latter estimate is derived directly from the income side in connection with the quarterly rental income estimates.
34	Purchased transportation	428	Based mainly on passenger operating revenues of major carriers *(Air Carrier Operations in Canada*, 51-002; *Passenger Bus Statistics – Intercity and Rural*, 53-002; *Railway Operating Statistics*, 52-003). Taxi service based on population and consumer price index.
35	Communications	347	Operating statistics of telephone companies, and postal revenues. Expenditure for telegraph services are based on straight-line interpolation.
39	Recreational services	322	There is little quarterly information available for this component. The figures are allocated arbitrarily.
40	Education and cultural services	297	Includes operating expenditures of universities and personal outlays for private school tuition. The figures are allocated arbitrarily. Enrollment forecasts are used to project university operating expenditures.
44	Personal care	251	Includes outlays on barbershops, beauty parlours, and funeral and burial expenses. The latter are allocated or projected on the basis of numbers of deaths and the consumer price index. Other components are allocated or projected on the basis of changes in the population and the consumer price index.
45	Expenditure on restaurants and hotels	1,448	*Restaurant Statistics*, 63-011; unpublished retail trade data on sales to licensees by liquor control boards; and, for hotel accomodation, interpolation and projection of annual data with a seasonal pattern imposed.
46	Financial, legal and other services	987	Includes bank service charges, paid and imputed *(Cheques Cashed in Clearing Centres*, 61-001); interest charges on consumer debt (derived directly from the quarterly estimates of interest and miscellaneous investment income); and the investment expenses of life insurance companies (straight-line interpolation).
47	Operating expenses of non-profit organizations	279	Based largely on straight-line interpolation and projection of trend.
48	Net expenditure abroad	135	Based on quarterly data on travel expenditures from the Balance of Payments Division.
	Total personal expenditure on consumer services	9,647	

(c) Net personal expenditure abroad – This net adjustment is necessary to include, in personal expenditure, the expenditure of Canadian residents in foreign countries, and to exclude the expenditures of non-residents in Canada. The details of the adjustment are described in Chapter 5. The quarterly figures are based on estimates made by the Balance of Payments Division of Statistics Canada.

Government Current Expenditure on Goods and Services

In general, all of the quarterly estimates of revenue and expenditure in the government sector are based on an analysis of quarterly (or monthly) reports of governments and their agencies. Most of the estimates are prepared by the Public Finance Division of Statistics Canada. At the federal level, the quarterly estimates are almost as reliable as the annual estimates since the figures are based primarily on monthly data published in the *Canada Gazette*, supplemented by a monthly computer-produced analysis provided by the Department of Supply and Services, and accounting statements of a number of government agencies. At the provincial level, the main sources of data (since 1951) are the quarterly returns submitted by the provinces and territories to Statistics Canada. Quarterly data for local governments are based to a large extent on a quarterly sample survey of 250 municipalities in seven provinces which has been conducted by Statistics Canada since 1964. Little quarterly data exists in the area of hospital expenditures, and related indicators are used to derive the quarterly allocations. A fuller description of the methods and sources used in preparing quarterly estimates of government current expenditure on goods and services is given in this section.

As in the annual estimating procedures, the quarterly estimates of federal and provincial government expenditure on goods and services are derived residually, by eliminating from government budgetary expenditures all outlays which are not made directly to purchase new goods and services. These "non-goods and services" outlays cover such elements as subsidies, transfer payments to individuals and private non-profit institutions, transfers to other levels of governments, transfers to non-residents, amounts paid to cover losses of government-owned enterprises, provisions for debt retirement, reserves and write-offs, and other bookkeeping adjustments. Purchases of land and used capital assets are also eliminated since these do not represent expenditures on the current production of new goods and services. Government expenditures on goods and services which take place outside the framework of the budgetary accounts are then added to this residual calculation. Estimates of imputed capital consumption allowances and imputed banking services are also added, with the quarterly allocations being based on straight-line interpolations.

From this estimate of total expenditure on goods and services (both current and capital), an estimate of the capital portion is deducted. This capital portion represents government cash outlays on capital items as calculated from government returns.[9] The resulting residual figure represents government current expenditure on goods and services.

At the **federal** level, all of the budgetary data necessary to carry out the above procedures are available from the monthly expenditure statements of

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[9] It should be noted that in the estimates of gross fixed capital formation, a timing adjustment has been made to convert government capital expenditures from a cash to an accrual basis. The adjustment represents the difference between the estimates of cash outlays on capital items derived from government returns and an estimate of the value of work put in place, based on employment and related data. The cash estimate is deducted from total government expenditure on goods and services to derive current expenditure on goods and services. The accrual estimate is used to obtain estimates of gross fixed capital formation. The method of deriving the accrual estimates of capital outlays is described under the section Gross Fixed Capital Formation.

the Department of Supply and Services, or from statements published in the *Canada Gazette.* It should be noted that expenditures on goods and services charged in the April supplementary period[10] of the fiscal year in the government accounting records are divided equally between the first and second quarters in the National Accounts presentation. To the extent these April supplementary government expenditures are matched by shipments out of business inventories which took place in the first quarter, consistency requires that a part of the payments be assigned to the first quarter and not to the second. To the extent that these April supplementary government expenditures are matched by factor incomes recorded in the Accounts in the second quarter, consistency requires that a part of the payments be assigned to the second quarter. Since the exact amount of the adjustment required to achieve consistency in the timing of these transactions is not known, the amount of the supplementary payments is equally divided between the first and second quarters.

Adjustments are also made, at the federal level, to eliminate amounts charged to defence expenditures in the budgetary accounts which are not related to current production. For example, prior to 1959, shipments from stocks of previously produced military equipment to NATO countries are reflected in the government accounts as budgetary expenditure, with the amounts involved credited to a Defence Equipment Replacement Account. For National Accounts purposes, it is necessary to delete these amounts from budgetary expenditures, and to add back the actual outlay for new goods and services made out of the Defence Equipment Replacement Account.

At the **provincial** level, a procedure similar to that described above is followed to derive quarterly figures of government expenditure on goods and services from the returns submitted by the provinces, for all years after 1950. For the years 1947 to 1950, the quarterly pattern prevailing in 1951 was employed to distribute the annual data.

Quarterly estimates of expenditure on goods and services by **local** governments are not based on residual calculations but are derived directly. For years since 1964, the expenditures of municipalities are based on the quarterly sample survey noted earlier; for the years prior to 1964, an average of the survey results for the five-year period 1964 to 1968 was used. Quarterly expenditures of local schoolboards are derived using the pattern of salaries and wages as estimated by the Labour Division for the quarterly wages, salaries and supplementary labour income component on Gross National Product.

There is little reliable quarterly information on hospital expenditures on goods and services. The pattern of wages and salaries as estimated by the Labour Division in this area is used for the quarterly allocation and projection.

Gross Fixed Capital Formation

Quarterly estimates of gross fixed capital formation are prepared separately for each of the three main components of investment spending:

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[10] This is the one-month period following March 31 of each fiscal year during which the books are held open to complete the clearing and payment of accumulated liabilities on transactions for which commitments were made prior to March 31.

residential construction; non-residential construction; and investment in machinery and equipment. Within each of these three main components, the calculations are carried out in a way which distinguishes between the business portion of the investment spending and that portion which represents government capital spending.

In general, for non-residential construction and machinery and equipment investment, the quarterly estimates are derived by allocating annual data on the basis of specially constructed quarterly indicators. The annual data are from the large-scale survey of reported private and public investment which has been described in Chapter 7.[11] For current quarters for which no annual data are available, the series are carried forward according to the movement of the specially constructed indicators. These quarterly indicator series, which are used for interpolation or extrapolation, are prepared for each of the main sub-component series of non-residential construction and machinery and equipment investment.

In the case of residential construction, the quarterly estimates are derived on a completely different basis. There are no annual benchmark figures on reported investment in housing to which quarterly interpolators or projectors can be applied. However, there is relatively good information on the monthly (quarterly) volume of housing activity and on the price of housing. On the basis of this information, quarterly estimates of the value of housing put in place are calculated, and the annual figures of housing investment are derived as the sum of the four quarterly estimates.

(a) Residential construction – The quarterly value estimates of expenditure on housing are derived by assembling and combining information which reflects three factors: the number of housing starts by type of dwelling in each quarter (singles, doubles, row and apartment); the average timing pattern by quarters of actual work put in place for each type of dwelling (an "activity" coefficient); and the average unit cost of each type of dwelling.The number of dwelling starts (which are available monthly) combined with the activity pattern for each type of dwelling provides the basis for calculating the volume of housing put in place in each quarter.[12] The **volume** of housing put in place in each quarter (expressed as numbers of units) combined with the average **price** per unit yields the basic quarterly **value** figure of expenditure on new housing. To this estimate must be added quarterly estimates of major alterations and improvements, conversion costs,and supplementary costs. The sum of these quarterly figures represents total private and public outlays for new housing construction in Canada. Estimates of housing outlays made by government departments (which are relatively very small) are then deducted to arrive at the "business" share of residential construction expenditures as presented in these Accounts.

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[11] *Private and Public Investment in Canada, Outlook and Regional Estimates*, Statistics Canada,Catalogue 61-205.

[12] The activity coefficient multiplied by the number of starts in the month gives an estimate of the volume of construction associated with the starts of that particular month. To this must be added estimates of the volume of activity in the month which is associated with starts commenced in earlier months. The process is one of continuous summation, apportioning the total activity associated with each month's starts over several succeeding months, and summing the results for all active months. On completion, the data for any particular month is automatically retired from the estimates.

The number of housing starts in Canada – a basic element in these calculations – is available monthly from a survey carried out by Central Mortgage and Housing Corporation and published in *New Residential Construction,* Catalogue 64-002. The timing pattern of work put in place by type of dwelling is based on the average construction time of a sample of dwellings constructed and financed under the National Housing Act. The average unit cost of dwellings is based on information on building permits issued, published in *Building Permits*, Catalogue 64-001. These data constitute the basic source of the information underlying the calculation of the quarterly housing estimates. The value of major alterations and improvements, and costs of conversion, are estimated largely from building permit records. Supplementary costs, which include such acquisition costs as legal fees, surveying fees, and accrued interest charges, are geared essentially to the movement of the number of housing completions in the quarter (these are also available monthly). Estimates of the value of housing investment by government departments are based on data provided by Central Mortgage and Housing Corporation.

Before the year 1970, the quarterly estimates of housing investment were based on a somewhat different method. The earlier procedures took specific account of the numbers of starts, completions, and units under construction, with a timing adjustment designed to convert these data to measures of volume of work put in place. The valuation procedures incorporated information on unit costs of construction, and weighted cost indexes embodying movements in the wage rates of construction workers and residential building material prices. These procedures were replaced in 1970 by the method described above.

(b) **Non-residential construction** – In the case of non-residential construction, the estimates are derived by interpolation of the annual figures using specially prepared quarterly indicators, and projecting the quarterly estimates forward on the basis of these same indicators. Thus, for the business portion of non-residential construction, these related indicator series are prepared for each of the four main sub-components of business non-residential construction outlays:[13]

(i) building construction;

(ii) highways, bridges and streets;

(iii) railway construction; and

(iv) other engineering contruction.

In general, the quarterly indicator series for each of these four sub-components consists of a weighted composite index which reflects changes in employment in that particular field of construction activity; changes in average weekly hours worked; changes in average hourly earnings; and changes in building material prices. The employment and hours worked per week (manhours) data provide a measure of changes in the physical volume of

[13] A description of the type of construction activity included in each of these sub-components is given in Chapter 7.

activity in the area. The average hourly earnings and building material prices data (appropriately weighted for labour and material content) provide a measure of changes in the cost of that particular type of construction activity. These measures of volume and cost are combined into a single index to yield an indicator designed to approximate the quarterly change in the **value** of construction expenditure, for each of the four sub-component categories of non-residential construction.

The source of the information on employment, hours and earnings in each of these four categories is the report *Employment, Hours and Earnings,* Catalogue 72-002. The source of the building material prices information is the Prices Division of Statistics Canada (some of this information is published in the report *Prices and Price Indexes,* Catalogue 62-002).

It will be evident from what has been said earlier that these quarterly indicators constructed as described above, are likely to be deficient in a number of ways as measures of changes in the value of construction expenditure. When used as projectors into the current period to derive the current quarterly estimates, they cannot take account of changes in productivity, profit margins, or overhead costs. Manhours data are inadequate as a measure of changes in the volume of output in construction if productivity is changing. Also, the indicators reflect changes only in the labour and material costs of construction – not changes in the final product prices of a unit of construction. Consequently, the sum of four quarterly estimates for any current year derived in this way will not yield an annual estimate which is fully consistent with the annual estimate derived from the annual survey of reported investment spending by business firms.[14] When the results of the annual survey become available, the quarterly estimates are adjusted to the annual levels indicated by the survey, using the quarterly indicators constructed as above for interpolation.

Quarterly estimates of **government** non-residential construction outlays are derived using procedures which are similar to those used for business non-residential construction expenditures. The sources of the data and the methods used to prepare the quarterly indicators are identical. In this case, however, only three sub-components are separately estimated – building construction; highways, bridges and streets; and other engineering construction. No indicator is prepared for railway construction since this is virtually all private sector investment.

(c) Machinery and equipment – In general, the quarterly estimates of **total private and public** investment in new machinery and equipment are derived by allocating the annual estimates on the basis of indicators which reflect domestic use or disappearance of machinery and equipment. These indicators are built up, for the most part, by taking total Canadian factory shipments of machinery and equipment, adding to them all imports of machinery and equipment (about 50% of all machinery and equipment going into investment in Canada is imported from abroad), and deducting all exports

[14] There may of course be other reasons for differences between the results of the annual survey and the sum of the four projected quarters. The annual survey itself is subject to varying degrees of error as a result of incomplete coverage and the difficulty of achieving complete consistency in reporting practices (e.g., the distinction between some types of machinery and equipment investment and construction investment).

of machinery and equipment. The resulting quarterly totals, when combined with data from other sources as indicated below, provide the basis for allocating the annual estimates by quarters and for projecting these quarterly series forward into the current period.

The bulk of the data used in preparing these indicators comes from three basic sources. Data on Canadian factory shipments of machinery and equipment are available monthly from the report *Inventories, Shipments and Orders in Manufacturing Industries,* Catalogue 31-001. Data on imports of machinery and equipment are available monthly from the report *Imports by Commodities*, Catalogue 65-007. Data on exports of machinery and equipment are available monthly from the report *Exports by Commodities,* Catalogue 65-004.

While most of the required information comes from these three sources, other sources are used in a number of special areas. Investment in automotive equipment (commercial vehicles and the business share of passenger vehicle sales) is estimated from data available in the report *New Motor Vehicle Sales*, Catalogue 63-007. Investment in ships and aircraft, where there is a good deal of "lumpiness" in the investment and where no reliable quarterly information is available, is based on a rough allocation of the annual "intentions" figures taken from the survey of the outlook for private and public investment. Defence expenditures on machinery and equipment (which are not treated as a part of capital formation) are deducted from the above totals, on the basis of information from the Department of National Defence. Adjustments are made (negative) for the value of scrap and salvage allowances on used machinery and equipment (including used commercial vehicles and ships), with the estimates based on information from a variety of sources. All of this information is combined with the "domestic disappearance" figures to produce the indicators which are used to derive the quarterly estimates of total private and public investment in machinery and equipment in Canada.

To obtain quarterly estimates of "**business**" investment in machinery and equipment, it is necessary to subtract quarterly estimates of **government** expenditure on new machinery and equipment from the above totals. The federal and provincial government estimates are derived by interpolation of annual data and projection into the current period, using indicators based on quarterly information provided by these governments. The local government estimates are based on the annual "intentions" figure from the survey of private and public investment,[15] allocated to quarters on an arbitrary basis.

Like the quarterly indicators used to project non-residential construction outlays, the quarterly machinery and equipment indicators are also deficient in a number of ways as measures of changes in investment expenditure. For example, they cannot adequately reflect installation costs, mark-ups, or progress payments – all factors which are, as far as possible, taken into account in the annual estimates obtained from the annual survey of reported expenditures.

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[15] *Private and Public Investment in Canada, Outlook and Regional Estimates*, Catalogue 61-205.

Value of Physical Change in Inventories

The net change during the quarter of holdings of inventories must be recorded in the Gross National Expenditure in order to allow for that portion of current production which remains unsold at the end of the quarter (positive change in inventories), or to eliminate that portion of previous quarters' production which is included in sales of the current quarter (negative change in inventories). The quarterly change in inventory figures is presented in three parts:

(i) value of physical change in non-farm business inventories, which includes changes in inventories held in the private business sector (excluding agriculture), and in government business enterprises;

(ii) value of physical change in farm inventories and grain in commercial channels, which includes changes in inventories of livestock held on farms, and changes in inventories of field crops held on farms and in grain in commercial channels; and

(iii) the value of physical change in government inventories, which includes the change in inventories held by government commodity agencies not organized as business enterprises (e.g., Commodity Prices Stabilization Corporation) and changes in holdings of uranium stocks. (All government inventory changes, positive or negative, were previously included with government expenditure on goods and services in the former system of Accounts.)

In the case of non-farm business inventories, the basic quarterly data are collected in the form of book value figures from business accounting records. Since the appropriate method of recording quarterly changes in inventories in the Accounts is based on the physical change during the quarter valued at average market prices prevailing in the quarter, (rather than on the change in book values) all inventory "gains" or "losses" resulting from the inventory accounting procedures of business firms must be eliminated. An inventory revaluation (or valuation adjustment) is therefore required to convert the change in book values to a value of physical change basis and to eliminate, on the income side, any inventory "gains" or "losses" which are embodied in corporation profits and in net income of unincorporated business (see Chapters 3 and 7).

In the case of quarterly changes in farm inventories and grain in commercial channels, the value of the physical change in inventories can be calculated directly from available quantity and price information. No inventory revaluation is required on the expenditure side, but valuation adjustments are needed on the income side to allow for the fact that earnings arising out of the operations of the Canadian Wheat Board, and earnings of private grain dealers, are based on inventories valued by conventional accounting methods. In the former case, the inventory valuation adjustment is made directly to net income of farm operators from farm production (these estimates incorporate the profits of the Wheat Board which accrue to farmers) and consolidated with this estimate. No explicit adjustment representing this item therefore appears in the Gross National Product table. In the latter case, the adjustment is included in the published inventory valuation adjustment component of Gross National Product.

(a) Business non-farm inventories – The following description of the sources and methods underlying the quarterly non-farm business inventory estimates refers to the estimates based on reported **book values**. The inventory revaluation procedures which are carried out to convert the book value data to a "value of physical change" basis are described earlier in this chapter, and in Chapter 7. About 90% of inventory book value holdings in Canada are held by the manufacturing, wholesale and retail trade industries. In these industries, regular monthly sample surveys are conducted by Statistics Canada, and the information on book values of inventories held at quarter-ends are available from monthly published reports. In these areas, the quality of the quarterly inventory estimates is considered to be quite good. For other industries, the quality of the quarterly inventory estimates varies and is generally less satisfactory than for manufacturing, wholesale and retail trade.

Book values of inventories owned by **manufacturing** industries are based on a monthly sample survey conducted by the Manufacturing and Primary Industries Division of Statistics Canada *(Inventories, Shipments and Orders in Manufacturing Industries,* Catalogue 31-001). The survey covers inventory holdings of raw materials, goods-in-process, and finished products for all twenty manufacturing industries covered in the 1960 Standard Industrial Classification. The information obtained monthly from the sample survey is adjusted to the annual benchmark derived from the annual census of manufacturing. Adjustments, based on information contained in the sample, are also made to exclude inventories financed by progress payments (these are included in gross fixed capital formation) and to include the value of goods purchased by manufacturers for re-sale.

Quarterly data on the book value holdings of **wholesale** inventories of twenty-six trade groups of wholesale merchants are based on a monthly sample survey carried out by the Merchandising and Services Division *(Merchandising Inventories,* Catalogue 63-014). These survey values, which cover most but not all aspects of wholesale trade, are used as interpolators to allocate annual book value figures, and as projectors to bring forward the estimates to current quarters. For those types of operations for which sample values are not available, such as agents and brokers, and manufacturers' wholesale outlets, quarterly book value estimates are based on interpolation of annual figures and projection into the current period in line with the movement of related indicators.

Most of the quarterly information concerning book value holdings of **retail** trade is also based on monthly sample surveys carried out by the Merchandising and Services Division *(Merchandising Inventories,* Catalogue 63-014). Inventory data on retail trade are collected for three types of stores: independent retail stores; retail chain stores; and department stores. Each type of store is estimated by kind of business. In the case of chain and department stores, the monthly survey coverage is very close to being complete, and virtually all inventory holdings are reported. In the case of independent stores, inventory estimates are based on a much smaller sample. Quarterly data as obtained from these sample surveys are used as interpolators for the annual figures, and as projectors to carry the estimates forward into current quarters. Inventory holdings of motor vehicle dealers are estimated by tracing the supply and disappearance of automobiles using factory shipments, retail sales, and imports and exports of passenger and commercial vehicles.[16]

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[16] *Inventories, Shipments and Orders in Manufacturing Industries*, Catalogue 31-001; *New Motor Vehicle Sales*, Catalogue 63-007; *Imports by Commodities*, Catalogue 65-007; and *Exports by Commodities*, Catalogue 65-004.

In **forestry**, quarterly book values are derived by projecting an annual base figure on the trend of the value of stocks of pulpwood cut and in streams but excluding that held at mills (the latter is included with manufacturing inventories). The information on physical stocks is collected in monthly surveys carried out by the Manufacturing and Primary Industry Division of Statistics Canada. The prices data with which to value these physical stocks are available only annually, but quarterly estimates are made on the basis of two related indicators, average weekly earnings in the logging industry and average unit values of pulpwood exported.[17]

In **utilities**, quarterly estimates of book value holdings are based on a sample survey of public and privately owned gas utilities undertaken by the Business Finance Division, and on projection of annual benchmarks of book value holdings of electric utilities using the movement of employment indexes in this industry.

In **mining**, calculations are made separately for inventory holdings of finished goods and raw materials. For finished goods, quarter-end holdings of physical inventories of iron ore, asbestos and coal mines are obtained from the Manufacturing and Primary Industries Division. Price series to value these physical stocks are obtained from the Prices Division of Statistics Canada. The resulting quarter-end book values are used as an indicator of the change in holdings of total finished goods in the mining industry. Changes in quarterly inventory holdings of raw materials are based simply on the movement of payrolls in the mining industry.

Quarterly changes in the book value holdings of inventories of materials owned by **construction** contractors are based on the movements of employment in the construction industry (volume) and on prices of building materials used in residential and non-residential construction (price). These series are used for interpolation of annual benchmarks and for projection. Changes in quarterly book values in **transportation, storage and communication** are based largely on interpolation or projection using information on inventory holdings provided by the Canadian National Railways and the Bell Telephone Company of Canada. Quarterly book values in the **service** group are based on interpolation or projection using employment indexes. Similarly, employment indexes are used to allocate annual benchmark figures and to project inventories held in **finance, insurance and real estate**.

(b) Farm inventories and grain in commercial channels – As has been indicated, in this area the quarterly estimates of inventory change are calculated directly from available quantity and price information to derive the value of the physical change in inventories. The calculation of quarterly estimates of the change in **farm inventories** has been described earlier in this chapter, in the section "Accrued Net Income of Farm Operators".

The value of physical change in **grain in commercial channels** is obtained quarterly by applying to the quantity changes in stocks (obtained from *Grain Statistics Weekly*, a report of the Canadian Grain Commission), the

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[17] *Employment, Earnings and Hours*, Catalogue 72-002; and *Exports by Commodities*, Catalogue 65-004.

average initial price paid to producers during the quarter by the Canadian Wheat Board, in the case of wheat; and the average market price prevailing in the period, in the case of coarse grains.

As noted at the beginning of this section, because of the way the inventory estimates for farm inventories and grain in commercial channels are derived, no inventory revaluation is required on the expenditure side of the Accounts for these two sets of data. However, two adjustments to the income side are necessary to allow for the fact that earnings arising out of the operations of the Canadian Wheat Board, and earnings of private grain dealers, are based on inventories valued by conventional accounting methods. The way this matter is handled in the Accounts was described above.

(c) Government inventories – The quarterly data are obtained from government accounting records. All of the inventory change recorded in the Accounts relates to the federal government.

Exports and Imports of Goods and Services

The quarterly estimates of exports and imports of goods and services which are recorded in Gross National Expenditure (Table 2 of the Accounts) are taken directly from the reports *Quarterly Estimates of the Canadian Balance of International Payments,* Catalogue 67-001. The basic concepts and principles underlying the inclusion and treatment of these international transactions in the National Income and Expenditure Accounts are discussed in Chapters 3 and 4, and described more fully in Chapter 8 "The Non-resident Sector", which also contains a discussion of the sources and methods used in constructing the annual estimates. In general, the sources and methods underlying the quarterly estimates are closely similar – for example, the quarterly merchandise trade figures (commodity exports and imports) are basically those obtained from customs entries which are tabulated by the External Trade Division of Statistics Canada on a monthly basis. The basic sources of the quarterly estimates are described in greater detail in *The Canadian Balance of International Payments and International Investment Position – A Description of Sources and Methods*, Catalogue 67-506.

While it is now possible (beginning with the record from the first quarter of 1966[18]) to go directly to the published quarterly balance of payments records and obtain the totals for exports and imports of goods and services as required for the National Income and Expenditure Accounts, this has not always been the case. For the earlier record, prior to 1966, it is still necessary to carry out a number of adjustments to the basic published Balance of Payments totals to obtain the necessary figures for the National Income and Expenditure Accounts (although adjusted series are available through CANSIM). The relationships are set out in Tables 8-1 and 8-2 of Chapter 8. While the examples given relate to the annual estimates, the same relationships apply to the quarterly figures.

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[18] See Table 3 of *The Canadian Balance of International Payments, 1971,* Catalogue 67-201, where the quarterly record from 1966 on is set out.

Personal Income and its Disposition

Most of the component aggregates entering into the quarterly estimates of personal income and outlay are covered in the preceding discussion. The principal exceptions are current transfers of income to persons from government and other sources; and current transfer payments made by persons to government and other recipients.

Current Transfers of Income received by Persons

These consist mainly of transfer payments to persons by governments in the form of family and youth allowances, unemployment insurance benefits, veterans' pensions, old age security fund payments, direct relief, workmen's compensation benefits, and other unilateral transfers, including capital assistance (see Chapters 5 and 6). Also included are transfers from corporations in the form of charitable contributions and bad debt write-offs, and transfers from non-residents in the form of personal and institutional remittances and pensions received from abroad.

Quarterly estimates of transfer payments to persons by governments (including capital assistance) are based almost entirely on monthly accounting statements of the federal government, or quarterly statements received by Statistics Canada from provincial and local governments. In a few instances where actual quarterly information is lacking from government returns, straight-line interpolation and projection of trend is used. Quarterly estimates of charitable contributions of corporations, and bad debt write-offs are based on straight-line interpolation and projection of trend. Transfers from non-residents are obtained from the Balance of Payments Division in connection with the calculation of quarterly balance of payments estimates.[19]

Current Transfer Payments made by Persons

These consist mainly of direct personal taxes paid by persons to government, in the form of income taxes, succession duties and estate taxes, and employer and employee contributions to social insurance and government pension funds. Other current transfers from persons to government include a group of taxes which are not income-related or wealth-related but which nevertheless reduce the income available to persons for spending or saving, e.g., the personal share of motor vehicle licences and permits, hospital and medical care premiums, and miscellaneous licences, permits, fines and penalties. With the exception of employer and employee contributions, the bulk of these tax or tax-type payments are derived on a quarterly basis from statements published or made available by the federal[20] and provincial governments. In the case of employer and employee contributions, information is drawn from a variety of sources including records of the Unemployment Insurance

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[19] *Quarterly Estimates of the Canadian Balance of International Payments*, Catalogue 67-001.

[20] The federal sources include the monthly statements of the government's financial operations in the Canada Gazette; monthly statements of the Department of Supply and Services; and information from the Department of National Revenue.

Commission and the Canada and Quebec Pension Plans. In a few cases where actual quarterly data are not available from such sources, straight-line interpolation and projection of trend is used.

Under the conventions adopted in these Accounts, persons also make transfers out of current income to corporations in the form of interest paid on consumer debt. The derivation of the quarterly estimates of consumer debt interest is discussed earlier in this chapter in connection with the component "Interest and Miscellaneous Investment Income". Persons also make transfers out of current income to the non-resident sector in the form of personal and institutional remittances paid abroad. The latter estimates are obtained on a quarterly basis from the Balance of Payments Division in connection with the quarterly balance of payments estimates.

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