

ECONOMIC COUNCIL of CANADA

Twelfth Annual Review



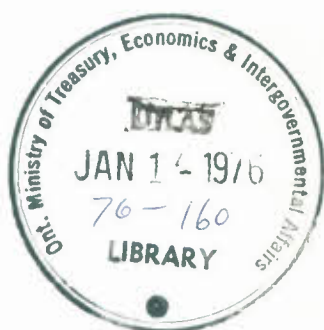
Options for Growth



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ECONOMIC COUNCIL OF CANADA

Twelfth Annual Review

Options for Growth

1975

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Options for Growth

Introduction

Growth of output hinges essentially on increases in manpower, capital stock, and productivity. An examination of the probable evolution of these three factors during the next decade reveals that it will be difficult, if not impossible, to maintain the strong economic growth experienced in Canada in the 1960s.

Indeed, the precipitous decline in fertility rates in the early 1960s will likely mean much slower growth in the supply of labour in the 1980s. This reduction in new contingents of the working-age population could only be offset by a quick rise in participation rates or an exceptionally high level of immigration.

To a certain extent, the accumulation of capital can solve the problem of labour shortages, as capital is substituted for labour in the production process. Of course, an adequate amount of capital must be available. However, the prospects are not reassuring. It can reasonably be assumed that the capital stock and current resources earmarked for investment will increase as a percentage of gross national product at a satisfactory, if not accelerated, rate until 1985. But, on account of the structural changes that will take place in the economy, capital needs will already be so extensive that the extra task of compensating for the scarcity of labour may be very costly. Just as for labour, there exists the possibility that foreign sources may be tapped so that the necessary capital resources will be available to us.

Finally, although increased productivity is a distinct source of growth, it is often difficult to attain in practice without new equipment, innovations, or the discovery or creation of new outlets. Thus the availability of financial resources is a vitally important prerequisite for the achievement of desired productivity growth.

In future, barring a very favourable evolution of participation rates, it will no longer be possible for the Canadian economy to duplicate the growth rates registered in the 1960s without a massive contribution from abroad in the form of capital or workers, or both. Should these developments be unsuitable to us, we would have to restrain our growth ambitions and keep them in line with available domestic resources of capital and labour. The reader is invited to bear in mind that basic choice while reading the Council's Annual Review for 1975.

The *Twelfth Annual Review* is designed to achieve several tasks: to determine the growth potential of the Canadian economy; to study the policies likely to meet the desired objectives; to analyse the phenomena likely to influence its future development; to assess the current performance of the economy; and to consider the medium-term implications of that performance.

Chapter 1 analyses economic prospects to 1985. It describes how the Canadian economy could develop on the basis of current policies and programs without further measures to achieve selected targets. Its purpose is to try to identify the problems or difficulties that could arise in the future and to point out the need for government corrective action.

Chapter 2 deals with regional disparities. Income differentials still exist among the various regions, although they have narrowed very gradually over time. How fast incomes have grown, to what extent they have converged, and how their various components have contributed to this convergence are among several questions considered. We then study productivity growth, which is the main determinant of per capita income growth, in an attempt to show how, in the past, changes in industrial structure and in output per person employed within each industry have contributed to a rise in productivity – hence incomes – and to a decrease in regional disparities.

Chapter 3 examines growth prospects to 1985. We mentioned earlier that the growth rate of Canada's output is projected to weaken considerably in a situation of full employment after 1980 because of a slowdown in labour force and productivity growth. In this chapter we deal first with past and future sources of growth at the national level, and then we consider the regional impact of demographic development. Finally, we examine the possibility of either deterring this trend towards a reduction in potential growth or, on the contrary, of accentuating it while retaining our economic objectives as a whole.

Chapter 4 assesses the performance of the Canadian economy in 1974 and proposes new performance indicators for the 1974-78 period. Performance was assessed, as in the Tenth and Eleventh Reviews, by observing, describing, and analysing the economic situation; by comparing actual performance with that deemed satisfactory and attainable over the medium term; and finally by identifying the origins of the gaps, determining their duration, and examining their medium-term implications. The new performance indicators are based on our assessment of Canada's performance, on the economic prospects of our main trading partners, and on the long-term alternatives considered.

Chapter 5 deals with social indicators. First, we give our interpretation of the recent evolution of the indicators proposed last year in the

fields of housing, health, and the environment; then we explore the impact of certain actions aimed at improving the quality of urban air.

Chapter 6 contains our conclusions. It is followed by six technical appendixes and one listing the project staff.

Reader's Note

Even in the best of circumstances, it is very difficult to predict with any certainty the behaviour of the economy five or ten years hence. The task is more difficult this year because prospects are very uncertain. In this Annual Review, therefore, the Council has undertaken a study of several possible configurations of Canada's economic future to 1985. It is useful here to distinguish between the various scenarios that constitute our analysis.

The four scenarios in Chapter 1 provide a type of forecast for the 1975-85 period, assuming no change in domestic policies. They differ in the mix of assumptions regarding the external environment and international crude oil and natural gas prices.

On the demand side, the evolution of the Canadian economy to 1985 varies among the scenarios, depending upon the combination of assumptions. On the supply side, all four scenarios show a marked slowdown after 1980. This aspect is dealt with in Chapter 3, where we compare a scenario from Chapter 1 with two additional scenarios characterized by rapid or slow growth, respectively; they are based on changes in assumptions about the labour supply. We show the extent to which the achievement of either scenario, which would require government intervention to accelerate or slow down growth in supply, would deviate from the most probable trend.

Finally, in Chapter 4, we examine the more immediate 1974-78 period, with 1974 serving as a reference year for the calculations. First, we present a "control solution" reproducing, with minor changes, the evolution described in Chapter 1, assuming no change in domestic policies; then we propose a performance indicator solution, which implies that efforts should be made to stabilize demand and supply.

1 Problems of Potential and Prosperity

This chapter explores the future of the Canadian economy to 1985. Two major factors have led us to take another look at the long term. First, not only has the economic situation changed since the publication of the Ninth Review, as evidenced by the major updating of the performance indicators in the Eleventh Review, but the impact of these changes will likely be felt beyond the three-year period covered by our medium-term indicators.¹ Moreover, we wanted to extend the horizon from 1980, the terminal date in our last estimation of the long term, to 1985. This is all the more necessary since the performance indicators, which are used to bridge the gap between the short and the long term, deal this year with the 1974-78 period.

Among the changes in the economic situation that are likely to have the greatest impact on the future of the Canadian economy are those related to the government sector and to external economic conditions. The government sector has experienced many changes since the early 1970s. On the revenue side, tax reform legislation, important tax concessions to persons and corporations, indexation of the personal income tax, and the introduction of the tax on oil exports have all affected federal income. On the expenditure side, important programs have been introduced and existing ones extended – among them the unemployment insurance, the old age security, and family allowance programs, for example – while almost all other federal transfers to persons have been indexed to the cost of living. Although some of these measures had been put into effect when the Ninth Review was written, their real impact could only be assessed much later. In the external environment, the slowdown of the U.S. economy has been much more severe, and recovery much slower, than anticipated. Inflationary pressures throughout the industrial world have reached practically unequaled proportions. In addition, the so-called energy crisis has led to a fourfold increase in oil prices, important resource transfers among nations, and the realization that essential available resources are limited, at least in the short term.

1 Economic Council of Canada, *Ninth Annual Review: The Years to 1980* (Ottawa: Information Canada, 1972), and *Eleventh Annual Review: Economic Targets and Social Indicators* (Ottawa: Information Canada, 1974).

In extending the horizon to 1985 we note that, in a situation of full employment, a sharp slowdown in economic growth is likely to occur in the late 1970s and early 1980s, both in the supply of, and demand for, goods and services. On the supply side, population projections indicate that the structure of the labour force will be considerably modified in the early 1980s, reflecting the much lower birth rate since 1960. This will result in a considerable slowdown in the growth rate of the working-age population, and hence of the labour force, insofar as this trend cannot be entirely offset by increased participation rates. At the same time, the shifting of economic activity towards low-productivity and labour-intensive industries is expected to slow down productivity growth for the economy as a whole.

On the demand side, the prospects for our foreign trade are not promising. Recurrence of the same favourable conditions of the 1960s would require a new Kennedy Round, the equivalent of an Automotive Agreement, an opportune devaluation of the Canadian dollar, and sustained growth in foreign economies. The decline in our net oil exports would also have to be offset in some way, since it contributes to the growing deficit in the current account balance. Finally, a serious slowdown in consumer spending and expenditures on housing is likely, following the deceleration in productivity gains and population growth.

Against this background, we turn to a discussion of the concepts of potential output and performance indicators used in our analysis. We then provide a picture of the various dimensions that the economy could assume to 1985, given a range of elements likely to affect its development. These include the economic situation of the large industrialized nations, which affects the volume of our exports; and the price of energy products, which determines the cost of our imports and the magnitude of the current account deficit in the balance of payments.

Potential Output and Performance Indicators

The Economic Council has employed two successive approaches to establish the growth potential of the economy. The first – used in their First, Fourth, and Sixth Reviews – was based on a single estimate of the supply of goods and services that the economy could produce over the long run, given full utilization of resources.² The second –

2 Economic Council of Canada, *First Annual Review: Economic Goals for Canada to 1970* (Ottawa: Queen's Printer, 1964), *Fourth Annual Review: The Canadian Economy from the 1960's to the 1970's* (Ottawa: Queen's Printer, 1967), and *Sixth Annual Review: Perspective 1975* (Ottawa: Queen's Printer, 1969).

employed since the Ninth Review – relies on detailed long-term projections calculated by using the CANDIDE econometric model.

Using the first approach, the foreseeable increase in the labour force was calculated; the unemployment rate for a “full-employment” economy was established; the necessary increase in capital stock was assessed; and, to allow production to be estimated, an assumption was made about the general productivity level. Under this approach, the growth path of potential output was assumed to be perfectly regular and the volume and distribution of demand to be adequate at all times. A growth rate higher than the potential rate was considered essential to bring the economy back to its full-employment path whenever it departed from it, and such deviations were deemed to affect neither the level nor the growth rate of potential output.

The second approach is characterized by two main features. First, it takes into account the interaction of supply and demand in the long term and the high degree of interdependence of economic phenomena in the search for the economy’s potentialities for expansion. Second, it allows us to trace a medium-term growth path linking current reality to the more distant future.

By virtue of these features, multiple evaluations of potential are made possible, in line with our assumptions about external economic conditions and the economic policies pursued. The concept of potential has therefore become broader than when it was limited to supply considerations only. We assume that the size of the labour force will depend strongly on participation rates, which will vary according to the level of economic activity; and that the stock of capital will be modified by current investments, which in turn will respond to interest rates, recorded production levels, and conditions of demand generally. By taking into account the interdependence of economic phenomena, this approach also allows more realistic projections of productivity. Productivity growth will be affected by the sectoral distribution of economic activity, cyclical fluctuations in demand, and changes in the degree of utilization of productive resources, as well as by variations in the quality of resources and in the efficiency with which inputs are utilized. Finally, the level of potential output or its growth rate will vary according to present and past developments.³ Future potential output will be lower following a period of recession characterized by low participation in the labour market and especially by postponement or abandonment of investment projects; it will be higher after a period of strong expansion.

3 The concept of potential output may be defined either as a level for a given year or as an average annual growth rate. When the former definition is used, care must be taken to avoid adding together the production levels of several years.

In short, the level of potential output is not independent of past, present, and future demand conditions.

Long-term projections of the outlook for the Canadian economy are only a first step in the calculation of potential. The second phase of that process is the passage from a given situation to one of medium-term equilibrium. In the Council's work, this path is represented by the performance indicators. These indicators consist in a set of macro-economic magnitudes, including gross national expenditure, its main components, and a number of other basic features of economic activity. They represent satisfactory and attainable medium-term performance and are updated each year in accordance with the evolution of economic conditions. The indicators' values are derived from simulations of the CANDIDE model using pre-established objectives for unemployment, inflation, and productivity growth under the constraints of a viable balance of payments and an acceptable government budgetary position. Setting objectives implies that suitable policies will be required to achieve them.

Like the long-term potential, the performance indicators are essentially normative in nature. They attempt to identify the set of values or targets towards which we can work during the next three-year period. The indicators are, therefore, entirely different from forecasts, with the exception perhaps of the export indicator, which is based to a large extent on predictions of the economic activity of our main trading partners. The time path underlying the three-year averages has not been clearly indicated until now and, as a result, some readers have found them ambiguous. This path depends upon assumptions concerning the external environment, the difference between desired and actual medium-term performance, and the corrective policies applied. The path varies from one set of indicators to another and is probably not linear. Later in this Review we describe the path expected in the absence of corrective action and the one consistent with the targets established.

With this perspective in mind, we now turn to a detailed examination of future economic prospects. Chapter 4 proposes an updated set of performance indicators, covering the 1974-78 period. The new presentation adopted this year should leave no further doubt about the nature of potential output and performance indicators.

Problems of Prosperity

International developments in the next decade will deeply influence the economy of Canada and the welfare of its people. Prospects for

economic growth in western industrial countries in the 1980s are uncertain. On the one hand, in the United States, employment is increasingly being generated in services, where productivity increases at a slower pace than in the goods-producing industries. The big European and Japanese economies are, to varying degrees, in a similar structural position. On the other hand, productivity performance in the services could be improved through the application of technology and greater specialization, and reductions of international trade barriers could promote more international specialization in goods and services. Because of this basic uncertainty, we have looked at two plausible scenarios of future foreign economic performance, and have also related two scenarios to energy developments.

To do this, we have studied in detail four configurations of the economy to 1985.⁴ These scenarios may be characterized briefly as having:

- 1 relatively weak performance by foreign economies, coupled with moderate energy prices;
- 2 stronger foreign economic performance, with moderate energy prices;
- 3 weak foreign economic performance, with high energy prices; and
- 4 stronger foreign economic performance, with high energy prices.

The four scenarios have a common set of assumptions about domestic policy. They differ from one another with respect to our assumptions about the economic performance of foreign countries, crude oil prices in world markets, and Canada's response to different price patterns in terms of internal investment and the growth of consumption of oil and natural gas (see Appendix A).

The common set of assumptions envisages the continuation of existing policies and trends, with few exceptions. We attempt to uncover latent problems in the Canadian economy, so that alternative policies may be evaluated in the light of difficulties that may emerge and so that the constraints on policy and trade-offs may be recognized. In other words, these scenarios tell us what is likely to happen in the absence of policy changes. We thus assume that tax rates and subsidies continue unchanged; no new transfer programs are initiated by governments; no changes occur in commercial policies; monetary policy retains its

4 The technical work was conducted with the CANDIDE model, described in the Economic Council, *Ninth Annual Review*. See also R. G. Bodkin and S. M. Tanny, *CANDIDE Model 1.1*, CANDIDE Project Paper 18, Economic Council of Canada (Ottawa: Information Canada, 1975).

12 Problems of Potential and Prosperity

past relationship to GNP developments and to Canada-U.S. interest rate differentials; and that net immigration approximates average past values.

Scenario 1 Weak External Performance and Moderate Energy Prices

Projected growth rates in the major industrial countries from 1975 to 1985 are illustrated in Table 1-1.⁵ Since their economies are picking up from a depressed level in 1975, growth rates for 1975-80 appear reasonably high; but this is a cyclical phenomenon. The outstanding feature is a slowdown in traditional rates of foreign growth in the 1980s, caused chiefly by a decline in the growth rate of output per person employed, or "productivity." For example, in this scenario, U.S. productivity rises at a rate of around 1.0 per cent per annum in the 1980s, compared with a long-term rate that has been roughly twice that figure.

Table 1-1

Growth of Industrial Production, Selected Periods, 1960-85

	Actual		Projected	
	1960-65	1966-73	1975-80	1980-85
(Average annual percentage change)				
United States	6.3	3.6	5.6	3.1
Overseas countries ¹	5.2	8.8	6.3	5.0

¹ The figure in each case represents a currently weighted average of industrial production of the United Kingdom, the original six members of the EEC, and Japan. The weights are based on Canadian trade. Because the weight of Japan, a very high-growth country, has increased in the past, there has been a tendency for the growth rate of this index to accelerate.

SOURCE Based on data from the Wharton Annual and Industry Forecasting Model, March 1975; the OECD; and the Japan Economic Research Center; and estimates by the Economic Council of Canada.

A further source of weakness on the external side is that Canada will be a significant net importer of oil towards the end of this decade.

⁵ We derive our assumptions about the economic performance of major foreign countries from the Wharton Annual and Industry Forecasting Model of the U.S. economy and data from the OECD and the Japan Economic Research Center. See also Appendix C.

Canada is, of course, already a net importer of crude oil, although this is largely because the productive capacity of western oil fields is not being fully exploited, pending completion of the Sarnia-to-Montreal pipeline. In the latter part of the 1970s, however, Canadian consumption will exceed domestic productive capacity. Under our set of assumptions for "moderate" world and Canadian domestic prices for crude oil, the trade deficit for oil alone rises steadily from about \$0.5 billion in 1978 to about \$6.7 billion by 1985.⁶

In addition, slow external economic growth in this scenario reduces the expansion of demand for Canadian exports and inhibits performance in the goods industries, which in turn adversely influences both participation rates and productivity growth in Canada. Thus foreign economic conditions affect not only Canadian performance, but Canadian potential as well.

In this scenario, the Canadian economy goes through three distinct phases to 1985. The first is one of recovery from the depressed conditions of 1975, with fair rates of growth from 1975 to 1979. The second, in 1980 and 1981, is a period of decelerating growth rates, as the slowdown in foreign growth, the rising net imports of oil, and the slower rise in domestic investment as a percentage of GNP act as brakes. From 1981 to 1985, the growth record is poor. Real GNP in this period rises at 3.4 per cent per annum; productivity, at 1.6 per cent. This is accompanied by some increase in unemployment, which reaches 4.7 per cent in 1985, compared with 4.4 per cent in 1981.

There are, moreover, other disturbing features in this scenario. While Canada's current account deficit declines from over 3.0 per cent of GNP to about 1.0 per cent during the upswing of the world economic cycle from 1975 to 1978, it rises steadily thereafter to about 4.0 per cent of GNP in 1985, or some \$17.9 billion. About 38 per cent of this is due to net oil imports. The accounts of all governments combined swing into deficit, reaching 2.2 per cent of GNP in 1985, or some \$10.1 billion. Thus government surpluses no longer contribute to the generation of domestic savings. The ensuing deficits tend to stimulate consumption, and the Canadian economy becomes steadily more dependent upon an inflow of foreign savings (Table 1-2).⁷

6 The scenarios include an allowance for "extra" investment, based on the application by Foothills Pipe Lines Ltd. to build a Mackenzie Valley gas pipeline (see Appendix A). Investment associated with the application by Canadian Arctic Gas Pipeline Limited would be greater. A trial simulation of the model with the higher investment figures indicates that growth would be somewhat faster under this assumption, and the balance-of-payments deficit on current account would be somewhat larger.

7 Investment demand and the supply of savings are described more extensively in Appendix B.

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Table 1-2

Selected Indicators for Canada, 1970-74 and, in Scenario 1, to 1985

	Actual, 1970-74 ¹	Projected	
		1975-80 ¹	1980-85
		(Per cent)	
Annual rates of growth			
Real GNP	5.5	5.7	3.6
Productivity	1.6	2.6	1.7
Real disposable income per capita	5.5	4.9	3.1
GNP prices	7.1	6.9	6.4
Balances ²			
Budgetary position	0.4	0.6	-1.2
Current account	-0.5	-1.7	-3.5
Unemployment rate ³	5.9; 5.4	7.5; 4.8	4.8; 4.7

1 The years 1970 and 1974 are fairly comparable in the business cycle; 1975 is a recession year and thus growth in 1975-80 proceeds from a low base.

2 Average over the period, as a percentage of GNP, excluding the first year.

3 Percentage at the beginning and end of the period.

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

It is convenient at this point to highlight the emerging change in Canada's potential rate of growth that results from demographic and productivity developments. For practical purposes, this change applies to any scenario, except where differences in the level of immigration figure prominently. Changes in the growth of the working-age population imply a slowdown in the growth of the labour force (Table 1-3).

The labour force is growing more mature, and the youngest age groups show the sharpest deceleration in their rate of increase. The number of persons aged 14 to 24 declines at an annual rate of 1.0 per cent per annum, with the fall concentrated in the 14-19 age group in 1980-85. On the other hand, the number of prime-age males in the labour force increases by 2.7 per cent per annum in this period; the number of women over 35, by 3.4 per cent. This greater maturity could offer opportunities for improvement in productivity performance as an offset to the slowdown in labour force growth. However, this is not captured by our model, partly because it does not happen automatically.

Table 1-3

Growth of Working-Age Population, Labour Force, and Employment, 1970-74 and, in Scenario 1, to 1985

	Actual, 1970-74	Projected	
		1975-80	1980-85
(Average annual percentage change)			
Working-age population	2.5	2.0	1.3
Labour force	3.6	2.5	1.8
Primary, men 25-54	2.4	2.4	2.7
Secondary, all other	4.5	2.5	1.3
Employment	3.8	3.1	1.8

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

The overall participation rate rises from 59.0 to 61.8 per cent between 1975 and 1985, which means the labour force grows faster than the population of working age. This helps to offset demographic effects on the labour force and, in that way, cushions the decline in the rate of growth of potential output. However, increased participation is not sufficient to compensate for the slower growth in the working-age population and the decline in productivity performance that is attributable to structural changes in the Canadian economy – that is, the growing importance of the service industries and the drying-up of the labour reservoir that formerly existed in agriculture.⁸

Scenario 2 Stronger External Environment and Moderate Energy Prices

Many of the problems in the first scenario are attributable to a slowdown in external economic growth. The Canadian economy is open and highly interdependent with the world economy, so that even a moderate reduction in foreign economic performance in the medium term creates difficulties for us.

8 During the 1960s technological change associated with departures of manpower towards other sectors was a source of strong labour productivity growth, both in agriculture and elsewhere. In future, however, the proportion of persons employed in agriculture is expected to remain stable.

Our second scenario is based on assumptions identical to the first, except that it assumes somewhat stronger foreign economic growth and related price developments. When we calculated the key details of a stronger U.S. performance, we found that real U.S. gross national product grows at about 4.0 per cent per annum between 1980 and 1985, compared with 3.1 per cent in the first scenario.⁹ Most of the difference is attributable to better productivity performance, though some of it also arises from a faster rate of employment growth. The U.S. labour force is somewhat more mature in the 1980s than at present and this could lead to better productivity performance. In both scenarios, the U.S. economy could be considered to be below its potential level in 1980, so that relatively fast growth in 1980-85 (including some catch-up to potential) seems feasible. Stronger growth in the overseas industrial economies would result in part from a stronger U.S. economy, since the United States would still play a major role in stimulating or retarding growth in the world economy. Modest improvements in productivity, participation rates, and employment might be made if the policies of overseas countries were appropriate. Thus the stronger external scenario represents a moderate view of what industrial countries might achieve in the 1980s. The stronger performance could only occur gradually and would have its greatest effect in the 1980s.

The effects on the Canadian economy of better foreign economic performance in scenario 2 are quite striking. The unemployment rate stabilizes around 3.7 per cent in 1981-85, compared with about 4.6 in scenario 1, and the level of real GNP is higher. The deficit in the current account of the balance of payments is lower, as is the deficit in government accounts. The rate of growth of productivity is also slightly higher (Table 1-4).

The stronger external performance scenario leaves the Canadian economy in a more acceptable position than would the first scenario, although deficits in both the government accounts and the balance of payments move upwards as a percentage of GNP. The trends are worrisome, but these deficits appear to be of manageable proportions up to 1985. A problem may arise in connection with an unemployment rate that sinks to around 3.5 per cent by 1985 and may well signal potential tightness in the labour market in the mid-1980s. It would be important to take advantage of the favourable age composition of the labour force in the early part of the decade to promote adequate

9 For this scenario we used the foreign economic performance assumptions of the Institute for Policy Analysis, and Data Resources of Canada, in "Canadian Long-Term Economic Outlook," *Canadian Review* 3, no. 2 (1975).

training, mobility, and flexibility. For example, we might be able to foresee emerging bottlenecks in particular skills in order to take preventive measures.

Scenarios 3 and 4 High Energy Prices

The third and fourth scenarios replicate the first and second, respectively, with the high-price data on energy replacing moderate-price assumptions. High prices have a variety of effects upon the economy (Appendix C). Inflation, as measured by the GNP deflator, is faster. There is more domestic investment in energy supplies and a lower growth rate of oil and natural gas consumption. The volume of net crude oil imports is reduced and that of natural gas exports slightly increased, compared with the moderate-price scenarios.¹⁰ The royalty receipts of governments are substantially greater with higher energy prices. These differences between the moderate- and high-price scenarios have significant effects on prices and the budgetary position of all levels of government (Tables 1-2 and 1-4). And, despite relatively favourable assumptions about the production of domestic oil and gas and the growth of consumption, the balance of payments on current account remains in substantial deficit, especially in the 1980s, although there is some improvement in this indicator.¹¹

The unemployment rate in the fourth scenario averages 3.4 per cent per annum during 1981-85. In these circumstances, widespread shortages of labour of particular kinds are likely to arise quickly. Even in the third scenario, unemployment averages 4.3 per cent of the labour force in this period – a level that is likely to imply some potential tightness in the labour supply.

10 See Appendix A. One basic assumption in all scenarios is that crude oil exports are phased out by 1983. It is, however, the net imports of crude oil that affect the simulation of the model. Thus the same result would ensue if there were a "swap" of oil imported from Alaska on the west coast for oil exported to the mid-continent of the United States. Another basic assumption in all scenarios is that the shortfall of Canadian gas production below potential consumption is reflected in lower levels of both domestic consumption and gas exports than would otherwise prevail. Under high prices (compared with moderate prices), however, there is slightly more gas for export.

11 The reduced growth of energy consumption postulated in the high-price scenarios makes a notable contribution to the improved performance in this respect. An experimental simulation of the model with the moderate-price assumptions unaltered, except for a reduced rate of domestic oil consumption, suggests that conservationist measures within plausible limits could make a significant contribution to the solution of the balance-of-payments problem in scenario 1.

18 Problems of Potential and Prosperity

Table 1-4

Selected Indicators for Canada in Scenarios 1, 2, 3, and 4, 1975 to 1985

	1975-80	1980-85
	(Average annual percentage change)	
Real GNP		
Scenario 1	5.7	3.6
Scenario 2	5.7	4.1
Scenario 3	5.6	3.7
Scenario 4	5.6	4.3
GNP prices		
Scenario 1	6.9	6.4
Scenario 2	7.0	6.8
Scenario 3	7.3	7.0
Scenario 4	7.4	7.5
Productivity		
Scenario 1	2.6	1.7
Scenario 2	2.7	1.8
Scenario 3	2.6	1.8
Scenario 4	2.7	2.0
	1976-80	1981-85
	(Percentage of GNP)	
Current account balance		
Scenario 1	-1.7	-3.5
Scenario 2	-1.4	-2.9
Scenario 3	-1.4	-2.9
Scenario 4	-1.2	-2.4
Accounts of all governments		
Scenario 1	0.6	-1.2
Scenario 2	0.8	-0.5
Scenario 3	1.2	0.2
Scenario 4	1.3	0.9
	(Per cent)	
Unemployment rate		
Scenario 1	5.7	4.6
Scenario 2	5.6	3.7
Scenario 3	5.8	4.3
Scenario 4	5.6	3.4

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Conclusions

This chapter has attempted to sort out the implications of two basic uncertainties about the future of the Canadian economy – namely, the strength of external demand conditions and the extent of development of energy resources – and to uncover some of the problems that policy-makers may face in the 1980s. Three problem areas have emerged from this analysis: the current account balance with foreign countries, the budget position in the public sector, and the availability of labour and capital resources. Depending on the external environment postulated, the economy is faced with a shortfall of demand coupled with unsustainable budgetary deficits, or excess demand coupled with labour market tightness. Assumptions regarding energy prices have peculiar effects on these results. With higher energy prices, domestic consumption is lower and the development of energy resources greater. Thus import requirements and subsidies on imported oil are lower, and government royalty revenues from domestic production of oil and gas are greater. The current account deficit is consequently smaller, and the government budget position is improved, whatever the state of external demand.

Increasing government budget deficits are a characteristic of the moderate-price energy scenarios. They partly reflect the built-in stabilizers in the economy, as business conditions tend to be less buoyant in these scenarios than in cases of high energy prices. They also result from the subsidies on imported oil, which remain a substantial expenditure in the federal accounts even after the basic two-price system is abandoned, because they then cover the difference between the transport costs of foreign oil and western domestic oil to eastern Canadian markets. Removal of the subsidy on imported oil and acceptance of some variations in domestic oil prices would tend to reduce government budget deficits in the early 1980s and further encourage the adoption of energy-saving devices.

A large current account deficit is also a characteristic of the scenarios examined. How realistic would it be to depreciate the exchange rate to reduce the deficit? No doubt the exchange rate will tend to adjust to market conditions. Two points should, however, be noted. First, a large part of the balance-of-payments deficit will be attributable to the oil deficit. The United States, Europe, and Japan may be in a similar position with respect to oil in the 1980s. Therefore, the size of Canada's deficit (as a percentage of GNP) may then lose its traditional meaning. Second, depreciation brought on by weak international competitiveness will not cure the conditions that caused it, although a flexible exchange rate would allow us time to adjust in more fundamental ways to emerging difficulties. While a devaluation reduces some Canadian export

prices – those established in Canada – it also increases the price of imports and of those exports whose prices are determined in the world market. Thus it has inflationary consequences that, in the long run, erode the effectiveness of the depreciation. It would therefore be unwise to count on significant and continuing devaluations of the Canadian dollar to resolve the balance-of-payments problems of the early 1980s.

A more general implication of the outlook to 1985 is that, in the absence of some marked and dramatic improvement in the efficiency of Canadian industry, it may be increasingly difficult to maintain the recent high output growth rates. There are reasons to expect that we may be confronted with the need to accept very large amounts of foreign capital and large inflows of foreign workers if we are to achieve satisfactory growth in the years ahead. Yet, the first of these possibilities does not sit well with some Canadians, and their attitudes are beginning to be reflected in policy. The second is also beginning to be questioned in conjunction with the ongoing debate on the “green paper” on immigration. Under the circumstances foreseeable for the late 1970s and early 1980s, we should be paying close attention to the total economic environment in which we will be operating, lest we adopt piecemeal policies that may turn out to be inconsistent with our overall long-run objectives. We return to this matter in Chapter 3.

2 Regional Developments in Income and Productivity

So far we have examined the overall Canadian economy in a situation in which economic patterns remain unchanged and no action is taken to correct the imbalances likely to occur. This chapter extends the diagnosis of the economy to the five major regions of the country, dealing especially with the problem of regional disparities. Unlike Chapter 1, which outlines future trends, this chapter focuses on the past and, in particular, on the question of income convergence. Some convergence has occurred, and regional developments over the 1926-73 period are examined in relation to trends in employment, dependency ratios, and various income components in order to explain why. We then turn to a discussion of productivity to discover to what extent industrial structure and output per worker in each region can account for income disparities. Regional population developments and prospects are considered in Chapter 3.

Personal Income

The evolution of per capita personal income as a percentage of the Canadian average for three time periods is shown in Table 2-1. Ontario and British Columbia had higher levels of real personal income per capita than the Canadian average in each of the periods. The levels in Quebec and in the Atlantic and Prairie regions, on the other hand, were consistently below the Canadian average. The ranking of regions by level of personal income per capita has changed only slightly over the forty-year period.

Disparities in per capita incomes would persist, of course, if incomes grew at the same rate everywhere; but, in fact, growth rates have not been the same in all Canadian regions. The rate was slower, for example, in Ontario, where incomes converged towards the national average, dropping from 25.7 per cent above the Canadian average in 1930-32 to 16.9 per cent above in 1970-72. Incomes in British Columbia also fell towards the national average, and that province's relative income position declined. In the Atlantic region, incomes rose from 69.0 per cent of the Canadian average in 1930-32 to 72.4 per cent in 1970-72,

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and in the Prairie region they increased from 75.3 per cent to 91.9 per cent. Only Quebec incomes moved farther away from the national average over the period, declining from 93.2 per cent to 89.1 per cent. On balance, the decline in the relative positions of Ontario and British Columbia, coupled with the gains in the Atlantic and Prairie regions, indicate a general convergence towards the Canadian average.

Table 2-1

Personal Income per Capita, Canada, by Region, 1930 to 1972

	1930-32	1960-62	1970-72
	(Percentage of Canadian average)		
Atlantic region	0.690	0.679	0.724
Quebec	0.932	0.888	0.891
Ontario	1.257	1.177	1.169
Prairie region	0.753	0.946	0.919
British Columbia	1.314	1.140	1.086
	(1971 dollars)		
Canada	926	2,195	3,415

SOURCE Based on data from Statistics Canada.

Table 2-2

Average Annual Rate of Growth of Personal Income per Capita, in Constant Dollars, Canada, by Region, 1926 to 1973

	1926-73	1954-64	1964-73
	(Per cent)		
Atlantic region	3.1	2.6	6.0
Quebec	3.0	2.5	5.1
Ontario	2.9	2.0	4.9
Prairie region	3.4	2.4	5.2
British Columbia	2.6	1.2	4.5
Canada	3.0	2.2	5.1

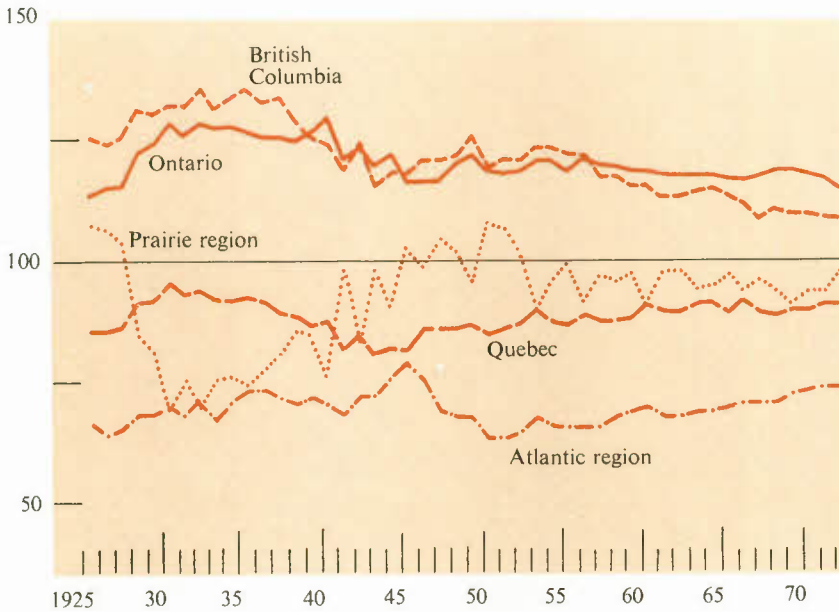
NOTE The average annual growth rates for the 1926-73 period were estimated using an unrestricted logarithmic regression, while those for the two subperiods were estimated using a restricted-least-squares logarithmic regression.

SOURCE Based on data from Statistics Canada.

Table 2-2 details regional income growth rates over the 1926-73 period. Each of the regions experienced growth in real income per capita, and all the rates of growth were quite close to the Canadian average of 3.0 per cent. Some convergence from both above and below is also apparent here. Much the same pattern emerged during the 1954-64 subperiod. The degree of convergence experienced in British Columbia was far greater than that observed for the total period, while the rates in the Atlantic region and Quebec rose somewhat more rapidly than the national average. From 1964 to 1973, convergence continued, and we note that the rates of growth in per capita income were higher everywhere than observed previously. This is because of three factors: the long recovery from the recession of the early sixties; an increase in transfer payments; and the faster growth in productivity. The behaviour of income disparities can be seen more clearly in Chart 2-1.

Chart 2-1

Personal Income per Capita, as a Percentage of Total for Canada,
by Region, 1926-73



SOURCE Based on data from Statistics Canada.

The chart shows vividly that, for the period as a whole, there was some convergence but not much. A lot of it was due to the experience of British Columbia, which went from 31 per cent above the national average in the early 1930s to only 9 per cent above in the early 1970s.

Table 2-3

Average Annual Rate of Growth¹ of Components of Personal Income per Capita,
in Current Dollars, Canada, by Region, 1954-73

	Atlantic region	Quebec	Ontario	Prairie region	British Columbia	Canada
	(Per cent)					
Market income						
Wages and salaries ²	6.8	6.4	6.2	6.5	5.6	6.4
Farm income	-1.0	-0.4	0.4	3.2	0.2	1.5
Unincorporated nonfarm income	3.4	3.2	2.8	3.1	2.4	3.0
Dividends and interest	8.1	7.7	7.2	9.3	7.2	7.8
Total market income	6.3	6.1	5.7	5.9	5.3	5.9
Government transfer income	9.1	8.2	8.1	7.4	6.0	7.9
Total income	6.7	6.3	5.9	6.1	5.4	6.1

1 Estimated using an unrestricted logarithmic regression.

2 Including "other" income, which is mainly military pay and allowances.

SOURCE Based on data from Statistics Canada.

Little change is observed in Ontario after 1945 or in Quebec after 1960, while the great irregularity of the Prairie region is apparent. There has been very slow but steady improvement over the last twenty-five years in the Atlantic region, but extrapolations of this trend indicate that it would take about seventy more years for the region to reach the national average.

Table 2-3 permits closer examination of the more recent growth in personal income per capita by distinguishing various income components and their growth rates. The table was designed to enable us to distinguish between the effects of direct intervention in income distribution by government and the operation of market forces. This was achieved by classifying income into transfer income and nontransfer income; the latter encompasses all market-related components: wages and salaries (including military pay and allowances), farm income, income from nonfarm unincorporated businesses, and property income in the form of dividends and interest.

Market Income

The growth rate in market, or nontransfer, income per capita varied across regions. In Ontario, Quebec, and the Prairie region the rate did not deviate substantially from the Canadian average. In British Columbia it grew so much more slowly than total income per capita in Canada as a whole that it contributed considerably to the convergence of total income in that province towards the national average. In the Atlantic region, on the other hand, market income rose only a little more rapidly than total income per capita in Canada, so that it contributed considerably less to convergence.

Some of the factors underlying these differences in the behaviour of market income can be attributed to the behaviour of its components. Wages and salaries, the major element of market income, grew much faster in the Atlantic region and much slower in British Columbia. This would have led to a good performance of market income in the Atlantic region had it not been for the fact that two other fairly important components of market income – unincorporated nonfarm income and farm income – grew more slowly than wages and salaries. In fact, these two kinds of income grew more slowly than wages and salaries in every region; this helps to explain why market income grew so slowly in British Columbia.¹

1 The last year for which data were available at the time of writing was 1973. Although market income components may have continued to grow at different rates since, the inclusion of the year 1974 in our computations would not alter them significantly.

Wages and salaries per capita can increase either because wages and salaries per employed person grow or because the proportion of employed persons to population grows, which in turn is the product of two numbers – the proportion of the population that happens to be of working age, and the proportion of those of working age who are employed. The ratio of employed to population will therefore rise if the proportion of the population that is of working age increases or if the proportion of those of working age who are actually working goes up.

In 1971-73, 38.4 per cent of the Canadian population was employed (Table 2-4). The ratio of those employed to the total population in Quebec, the Prairie region, and British Columbia was within 3 per cent of the national average; Ontario was 7 per cent above it (at 41.2 per cent). The outstanding exception was the Atlantic region; at 30.8 per cent it was 20 per cent below the national level because fewer of its people were of working age and a very low percentage of them were actually employed – partly because of the low participation rate and partly because of the high unemployment in the Atlantic region. The low proportion of working-age population employed in the Atlantic region and the high proportion in Ontario explain much of the deviation from the national average level of income per capita.

The table also shows that the proportion of the population employed grew everywhere since 1954-56 and that differences among regions were generally small. The national change of 11.7 per cent between 1955 and 1972 was exceeded, but not by much, in four of the five regions. The exception was Ontario, where the ratio grew at a rate of only 7.8 per cent.

The broad uniformity of growth in the employment/population ratio displayed in Table 2-4 conceals some interesting differences in the behaviour of the two elements underlying the ratio. For Canada as a whole the proportion of the population of working age grew by 6.7 per cent, while the proportion of working-age people actually working grew by 4.7 per cent. In the Atlantic region the proportion of the population who were of working age grew 8.5 per cent. Considered alone, this would have improved income per capita relative to the national average, but the potential gain was almost totally offset by lower average growth in the proportion of working-age people at work. The very sharp rise in the proportion of the population of working age in Quebec (11.2 per cent) would have improved per capita income relative to the national average had it not been for the fact that the proportion of working-age people actually at work hardly rose at all (1.0 per cent). This was mainly because of the slower-than-average rise in participation rates, although the unemployment rate in Quebec did rise slightly more than elsewhere over the period covered by the table.

Table 2-4

Employment and Population Ratios, Canada, by Region, 1954-56 and 1971-73

	Proportion of:		
	Population that is of working age	Working-age population employed	Total population employed
	(Per cent)		
Canada			
1954-56	67.6	50.9	34.4
1971-73	72.1	53.3	38.4
Percentage change	6.7	4.7	11.6
Atlantic region			
1954-56	63.5	43.3	27.5
1971-73	68.9	44.7	30.8
Percentage change	8.5	3.2	12.0
Quebec			
1954-56	65.9	50.4	33.3
1971-73	73.3	50.9	37.3
Percentage change	11.2	1.0	12.0
Ontario			
1954-56	70.2	54.4	38.2
1971-73	73.2	56.3	41.2
Percentage change	4.3	3.5	7.8
Prairie region			
1954-56	67.1	50.3	33.7
1971-73	70.1	55.1	38.7
Percentage change	4.5	9.5	14.8
British Columbia			
1954-56	70.2	49.0	34.4
1971-73	73.5	53.7	39.5
Percentage change	4.7	9.6	14.8

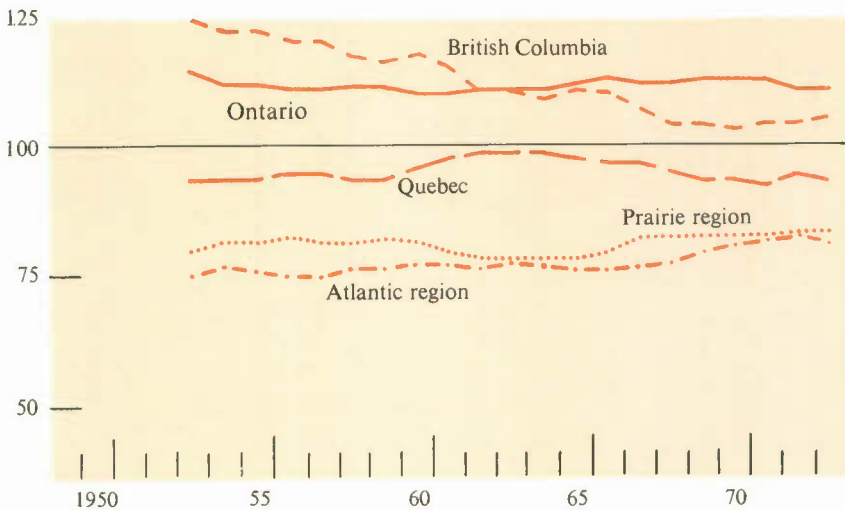
SOURCE Based on data from Statistics Canada.

In the two regions where the growth rates of wages and salaries per capita differed substantially from the national average – British Columbia and the Atlantic region – the main source of the difference does not lie in the behaviour of their employment/population ratios.

Growth in the Atlantic ratio did not differ significantly from the national growth rate, and growth in British Columbia was actually greater than nationally, not less as would be required to account for convergence. In these two regions the explanation must lie in the behaviour of wages and salaries per employed person. Chart 2-2 shows that wages and salaries per employed person in the Atlantic region grew faster than the Canadian average, approaching the national level from below, while British Columbia approached the national level from above because wages and salaries rose more slowly. Little change occurred in the relative levels of Quebec, Ontario, or the Prairie region over the period.

Chart 2-2

Wages and Salaries per Employed Person, as a Percentage of Total for Canada, by Region, 1953-73



SOURCE Based on data from Statistics Canada.

Government Transfer Income

Transfer income includes payments from federal unemployment insurance and old age security programs, as well as those from many provincial schemes, such as workmen's compensation. This kind of income grew faster than market income in all regions, and faster than total Canadian income per capita in every region except British Columbia. It helped the Atlantic region and Quebec – where total income is

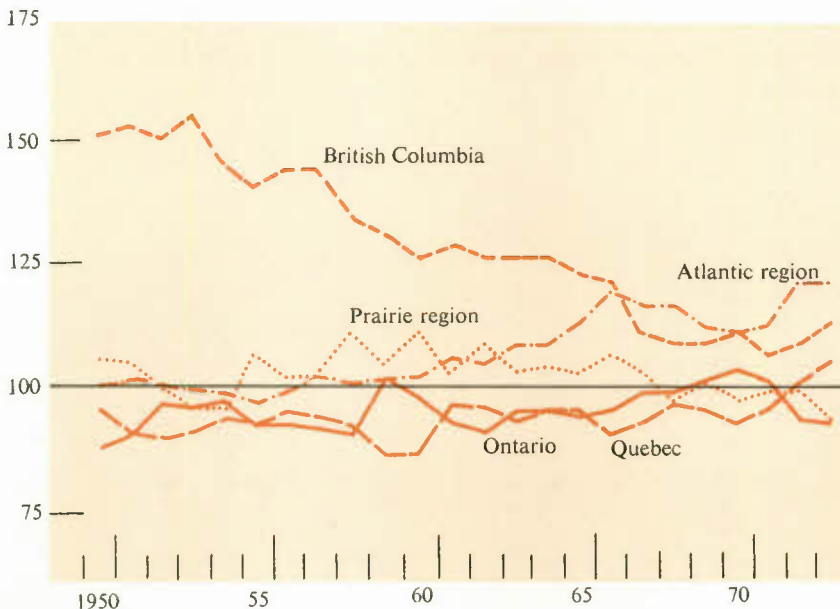
below the national average – to approach the latter; it moved the Prairie region and Ontario – where transfer income differs from the national average of 7.9 per cent – farther from the average (Table 2-3). The growth of transfers was slowest in British Columbia, helping to bring its total income closer to the national average.

Chart 2-3 illustrates the behaviour of transfer income per capita relative to the national average over twenty years. Transfer payments per capita in the Atlantic region were almost equal to the Canadian level in the mid-1950s but had risen to 20 per cent above it by the early 1970s. This reflects the faster-than-average growth in the transfers per capita seen in Table 2-3. British Columbia experienced a decline in its relative position and approached the national level of transfers per capita from above. The chart reveals no other significant trends for the period, except that Quebec was below the Canadian average until the early 1970s.

Two general points emerge from the analysis of Table 2-3 and Charts 2-2 and 2-3. First, transfers are mainly responsible for the fact that income per capita rose more rapidly than the national average in the Atlantic region. Second, market income is responsible for British Columbia's income per capita growing more slowly than the national average.

Chart 2-3

Government Transfers per Capita, as a Percentage of Total for Canada, by Region, 1950-73



SOURCE Based on data from Statistics Canada.

A more formal analysis of the role of various components of income in convergence confirms these conclusions (see Appendix Table D-1). In the Atlantic region almost 70 per cent of the convergence in total personal income per capita was due to transfer payments, with market income accounting for the rest. Within market income, wages and salaries contributed positively, but the effect was partially offset by the poor performance of farm income and unincorporated nonfarm income. In British Columbia virtually all of the convergence from above was due to market income, and specifically to wages and salaries and unincorporated nonfarm income. All of the slight convergence observed in Quebec was due to transfer payments. Wages and salaries and unincorporated nonfarm income brought about a small degree of convergence in Ontario. No significant trend could be detected in the Prairie region, although market income as a whole appeared to have performed poorly.

Productivity, Industrial Structure, and Growth

Income and output are intimately related. Real income depends on output, so that any growth in real income requires growth in output. Thus, apart from transfers of purchasing power among regions, real income in each region is determined by its output. We have already seen that both income levels and growth rates of per capita income differ among Canada's five regions. This implies that differentials in regional output per capita exist. Can these differentials be at least partly explained by regional differences in the levels and rates of "productivity" growth?

Productivity Levels

A useful way to examine the role of output in regional income differences is to look at the average productivity level of all industries in each region. "Productivity"² – that is, output per person employed – should be clearly distinguished from the term "production," defined here as total output. Table 2-5 outlines regional labour income and

2 Productivity is estimated on the basis of real domestic product (RDP), by industry. RDP is the real value-added by each industry after the costs for purchased materials and other inputs have been subtracted from the value of shipments and the inflationary price effects have been removed, and comes close to measuring value of net output. Productivity can then be determined as the total net output per person employed.

productivity levels. Output per person employed was highest in Ontario and lowest in the Atlantic region – roughly in line with the regional income pattern (Table 2-5).

Table 2-5

Productivity and Income Levels, Canada, by Region, 1971

	Output per person employed		Wages, salaries, and farm income per person employed	
	(Constant dollars)	(Per cent)	(Constant dollars)	(Per cent)
Atlantic region	6,300	84	5,314	80
Quebec	6,751	90	5,969	90
Ontario	8,209	109	7,279	110
Prairie region	7,406	98	5,854	88
British Columbia	7,980	106	6,540	99
Canada	7,526	100	6,629	100

SOURCE Based on CANDIDE-R databank.

Productivity depends on the amount and quality of machinery and equipment and plant and engineering structures, on access to raw materials, on the scale of production, on the current level of technological development, on the education level and skill attainments of the labour force, and on the level of managerial and entrepreneurial skills. All these factors, and perhaps several others, can and do differ among industries as well as regions. To the extent that some industries have higher levels of productivity than others, it is most frequently because their opportunities to use capital equipment and advanced technology are greater. Productivity differences among whole industries are unlikely to hinge on differences in the efforts of workers or in the quality of management, even though these can obviously be important in explaining the variation of output among particular firms within each industry.

Given that productivity varies from industry to industry, it is possible for one region to have a high average level of productivity because it is relatively heavily endowed with high-productivity industries and for another region to have a low average level of productivity because it is relatively heavily endowed with low-productivity industries. It is also possible that, industry by industry, one region typically has higher or lower productivity than another and thus has, on average, higher or lower overall productivity. Regional differences in output per person

employed that are due to different mixes of high- and low-productivity industries are referred to here as "industry structure" differences. Those that are a result of differences in productivity within each industry ought, strictly speaking, to be referred to as differences in "output per worker corrected for industry structure." This phrase is cumbersome, and the shorter term "output per worker" is used in its place, unless the longer term is necessary to avoid confusion.

This distinction between structure and output per worker is important, because a policy aimed at improving regional income levels by encouraging establishment of new industries can hardly solve the worker's income problem if productivity is low, no matter what the industry, old or new. In that case, incentives would be needed to increase efficiency in all industries. The question is, therefore, to what extent regional differences in industry structure and output per worker have contributed to regional differences in productivity performance.

Some of the regional variations in industry structure are striking. The employment share in the primary sector – agriculture, forestry, fishing and mining – was usually 10 per cent or less, except for the Prairie region where it was 20 per cent. However, employment in the secondary sector – including manufacturing, construction, transportation, and utilities – was concentrated much more in some regions than in others. In Ontario and Quebec, for example, the employment share in manufacturing was over twice as large as in the Prairie region. Employment in the tertiary sector – defined as trade, finance, services, and public administration – was rather more uniform and accounted for over 50 per cent of employment in each region. Employment shares of the primary, secondary, and tertiary sectors in the regions give some indication of these structural variations, but they do not pinpoint the major source of productivity differences (Table 2-6).

Table 2-6

Regional Share of Total Industrial Employment, Canada, by Region, 1971

	Atlantic region	Quebec	Ontario	Prairie region	British Columbia	Canada
	(Per cent)					
Primary sector	10	6	6	20	8	9
Secondary sector	35	39	41	26	35	37
Tertiary sector	55	55	53	54	57	54
Total	100	100	100	100	100	100

SOURCE Based on CANDIDE-R databank.

Table 2-7 shows the degree to which productivity differed from the Canadian average in each region and how much of the difference can be attributed to industry structure and to output per worker. The table, which is based on an analysis of eleven industries, shows that in four of the five regions output per worker accounted for over 70 per cent of the difference between Canadian and regional productivity levels. More detailed analysis shows that lower performance in the Atlantic region was mostly attributable to lower output per worker in the primary and secondary sectors, while the better performance in British Columbia was a result of above-average performance in the same two sectors. The above-average performance of Ontario came largely from greater output per worker in the secondary and tertiary sectors. In the Prairie region the primary sector contributed strongly to productivity performance, but not sufficiently to overcome the negative effects of a less-developed secondary sector.

Table 2-7

Regional Differences in Productivity Level Attributable to Output per Worker and to Industry Structure, Eleven Industries, 1961-71

(Based on constant dollars)

	Atlantic region	Quebec	Ontario	Prairie region	British Columbia
	(Per cent)				
Output per worker	-17.7	-8.7	6.0	4.0	9.3
Industry structure	- 1.0	+ .8	2.3	-6.3	1.2
Percentage difference from Canadian average	-18.7	-7.9	8.3	-2.3	10.5

SOURCE Based on CANDIDE-R databank. For more detail, see Appendix Table D-2.

Although all industries contributed to regional differences in productivity levels, manufacturing played a key role, contributing more to regional differences than any other secondary industry. In the Atlantic region, for example, lower productivity in manufacturing reduced overall performance more than any other industry in the primary, secondary, or tertiary sectors. Just as for the economy as a whole, regional differences in manufacturing productivity can be partly due to the relative importance of different types of manufacturing within the industry (structure) and partly to the differences in output per worker in each industry.

Table 2-8 summarizes our analysis of regional productivity in twenty manufacturing industries. The weakness of productivity in all manufacturing in the Atlantic region, where it is 26.4 per cent below the Canadian average, is obvious. The differential is even greater – 33.5 per cent below the national average – for output per worker. This lack of strength in productivity is apparent in all manufacturing industries in the region, but it is most striking in the food and fibre and metal-fabricating industries (see Appendix Table D-3). Ontario's above-average performance came primarily from the metal-fabricating industries (especially the motor vehicle industry), in which output per worker exceeded that in all other regions. British Columbia's strength came from the forest products industry, where much of the labour force was employed and output per worker was high.

Productivity differences among Canadian regions are enormous. Between Ontario and the Atlantic provinces the difference is over 35 percentage points for total manufacturing. When the structure effect is excluded and only output per worker is considered, the productivity difference between the two regions reaches about 40 percentage points. Differences between the other provinces are much smaller, but note the difference that exists between Quebec and Ontario – over 20 percentage points on average and more than 10 points when the comparison is made on an industry-to-industry basis. This difference in the productivity level between Ontario and Quebec is of the same magnitude as that between Canada and the United States.

Table 2-8

Regional Differences in Productivity Level in Manufacturing Attributable to Output per Worker and to Industry Structure, 1970-72

(Based on current dollars)

	Atlantic region	Quebec	Ontario	Prairie region	British Columbia
	(Per cent)				
Output per worker	-33.5	-6.2	5.9	-7.1	.1
Industry structure	7.1	-5.0	3.7	2.6	4.4
Percentage difference from Canadian average	-26.4	-11.2	9.6	-4.5	4.5

SOURCE Based on data from Statistics Canada. For more detail, see Appendix Table D-3.

Output per worker contributed more to regional differences in manufacturing productivity than industry structure in four regions, while industry structure accounted for a greater part of the productivity difference in British Columbia. Here, as in other regions, it was primarily the weakness of the metal-fabricating industries that lowered productivity performance (Appendix Table D-3). However, a comparison of Tables 2-7 and 2-8 shows that, while structure in both cases played a secondary role, it does more to explain differences in productivity in manufacturing than in all industries together.

Productivity Growth Rates

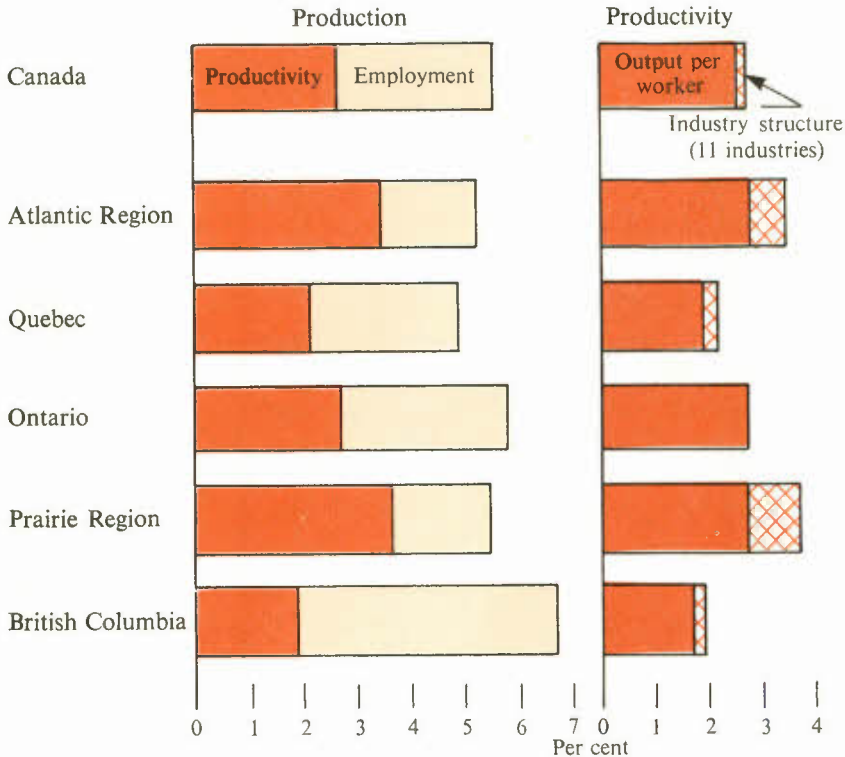
Regional differences in growth rates are slightly more complicated to analyse than differences in levels of productivity, for at least two reasons. First, total output can rise when employment grows, whether or not there is an increase in productivity. Second, if productivity growth does occur, it can be the result of either an increase in the proportion of output accounted for by high-productivity industries—a structural effect—or of gains in output per worker within individual industries. In practice, all three sources of growth are usually present.

The importance of each of the three sources of growth over the 1961-71 period is shown in Chart 2-4. British Columbia had the highest rate of growth in total output, most of which resulted from increased employment; in fact, the rate of productivity improvement in British Columbia was lower than that in any other region. The greatest gains in productivity were achieved by the Prairie and Atlantic regions, which experienced very slow rates of population and employment growth.

Regional growth in output per worker contributed much more to productivity growth than changes in industrial structure. All of Ontario's productivity gains came from greater output per worker; none, from industry structure. Productivity in Quebec and British Columbia gained little from shifts in industry structure. Only in the Prairie and Atlantic regions did changes in industrial structure improve productivity performance—in the former region because low-productivity employment in agriculture declined and, in the latter, because low-productivity employment in all other primary sector industries declined. It is quite possible that persons leaving agriculture and other primary industries in these regions not only left for employment in other industries but migrated to other regions. This would explain, in part, why productivity increased faster in regions of slow population growth.

Chart 2-4

Growth of Production and Productivity attributable to Output per Worker and to Industry Structure, Canada, by Region, 1961-71
(Based on 1961 dollars)



SOURCE Based on CANDIDE-R databank and estimates by the Economic Council of Canada. For further detail, see Appendix Tables D-3 and D-4.

The Role of Structure in Growth

With changes in industrial structure, shares of employment and investment in some industries decline; in others, they expand. Historically, the most important change in industrial structure has been the shift from agriculture to manufacturing and other industries. Only one hundred years ago more than three-quarters of Canada's working force was engaged in farming. Today Canada is predominantly urban, and 95 per cent of employment is in nonfarm activities. This decline in the share of agricultural employment has been gradual.

During the postwar period the shift of employment out of this low-income sector offered a good opportunity for higher earnings and for

greater productivity in all regions, though to varying degrees. Farm incomes were low. As demand for agricultural output was limited, the adoption of labour-saving and yield-increasing technology in Canadian agriculture did not solve the farm income problem but, instead, generated underemployment and depressed farm incomes and wages. This brought about an increase in the number of workers in other sectors of the economy. Proper use of this extra labour required new capital investments in those sectors, as well as somewhat greater investment in education. Given these investments, average productivity outside agriculture continued to stay above productivity within it, although the gap narrowed through time, because the rate of increase in productivity was higher in agriculture than in any other major sector. The continuing decline in the proportion of the labour force in the low-productivity agricultural sector and the accompanying rise in the proportion in higher-productivity sectors contributed to the increase in the average productivity of the whole economy.

However, the opportunity for further gains from this shift in industrial structure is diminishing. Over the past twenty-five years or so, some of the highest gains in real output per worker were achieved in agriculture, mining, and forestry – all primary industries with declining employment shares – while low or negative gains occurred in many tertiary industries with rising employment shares.³ To the extent that output per worker improved more rapidly in low-productivity, low-income industries – e.g., agriculture – these trends have contributed to the narrowing of the productivity gap among primary, secondary, and tertiary sectors. As the productivity differences have narrowed, the potential for further productivity gains from employment shifts among industries has diminished.

The Role of Individual Sectors

Among the major sectors, the primary industries made a small but positive contribution to Canada's overall productivity growth (Table 2-9). In the Prairie region, and to some extent in the Atlantic region, however, agriculture and mining contributed several times as much as in other regions. The secondary sector was important in all

3 Note that estimates of productivity growth are based on data on real domestic product, by industry. As output in some of the service industries is difficult to measure, real growth in the tertiary industries may have been underestimated.

Table 2-9

Contribution of Industrial Sectors to Growth in Productivity,
Canada, by Region, 1961-71

(Based on constant dollars)

	Atlantic region	Quebec	Ontario	Prairie region	British Columbia	Canada
	(Percentage points)					
Primary sector	1.38	.53	.16	2.45	.59	.78
Secondary sector	1.53	1.77	2.25	1.22	1.80	1.89
Tertiary sector	.57	-.12	.31	-.07	-.43	-.03
	(Per cent)					
Average annual growth	3.48	2.18	2.72	3.60	1.96	2.63

SOURCE Based on CANDIDE-R databank. For more detail, see Appendix Table D-4.

regions and generally contributed more to productivity growth than any other sector, mainly because of increases in manufacturing.

The service industries of the tertiary sector, with their very large employment share, contributed very little to productivity improvement. In most regions, trade and finance had a positive effect on productivity growth, while community, business, personal, and administrative services had a negative effect.

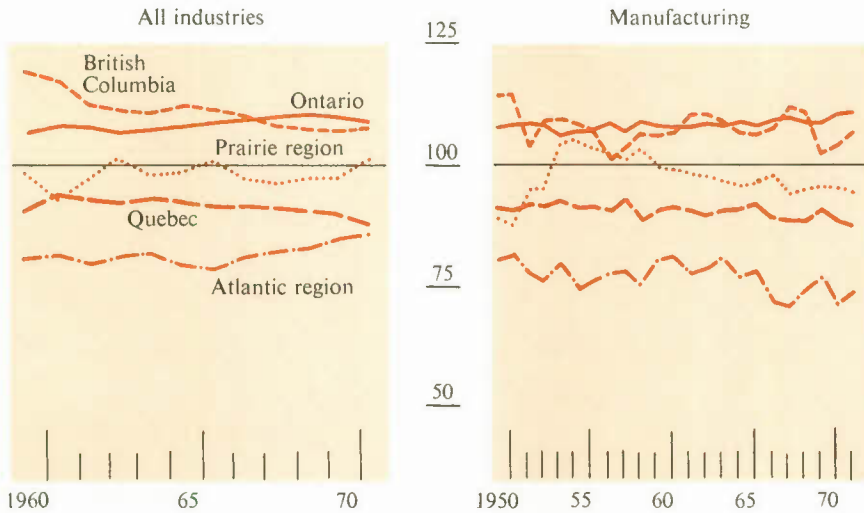
In the Atlantic region and in two of the Prairie provinces, about one-half of the productivity growth came from the food, fibre, and forest products industries. In Ontario, Quebec, and British Columbia, about two-thirds came from other industries, mostly as a result of increases in output per worker. Over the past decade, employment shifts away from the food and fibre industries towards other manufacturing industries helped improve labour productivity, but the improvement was very small.

Output and Wages per Person Employed

A comparison of regional productivity levels and wages suggests that over the years a certain balance has been reached. Productivity has improved in all regions and, compared with the Canadian average, there have been no dramatic changes (Chart 2-5); much the same has been true for wages and salaries per employee (Chart 2-2). Nevertheless,

Chart 2-5

Output per Worker in All Industries and in Manufacturing, as a Percentage of Total for Canada, by Region, 1950-72



SOURCE Based on data from Statistics Canada.

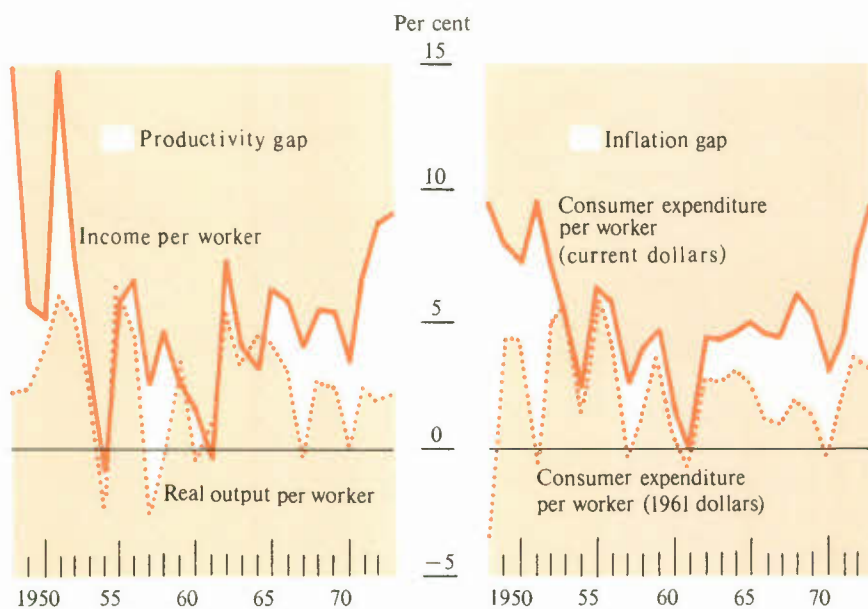
there is some evidence that regional wage disparities are narrowing, although the adjustments have been slow. To accelerate the process, productivity in the lower-income regions, especially in manufacturing, must increase more rapidly.

Regional differences in wage and productivity gains have been quite small compared with the national gap between the growth rates of the two elements. Over the past decade, wage rates have risen much faster than real output per person employed. Had nominal wage rates not grown any faster than real productivity, the labour cost per unit of output would have remained unchanged. In reality, these costs have risen at an annual rate of nearly 4 per cent, and about half of this increase can be attributed to the services sector, especially community, business, and personal services.

As long as incomes and wages keep increasing faster than productivity, it will be impossible to escape inflation. As shown in Chart 2-6, income per worker in Canada has grown much more rapidly than real output per worker. The difference between the two growth rates, which is the portion of income not earned by real output, roughly corresponds to inflation – that is, the amount of purchasing power lost by consumers. Just as increases in labour and capital costs, over and above real output

Chart 2-6

Annual Rate of Growth in Income, Productivity, and Consumer Expenditure per Worker, Canada, 1948-73



SOURCE Based on data from Statistics Canada.

and productivity improvement, have contributed to inflation in the past, a slowing-down in the rate of increase in wages and income, or alternatively an increase in productivity, would help reduce the rate of inflation in the future.

Conclusions

In terms of personal income per capita, some convergence of the regions towards the national average appears to have taken place over the past forty years, much of it in the last twenty. This convergence towards the national level has occurred largely in British Columbia and the Atlantic region and has been brought about by the slower-than-average growth of wages and salaries in British Columbia and the higher-than-average growth of transfer income in the Atlantic region.

Substantial differences remain, however, especially in regional productivity levels, as measured by output per person employed. In four out of five regions, the differences in productivity levels were primarily a result of differences in output per worker, corrected for industrial structure;

less of the productivity difference was attributable to regional differences in industrial structure. As a rule, the contribution of output per worker accounted for over 70 per cent of the regional differences in productivity levels. Only in the Prairie region did industrial structure have a greater – and unfavourable – impact on productivity performance. Manufacturing played a key role in all regions, contributing more to regional productivity differences than any other secondary industry. Regional weaknesses in productivity performance were not limited to particular manufacturing industries, but showed up in most of them. Regional differences in productivity growth were also due mostly to differences in growth rates of output per worker within individual industries and not to shifts in the industrial structure. Among the major production sectors, manufacturing contributed most to productivity growth.

The small role played by industry structure in explaining regional differences in either the levels of productivity or productivity growth rates makes it reasonable to maintain that, in low-income regions, productivity levels can best be improved by proceeding on an industry-by-industry basis. The scope for improving productivity and income in the low-income regions by fostering a different industrial structure is probably quite limited.

3 **The Prospects for Economic Growth**

Since the end of the Second World War, Canada has experienced unprecedented economic expansion. During this period real gross national product rose by an average of 5 per cent annually from 1947 to 1973. The important question to ask now is how long this trend can be sustained. To answer the question about the prospects for economic growth in both the medium and the long term, we must evaluate the productive capacity of the economy. Clearly, if there is inadequate growth in the factors of production, the growth potential of the Canadian economy will be reduced by the beginning of the 1980s.

The purpose of this chapter is to study the possibility of reversing the slowdown in potential growth or of stimulating potential in line with our objectives of full employment, price stability, and balanced foreign trade. Our analysis focuses first on the role of the various factor inputs in the process of economic growth and on those that contribute to population and labour force growth at both the national and regional levels. Then, for the 1975-85 period, we compare scenario 2 from Chapter 1, which is based on assumptions of a favourable external environment and moderate energy prices, with two additional scenarios characterized by rapid and slow growth, respectively.

Sources of Growth

In order to evaluate an economy's long-term prospects, the main components that contribute to its growth must be examined. The role of factors of production (labour and capital) in the growth of national output may be calculated by weighting the increase in employment and capital stock by their respective shares in national income. This enables us to determine to what extent variations in the volume of the factors of production contribute to total growth. In the absence of a more refined method, we can obtain residually the proportion of growth attributable to changes in the quality of the factors of production and the efficiency of their use. The results of these calculations provide an approximation of the increase in productivity.

44 The Prospects for Economic Growth

Table 3-1

Contribution of Factor Inputs and Factor Productivity
to the Growth of Net National Income, 1950-73

	North- western Europe, 1950-62	United States		Canada		
		1950-62	1964-69	1950-62	1964-69	1966-73
(Percentage distribution)						
Factor inputs	36	58	68	59	66	70
<i>Labour</i>	18	33	47	32	46	50
<i>Capital</i>	18	25	20	27	20	20
Factor productivity	64	42	32	41	34	30
Net national income	100	100	100	100	100	100
(Per cent)						
Average annual increase in net national income	4.8	3.3	4.5	4.8	5.6 ¹	5.0 ¹

1 Gross national expenditure in 1961 dollars.

SOURCE Dorothy Walters, *Canadian Growth Revisited, 1950-67*, Economic Council of Canada, Staff Study 28 (Ottawa: Queen's Printer, 1970), pp. 37-38; Edward F. Denison, *Accounting for United States Economic Growth, 1929-1969* (Washington, D.C.: The Brookings Institution, 1974), p. 138; and estimates by the Economic Council of Canada.

Using this simple method to trace the evolution of total output in Canada, we found that, since the early 1950s, about 40 per cent of the rise in national income was attributable to the increase in employment. This figure is close to that observed in the United States and much higher than that in a number of European countries (Table 3-1). For example, from 1950 to 1962, the employment contribution reached 32 per cent in Canada, compared with 18 per cent in Northwest European countries.¹ In Canada and the United States, approximately 60 per cent of economic growth was due to increases in the stock of factor inputs and approximately 40 per cent to a better utilization of those resources, while in Europe the relative importance of these two elements was more or less reversed. The similarity between Canada and the United States continued after 1962, and the proportion of growth attributable to increases in inputs rose in both countries, to the detriment of the portion

1 Dorothy Walters, *Canadian Income Levels and Growth: An International Perspective*, Economic Council of Canada, Staff Study 23 (Ottawa: Queen's Printer, 1968), and *Canadian Growth Revisited, 1950-67*, Economic Council of Canada, Staff Study 28 (Ottawa: Queen's Printer, 1970).

resulting from gains in productivity. A detailed comparison of these factors shows that the contributions of labour, capital, and productivity to economic growth can vary considerably from country to country, even if they are near the same stage of development. The causes of such disparities are still poorly understood, however, despite many efforts to explain them.

Table 3-2

Contribution of Factor Inputs and Factor Productivity
to the Growth of the Canadian Economy, 1975-85

	1975-80	1980-85
	(Percentage distribution)	
Factor inputs	63	73
<i>Labour</i> ¹	44	44
<i>Capital</i>	19	29
Factor productivity	37	27
GNP	100	100
	(Per cent)	
Average annual rate of growth in GNP	5.7	4.1

1 Estimated contribution based on employment patterns.

SOURCE Estimates by the Economic Council of Canada, assuming a favourable external environment and moderate energy prices.

According to our projections in scenario 2 of Chapter 1, more than 70 per cent of the growth in the Canadian economy from 1975 to 1985 will be due to increases in labour and capital (Table 3-2).² During the first half of this period, in particular, output could increase at rates comparable to those experienced since the early 1960s, mainly because of the rapid rate of expansion in the labour force and the high level of investment.

However, growth in the labour force is projected to slow down during the 1980s; consequently, slower economic growth is expected. This trend will be accentuated by the upward phase of the 1975-80 cycle, during which the economy will move from a situation of high unemployment to one of full employment. The marked decline in the birth

2 These calculations apply to gross national product instead of net national income. The difference between the two measures is that indirect taxes and capital consumption allowances are included in GNP but excluded from net national income.

rate during the mid-1960s will contribute to the reduction in the labour force growth rate in the 1980s (see Table 3-4) and could well account for half the anticipated decline in the economy's growth rate, unless increases in immigration or in participation rates offset this trend. The slowdown could also be further aggravated by a significant decrease in the productivity growth rate.

Industrial Structure and Productivity

Variations in productivity among economic activities may be the result of changes in the quality of factor inputs and/or changes in the efficiency with which they are used. Any productivity gain in an individual activity, even if quite small, will tend to raise total productivity. At the aggregate level, however, there can also be a structural effect resulting from changes in the relative weight of some activities in the overall measure. For example, in the case of activities whose productivity is lower than the national average and whose share in the total economy is declining – or, conversely, high-productivity activities whose share is increasing – the structural effect will tend to raise the total productivity growth rate.

By analysing the structural effects, we can see that, from 1947 to 1973, the primary sector – including agriculture, forestry, fishing, and mining – accounted for about 34 per cent of the growth in overall productivity. The secondary sector – including manufacturing, construction, transportation, and public utilities – accounted for 60 per cent of this growth. The tertiary sector – that is, the service industries – accounted for only 6 per cent.³ The shift in employment from low-productivity to high-productivity industries explains some of the rise in overall productivity. But it is the increase in output per worker in the secondary sector, mainly in manufacturing (35 per cent), that has contributed most to the improvement in productivity.

Table 3-3 outlines the share of overall growth in productivity that is attributable to either a pure productivity effect or a structural effect. The pure productivity effect is the sum of the growth rate of output per worker in twelve industries, weighted by their share in national output. The structural effect accounts for both the evolution of employment in each of these activities and the relative level of output per worker.

3 It must be remembered, however, that the concept of productivity is difficult to apply to some service activities, such as education, because objective measurements of output are difficult to obtain.

Table 3-3

Productivity Growth,¹ Selected Periods, 1960-85

	1960-65	1965-70	1975-80	1980-85
	(Average annual percentage change)			
Pure productivity effect ²	3.0	2.1	3.1	2.4
Structural effect ²	.1	.0	-0.5	-0.7
Total productivity	3.2	2.1	2.7	1.8

1 Calculations are based on a disaggregation of economic activities in twelve industries.

2 Excluding imputed rent.

SOURCE Estimates by the Economic Council of Canada, based on the assumption of a favourable external environment and moderate energy prices.

Since any measure of productivity is sensitive to the economic cycle, we found it useful to compare our projection periods with two similar historical periods: the first is characterized by stagnation followed by growth (1960-65 versus 1975-80); the second, by sustained growth (1965-70 versus 1980-85). Table 3-3 shows that, from 1960 to 1970, the two effects resulted in an increase in productivity. After 1975, the structural effect becomes clearly negative, while the pure productivity effect continues to exercise the same influence as in the past. The negative structural effect is sufficiently pronounced to account fully for the decline in the productivity growth rate in 1975-85. The effect is negative mainly because of vigorous growth in some service industries, where productivity increases at a slower rate than the average for all sectors and where the share of total employment rose from 48.3 per cent in 1965 to 54.9 per cent in 1974 and could reach 63.4 per cent in 1985. This trend did not affect overall productivity before 1975, because of the significant decrease in employment in the agricultural sector, where productivity is also below the national average (although constantly rising), and because of strong growth in the mining sector, where the level of productivity is clearly higher than the national average.

Population and the Labour Force

Canada's population grew considerably faster than that of the United States and most other industrialized countries during the postwar period, particularly during the 1950s. This phenomenon was a result of high immigration and a spectacular increase in the fertility rate, which reached a peak in 1957 with 120 births per 1,000 fertile women (that is, women in the 15-49 age group).

There has, however, been a notable lag between population growth and increases in the labour force. This can be explained by the fact that the period between birth and the age at which youths enter the labour force is usually fifteen to twenty years or more, because young people stay in school or do not work for other personal reasons. During the 1960s the rate of increase in the total population slowed down, although it remained at a relatively high level. At the same time, Canada's labour force growth, though already rapid during the 1950s, accelerated as the youths born after the war reached working age and entered the labour market.

Participation rates increased considerably between 1960 and 1970, especially among youths of both sexes in the 14-19 age group and women under 55. This increase more than offset the decrease in the rate for men over 25. The aggregate participation rate rose from 54 per cent in the early 1960s to 58 per cent in 1974; if past trends continue, it could reach 62 per cent by 1985.

Between 1969 and 1974, the labour force grew at an average annual rate of 3.4 per cent, compared with the already high rate of 2.7 per cent in the 1960-70 period (Table 3-4). During the past five years, the 14-24 age group has contributed up to 40 per cent of the labour force increase, although its share in the total labour force is only about 25 per cent. This phenomenon is even more evident in the case of young men, whose contribution to the rise was 45 per cent compared with 34 per cent by women. On the other hand, women, who accounted for only one-third of the total labour force, contributed approximately one-half of the increase in the total labour force; their rate of increase was 5.0 per cent compared with 2.7 per cent for men.

The era of such rapid increases in the size of the working-age population is, however, coming to an end, and a very clear reversal of the trend is expected in the 1975-85 period. Indeed, the extremely rapid fall in the birth rate during the 1960s will result in a decrease in the size of the 14-19 age group, beginning about 1979; the population in this group will decline at an average annual growth rate of 3.5 per cent between 1980 and 1985. A reduction in the number in the 20-24 age group will follow by the early 1980s. The growth of the labour force will also slow down significantly over the next decade. Moreover, if the trend towards lower birth rates continues, population growth will also slacken (Table 3-4).

To these internal demographic factors in our analysis must be added the effects of net immigration (immigration minus emigration). From 1950 to 1973, the number of emigrants ranged between 36,000 and 90,000, with the annual average being about 57,000. During the same period, an average of 148,000 immigrants per year entered Canada,

Table 3-4

Actual and Projected Change in the Population
and in the Labour Force, 1960-85

	Actual		Projected	
	1960-70	1969-74	1975-80	1980-85
	(Average annual percentage change)			
Population	1.8	1.3	1.2	1.1
Working-age population (14 years and over)	2.4	2.5	2.0	1.3
Labour force	2.7	3.4	2.5	2.0
	(Percentage points)			
Average annual change in total participation rate	0.16	0.50	0.24	0.40

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada, using CANDIDE and assuming a favourable external environment and moderate energy prices.

so that net annual immigration averaged 91,000 persons. Although there are few data on emigration, it is generally assumed that the age and work patterns of emigrants and immigrants are similar. This is one method of assessing the effect of the net balance of migrations on the evolution of the labour force. We know, for example, that more than half the immigrants enter the labour market, compared with only three or four of every ten Canadians. Therefore, immigration has a considerable impact on labour supply. On the other hand, its role in the growth of the population or the labour force may vary significantly from one period to the next, depending on the birth rate, the age pyramid, and the number of immigrants who enter the labour force. During the 1950s, immigration contributed significantly to increases in the labour force. From 1950 to 1955, for example, its share of the increase averaged 62 per cent annually, and in some years it was as high as 80 per cent. Between 1965 and 1970, when those born after the war reached working age and participation rates increased, this proportion fell to 22 per cent.

The factors underlying the growth of the labour force may be determined with greater accuracy by distinguishing the effect of natural increases, participation rates, and net immigration. Table 3-5 shows that from 1950 to 1970, natural increases played a dominant role, accounting for 60 per cent of this increase. Net immigration also contributed a significant share – an average of 28 per cent – which could

rise to more than 60 per cent during a period of slow expansion in the working-age population or one of low participation rates. The impact of participation rates was generally weaker than that of the other two factors, at 12 per cent from 1950 to 1970, but 19 per cent from 1955 to 1965 and 25 per cent from 1969 to 1974 – a period when the overall participation rate rose from 55.8 per cent to 58.3 per cent. Projections for the 1975-85 period might require modification if the net effect of immigration were to fluctuate or if participation rates were higher than anticipated.

Table 3-5

Components of Labour Force Growth, 1950-85

	Net average annual immigra- tion	Average annual growth rates	Average annual change	Contribution to labour force growth		
				Natural increase	Participa- tion rates	Net immigra- tion
	(Thousands)	(Per cent)	(Thousands)	(Per cent)		
1950-55	120	1.8	99	43	-4	62
1955-60	102	2.7	159	47	19	35
1960-65	42	2.3	156	71	19	9
1965-70	101	3.2	246	67	10	22
1950-70	91	2.5	165	60	12	28
1969-74	88	3.4	300	59	25	15
1975-80 ¹	100	2.5	254	64	16	20
1980-85 ¹	100	2.0	234	46	32	22

1 It is assumed that 52 per cent of the immigrants will enter the labour market.

SOURCE Based on data from Louis Parai, *The Economic Impact of Immigration*, Department of Manpower and Immigration (Ottawa: Information Canada, 1974); and estimates by the Economic Council of Canada.

Regional Demographic Aspects

The effect of the postwar baby boom, of the subsequent decrease in the birth rate, and of the decline in the growth rate of the working-age population will vary from region to region. Our projections, based on past demographic trends,⁴ show that those regions that have tradition-

4 In our projections, we assumed that the regional distribution of the average number of immigrants from 1958 to 1971 would be maintained in the future.

ally relied more on immigration than on natural growth will be the least affected by these factors. By 1985, only two of the five Canadian regions – namely, Ontario and British Columbia – will register a growth in their working-age population (2 to 3 per cent annually) (Chart 3-1). In the other regions, this growth will be almost zero. Therefore, unless there are significant increases in participation rates or major advances in productivity, these regions will experience very weak economic growth. Projections for the population in the 20-24 age group are even more striking, indicating that the growth rate for this group will slow down in all five regions. Only British Columbia will maintain a positive growth rate, while that of the other regions will become negative by the early 1980s.

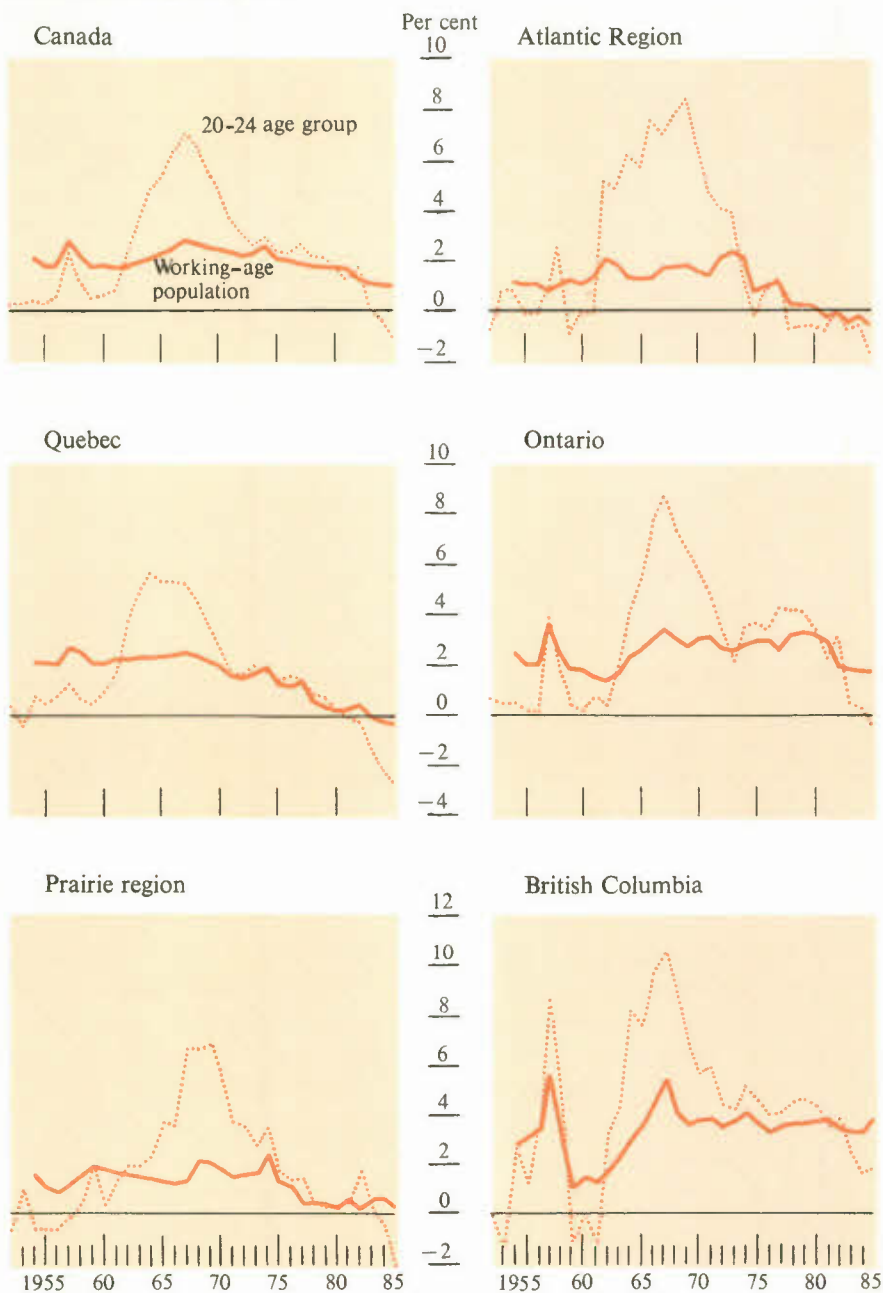
In the past, population growth has not been uniform throughout all regions of the country. From 1926 to 1973, the population of British Columbia more than tripled, while that of the Atlantic and Prairie provinces less than doubled. These disparities result from regional differences in natural growth rates and migration (Chart 3-2). During this period, the populations of Ontario and Quebec grew more or less at the same rate – at 2.2 and 2.0 per cent per annum, respectively. However, the slight difference conceals the fact that, in Ontario, immigration contributed the most to population growth while, in Quebec, natural growth was more significant. If Ontario had experienced the same rate of natural growth as Quebec, it would have about 1.5 million more inhabitants today. On the other hand, if Quebec had experienced the same rate of immigration – in relation to its natural rate of growth – as Ontario, its population would now include another 3 million people.

A region's relative attractiveness can be determined approximately by comparing its foreign immigration with net migration.⁵ From 1946 to 1972, net immigration was about one-third less than total immigration to Canada; that is, for every 100 immigrants who entered Canada, 35 migrants left, resulting in a net immigration rate of 65. Ontario's net average immigration rate of 79 was well above the national average, while Quebec's was only 29. In British Columbia, the rate was 188, which means that for every 100 immigrants from foreign countries, this province received an additional 88 migrants from other regions of Canada. This was the opposite of what occurred in the Prairie and Atlantic provinces, where net immigration rates were negative (Table 3-6).

5 Estimates of net regional migration are calculated by subtracting the population's natural growth – births minus deaths – from total growth. They include migration to other provinces as well as to other countries.

Chart 3-1

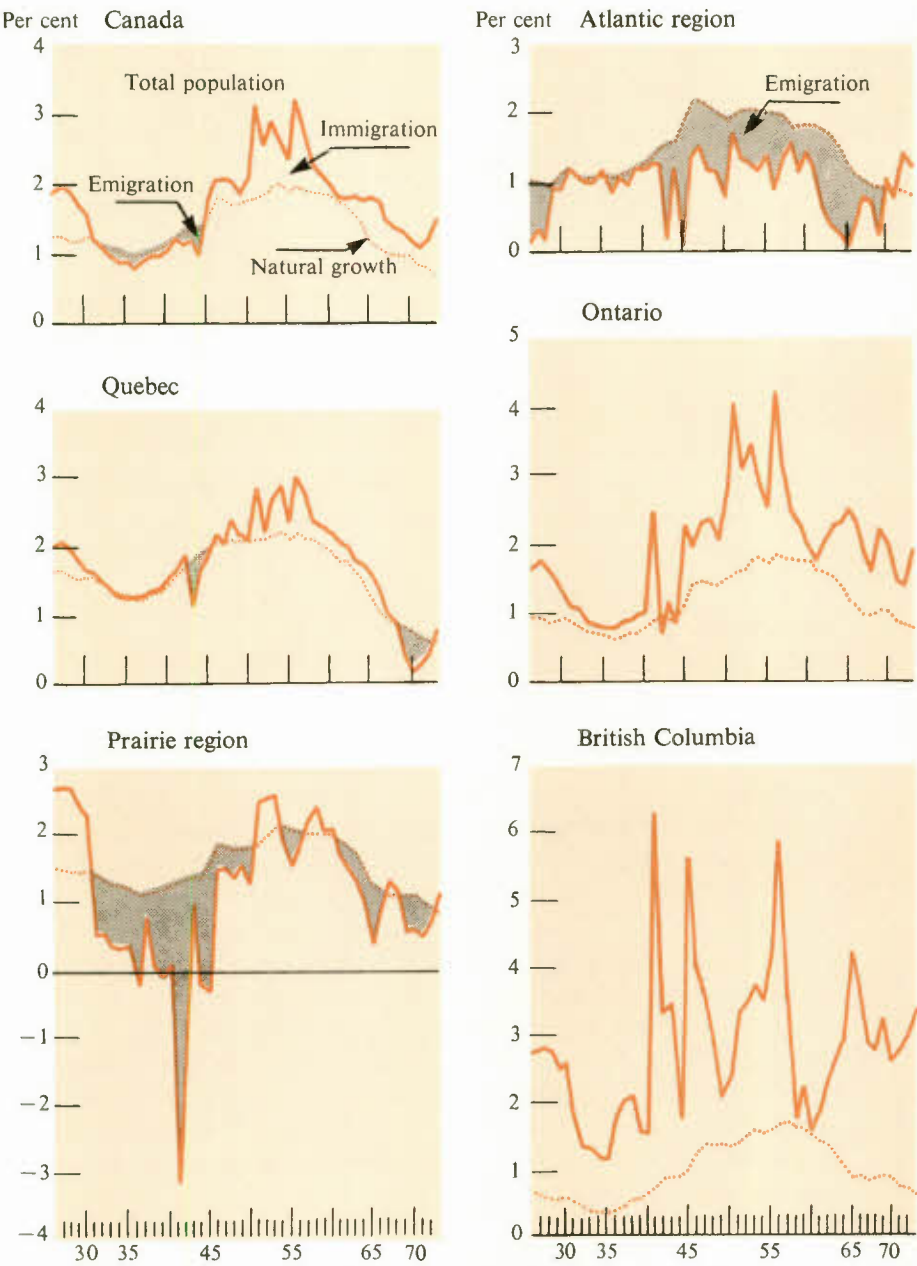
Annual Growth Rate of the Working-Age Population and the 20-24 Age Group, Canada, by Region, 1952-85



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Chart 3-2

Annual Rate of Population Growth, Natural Growth, and Migration,
Canada, by Region, 1926-73



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Table 3-6

Average Annual Migration, Canada, by Region, 1946-72

	Immigration	Net migration	Net migration per 100 immigrants
Atlantic region ¹	3,272	-8,812	-269
Quebec	27,032	7,940	29
Ontario	72,632	57,494	79
Prairie region	18,009	-6,821	-38
British Columbia	15,698	29,536	188
Canada ²	137,249	88,670	65

1 Excluding Newfoundland.

2 Including Newfoundland, the Yukon, and the Northwest Territories.

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Two Growth Scenarios

The labour supply plays an essential role in the evolution of the economy's potential because, in the absence of significant variations in productivity, it determines the maximum growth rate possible. We saw in scenario 2 – characterized by a favourable external environment, moderate energy prices, and net immigration of 100,000 annually – that we can anticipate a slowdown in economic growth between 1980 and 1985. However, the assumptions underlying these projections with respect to changes in supply and demand may prove to be wrong. Therefore, it is useful to examine the extent to which modifications in our assumptions may help us avoid the most probable growth path and to present two other scenarios that are consistent with our objectives of full employment, price stability, and equilibrium in our balance of trade. To simplify this analysis, we modified the labour supply and assumed appropriate demand conditions. Expansion in the Canadian economy in the 1980-85 period could then range between 2½ and 5 per cent annually.

A Rapid-Growth Scenario

If all demand conditions, such as investment and the external environment, were favourable enough to permit a growth rate of 5 per

cent – the average experienced during the past twenty-five years – there is the likelihood that we would be confronted with shortages in the supply of labour. In the absence of marked improvement in productivity, it would be impossible to realize such an objective without a much larger increase in the labour force than is anticipated for 1980-85. Such an increase could only be obtained by a much higher level of immigration than experienced in past decades and/or by an increase in the female participation rate at least comparable to that of the past five years. On the other hand, if we were to succeed in increasing GNP by an average of 5 per cent by stimulating demand without increasing the supply of labour, the unemployment rate would fall considerably, so as to approach zero by 1985. Of course, this situation is unrealistic, since experience shows that labour shortages and inflationary pressures become intolerable when the unemployment rate declines to about 4 per cent. (It is, of course, possible that, in future, a lower unemployment rate would not necessarily be accompanied by such strong inflationary pressures.)

If the labour supply were to be increased in order to maintain an unemployment rate of about 4 per cent, then the labour force would need to grow by about half a million people in the 1981-85 period. Theoretically, it is possible to envisage a situation in which a rapid increase in participation rates would compensate for the labour shortage. In such a case, participation rates would have to increase faster than projected in the moderate-growth scenario, to reach 64.5 per cent rather than 62.2 per cent by 1985. It would probably be inappropriate to encourage additional young men to enter the labour force before they are trained. Since it will be difficult to increase the participation rate of men in the 25-54 age group, which is already above 95 per cent, and that of men over 55, which is on the decline, then the additional labour force would have to be drawn from the ranks of women.

If women were to account for the whole increase, their participation rate would have to rise from the 45.4 per cent level projected for 1985 in the moderate-growth scenario to 49.9 per cent. This would not be unrealistic, considering that an increase in the rate of 8.9 percentage points between 1975 and 1985 would be required, which is less than the increase of 9.7 percentage points that occurred between 1965 and 1975. In addition, it should be noted that in the United States, the female participation rate was already about 45 per cent in 1974, compared with 40 per cent in Canada; in Finland, Sweden, and the United Kingdom, the rate in 1970 was higher – at 62.5, 59.4, and 52.1 per cent, respectively – than the American level. On the other hand, it is

unlikely that the female participation rate will increase when there are shortages in the labour force. Moreover, the effect of an increase in the female participation rate is temporary, and we should not rely on a continuous rise in participation rates to sustain strong economic growth over the long term.

We can also foresee a situation where all the additional manpower necessary for strong growth would come from increased immigration. This would imply a net entry into the labour force of an additional 100,000 immigrants annually. Since, in general, only one of every two immigrants enters the labour market, 200,000 additional immigrants would be required over and above the 100,000 already anticipated in the moderate-growth scenario. Therefore, total net immigration would have to be approximately 300,000 annually – a level never attained in Canada.

Table 3-8 shows an intermediate rapid-growth solution in which we assume average net immigration of 200,000 persons annually from 1981 to 1985 and a faster increase in participation rates. For example, the rate for women would reach 47.2 per cent in 1985, compared with 45.4 per cent in the moderate-growth scenario.

While it is possible that immigration can be increased as required, the question remains whether we can modify participation rates in the desired way. Unfortunately, we still lack a clear understanding of the motivations of economic agents, and the effects of intervention are felt only slowly. We are not even certain about the accuracy of our projections of participation rates for the most probable growth path. They may prove to be too high and, if so, the decline in the growth of the labour force in the 1980s may be more pronounced than anticipated.

Although immigration can be regulated in order to control increases in manpower, immigration policy obviously cannot be restricted exclusively to such a goal, since its implications extend beyond the labour market and relate to the evolution of society as a whole. A number of problems that are unique to Canada – such as the linguistic balance, and the very rapid growth of the larger metropolitan centres – may be aggravated by an immigration policy that places too much emphasis on only one objective. Moreover, it must not be forgotten that the population downturn of the 1980s may have a more direct effect on those regions whose development has depended mainly on the natural growth of their populations rather than on immigration, such as Quebec and the Atlantic provinces. The slowdown in economic growth anticipated for the early 1980s could, therefore, have a more severe

impact on these two regions. As a result, they could become less attractive to prospective immigrants and thus experience a much larger migration deficit.

A Slow-Growth Scenario

Economic conditions could, on the other hand, dictate slow growth by the beginning of the 1980s. If the external environment is unfavourable and if we experience a decline in the relative price of oil and weak investment in the exploration and development of energy resources, by the end of the 1970s and the early 1980s Canada will face a situation characterized by growing unemployment, a slowdown in the demand for exports, and a significant rise in oil imports, which will result in an increased deficit in our current transactions abroad.

If Canada cannot rapidly increase its competitive capacity and its penetration of foreign markets, three other types of policies could be considered. The first would be designed to attract the foreign capital needed to re-establish equilibrium in our balance of payments and to direct it towards those sectors that are open to foreign trade, in order to compensate in the long term for the deficit resulting from current transactions. However, it may be difficult for an economy characterized by high unemployment and a sizable trade deficit to attract foreign capital. The second policy would consist in a vigorous attempt to stimulate demand designed to absorb the surplus capacity resulting from a slowdown in investment and from weakness in the external sector. Such a policy could restore full employment, but only at the expense of a larger balance-of-payments deficit and substantial disequilibrium in the government budget position. Finally, the third policy could be aimed at moderating demand in order to limit import growth. This would be accompanied by measures designed to conserve energy and by programs to moderate growth in the labour supply in order to prevent further increases in unemployment. Various measures could be employed to reduce the labour supply, such as lowering net immigration, lowering retirement age, and reducing working hours.

If, in order to restrict the growth in the labour supply, net immigration were gradually reduced to zero by 1980, the growth of the labour force could drop from 2.2 per cent annually in 1975-80 to only 1.6 per cent annually in 1980-85, compared with 2.5 per cent and 2.0 per cent, respectively, in the moderate-growth scenario.

The participation rate for men 55 and over has already declined, to a large extent because of improvements in pension arrangements

and the lowering of the average retirement age in many sectors of the economy. In 1970, more than 90 per cent of male workers in the private sector contributed to pension plans providing for retirement at 65. Assuming current programs are maintained, the participation rate of men 55 and over would drop from 52 per cent in 1974 to 50 per cent in 1985.⁶ A second but more restrictive assumption would imply a gradual lowering of retirement age from 65 to 60 between 1975 and 1985. Although it is impossible to determine precisely the impact that such a reduction might have on participation rates, we have assumed that the rate for males 55 to 59 would be about 75 per cent, while that for males in the 60-64 age group would be around 20 per cent, since we cannot expect that lowering of the normal retirement age would necessarily always correspond to the end of working life.⁷ If, in addition to reducing immigration, we were to lower the retirement age to 60 in 1985, the overall participation rate would average 60.1 per cent between 1980 and 1985, and the average annual growth rate of the labour force would fall from 2.0 per cent in 1975-80 to 1.1 per cent in 1980-85, compared with 2.5 and 2.0 per cent, respectively, in the moderate-growth scenario.

The labour supply might be still further reduced by shortening working time, including hours actually worked, as well as by increasing holidays and paid vacations. For all production workers in manufacturing, the work week was shortened from 45.3 hours in 1947 to 40.4 hours in 1972 – a reduction of 11 per cent (Table 3-7). This small decline in the number of working hours resulted mainly from an increase in the number of holidays and longer annual vacations. When holidays and paid vacations were included in the calculation of working hours, the net work week was 36.5 hours in 1972 compared with 43 hours in 1947 – a decline of 15 per cent.

From 1950 to 1970, the net work week for all workers was reduced by about six hours. If this were to continue between 1975 and 1985, the length of the work week would drop from 36 hours in 1975 to 34.2 hours in 1985. A similar decrease occurred between 1957 and 1972 in the manufacturing industry, resulting in a reduction of little more than one hour per normal work week, two additional paid holidays per year, and an extra week of annual vacation.

6 The gradual lowering of the normal age of retirement to 60 represents a total loss of \$15 billion (in 1961 dollars) from 1975 to 1985, in terms of the output and income that might be generated if the economy made full use of all its productive resources. To this sum one must add \$4 billion (in 1961 dollars) paid in the form of old age security benefits.

7 In 1971, 20 per cent of men 65 years of age or over worked or were seeking employment.

Table 3-7

Working Hours for Production-Line Workers in
Manufacturing, Selected Years, 1947-72

	Normal working hours	Holidays		Vacation		Net work week
		Days per year	Hours per week	Weeks per year	Hours per week	
1947	45.3	4.2	0.6	2.2	1.7	43.0
1951	43.5	6.2	1.0	2.4	1.8	40.7
1957	41.6	7.3	1.1	2.5	2.0	38.6
1961	41.3	7.5	1.2	2.7	2.1	38.1
1966	41.0	8.0	1.2	2.9	2.3	37.5
1972	40.4	9.1	1.4	3.3	2.5	36.5

SOURCE: Labour Canada, *Trends in Working Time* (June 1974).

If the effects of the three possible measures – a decrease in working hours, a lowering of the retirement age, and a reduction in immigration – were combined, the increase in the supply of labour, in terms of hours worked, would be no more than 0.7 per cent in 1980-85,⁸ compared with 1.6 per cent in the moderate-growth scenario. The overall annual GNP growth from 1980 to 1985 would be no more than 2.7 per cent, compared with 4.1 per cent in the moderate-growth scenario. Table 3-8 summarizes the main characteristics of each of the three growth scenarios described earlier.

We could also consider even slower-growth scenarios for the 1980-85 period, but the results would be unacceptable. For example, the growth of productivity could be maintained at the rate considered in the slow-growth scenario, while the growth of employment could be maintained at zero after 1980. The growth of output would then be about 1.5 per cent, and unemployment would rise to 9 per cent in 1985. Similarly, if we assume overall GNP growth of 1 per cent and the maintenance of productivity gains, the result would be a decline in employment and a rise in the unemployment rate to 12 per cent by 1985. Finally, if we assume zero growth, the unemployment rate could reach 18 per cent.

8 In the slow-growth scenario in Table 3-8, the reduction in working hours is reflected in output, but the increase in the labour force remains the same.

Table 3-8

Rapid- or Slow-Growth Options, 1980-85

	Actual, 1966-73	Projected, 1975-80 ¹	Three scenarios for 1980-85		
			Rapid	Medium ¹	Slow
(Average annual percentage change)					
Output (GNP in constant dollars)	5.0	5.7	5.2	4.1	2.7
Employment	2.7	3.1	2.9	2.2	1.1
Labour force	3.1	2.5	2.7	2.0	1.1
Output per person employed	2.2	2.7	2.1	1.8	1.5
(Annual average)					
Unemployment rate	5.4	5.6	3.8	3.7	3.8
Net immigration (in thousands)	88	100	200	100	0
Participation rate	56.1	59.5	61.9	61.4	60.1
(Percentage points)					
Average annual change in participation rate	0.36	0.24	0.56	0.40	0.12

¹ Assuming a favourable external environment and moderate energy prices (second scenario of Chapter 1).

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Conclusions

We have concluded that the rate of growth of the Canadian economy, which has been very rapid since the war, will probably slow down substantially by the early 1980s, unless the labour force or productivity increases faster than the most realistic projections. Such growth can hardly be expected to be higher than a maximum of 5 per cent annually. In order for it to be higher than the 4.1 per cent suggested by the moderate-growth scenario or the 5.2 per cent suggested by the rapid-growth scenario, it would be necessary to have an extremely high level of immigration or a strong rise in the female participation rate. Only large productivity gains could enable the economy to maintain such growth rates while raising the standard of living for Canadians.

On the other hand, if productivity performance does not exceed our expectations, the slow-growth scenario could very well materialize, and the labour force growth rate would slow down in line with our projections. Moreover, even if immigration were to remain higher than our projections – that is, zero net immigration beginning in 1980, assuming entry of approximately 60,000 immigrants annually – it could be offset by a slower rise in participation rates than suggested by previous trends.

It is, however, very difficult to forecast precisely the probable evolution of the economy and the labour force over the next decade. As the fall in the birth rate of the 1960s and the significant rise in the number of women in the labour market have demonstrated, social behaviour and attitudes can change suddenly. But, in the absence of unforeseen variations in current trends, growth in the early 1980s will be much slower than in the past. The various regions will be more or less affected, depending on whether they rely on immigration or natural increases for their labour force growth.

4 Canadian Economic Performance and the Performance Indicators

A notable feature of performance in 1974 was the high degree of divergence that developed between the Canadian and U.S. economies. Output and demand eased much earlier and to a more pronounced degree in the United States than in Canada. Real gross national product peaked in the last quarter of 1973 in the United States and declined throughout 1974; for the year as a whole, it averaged more than 2 per cent below its 1973 level. In Canada, real output reached a high in the first quarter of 1974 and slowed down thereafter, so that an overall increase of 2.8 per cent was recorded for the year. As a result, the gap between actual and potential output widened significantly, after having been virtually eliminated in 1973. Economic performance remained sluggish in the opening months of 1975, and a general recovery is not expected to be fully under way before late in the year.

The slower rise in output in 1974-75 was largely attributable to a marked deterioration in the external environment. Output in OECD countries has shown practically no growth since the second half of 1973. In the first half of 1974, these economies were subjected to an exceptional combination of dampening influences, as the increase in the price of oil and the effects of the increasingly restrictive policies of 1973 were added to already weak internal demand. The combined effects of these forces ruled out any recovery in the second half of 1974 and early 1975.

The slowdown in Canadian growth in 1974 translated into a decline in aggregate productivity growth. Net external demand acted as an important drag on real growth in 1974; exports actually dropped in 1974 while imports, stimulated by domestic demand, continued to grow strongly. Domestic demand was well sustained by increases in government spending and in business investment in machinery and equipment. The slower progression in consumer expenditures and the actual decline in residential construction were largely due to smaller increases in real personal disposable income. Despite the slowdown in activity, unemployment declined marginally because of an exceptional increase in employment.

The pace of inflation accelerated in 1974, as evidenced by the rise in the consumer price index (CPI), from an average of 7.6 per cent in 1973 to 10.9 per cent. During 1973 and part of 1974, inflation in

Canada could be attributed to two major sources: price increases arising out of special supply situations, which affected two basic components – namely, food and fuel – and excess demand pressures, which were associated with the upward pull of foreign and domestic demand on industries already producing close to their capacity. A mutation of these two forces appeared to be responsible for the persistence of inflationary trends in 1974 – indicated by the strong rise in base pay rates negotiated in major collective agreements and the continued strength of profits during the year. Base pay rates rose 14.2 per cent in 1974 from an average of 9.8 per cent in 1973, contributing to a marked acceleration in unit labour costs during the year. On the other hand, firms appear to have been successful in passing on some of the higher wages and costs to the consumer, and corporate profits rose 27.2 per cent in 1974, following increases of 23.3 and 34.4 per cent, respectively, in 1972 and 1973. Strong cost-push inflationary pressures have thus been present in the system.

For most of the year, fiscal policy was oriented towards reducing the pressures that emerged in the economy in 1973 and early 1974. In the year ending with the third quarter of 1974, all levels of government had accumulated an overall surplus of close to \$2.5 billion, representing more than 1.5 per cent of GNP, compared with a surplus of about \$700 million in the same period a year earlier. As the year progressed, it became apparent that a policy adjustment was required, and the federal budget of November 1974 introduced a set of measures designed to sustain the level of economic activity. The main feature of the budget was an extension of the personal tax reduction granted in February 1973, with further concessions effective in January 1975. The budget also contained measures to stimulate residential construction and to sustain business investment. The anticipated net budgetary effect of the proposals was to move the federal government fiscal position into a large deficit in 1975-76.

Another budget was introduced in June 1975, following the deterioration of economic activity. It contained a series of measures designed to create jobs, assist housing, and sustain business investment. Upward adjustments in oil and gas prices were announced as a step to move domestic prices towards international prices. The Minister of Finance also stated that the government was taking a lead in restraint by adopting measures to bring its outlays under more effective control.

Monetary policy was progressively tightened until mid-1974. The rate of expansion of the privately held money supply registered a marked deceleration between the first and second quarters. Interest rates moved up sharply during this period, reflecting partly the higher interest rates abroad and partly the tighter domestic policy. The authorities also

raised the bank rate in three consecutive steps between January and July 1974. Monetary policy became more accommodating in the second part of the year, as the money supply expanded at a rate corresponding to the increase in current GNP. The bank rate was adjusted downward first in November 1974 and then again in January 1975. The weaker demand for money, the cautious easing of monetary policy, and the decline in U.S. rates resulted in falling short-term rates. Then, in response to upward pressures on interest rates and a growing concern about the accentuation of inflationary pressures late in the summer of 1975, the monetary authorities raised the bank rate in early September.

On the foreign exchange market, the Canadian dollar was, on average, strong in 1974, trading at levels modestly above parity with the U.S. dollar. It appreciated steadily vis-à-vis the U.S. dollar until the middle of the year, and then it began to depreciate moderately. The relative strength of the Canadian dollar in 1974 was sustained by substantial net inflows of long- and short-term capital, which more than offset the marked deterioration in our current account balance. With the rise in the current account deficit, the Canadian dollar continued to depreciate in 1975 and dropped below par with the U.S. dollar. The value of the Canadian dollar has depreciated about 4 per cent since the beginning of 1974.

In brief, output growth slowed down appreciably in 1974; productivity dropped; and the level of unemployment did not change significantly. The external environment was unfavourable, and fiscal and monetary policy was used to counterbalance rapidly changing economic conditions.

Appraisal of Performance and the Indicators

In its *Eleventh Annual Review*, published in November 1974, the Economic Council recommended the adoption of a revised set of performance indicators for the 1973-77 period (Table 4-1). The proposed target values for the indicators were presented as "an attempt to identify, as clearly and as consistently as possible, the set of values that might reasonably be sought as objectives." By comparing actual changes in 1974 with those targets, an effort was made to detect deviations in the actual growth of the economy from the proposed medium-term objectives and to determine why deviations have occurred and whether the targets need to be modified.

Values for the performance indicators represent annual averages for the 1973-77 period, so that achievement of the objectives does not depend on the target values being reached each year. In quantifying

the targets presented last year, the fact that the economy in 1973 was close to a situation of full utilization of its resources was taken into

Table 4-1

Performance Indicators, 1973-77, and Actual Values, 1974

	Proposed annual averages, ¹ 1973-77 ²	Actual, 1974
	(Per cent)	
Gross national expenditure	5.5	2.8
Consumer expenditure	5.0	4.2
Total fixed investment	8.2	5.4
Machinery and equipment	9.5	8.1
Nonresidential construction	12.2	7.6
Residential construction	2.0	-2.6
Government current expenditure	5.0	8.0
Exports	4.5	-3.8
Imports	6.0	8.6
Real disposable income per capita	3.8	2.8
Output per person employed	2.4	-0.6
Output per person employed in manufacturing	4.0	-0.1
Employment	3.0	4.3
	(Percentage points)	
Differential between Canadian and foreign prices ³	±0.5	-1.15
	(Thousands per year)	
Housing starts	245	222
	Percentage of labour force	
	1977	1974
Unemployment	4.5	5.4

1 For gross national expenditure and its components, as well as real disposable income and productivity, the targets are average annual percentage changes calculated in 1971 dollars. The employment indicator measures the percentage change in the number of persons employed.

2 1973 is the base year to which the average annual percentage changes apply; 1974 is a year of transition, for calculation purposes; 1975 to 1977 are the years to which the indicators apply, for policy purposes.

3 Absolute difference between the percentage change in the CPI in Canada and the percentage change in the weighted index of consumer prices in the United Kingdom, the United States, West Germany, Japan, France, and Italy.

SOURCE Economic Council of Canada, *Eleventh Annual Review: Economic Targets and Social Indicators* (Ottawa: Information Canada, 1974), p. 53, and estimates based on data from Statistics Canada.

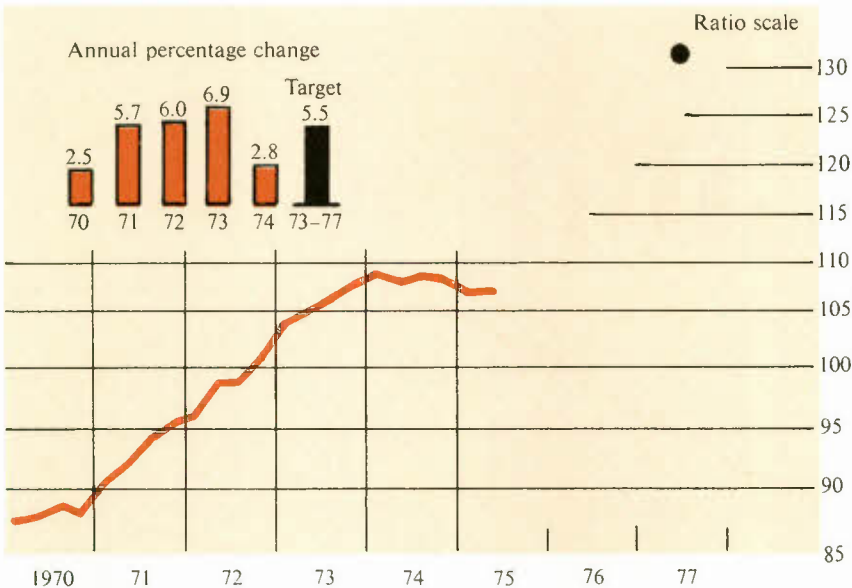
consideration. The proposed target rates were thus designed to keep the economy on its long-term high-employment trend. However, the growth path of the indicators was not expected to be regular. As a matter of fact, the slowdown in the U.S. economy had already been perceived, so that the indicators were consistent with slower economic growth in 1974 and 1975, followed by more rapid progression thereafter. Actual growth in 1974 was, however, significantly lower than we had anticipated, mainly because of the more pronounced deterioration of the external environment than was projected in mid-1974.

Gross National Expenditure

The indicator proposed in the Eleventh Review for real gross national expenditure (GNE) – an average growth rate to 1977 of 5.5 per cent – was a target rate aimed at maintaining the economy close to its potential level during the 1973-77 period. The realized rate of 2.8 per cent in 1974 was substantially below our expectations, although some slowing-down in overall growth was anticipated (Chart 4-1). The areas

Chart 4-1

Gross National Expenditure, 1970-77
(Billions of 1971 dollars)



NOTE: The black dot in the charts in this chapter represents the 1977 target level implicit in the average rate of change recommended last year.

SOURCE: Based on data from Statistics Canada and estimates by the Economic Council of Canada.

lacking vigour were external demand, consumer spending, and outlays for housing. On the supply side, the shortfall in our growth performance was due entirely to a drop in productivity.

Growth in Canada in 1975 is also expected to be much lower than the target rate suggested in the Eleventh Review, reflecting the slow recovery in the U.S. and overseas economies. To achieve the level of GNE implied by the target rate by 1977 would thus require an average rate of growth of close to 10 per cent in 1976 and 1977. Such a rate would exceed by a substantial margin the potential growth rate of the economy, estimated to range between 5.0 and 5.5 per cent, and would hardly be compatible with an acceptable degree of price stability and, more generally, with a viable balance between aggregate demand and supply. Obviously, the losses of output and employment in 1975 cannot be recouped.

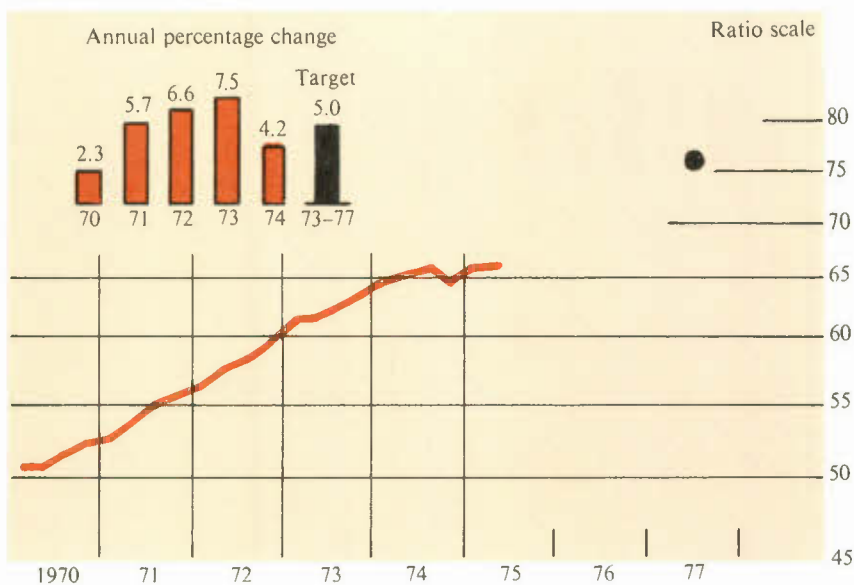
Consumer Expenditure

The realized rate of growth in real consumer expenditure of 4.2 per cent was below the proposed target for 1973-77 of 5 per cent, but it

Chart 4-2

Consumer Expenditure, 1970-77

(Billions of 1971 dollars)



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

was almost in line with our projections for 1974. The achieved rate represented a marked drop from the exceptional increase of 7.5 per cent recorded in 1973 (Chart 4-2).

The general deceleration in consumer expenditure reflected a net slowing-down in the rate of increase in real disposable income, which rose by only 4.4 per cent in 1974 compared with an average of close to 8 per cent during the strong expansionary period from 1971 to 1973. Despite this slower gain, the personal savings rate rose to 8.5 per cent of personal disposable income in 1974, compared with 7.9 per cent in 1973. The increase may be accounted for by cautious consumer spending behaviour.

The slower progression in purchasing power mainly affected real spending on durable goods, which rose by 5 per cent, compared with 15.6 per cent in 1973. Car purchases, which account for about 50 per cent of all expenditure on durable goods, diminished by about 3 per cent in 1974 – a decline far less pronounced than the 18 per cent drop recorded during a similar period of economic contraction in 1970. A slowdown in the pace of spending on furniture, household items, and recreational equipment, especially during the second half of the year, may be attributed to the lower performance in the housing sector during the same period.

Investment

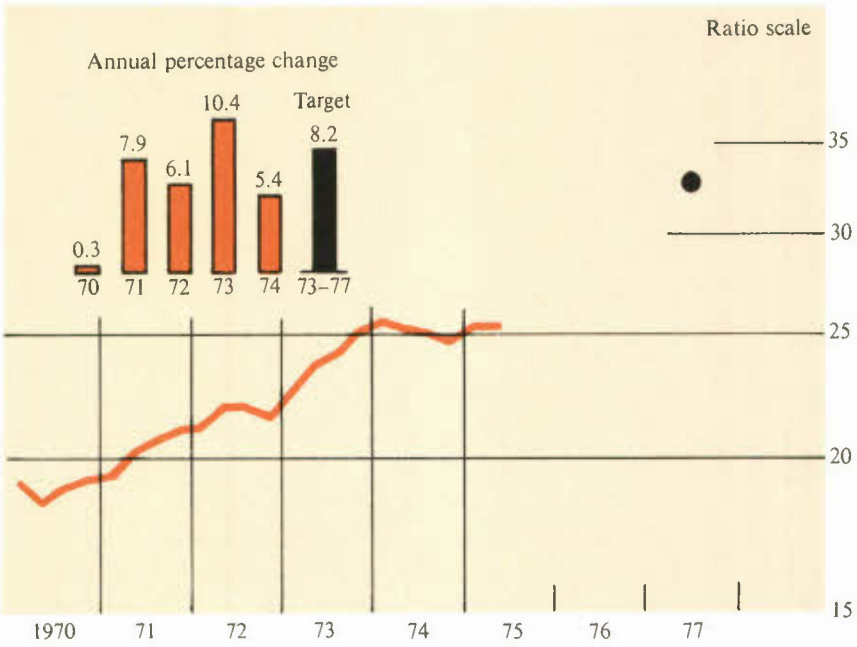
The proposed target rate for the four components of total fixed investment together was 8.2 per cent. The increase of 5.4 per cent in 1974 was thus below the target and much lower than the projected rate for that year (Chart 4-3).

The main source of increase in total real investment in 1974 came from the 8.1 per cent rise in business spending on machinery and equipment (Chart 4-4). Fiscal provision for a two-year write-off of expenditures on new machinery and equipment contributed to such investment spending. Nevertheless, the recorded increase fell short of the target rate of 9.5 per cent proposed for the 1973-77 period and was below our expectations for 1974.

Business spending on nonresidential construction grew in 1974 at a rate substantially lower than the target of 12.2 per cent proposed for the 1973-77 period (Chart 4-5). The achieved increase was also significantly below what we had anticipated. This shortfall could be partly attributed to construction strikes, which seriously disrupted nonresidential construction projects during the year and may have pushed some of the business construction activity over into 1975.

Chart 4-3

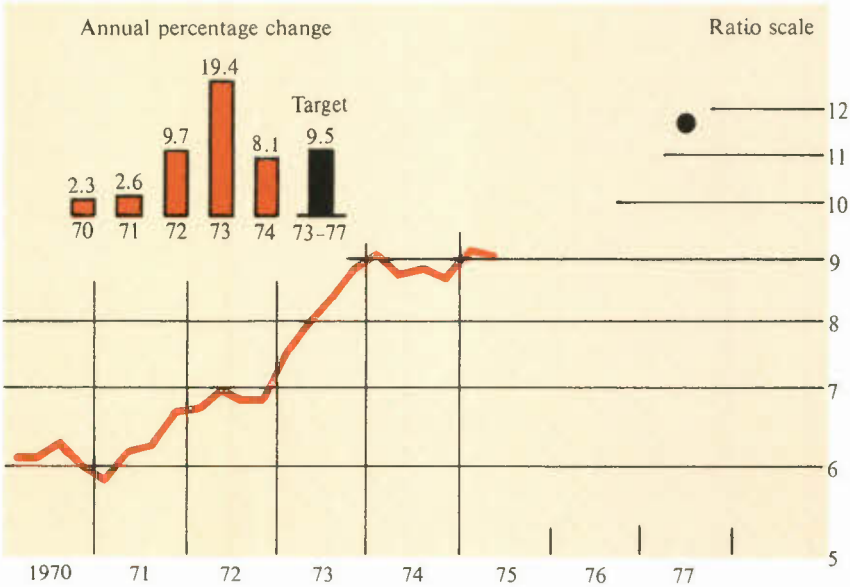
Total Fixed Investment, 1970-77
(Billions of 1971 dollars)



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Chart 4-4

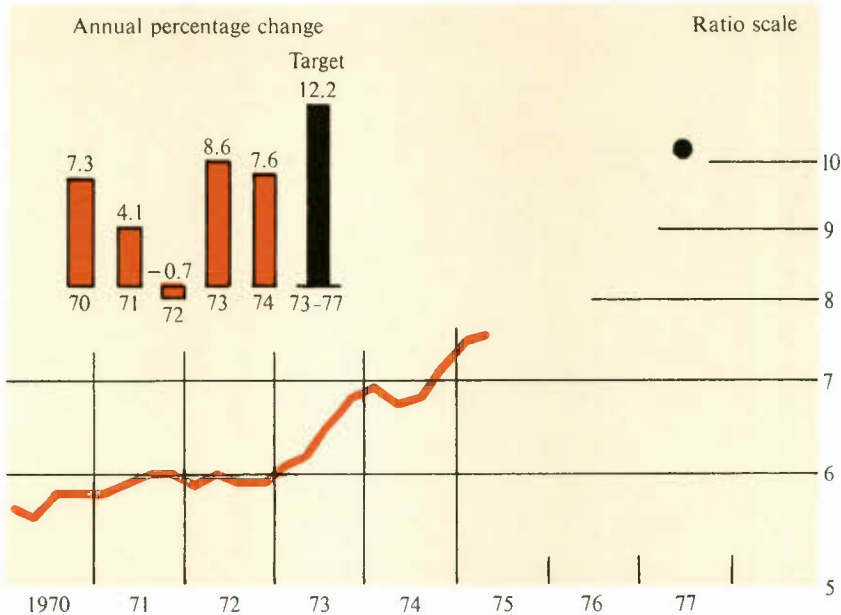
Investment in Machinery and Equipment, 1970-77
(Billions of 1971 dollars)



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Chart 4-5

Investment in Nonresidential Construction, 1970-77
(Billions of 1971 dollars)



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

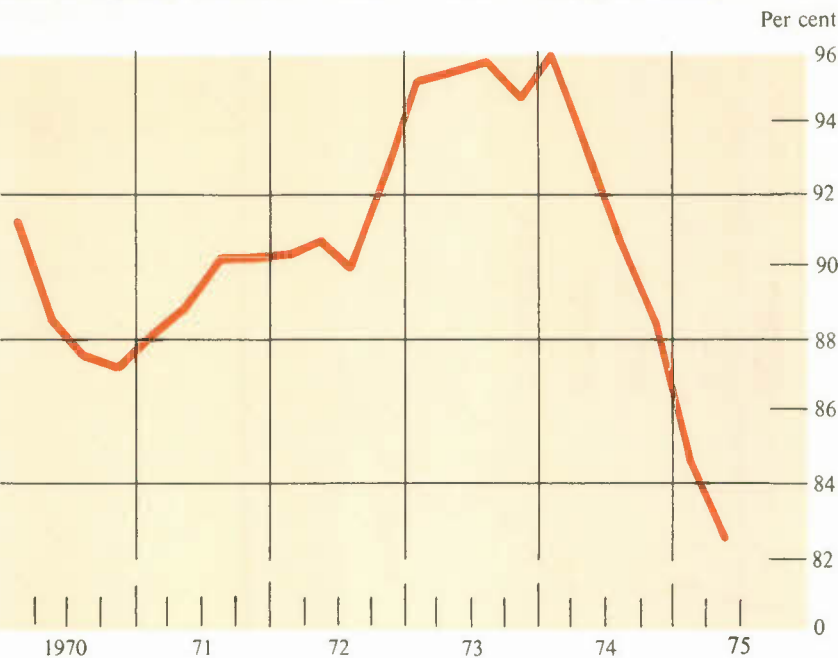
The slowdown in economic activity resulted in a lessening of physical capacity constraints, as evidenced by the steady decline in the rate of capacity utilization since the first quarter of 1974 (Chart 4-6). This slack could, however, be taken up rapidly, once the economy begins to recover from its present slump. It is thus important to stress the need for continued additions to productive capacity, so as to avoid a recurrence of the bottlenecks that emerged in the economy in 1974. We return to this issue later.

In the housing sector, where potential demand remains strong, the performance indicator called for a 2 per cent growth rate to 1977 in real residential construction investment (Chart 4-7) and for an average of 245,000 housing starts per year (Chart 4-8). The target for dwelling starts was established with the objective of allowing the housing stock to grow faster than the number of households, in order to increase the vacancy rate to a more desirable level and to alleviate some of the upward pressure on shelter costs.

Real spending on residential construction declined by 2.6 per cent in 1974, when there were 222,000 housing starts. Although our projections indicated some slowing-down in the housing construction market in 1974, the actual decline was more pronounced than expected. The

Chart 4-6

Rate of Capacity Utilization: Nonfarm Goods-Producing Industries, 1970-75

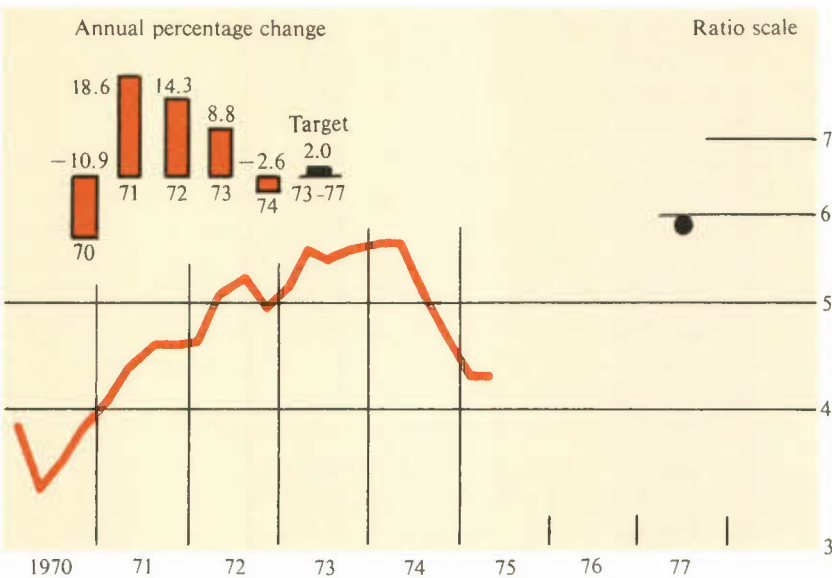


SOURCE Based on data from the Bank of Canada.

Chart 4-7

Investment in Residential Construction, 1970-77

(Billions of 1971 dollars)

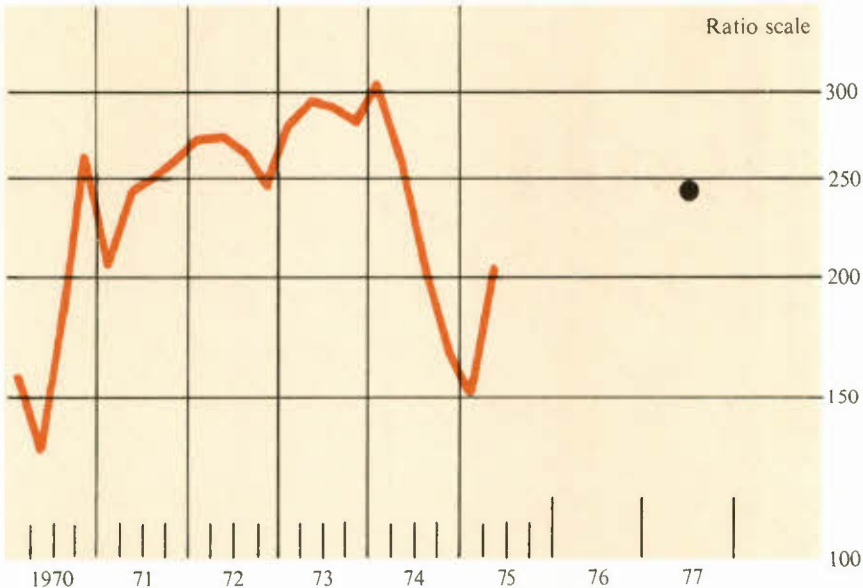


SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Chart 4-8

Housing Starts, 1970-77

(Thousands of units)



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

dampening influence of high mortgage rates, reduced availability of funds, and shortages of serviced land in certain urban areas were among the main factors responsible for the decline in the level of starts in 1974. All types of dwelling construction were affected, but the drop was more pronounced in apartment construction, which accounted for over 70 per cent of the total decline in dwelling starts. As a result, the apartment vacancy rate in twenty-two metropolitan areas was down to 1.9 per cent in December 1974 – the lowest rate recorded in the last five years.

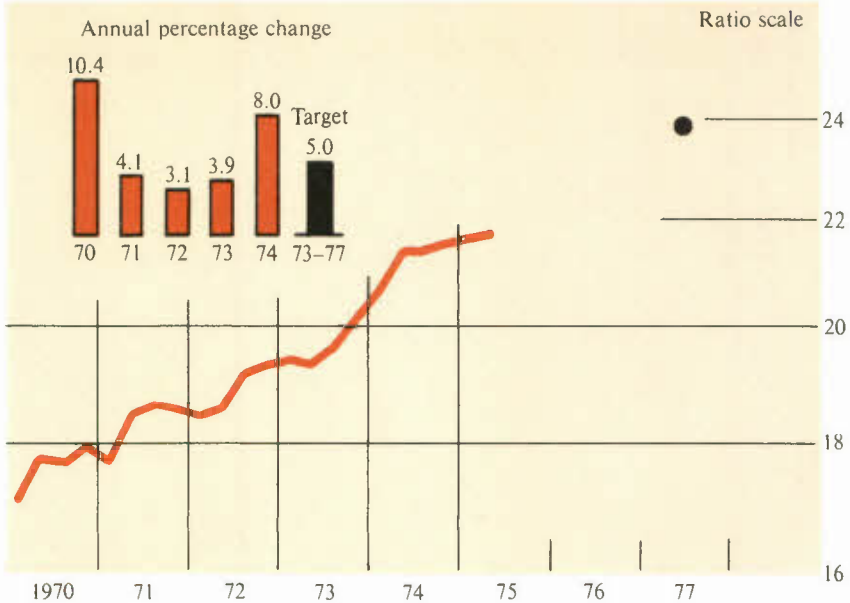
Government Current Expenditure

The target for government current expenditure on goods and services for 1973-77 was an average increase of 5 per cent in real terms. The recorded rate of 8.0 per cent (Chart 4-9) was significantly higher than expected for 1974.

Public service employment normally plays an important role in explaining the fluctuations in these expenditures, since wage and salary costs account for more than 50 per cent of government current spending.

Chart 4-9

Government Current Expenditure, 1970-77
(Billions of 1971 dollars)



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

This did not appear to be the case in 1974, as employment in public administration and defence grew at roughly the same rate as in 1973. The strong performance of real government current spending in 1974 would thus be mainly attributable to a marked real increase in purchases of goods and services from the private sector, following several years of relatively slow increases. A strong progression in defence expenditures was also recorded in 1974.

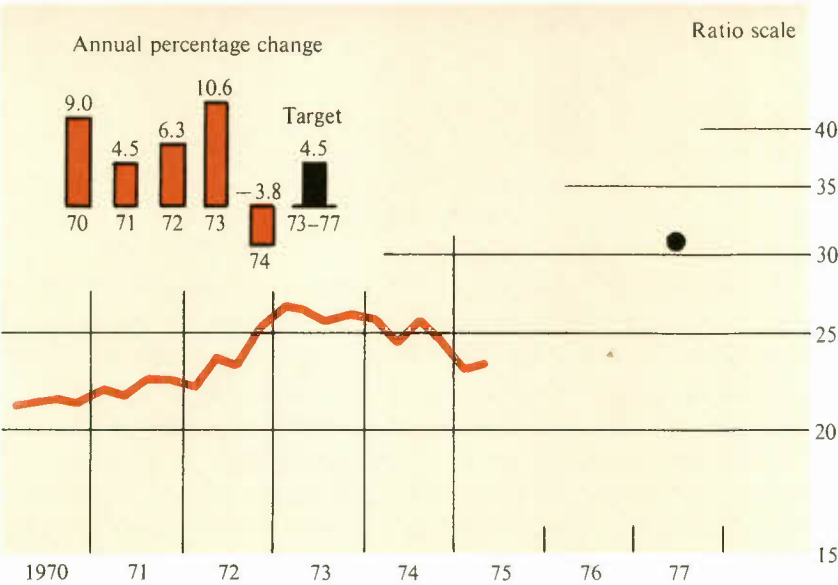
Exports and Imports

The 1973-77 performance indicators in the Eleventh Review anticipated increases of 4.5 per cent per annum for exports and 6.0 per cent for imports (Charts 4-10 and 4-11). In fact, exports declined by 3.8 per cent in 1974, while imports increased by 8.6 per cent. Prospects are that, for the whole 1973-77 period, imports will be reasonably close to the proposed target, but exports will fall short.

The major reason for the shortfall in export performance is the U.S. recession, which is deeper than projected in mid-1974. Overseas economies were also slacker than expected earlier, partly because of the U.S. recession. Some more specific reasons include the policy of

Chart 4-10

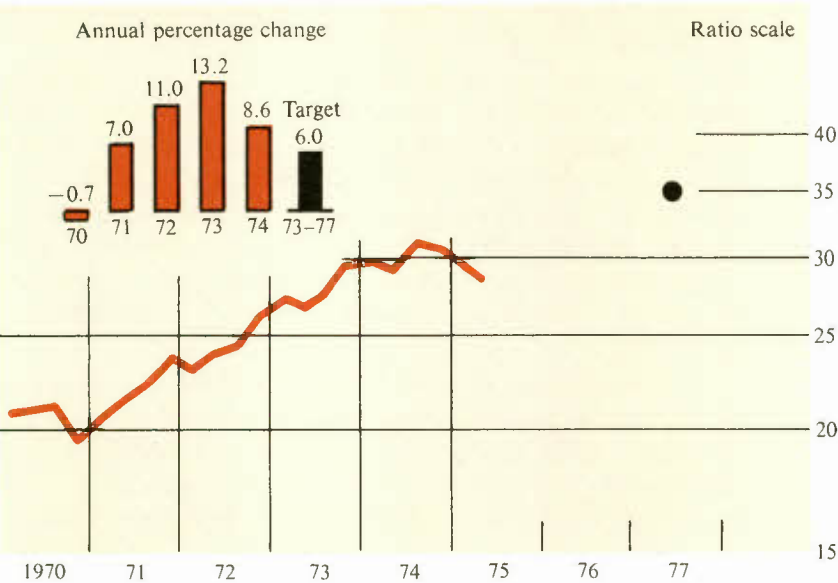
Exports of Goods and Services, 1970-77
(Billions of 1971 dollars)



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Chart 4-11

Imports of Goods and Services, 1970-77
(Billions of 1971 dollars)



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

"locking-in" – that is, cutting back – production of Canadian oil in 1975 and 1976 to await the Sarnia-Montreal pipeline, and the low level of grain stocks in the country, which will not permit much expansion of exports unless there are bumper crops in 1975 and subsequent years. The relative strength of imports in 1974 is partly attributable to the fact that economic activity in Canada rose moderately last year, while several other economies were in recession. Finally, prices for highly manufactured goods increased more in Canada than elsewhere and unfavourably affected our trade.

However, for our total trade, export prices outstripped import prices, so that Canada's current-account balance of payments gained enormously. This improvement in the terms of trade significantly reduced the effect of the fall in export volume on the current account balance and provided a large cushion for the balance of payments in 1973 and 1974 and, no doubt, for the Canadian economy as a whole. The terms of trade peaked, however, in 1974 and could decline substantially in the next year or two. Canada could thus fairly quickly lose the cushion that has mitigated the impact of the 1974 recession abroad.

Total Canadian unit costs have risen substantially relative to U.S. costs since 1971, when the ratio is specified in the national currencies of each country, and even more so when the effect of the appreciation of the Canadian dollar between 1970 and 1974 is included. As noted, prices for manufactured goods increased faster in Canada than in the United States. This pattern of price changes is no doubt related to the deteriorating balance of trade in highly manufactured goods, along with the appreciation of the Canadian dollar between 1970 and 1974 and the greater slack in foreign industrial economies than in the Canadian economy.

Canada faces, especially in the immediate future, a fairly weak environment for exports in real terms. It seems clear that the terms-of-trade cushion of 1973 and 1974 is weakening. The current account deficit in 1975 is likely to be in the neighbourhood of \$5 billion – a sharp rise from the \$1.6 billion deficit incurred in 1974. The tendency for the current account deficit to reach these proportions will affect the exchange rate, unless new capital imports are large. In fact, the exchange rate has remained below par with the U.S. dollar since the beginning of 1975.

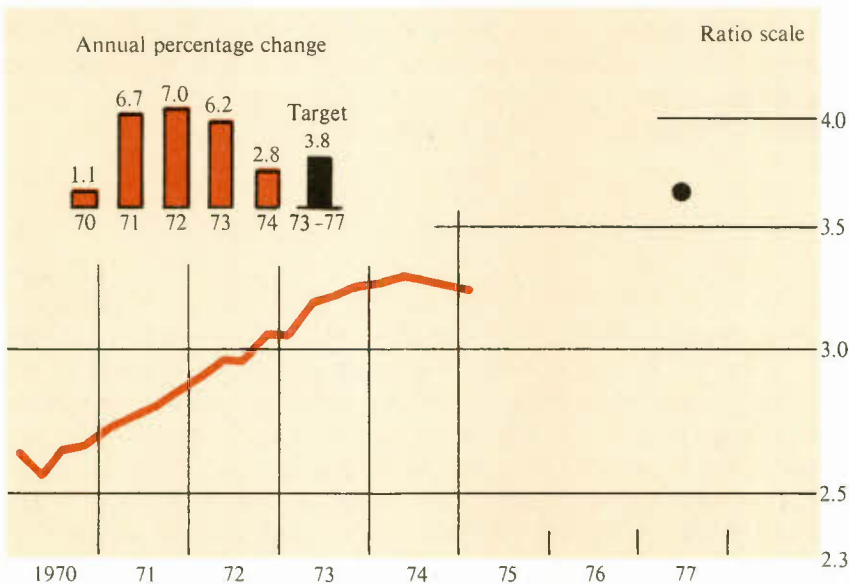
From a longer-term point of view, Canada should now be concerned with the ability of its secondary manufacturing industries to compete in Canadian and world markets. The competitive problem involves several policy areas, including trade, inflation, domestic savings, and the long-run strategy relating to productivity growth and the structure of the economy.

Real Disposable Income per Capita

The growth rate of 2.8 per cent recorded in 1974 for real disposable income per capita was almost in line with our expectations, although below the performance indicator of 3.8 per cent proposed last year for the 1973-77 period (Chart 4-12). Fluctuations in personal disposable income reflect variations in personal income as well as in income taxes paid.

Chart 4-12

Real Disposable Income per Capita, 1970-77
(Thousands of 1971 dollars)



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Wages, salaries, and supplementary labour income – which together are the largest component of personal income – rose 16.9 per cent in 1974. This compares with a real output gain of 2.8 per cent. The increase in labour income was achieved through a rise in both the number of employees and the amount received per employee. The rise in income per employee of about 12 per cent was accompanied by an actual decline in real output per person employed. This 12 per cent nominal increase barely exceeded the increase in consumer prices, leaving only a slight gain in purchasing power. In contrast with performance in 1973, a marked deceleration in the advance of farm income acted as a drag on the overall progression of personal income in 1974. On the

other hand, a spectacular increase of 22.5 per cent in transfer payments to persons in 1974 contributed to its continuous advance. Cost-of-living adjustments contained in major income maintenance schemes, and improvements in existing programs such as the family allowance system, were largely responsible for the sizable upsurge.

The 16.9 per cent increase in personal income in 1974 was reduced to 15.5 per cent after tax, because personal income taxes and other transfers to governments rose faster than income as a result of the progressive tax system. Fiscal policy measures, such as the extension into 1974 of the personal income tax reduction granted in 1973 and the indexation of tax brackets and major exemptions in 1974, have led to a reduction in the degree of responsiveness of taxes to increases in nominal income. The increase in personal disposable income has obviously been stronger than would have been recorded had these fiscal provisions not been in effect. Nonetheless, the increase in personal income taxes reached 22 per cent.

Productivity

The indicator proposed in the Eleventh Review for total output per person employed called for an average increase of 2.4 per cent per year for the 1973-77 period, while the target was set at 4 per cent for manufacturing. Productivity in the total economy actually declined in 1974 by 0.6 per cent (Chart 4-13) and in manufacturing by 0.1 per cent (Chart 4-14). Although our projections did not call for the productivity indicators to reach, in 1974, the average target set for the period as a whole, actual performance was significantly below what we had anticipated; indeed, 1974 was the third consecutive year of deteriorating productivity performance.

One of the features of the recent period of expansion has been that employment contributed substantially more than productivity to sustaining output growth. Between 1970 and 1974, close to 70 per cent of the increase in real domestic product (RDP) was achieved through employment growth and about 30 per cent through productivity gains. By comparison, productivity improvements accounted for nearly 50 per cent of the increase in RDP recorded between 1960 and 1966.

Cyclical factors contributed to the disappointing performance of 1974. Typically, productivity growth tends to flatten out in the later stage of a cyclical expansion, and during recessions, and then to rebound sharply in the early stages of a recovery. The virtual lack of growth or the slight decline in productivity recorded in 1974 is a reflection of recessionary trends at work within the Canadian economy.

Chart 4-13

Output per Person Employed, 1970-77
(Thousands of 1961 dollars)

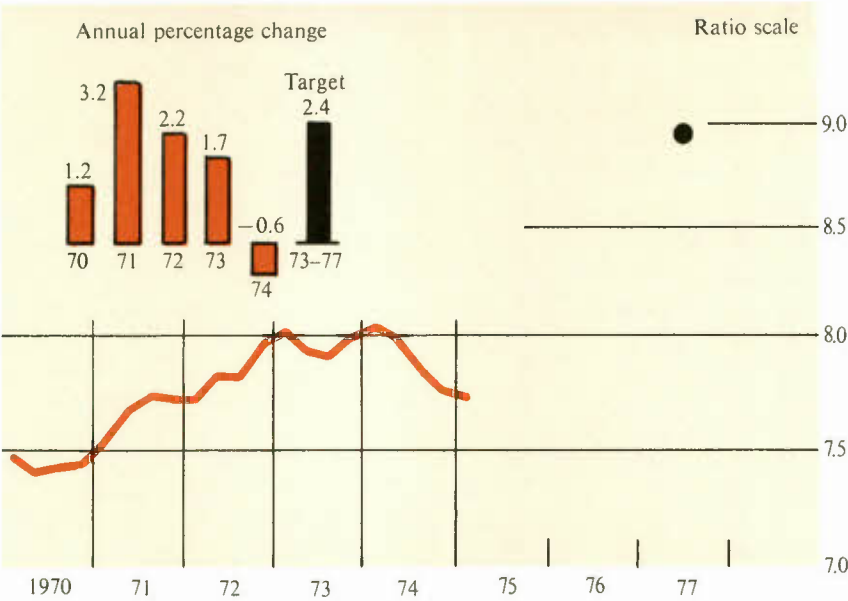
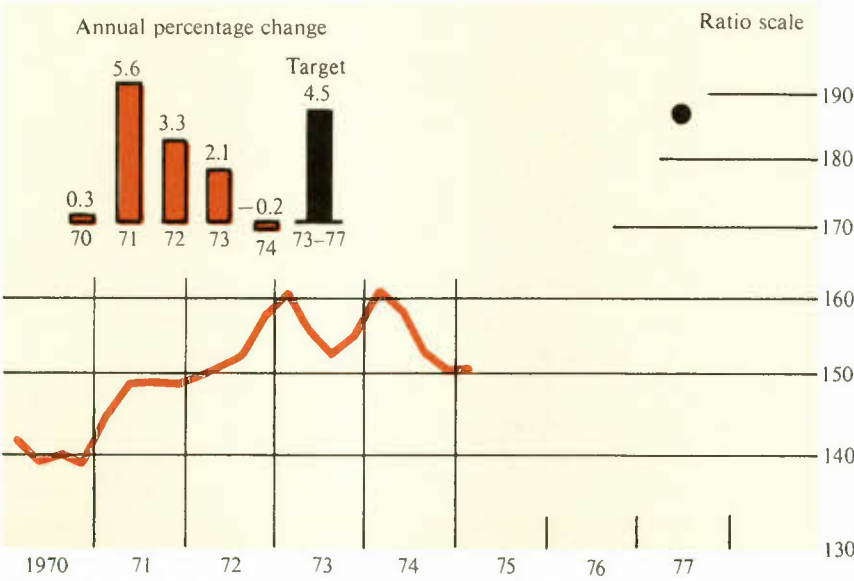


Chart 4-14

Index of Output per Person Employed in Manufacturing, 1970-77
(1961=100)

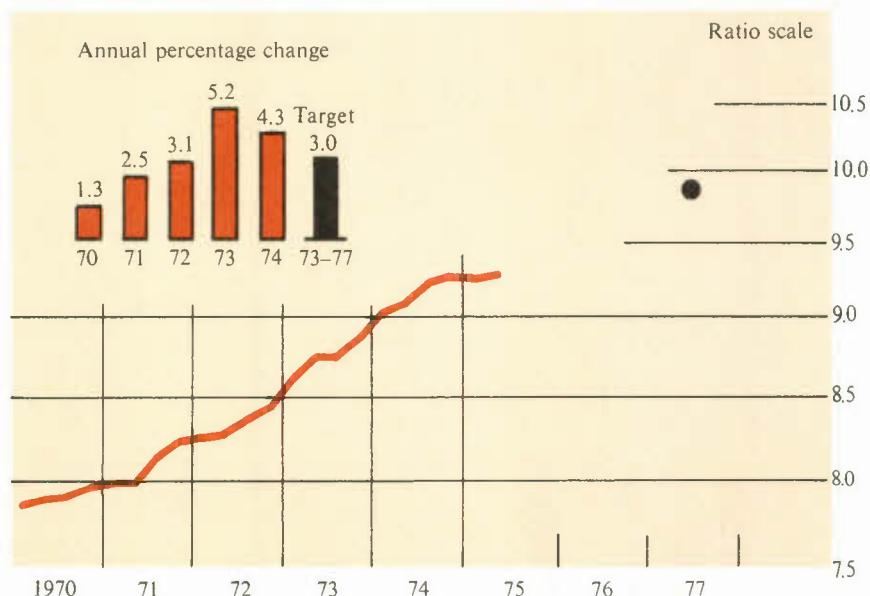


The Labour Market

Employment continued to rise in 1974 at a rate above the target of 3 per cent per annum proposed last year. The realized rate of 4.3 per cent reflected a net increase of 378,000 jobs (Chart 4-15) and was substantially in excess of what we had expected for 1974. Although below the exceptional increase of 430,000 jobs created in 1973, the growth in employment was very high in 1974 compared with the average recorded between 1970 and 1973. This growth was especially impressive, considering that real GNP grew by only 2.8 per cent in 1974, as against an average annual increase of 5.3 per cent during the 1970-73 period.

Chart 4-15

Employment, 1970-77
(Millions of persons)



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Of the total increase in the number of persons employed, the largest single increment was in community, business, and personal services – continuing the strong trend of recent years. The service sector as a whole accounted for close to 70 per cent of the new jobs created in 1974, while the manufacturing sector's share amounted to 14 per cent. In the latter case, the experience of 1974 is in sharp contrast to that of 1972 and 1973, when roughly 25 per cent of the new jobs created were in manufacturing industries. A notable feature in 1974 was the

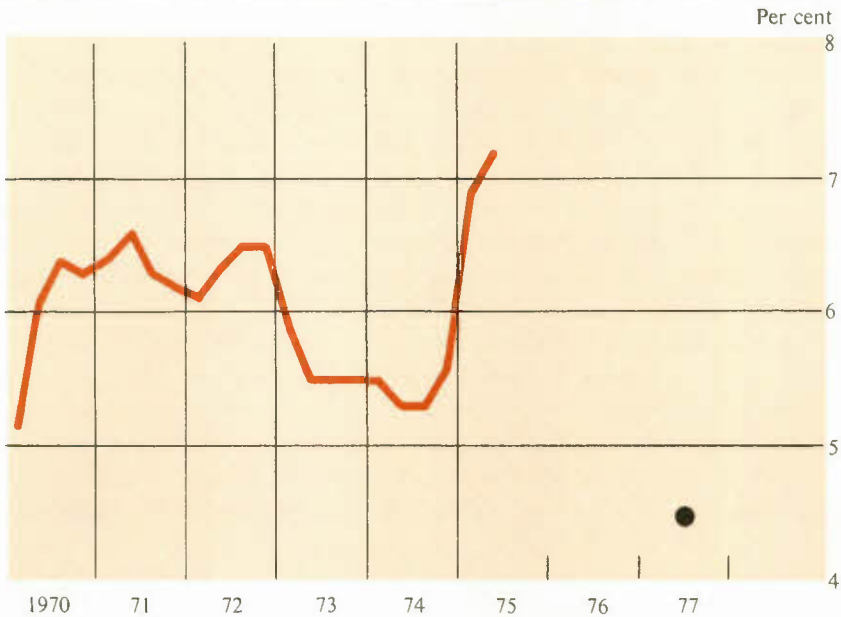
expansion of agricultural employment, for which the last increase had been recorded in 1967.

Continuing the trend established in recent years, the fastest rate of employment growth and the largest proportion of new jobs created in 1974 were attributable to what is often referred to as the secondary labour force – that is, women of all ages and males aged 14 to 24 and 55 and over. The rise in employment of women and young people was accounted for by a steady increase in their participation rates rather than by a marked reduction in their unemployment.

Overall, the continued rise in participation rates in 1974, although less pronounced than in 1973, led to an increase of 4.1 per cent in the labour force. The 4.3 per cent increase in employment outpaced the expansion of the labour force, resulting in a reduction of the unemployment rate from 5.6 per cent in 1973 to 5.4 per cent of the labour force (Chart 4-16). This decline in the aggregate unemployment rate was widely distributed among the various age-sex components of the labour force.

Chart 4-16

Aggregate Rate of Unemployment as a Percentage of Labour Force, 1970-77



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

However, the significance of the aggregate level of unemployment as an indicator of ease or tightness in the economy has been questioned in recent years. It has thus been recommended that the aggregate

unemployment rate be supplemented by other measures, such as the unemployment rate for males 25 to 54 and the rate of change in non-agricultural employment.¹ Unemployment rates for males 25 to 54 moved from 4.1 per cent in 1973 to 4 per cent in 1974, indicating that the degree of tightness in the labour market remained virtually unchanged. This development tends to confirm the view that the demand for labour continued to be particularly strong in 1974 in spite of the marked deceleration in real output growth.

Relative Price Performance

The relative price indicator, introduced in the *Tenth Annual Review*, compares changes in the CPI in Canada with those in a weighted average index of six major trading partners (Chart 4-17). Canada performed very poorly from the first quarter of 1972 until the third quarter of 1973, and only in the final quarter of 1973 did the indicator return to the confines of the recommended bounds. At the beginning of 1974, the indicator moved beyond the bounds again, but this time in the opposite direction. Since then, the indicator has recorded large negative values, meaning that price increases have been lower in Canada than in the six major industrial countries. This relative improvement has not been attributable to lower rates of domestic price increases but rather to stronger price accelerations elsewhere.

In both 1972 and 1973, about 70 per cent of the variation in the CPI was attributable to changes in the prices of food and housing. By contrast, price increases in 1974 were more equally spread among consumer goods. This implies that the achievement of a better overall price performance would require the development of a global strategy designed to fight inflation on all fronts.

A provisional forecast of price changes prepared by the OECD suggests that inflationary price movements will tend to persist in 1975, although at lower levels than in 1974, for some of the countries included in the calculation of the relative price indicator.² If it were to stay within the boundaries defined by the Council in the Tenth Review, Canada could still experience, on the basis of OECD projections, overall price increases of 9 to 10 per cent in 1975.

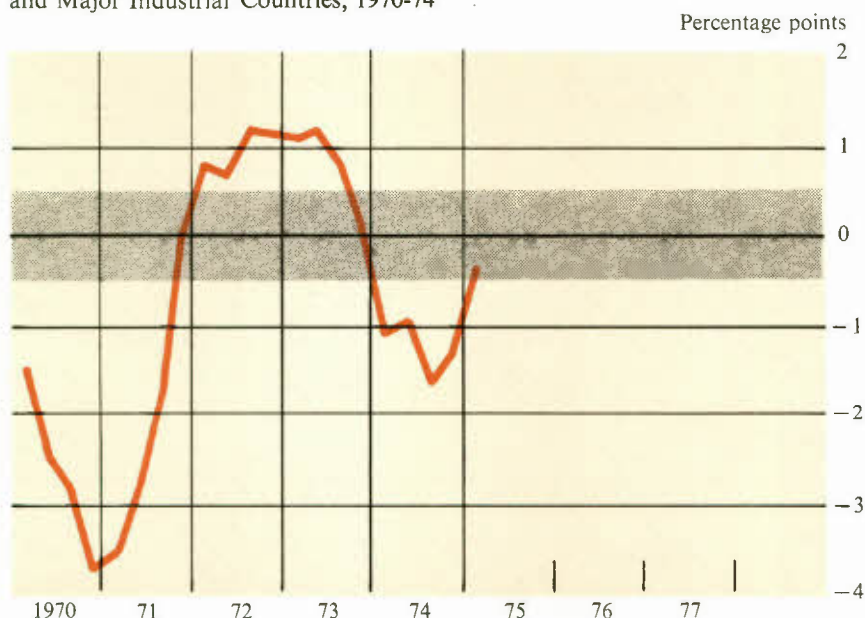
It may appear paradoxical that in 1974 Canada recorded a better price performance than its major trading partners and, at the same time,

1 See the forthcoming report of the Economic Council on its study of the labour market.

2 Organisation for Economic Co-operation and Development, *Economic Outlook* (Paris: OECD, 1975).

Chart 4-17

Differential Rate of Price Change between Canada
and Major Industrial Countries, 1970-74



NOTE This chart records the absolute difference between year-to-year changes in the Canadian consumer price index and year-to-year changes in the weighted average index of the consumer price indexes of the principal OECD countries: United States, United Kingdom, West Germany, France, Japan, and Italy. The weights used for the latter are the proportions that each country's total bilateral import and export trade with Canada represents of the total import and export trade of the six countries combined with Canada. The trade weights are based on 1968-71 data.

SOURCE Organisation for Economic Co-operation and Development, *Main Economic Indicators* (Paris: OECD, various years); and estimates by the Economic Council of Canada.

experienced a deterioration of its competitive position in international markets. This apparent inconsistency stems from the fact that our price indicator measures relative changes in domestic purchasing power; it is not designed to record relative variations in international competitiveness. To do so, one would have to compare prices of Canadian- and foreign-produced goods traded on international markets. Price changes measured through variations in consumer price indexes undoubtedly reflect price fluctuations that affect goods traded simultaneously in domestic and international markets, but they also cover a large variety of items that are sold in the domestic market alone – for instance, most of the services.

Factors such as the appreciation of the Canadian dollar between 1970 and 1974, and the strong acceleration in Canada's total unit costs relative to those of our major trading partners, are largely responsible for the current deterioration in our international competitive position.

If the trend towards higher relative costs in Canada persists, not only will our competitive position continue to deteriorate, but our domestic price performance will inevitably move towards a less favourable position than recorded since the end of 1973.

Performance Indicators for 1974-78

A set of interim performance indicators was initially presented and proposed in the 1972 Review³ as a means of translating into more operative terms the five general goals set for the Canadian economy in the Council's previous Annual Reviews. The indicator values were developed with the objective of establishing attainable and consistent targets that would provide direction for policy-makers over the medium term, serve as a tool for assessing current economic performance, and be revised regularly to take into account changing economic circumstances.

We repeatedly stated in recent Annual Reviews that our performance indicator values were not forecasts of future events, but rather objectives for a given period of time. These values are intended to be realistic in the sense that relevant information on the past performance of the economy and important future developments, such as the energy situation and economic prospects abroad, are taken into account. Our indicators represent a particular set of goals that reflect the Council's priorities. To draw a more distinct line between the concepts of *forecast* and *performance indicator*, we have developed, this time, a control solution for the 1974-78 period – that is, the period covered by our revised performance indicators. This projection, based on the assumption that no major policy will change, will serve to identify the kinds of problems that are likely to emerge in the medium term and, from there, determine the sort of targets that we should pursue over the same time horizon.

Control Solution

In our control solution for the 1974-78 period, not only did we have to take into account the recent performance of the economy, but we had to make some assumptions about future development patterns. The solution is based on scenario 1 in Chapter 1 and incorporates the

3 Economic Council of Canada, *Ninth Annual Review: The Years to 1980* (Ottawa: Information Canada, 1972).

June 1975 budget provisions. It was prepared, however, before the government anti-inflation program was announced in October.

Measures contained in the last budget are expected to result in a faster rate of price increase and a slower rate of growth in real disposable income. Higher prices reflect the impact of the new gasoline tax and the increased price of crude oil and natural gas, while the slower real income progression comes from both higher prices and the increase in unemployment insurance contributions. Consumer spending will tend to slow down, in turn, as a consequence of slower growth in real income. The proposed investment tax credit is expected to encourage business investment, but also to bring about a larger current account deficit because of the large import content of business investment in machinery and equipment. In the housing sector, the increase in the Central Mortgage and Housing Corporation budget is likely to exert some stimulative effects on housing activity, but the expected reduction in real income growth will probably tend to offset its impact. From a stabilization point of view, the proposed budget measures are not likely – nor are they expected – to bring about major change in the overall performance of the economy. Stronger investment growth will be accompanied by slower growth in consumer expenditures and larger import leakages.

Our assumptions about the economic performance of major foreign countries are based on the Wharton model for the United States, and on data from the OECD for Western Europe and Japan. The U.S. economy is expected to recover in 1976 from its current depressed level and to grow more strongly in 1977 and 1978, with real GNP increasing by an annual average of 7 per cent over these two years. The unemployment rate is projected to decline to 6 per cent by 1978, down from its present level of over 8 per cent. The rate of increase in the GNE price deflator is projected to slow down to about 5 per cent by 1978 – a marked deceleration from its current rate of more than 9 per cent. For Western Europe and Japan, we assume that the average annual rate of growth of their industrial production will be around 5 per cent in the 1974-78 period.

The control solution also incorporates the set of assumptions underlying our moderate-price energy scenario (see Appendix A). This scenario assumes that the international price (f.o.b.) of crude oil will remain constant in nominal terms to 1980 and, beginning in 1981, will increase by 5 per cent per year. The domestic wellhead price is set at \$8.50 and is assumed to move to parity with the international price by 1980. The price of natural gas at the city gate will be equal to the commodity value of oil at the city gate in 1978. In addition to the construction of the Sarnia-Montreal pipeline and the completion of

the Syncrude oil sands plant, it is expected that construction of the Mackenzie Valley pipeline will begin at the end of the 1974-78 period. However, the full impact of investment in energy will be felt after the period covered by the indicators.

The current weakness of the external sector has resulted in a depreciation of Canadian currency relative to the U.S. dollar. Over the projection period, it is assumed that inflows of foreign capital will prevent the Canadian dollar from falling much further below its current external value of about 97 U.S. cents. A below-par Canadian dollar is likely to bring about a more acceptable balance of trade.

Growth rates for the main aggregates for the 1974-78 period are shown in Table 4-2. Real GNE is projected to increase at an average annual rate of 4.7 per cent per year for the period. The Canadian economy will recover in 1976 from its depressed level of 1975 and grow strongly in 1977 and 1978 (the growth path for the 1974-78 period is shown in Appendix F).

Despite the achievement of an average annual rate of growth of 5.9 per cent in the three years from 1976 to 1978, unemployment will only decline to 5.6 per cent by 1978. This also implies that the gap between potential and realized GNP will remain large by the end of the period.

With the expected recovery of the economy in 1976, capital/output ratios in the manufacturing sector will tend to drop markedly. Chart 4-18 shows that the ratio for manufacturing will decline in 1978 to a level close to that of 1973 – a year characterized by shortages of plant capacity. This suggests that capacity constraints may well be felt again in 1977 and 1978, as the economy records rates of expansion in excess of the potential rate of growth, which is estimated to range between 5.0 and 5.5 per cent per year over this period. The emergence of capacity constraints will likely result in the accentuation of inflationary pressures.

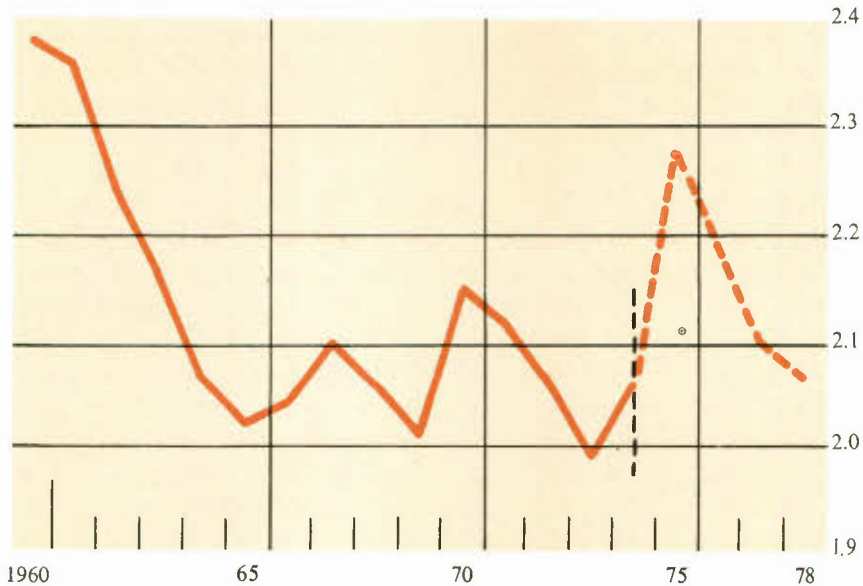
In the housing construction area the average of 221,000 starts per year projected for the period will bring the housing vacancy rate (measured in terms of household formation and housing starts) below its past level. This will undoubtedly exert adverse effects on housing prices and on shelter costs in general.

In summary, the control solution indicates that, without any major policy change, the GNP gap will remain large at the end of the period; the unemployment rate will decline to 5.6 per cent only by 1978; capacity constraints are likely to emerge again in 1977 and 1978; and the projected number of housing starts will result in a lowering of the aggregate vacancy rate below its historical level. It is against such a view of the immediate future that performance indicators are set.

Chart 4-18

Capital/Output Ratio, Manufacturing Sector, 1960-78

(1961 dollars)



SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Revised Performance Indicators

In developing targets for the 1974-78 period, it appeared unrealistic at the outset to try to bring the economy back to the potential level of output associated with a 3.8 per cent unemployment rate by 1978. Such an objective would have called for an average annual rate of growth of over 6 per cent in real GNE for each of the four years from 1975 to 1978. Taking into account that real growth in 1975 will likely be below 1 per cent, growth rates of almost 8 per cent would need to be realized in 1976, 1977, and 1978 to achieve that objective. As mentioned earlier, this would hardly be compatible with an acceptable degree of price stability and, more generally, with a viable balance between aggregate demand and supply. On the other hand, the control solution suggests that the economy will continue to operate with a substantial margin of slack by the end of the period. Thus some sectors of the economy will need stimulation.

Encouragement to private consumption, if not accompanied by incentives to investment in the manufacturing sector, would undoubtedly

accentuate inflationary pressures, because the degree of capacity utilization is expected to be critically high towards the end of this period. Incentives to housing construction would seem to be warranted in order to relieve some of the pressures on shelter costs.

Table 4-2 summarizes the interim performance indicators proposed for the 1974-78 period. These target values were obtained by introducing a set of adjustments into the control solution. Business investment was increased in 1976, 1977, and 1978 in order to prevent a marked drop in capital/output ratios after 1975; to this end, some fiscal incentives would have to be provided. The number of housing starts was raised to an annual average of 240,000 units to ensure a better balance between new household formation and the supply of housing units and to maintain more appropriate vacancy rates;⁴ this, in turn, suggests an upward adjustment in the rate of investment required in residential construction. Stimulus to private consumption was provided through reductions in personal income tax rates. These adjustments and the instruments proposed to achieve them may be interpreted as requirements for policy changes in the period ahead. Complementary adjustments, such as in savings, may also necessitate additional changes in policy.

The incorporation of the above measures into the control solution has the effect of raising the real GNE growth rate to an annual average of 5.2 per cent for the period. The increased level of economic activity generates a faster progression in employment, bringing the aggregate unemployment rate down to about 4.5 per cent by 1978. The unemployment rate for males 25 to 54 – a supplementary indicator of the degree of ease or tightness in the labour market – will also move along a downward trend during the period and reach 3.5 per cent in 1978. This additional indicator has been added to the set of performance indicators for 1974-78, mainly because of the virtual stability, at 95 per cent, of the participation rate in this particular age group of the population. As such, fluctuations in the unemployment rate for that segment of the labour force would more closely reflect developments in the labour market, while movements affecting other age groups would result from both labour market developments and the propensity of people to enter or withdraw from the labour force. The target is undoubtedly ambitious, because when the degree of industrial capacity utilization was very high in 1973, the unemployment rate of prime-age males averaged 4 per cent.

As the expression itself indicates, disposable income represents personal income after tax. Reductions in personal income tax rates

4 The attainment of this target will be facilitated by the recent government decision to encourage the construction of one million housing units over the next four years. The government's initial target for 1976 is 235,000 housing starts.

Table 4-2

Performance Indicators, 1974-78¹

	Control solution	Proposed performance indicators
	(Average annual percentage change) ²	
Gross national expenditure	4.7	5.2
Consumer expenditure	4.9	5.5
Total fixed investment	3.8	5.4
Machinery and equipment	5.4	7.9
Nonresidential construction	5.4	6.0
Residential construction	-2.1	0.6
Government current expenditure	4.1	4.3
Exports	4.2	4.2
Imports	3.8	4.8
Real disposable income per capita	4.0	4.8
Output per person employed	2.1	2.2
Output per person employed in manufacturing	3.4	3.4
Employment	2.7	3.1
	(Percentage points)	
Differential between Canadian and foreign prices ³	—	± 0.5
	(Thousands)	
Housing starts	221	240
	(Per cent)	
Unemployment rate in 1978	5.6	4.5
Unemployment rate for prime labour force in 1978	—	3.5

1 1974 is the base year to which the average annual percentage changes apply; 1975 is a year of transition, for calculation purposes; 1976 to 1978 are the years to which the indicators apply, for policy purposes.

2 For gross national expenditure and its components, as well as real disposable income and productivity, the targets are average annual percentage changes calculated in 1971 dollars. The employment indicator measures the percentage change in the number of persons employed.

3 Absolute difference between the percentage change in the CPI in Canada and the percentage change in the weighted index of consumer prices in the United Kingdom, the United States, West Germany, Japan, France, and Italy.

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

stimulate the progression of real disposable income per capita, which records an average annual increase of 4.8 per cent in the present solution, compared with 4.0 per cent in the control. Consumer expenditures and personal saving rates are both affected by larger gains in real after-tax income. Accordingly, personal savings rates average 8.4 per cent of disposable income in the performance indicator solution — up

from 8.1 per cent in the control solution – while consumer expenditures expand at an average annual rate of 5.5 per cent, compared with 4.9 per cent in the control solution. Higher levels of personal savings would facilitate the financing of the higher volume of business investment that we are proposing in our performance indicator solution.

The level of business investment projected in the control solution implies that capacity constraints are likely to be felt in the manufacturing sector after 1976. In fact, our calculations show that manufacturing industries would be operating at 96 per cent of total capacity by 1978 if no particular incentive were given to capital spending in that sector. An increase in total fixed investment from an annual average rate of 3.8 per cent to a rate of about 5.4 per cent for the period would bring the degree of capacity utilization in the manufacturing sector down to about 94 per cent by 1978. The proposal also implies that total investment as a share of GNE will increase to an average of about 25 per cent for the period – up from 24 per cent in the control solution.

Periods of high business investment tend to coincide with periods of expanding current account deficits, reflecting the large import content of business investment in machinery and equipment. The higher volume of business investment indicated for the 1974-78 period also generates an increase in imports and hence a larger current account deficit. This increased deficit is almost entirely attributable to the increase in the volume of trade, the terms of trade remaining virtually the same in the two solutions. As a share of GNE, the current account deficit averages close to 2.5 per cent during the indicator period. It does not, therefore, reach the proportions recorded during the periods of heavy capital inflows in the 1950s and 1960s.

Fiscal concessions granted to individuals and corporations in our performance indicator solution result in a lower government surplus than was obtained in the control solution for the four-year period, but it is less than proportionately lower, since forgone public incomes attributable to fiscal concessions are partly offset by increased government revenues generated by the better performance of the economy. The large budget deficit recorded at the beginning of the indicator period and the surpluses registered thereafter amount to an average overall surplus of about \$300 million per year on average. Current-dollar government revenues and expenditures rise by about 12 per cent annually.

Our indicator for government current expenditures expressed in 1971 dollars calls for a lower rate of increase than that observed in the recent past. We noted earlier that increases in real current government spending in 1974 exceeded the target rate by a substantial margin. Such spending must therefore slow down if the objective is to be reached.

On the supply side, the increase to 5.2 per cent in the growth rate of real GNP mainly affects the rate of employment expansion, which is raised to 3.1 per cent from 2.7 per cent in the control solution. Productivity gains remain virtually unchanged at 2.2 per cent for the economy as a whole. It should be emphasized that this slow productivity growth represents, as usual, an annual average for the 1974-78 period and thus includes the negative productivity change of 1975. Excluding 1975, the required productivity increase is 3 per cent for the economy as a whole and close to 5 per cent for manufacturing.

Although our projections show that price increases in Canada will slow down appreciably between 1975 and 1978, it appears that inflationary pressures in some of our major trading partners may ease even more. In particular, according to recent forecasts, U.S. inflation rates are expected to abate markedly in the years ahead. If that is so, our relative price indicator will tend to move beyond the upper limit of the zone within which Canadian price performance is considered acceptable.

Demand policies are normally used to contain inflationary pressures. For the indicator period, it does not appear appropriate to rely on more restrictive demand policies in order to improve our price performance, since such measures would increase the level of unemployment substantially. On the other hand, our performance indicator solution already incorporates provisions designed to stimulate the expansion of productive capacity and to moderate government spending. To achieve better price performance would require that increases in production costs be limited.

In summary, the proposed indicators call for strong growth performance once the expansion resumes in 1976. This, in turn, will bring the unemployment rate down to a more acceptable level than that of the recent past and be accompanied by moderate gains in overall productivity. The projected pattern of growth will not generate undue strains on the balance of payments, although the ensuing current account deficit as a share of GNP will be larger than recorded since the beginning of the 1970s. Tax reductions will result in only a slight decline in the projected government surplus. Finally, it is increasingly apparent that measures other than traditional demand management policies will be required to confine the inflation rate within acceptable boundaries, if employment growth is to be maintained.

5 Towards a Better Understanding of Social Trends

In the *Eleventh Annual Review* the Council proposed indicators for three areas of socio-economic concern: housing, health, and the natural environment.¹ The material discussed in this chapter has two main thrusts. First, to the extent appropriate, the values for the indicators in the previous Review are updated.² While the trends suggested by these first-approximation indicators present an obviously incomplete portrayal of the evolution of our society, they nonetheless provide us with an overview of certain important developments – some encouraging, others apparently less desirable.³ Second, the potential effects of alternative actions or trends on housing quality and of certain elements essential to the management of air quality are discussed. Our intention is to move at least some distance towards the delineation, for each of these areas, of a framework within which objectives, and the means to obtain these objectives, might be considered.

Housing Quality

Two housing indicators – the crowding index, and the rent (or value) per room⁴ as a percentage of total household income – were proposed in the *Eleventh Review* and their values for 1961 and 1971 discussed. The latter indicator complements the first in that it treats the cost of

1 Social indicators are defined as "those variables that play an active role in a particular area of socio-economic concern." Economic Council of Canada, *Eleventh Annual Review: Economic Targets and Social Indicators* (Ottawa: Information Canada, 1974), p. 12.

2 Because of the differing rates of change in various socio-economic areas, it may not necessarily be appropriate in the future to update all the existing indicators on an annual basis. Further, as an improved understanding of the processes at work within an area develops, the form taken by certain of these indicators might reasonably be modified.

3 The portrayal is incomplete because the number of areas discussed is limited and because both these first-approximation indicators and the factors associated with them do not represent all the facets that make up or impinge upon these areas, but simply certain consequential ones.

4 The census definition of a room is used. See *ibid.*, p. 74.

housing quality in relation to the ability to pay. Certain recent developments in the housing sector suggest the need to look at the evolution of these indicators since 1971. For example, the number of housing starts per annum, as a percentage of the number of households, averaged 3.8 per cent for Canada over the 1971-74 period,⁵ whereas the average for the 1960s was only 3.0 per cent. It would appear, therefore, that there is more housing available to Canadians now than at any time in the recent past. The effect on housing conditions of this increased supply and of concurrent changes in other factors is reflected, to some extent, by the shift in the value of the indicators over this period.

In addition to discussing the changes in the two indicators since 1971, we look at the second indicator for both owners and renters in 1971. Finally, we discuss the potential trends of the two indicators to 1985 and the effects on these trends of certain factors that have an impact on housing conditions.

The Crowding Index

On the whole, people were living in less crowded conditions in 1974 than at any previous time. The crowding index – defined as the number of persons per room – decreased notably between 1971 and 1974 (Table 5-1). For Canada as a whole, the index fell from 0.64 to 0.61. This decrease was the result of a 6 per cent decline in the average number of persons per household – from 3.5 in 1971 to less than 3.3 in 1974 – which more than offset the much smaller decline in the average number of rooms per dwelling (about 1 per cent). The former seems to be associated with a continuing decrease in the birth rate and a further “undoubling”⁶ of households, while the latter may be partially a result of the greater number of completions of multiple dwellings than single detached dwellings during the 1971-74 period – multiple dwellings having fewer rooms on the average.⁷ Among the regions, there was a greater-than-average decline in the crowding index for British Columbia and Quebec (6.6 and 5.7 per cent, respectively), and a less-than-average decline for the Atlantic region and Ontario. As a result, Ontario was displaced by British Columbia as the

5 This rate reached a high of 4.1 per cent in 1973 (268,500 starts).

6 That is, proportionately more young single individuals and elderly people are living separately.

7 Over the same period, however, the proportion of single-detached-dwelling completions rose from 41.2 per cent to 50.4 per cent. If this trend were to continue, an increase in the average number of rooms per dwelling might be observed in future.

region with the lowest index, and the Atlantic region finished with the highest index. The largest declines in the index among metropolitan areas were observed in Ottawa, Halifax, Victoria, and Quebec.

Table 5-1

Change in Crowding Index,
Canada, by Region and Major Metropolitan Area, 1971-74

	Crowding index		Percentage change. 1971-74
	1971	1974	
Canada	.64	.61	-4.7
Atlantic region	.69	.67	-2.9
Halifax	.67	.61	-8.9
Quebec	.70	.66	-5.7
Montreal	.68	.64	-5.9
Quebec	.70	.65	-7.1
Ontario	.60	.58	-3.3
Toronto	.60	.58	-3.3
Hamilton	.60	.58	-3.3
Ottawa	.63	.57	-9.5
Windsor	.60	.60	0.0
Prairie region	.63	.60	-4.8
Winnipeg	.62	.60	-3.2
Calgary	.58	.57	-1.7
Edmonton	.62	.60	-3.2
British Columbia	.61	.57	-6.6
Vancouver	.58	.57	-1.7
Victoria	.54	.50	-7.4

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

The percentage of households having a crowding index of one or more persons per room declined from about 21 to less than 17 per cent between 1971 and 1974 (Table 5-2) – a drop of about 22 per cent. The percentage of households with an index of 0.50 or less rose from about 43 to 47 per cent; the percentage with an index between 0.50 and 1.0 remained stable at about 36 per cent.⁸ Thus in the period

8 A household having one or more persons per room is considered to be overly crowded. Economic Council, *Eleventh Annual Review*, p. 78.

since 1971 both the crowding index and the proportion of overly crowded houses have continued their longer-term downward trend, suggesting further improvement in the housing situation in Canada.

Table 5-2

Distribution of Households, by Level of Crowding, Canada, by Region, 1971-74

	1,000 or more			.501 to .999		.500 or less	
	1971	1974	1971-74	1971	1974	1971	1974
(Per cent)							
Canada	21.4	16.8	-21.5	36.0	36.3	42.6	46.9
Atlantic region	27.7	23.8	-14.1	32.9	35.3	39.4	40.9
Quebec	27.1	21.8	-19.6	37.1	37.9	35.8	40.4
Ontario	17.0	13.6	-20.0	36.7	36.2	46.3	50.2
Prairie region	20.9	15.7	-24.9	34.8	34.8	44.3	49.5
British Columbia	18.2	12.2	-33.0	35.0	35.7	46.8	52.1

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Rent per Room as a Percentage of Income

In the previous Review, it was observed that the second housing indicator – the rent (or rent imputed from value)⁹ per room as a percentage of total household income – increased from 3.7 per cent in 1961 to 4.2 per cent in 1971 for the twenty-three major urban areas covered.¹⁰ Existing data permit the calculation, for 1971 only, of an important distributional aspect of this indicator – namely, the respective values for owner- and renter-occupied dwellings. Owner-occupied dwellings (51 per cent of all dwellings in these twenty-three centres) had, on average, more rooms (6.4) and inhabitants (3.8) per dwelling than renter-occupied dwellings (4.2 and 2.8, respectively). The average rent (or imputed rent) per room was \$494 per annum for the former and \$365 per annum for the latter, while the average annual total

9 In the case of owner-occupied dwellings, rent per month was imputed by taking 1 per cent of value.

10 *Ibid.*, pp. 86-88.

household income was \$12,465 for those occupying their own dwellings and \$8,360 for those living in rental accommodation.¹¹ Thus, in 1971, the average value of the indicator was lower for households living in their own dwellings (4.0 per cent) than for those living in rented quarters (4.4 per cent), each value differing by about 5.0 per cent from the overall average (4.2 per cent). The distributional characteristics of the indicator for both owners and renters were similar to those for the aggregate measure; for example, the values of the indicator decreased with increasing income and numbers of persons per household.¹²

The direction of change for the aggregate indicator after 1971 is largely determined by whether household income or rent (or value) per dwelling increased to a greater extent.¹³ Average total household income rose 8.6 per cent per annum between 1971 and 1973 in the twenty-three major urban areas covered by the indicator.¹⁴ However, the annual rate at which average rent (or value) per dwelling rose for these same centres over the same period is more difficult to determine. Our best estimation of this rate suggests that the increase was about the same as that for income, or possibly a little larger.¹⁵ The value of the indicator thus remained approximately stable or increased slightly between 1971 and 1973. Of greater importance, the cost of housing grew considerably more over this period for owners than for renters. Since the aggregate indicator has changed little or moved slightly upward, it appears that the value of the indicator has increased for owners but decreased for renters, suggesting an improvement for renters

11 However, the average income per person was only 8 per cent higher for those occupying their own dwellings, since there were more persons per household in owner-occupied than in renter-occupied dwellings.

12 *Ibid.*, p. 87. The major reason for the latter relationship is that the number of rooms per dwelling rises more rapidly with the number of persons per household than does the overall rent (or value).

13 The change in the other component of the indicator – the number of rooms per dwelling – was relatively small over this period.

14 Revenue Canada – Taxation, *Taxation Statistics* (1972 and 1974 editions); and estimates by the Economic Council of Canada.

15 This estimation is made as follows. The actual percentage increase per annum in the average rent (or value) for housing in the major urban areas between 1961 and 1971 (derived from census data) and the percentage increase per annum in the housing components of the consumer price index (CPI) over this same period are compared. These two measures differ, since the latter is not explicitly designed to reflect the effect of changes in the mix of current expenditures on various aspects of housing and therefore does not directly represent changes in the average rent (or value) for housing. The differential between these measures was applied to the housing components of the CPI between 1971 and 1973.

and some deterioration of the situation for home-owners.¹⁶ Since renters have lower incomes than owners, on average, this relative shift would appear to be favourable. This is all the more so, since the value of the indicator in 1971 was higher for renters than owners.

Towards a Framework for Setting Objectives

CANDIDE was employed to simulate the basic trends to 1985 for both housing indicators.¹⁷ The results suggest that the crowding index for Canada might be expected to decline about 13 per cent over the 1974-85 period. They further suggest that the value of the second indicator – the rent (or value) per room as a percentage of household income – might be expected to remain relatively stable for Canada between 1974 and 1985 if the housing market responds closely to the availability of housing or, on the other hand, to rise if upswings in construction activity have the effect of pushing housing prices up more rapidly than income (by putting pressure on the costs of materials, labour, and land, for instance).

These basic trends to 1985 may, however, be modified by a number of factors, five of which are discussed briefly here. Three of them – net immigration, the fertility rate, and undoubling – affect the demand for housing; the other two – urban land availability and the level of funding for low-income housing – affect the supply side.¹⁸ An appraisal of the possible effects of these factors on the indicators is essential to progress towards the formulation of objectives related to the aspects of housing quality reflected by these indicators.

Net immigration was responsible for about 17 per cent of the net additional household formation between 1969 and 1973, and the impact was strongest in Toronto, Montreal, and Vancouver, where 50 per cent of the recent immigrants are concentrated. A future increase in net immigration (over the assumed 100,000 per year) might place some upward pressure on the basic trends of both indicators between now and 1985, especially if there were any shortfalls on the supply side. However, the effect on the crowding index might be partially offset by

16 The supposition of an increase in the value of the indicator for owners relative to renters would appear to hold, unless total household income grew at very different rates for owners and renters between 1971 and 1973; such a disparity is unlikely.

17 In the basic simulations to 1985, the fertility rate is assumed to remain constant or decline slightly; the mortality rate, to stay at present levels; net immigration, to be about 100,000 per year; and nonfamily household formation, to increase slightly.

18 Other factors affecting the supply of housing include the number of demolitions and net conversions and the ability of the construction industry to respond to demand.

the smaller average size of immigrant families in relation to the Canadian average.

A future turnabout in the presently declining fertility rate would obviously tend to slow the projected decline of the crowding index. Such a turnabout might also place a certain upward pressure on the second indicator since, for example, increased family size would tend to augment the demand for larger (and more costly) dwellings, and the proportion of families with a second wage-earner might decrease. On the other hand, a continued decline in the fertility rate would tend to have the opposite effect on both indicators.

The number of households in Canada containing more than one family decreased from 3.7 per cent in 1961 to 2.0 per cent in 1971, and the proportion of nonfamily households increased from 13 to about 18 per cent over the same period. The latter change reflects, in part, the increasing proportion of young people leaving home at an early age and of elderly individuals living alone.¹⁹ If this undoubling of households were to continue to increase more than marginally between now and 1985, there would be a downward influence on the basic trend of the crowding index and an upward pressure on the second indicator – the latter partly because younger and older households tend to have less-than-average incomes.

On the supply side, the projected additions to housing stock in Canada between 1974 and 1985 imply an estimated 30 per cent increase in the land required for residential and related service purposes. Since much of this requirement will be concentrated around the major urban areas, the effect on land prices might be such as to create upward pressure on the trend of the second indicator over this period. Finally, any future increase in the availability of funds for low-income housing through the Central Mortgage and Housing Corporation would tend to place downward pressure on both indicators, even though these dwellings might to some extent be expected to substitute for, rather than supplement, new dwellings financed by the private sector.

Of the five factors noted above, the two most likely to affect the basic trends of the indicators to 1985 are the further undoubling of households and the increasing constraints on the availability of urban land. The net effect of these factors would be a downward influence on the crowding index and an upward pressure on the second indicator. In addition to these two, net immigration could also become an important factor in the early 1980s, when there will be a slowdown in the growth of the labour force.

19 It also reflects an increasing divorce rate and a reduction in the marriage rate for women under 20 over this period.

Health

In the Eleventh Review, the three proposed indicators of health focused on mortality: the infant mortality rate, the prime-age mortality rate, and life expectancy from birth. In all cases, accidental and violent deaths (except suicide) were excluded. Values were shown for the 1951-72 period for the first two indicators, and for the 1931-71 period for the third. In what follows, the changes in the first two indicators between 1972 and 1973 are discussed, and the effect on life expectancy from birth of the changes in these measures since 1971 is noted.

Infant Mortality

The infant, neo-natal, and post-neo-natal mortality rates for 1973 are shown in Table 5-3.²⁰ The overall infant mortality rate dropped considerably between 1972 and 1973 – 9.0 per cent compared with a decrease of 4.0 per cent per annum between 1951 and 1972. The decrease was about the same for the neo-natal and post-neo-natal mortality rates, while the decrease in the infant mortality rate was slightly greater for females than for males. A projection of the infant mortality rate, based on the trends of the various causes between 1951 and 1972, suggests that the rate achieved in 1973 would not have been achieved until 1976 if those trends had continued unchanged.²¹

The precise factors underlying the decline in the infant mortality rate between 1972 and 1973 are not apparent. The decrease seems to have been fairly general across regions. Among the five regions, a considerable drop in the rate was observed for all but British Columbia, where the rate decreased less than 1 per cent; a particularly notable decline of about 16 per cent occurred in the Prairie region. As a result, the Prairie region rose from fourth to second place – the highest rank having the lowest infant mortality rate – while British Columbia fell from second to last. The drop in the Prairie region was largely a consequence of the considerable decrease (about 20 per cent) in the neo-natal mortality rate; this decrease was especially marked in Alberta. The largest declines in the post-neo-natal mortality rate occurred in the Atlantic region and Quebec – about 24 and 13 per cent, respectively.

20 Infant mortality is defined as the death of liveborn children during the first year; neo-natal mortality refers to those who die within twenty-seven days; and post-neo-natal mortality refers to those who die between then and the end of the first year of life.

21 Economic Council, *Eleventh Annual Review*, p. 215.

Table 5-3
 Infant, Neo-Natal, and Post-Neo-Natal Mortality Rates (Excluding Accidental and Violent Deaths),
 Canada, by Sex and Region, 1973

	Infant mortality rate		Neo-natal mortality rate		Post-neo-natal mortality rate	
	1973	Percentage change, 1972-73	1973	Percentage change, 1972-73	1973	Percentage change, 1972-73
(Per 100,000 live births)						
Canada ¹						
Total	1,478	- 9.0	1,070	- 8.9	408	- 9.1
Male	1,652	- 8.5	1,196	- 8.4	455	- 9.0
Female	1,294	- 9.6	936	- 9.7	358	- 9.4
Atlantic region	1,571	-10.1	1,132	- 3.5	439	-23.5
Quebec	1,572	- 7.9	1,181	- 6.3	390	-12.6
Ontario	1,340	- 7.5	996	- 9.5	343	- 1.4
Prairie region	1,466	-15.6	1,004	-19.5	462	- 5.5
British Columbia	1,592	- 0.9	1,092	+ 0.6	501	- 3.8

1 Including the Yukon and the Northwest Territories.

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

The unusual magnitude of the decrease in the overall rate does not, therefore, appear to be explained by regional differences. Since the decrease was also reasonably general for the major causes expressed in terms of disease categories, the explanation does not seem to lie in the reduction of a given cause.²² Nor does it seem to be associated with the introduction of particular medical innovations, such as new drugs or techniques,²³ with changes in the perinatal mortality rate,²⁴ or with the increase in the number of therapeutic abortions.²⁵ The appropriate explanation remains unclear, but it could be partly related to general improvements in the accessibility and delivery of health care.

Prime-Age Mortality

The prime-age mortality rate²⁶ increased from 591 to 597 per 100,000 (about 1 per cent) between 1972 and 1973. For males it rose from 762 to 774, while it remained stable for females at about 420. The rate for 1973 is the highest since 1964, representing about 40,000 deaths. A major factor in the 1972-73 change was a 4 per cent increase in the rate of mortality from neoplasms (cancer and related diseases) for prime-age males. The recent growth in the prime-age mortality rate, although not large, should be a cause for concern, since it obviously has an adverse effect on life expectancy and affects an age group of particular economic and social importance.

- 22 The major categories include congenital anomalies, infective and parasitic diseases, diseases of the respiratory system, and certain causes of perinatal mortality (including mortality resulting from injuries at birth or difficult labour, conditions of the placenta, hemolytic diseases, and certain anoxic and hypoxic conditions). Of the rates associated with these categories, the one for diseases of the respiratory system experienced the largest decline (about 18 per cent); deaths from this cause represent about 10 per cent of the total.
- 23 If particular medical innovations were responsible for the drop in Canada, one might reasonably expect to observe a similar decrease in the United States. But the infant mortality rate for the United States did not drop unusually between 1972 and 1973 (4 per cent overall and 3 per cent for the white population) or between any other two recent years. *Population Index* 39, no. 23 (July 1973):482; and data from the National Center for Health Statistics, U.S. Department of Health, Education and Welfare.
- 24 Perinatal mortality includes fetal deaths and deaths of liveborn infants during the first week.
- 25 Based on unpublished data from Statistics Canada.
- 26 This is defined as the mortality rate, excluding accidental and violent deaths (except suicide), for the 35-64 age group, expressed in terms of the number of deaths per annum per 100,000 individuals in this group.

Life Expectancy

In 1971 life expectancy from birth was 71.4 years for males and 77.3 years for females.²⁷ Between 1971 and 1973, the infant mortality rate decreased 12 per cent for males and over 9 per cent for females, while the prime-age mortality rate increased 1.7 per cent for males and 3.5 per cent for females. The outcome of the opposing effects of these two factors taken together suggests a modest increase in life expectancy for males and a slight decrease for females. However, when the mortality rates for all age groups are considered, life expectancy appears to have increased somewhat for both sexes in spite of the growth of prime-age mortality.

Urban Air Quality

An urban air quality indicator covering eleven major centres in Canada and taking account of the relative impact on the environment of five major pollutants during 1971-73 was presented in the Eleventh Review.²⁸ Over this period, there was an improvement in the quality of the air for most cities and an overall reduction in the presence of most of these pollutants; these basic findings were reflected by a decrease in the urban air quality indicator from 20.4 to 17.2 impact units per capita.

Between 1973 and 1974, the urban air quality indicator rose from 17.2 to 18.2, representing a reversal of the earlier trend. The pollutants responsible for this increase were largely the nitrogen oxides and total oxidants, which accounted for about 50 per cent of the value of the indicator in 1974; their greater impact was only partially offset by the

27 Excluding the effects of accidental and violent deaths, except suicide. Economic Council, *Eleventh Annual Review*, p. 91.

28 The five pollutants and their relative severity factors are as follows: total oxidants, 267; nitrogen oxides, 80; sulphur dioxide, 80; particulate matter, 8; and carbon monoxide, 1. These factors are determined from the 24-hour criteria employed by the Ontario Ministry of the Environment and represent the relative effect on the environment of the same concentration of each pollutant. The urban air quality indicator is determined as follows. For each of the five pollutants, the product of the relative severity factor, the average annual hourly concentration in ambient air (parts per million), and the population at risk gives the number of "impact units" for this pollutant in a particular city (an estimate is also made of the impact of sulphur-dioxide/particulate-matter synergism). The "pollution index" for a city is the sum of the impact units for the five pollutants plus synergism divided by the population of the city. For each pollutant (and synergism), the sum of the impact units across the eleven cities yields six "urban pollutant subindicators," and the sum of these subindicators gives the "urban air quality indicator." The latter can be stated in per capita terms by dividing it by the total population of the eleven cities. See *ibid.*, pp. 102-106 and 219-21.

overall decreases observed for carbon monoxide and sulphur dioxide. The increased presence in urban ambient air of nitrogen oxides, which are largely a product of fuel combustion and play a necessary role in the formation of oxidants, further emphasizes the concern expressed in the Eleventh Review about the potential growth of emissions of this pollutant.²⁹ Clearly, high priority should be placed on the control of nitrogen oxide emissions.

The values of the city pollution index for the eleven cities included in the urban air quality indicator are shown in Table 5-4 for 1972-73 and 1974. The index tended to decrease for those cities with the highest average values in 1972-73 (except for Windsor) and to increase for those cities with the lowest average values. The largest declines in 1974 were observed for Cornwall, Ottawa-Hull, and Hamilton, while the largest increases were noted for Calgary, Sudbury, and Toronto.

Table 5-4

City Pollution Index, Eleven Cities, 1972-73 and 1974

	Average 1972-73	1974	Percentage change from 1972-73 to 1974
(Impact units per capita)			
Sudbury	9.0	11.5	+27.8
Edmonton	9.2	10.7	+16.3
London	10.8	12.2	+13.0
Calgary	11.0	16.6	+50.9
Cornwall	14.8	9.0	-39.2
Ottawa-Hull	15.4	12.6	-18.2
Toronto	16.3	19.1	+17.2
Sarnia	17.0	16.2	- 4.7
Hamilton	19.8	17.4	-12.1
Windsor	20.2	21.7	+ 7.4
Montreal	22.6	21.1	- 6.6

SOURCE Alberta Department of the Environment; Quebec Environmental Protection Service; Ontario Ministry of the Environment; Montreal Urban Community; Environment Canada; and estimates by the Economic Council of Canada.

The utility of the overall urban air quality indicator and its components is that they focus attention on emerging problems. They are a necessary element in the decision-making framework of any air quality

29 *Ibid.*, pp. 109-11.

management system. The outlines of such a framework, and certain actions that might be considered in the context of this framework, are discussed in what follows.

Towards a Framework for Air Quality Management

An air quality management system should seek to prevent the damage to the environment that arises from use of the atmosphere as a receptacle for the residuals of production and consumption. Insufficient constraints can result in the overuse of the atmosphere for residual disposal, since, because of the costs associated with abatement, the net benefits derived by those involved in an activity that pollutes the air tend to be greater, the smaller the extent to which they abate their emissions. At the same time, the costs of the resulting environmental damage are imposed on others. It is our view that these costs should be distributed so as to correspond to the distribution of the benefits. Thus the costs of environmental damage should be borne, to a reasonable extent, by the polluters responsible for the damage. This might best be done through the imposition of constraints that encourage, wherever possible, the utilization of efficient (least-cost) approaches to controlling emissions. The fewer the resources required to meet environmental objectives, the more there will be to meet other socio-economic objectives. The setting of objectives and priorities, and the elaboration of policies and programs to achieve these objectives, are essential aspects of a decision-making framework for air quality management.

Setting Objectives and Priorities

The broad goal of improving air quality to prevent significant damage to the environment by airborne residuals must be translated into more concrete policy objectives and priorities. The information essential for setting air quality objectives includes inventories describing the present state of the environment and a knowledge of the impact of the various pollutants on the environment and its component ecosystems. These objectives should be expressed in terms of criteria, each of which represents the highest average concentration of a pollutant over a particular time period consistent with acceptable and desirable ambient air quality.³⁰ By using these criteria and data on the presence of pollutants in the

30 In setting these criteria, it should be recognized that knowledge about the impact of various pollutants on the environment is limited. The expectations of society with respect to environmental quality should also be taken into account. The criteria employed in constructing the urban air quality indicator are clearly approximate and subject to future refinement.

atmosphere, it is possible to establish priorities – for instance, as we have suggested in relation to nitrogen oxides.

Considerable variation between the basic values of the criteria established for each of the pollutants is to be expected. There may also be some differences in the value of the criterion for a particular pollutant among locations with differing ecological characteristics, depending on the relative susceptibility of these locations to environmental damage by this pollutant.

Strategies and Programs for Emission Control

Strategies for managing air quality should relate to the control of emissions at their source, since this is the only means by which changes in air quality can be effected. The basic strategies for control include the adoption of procedures that avoid residual formation, the reduction of pollutants prior to the release of wastes, and the dispersal of pollutants.³¹ However, since the environment has a limited capacity to assimilate pollutants, only the first two strategies appear viable over the longer term.

Any approach to the control of emissions implies the setting of emission standards, which, depending on location and other factors, can vary for a specific pollutant.³² They could be expressed in terms of the maximum quantities of the various pollutants that may be emitted over a given time period by a particular source or all sources combined in a given area. These quantities should, of course, be consistent with the maintenance or attainment of good air quality in that location and should take the availability of abatement technologies and their costs into account.

The means used to encourage the reduction of emissions from large fixed sources can be expected to differ from those intended to curb emissions from numerous small sources, since emissions from the former are relatively easy to monitor, while those from the latter are not. For large industrial sources, one approach involves implementing a system of emission charges. For small sources, on the other hand, the approaches most often taken include the use of equipment standards, which govern the design and operating characteristics of a unit and its

31 The dispersal of pollutants can be effected, for example, by the use of high stacks and by controlling escape velocity. Although this approach has very little effect on the amounts emitted, the impact on a particular area can be affected, and so it can be regarded as a form of control.

32 Except, of course, the highly toxic pollutants, the emissions of which should be essentially prohibited everywhere through regulation.

pollution abatement attachments, and the adoption of specification standards, which regulate the composition of inputs (for example, the amount of sulphur permissible in household heating fuels).

In what follows, an emission charge system for large industrial sources is discussed,³³ and the cost implications of alternative actions aimed at reducing automobile emissions through the application of equipment standards are briefly explored.³⁴

Emission charges

The abatement of pollutant emissions from fixed industrial sources by the imposition of specific regulations concerning the amount of particular pollutants that may be released into the atmosphere over a given time period could lead to certain inefficiencies. For example, many firms would be obliged to make immediate, and often untimely, capital expenditure decisions in order to meet such requirements. Further, once these decisions were made, the incentive to adopt or develop more efficient (or effective) technologies to combat pollution would be limited. This approach would thus tend to impose greater costs on firms, both immediately and over time, than a more gradual approach to abatement. While any method adopted should ensure progress towards both the attainment of emission standards compatible with air quality objectives and a certain reallocation to the firm of environmental costs resulting from the pollutants emitted, a relatively flexible approach would allow firms to utilize their particular knowledge of present and potential technological alternatives and associated costs, in order that in each case the course of action taken would minimize costs to the firm and, at the same time, reduce social costs.

Among the alternatives to the regulatory approach, a system of emission charges appears the most appropriate for controlling emissions from large industrial sources.³⁵ This system would impose charges on each physical unit of a particular pollutant emitted by a specific source

33 D. M. Paproski, "Environmental Management in a Canadian Context," Economic Council of Canada, Discussion Paper (forthcoming).

34 J. R. Walker, "Automobile Emission Control," Economic Council of Canada, Discussion Paper 41, October 1975.

35 Suggestions that a system of prices or charges for effluents would ensure approximate least-cost water quality control have been made by J. Dales, *Pollution, Property and Prices* (Toronto: University of Toronto Press, 1968); and A. V. Kneese and C. L. Schultze, *Pollution, Prices, and Public Policy* (Washington: Brookings Institution, 1975), among others. Dales's suggestion involves establishing a market for pollution "rights," in which supply and demand would determine the cost of pollution abatement at the margin; Kneese and Schultze suggest a system more closely related to that proposed here.

beyond a certain permitted amount.³⁶ The effect would be to encourage firms to reduce their emissions, if above the levels permitted, when the costs of doing so were less than the emission charges.³⁷

These emission charges should reflect location, the nature of the pollutants emitted, and the extent to which the emissions of these pollutants are in excess of permissible amounts, so that the impact of the emissions on the environment is taken into account. Setting the emission charges at some low level initially and incorporating a specific escalation feature for the future would provide reasonable time for firms to react and would furnish a continuing incentive for private initiative in the development of lower-cost abatement equipment and procedures.³⁸ Nonetheless, it should be recognized that in the short or medium term, some firms may require assistance to remain in operation; such aid should be used to reduce emissions rather than to meet the charges. In the context of assistance, we note that certain measures to encourage the purchase of antipollution equipment are already contained in the present laws concerning the taxation of corporations.

Reduction of automobile emissions

Automobiles and other vehicles contributed about 75, 65, and 55 per cent of the total emissions of carbon monoxide, hydrocarbons, and nitrogen oxides, respectively, in Canada in 1970.³⁹ To reduce the emission of these pollutants, certain progressively more rigorous equipment standards have been imposed on new cars over the past few years – although the standards are presently stricter in the United States than in Canada. Initially, priority was centred on the reduction of carbon monoxide and hydrocarbon emissions, but the increasing presence of nitrogen oxides in the air suggests that greater attention should be paid to tightening the standards for this latter pollutant. However, since no change in Canadian standards beyond those imposed on the 1975 model cars has been announced and since implementation of the considerably

36 The permitted amount could be consistent with the emission standards for each pollutant. This approach would require the monitoring of emissions in order to be effective, and this monitoring would be the ultimate responsibility of government authorities.

37 Firms would presumably attempt to lower their emission charge costs to the point where the marginal cost of reduction would be equal to the emission charge per unit of pollutant or the level of the basic exemption, whichever entailed the least reduction of emissions.

38 The transfer of these pollutants to some other medium (e.g., water) for the purpose of emission control should not be considered to constitute abatement if this procedure also results in significant environmental damage.

39 Environment Canada, *A Nationwide Inventory of Air Pollution Emissions, 1970* (Ottawa, 1973).

more restrictive 1976 standards for the United States has been postponed to at least 1977, there is some uncertainty regarding future standards.⁴⁰

By the end of 1974, Canadians had spent about \$937 million (1972 dollars) to meet new car emission standards, and it is estimated that a continuation of the 1975 standards to 1985 will bring the accumulated costs of automobile emission control for Canada to \$5.3 billion (1972 dollars).⁴¹ A decision to adopt the proposed 1977 U.S. standards would increase this total by about \$1.3 billion, assuming a gradual shift from higher-cost options (e.g., catalytic converters) to lower-cost options (e.g., stratified-charge engines). A more rapid shift to lower-cost options would reduce this additional increment, but reliance on catalytic systems would possibly increase the additional costs by about \$2 billion or more. Because of certain factors – including the time constraints on compliance, the past emphasis on “add-on” emission control systems, and the oligopolistic nature of the industry, which may tend to slow the introduction of fundamental innovations – these costs may be higher than they might otherwise be.

Conclusions

After declining for three successive years, the observed value of the urban air quality indicator increased in 1974. This turnabout was largely caused by the increasing presence of nitrogen oxides and total oxidants in the urban centres covered by the indicator. The growing importance of these pollutants underlines the need for a more effective approach to air quality management.

To this end, the setting of increasingly well substantiated ambient air quality objectives for a wide range of pollutants, taking account of the different impact of these pollutants on the environment, and a better understanding of the relationship between emissions and ambient air quality should be encouraged and pursued by public authorities. This

40 The 1975 Canadian emission standards are 25.0 grams per mile for carbon monoxide, 2.0 grams per mile for hydrocarbons, and 3.1 grams per mile for the nitrogen oxides, while the 1975 U.S. standards are 15.0, 1.5, and 3.1, respectively; the proposed U.S. standards for 1977 are 3.4, 0.4, and 2.0, respectively.

41 These figures represent the increased costs associated with pollution abatement – including design change, equipment, maintenance, and increased fuel costs – relative to a noncontrolled vehicle. The estimated figure to 1985 is based on a projection of new car sales and the assumption of a fairly constant distribution of sales between the different engine-size categories. A gradual shift from more to less costly means of meeting the standards is also assumed. Walker, “Automobile Emission Control.”

was recommended in the Eleventh Review. Attention should also be focused on the formulation of effective emission control strategies and programs that will contribute to the achievement of these objectives in an efficient manner – that is, at the least overall cost in relation to benefits. While it is important to examine a wide range of possible strategies and programs, we suggest that an *emission charge system* might be the most efficient to apply to the larger industrial sources of air pollutants. This system, as noted earlier, would impose a charge on each unit of the various pollutants emitted beyond the respective amounts permitted, taking into account the location and the relative severity of the pollutants emitted. Such an approach would allow firms a flexibility not permitted by a regulatory approach to making economic and technical decisions regarding control, while providing an incentive to reduce emissions when the costs of abatement are lower than the charges.

For the reduction of emissions from numerous small sources of pollution, such as vehicles or home heating units, the application of equipment or specification standards, or the like, appears a more practical approach. The particular programs adopted, however, should recognize existing technological constraints and the potential for future developments, so that the time frames set for reducing emissions from these sources do not impose excessive costs on the consumer.

As an important step towards improved air quality management, we suggest that an in-depth review be undertaken by public authorities to determine the extent and appropriateness of existing ambient air quality objectives and priorities. The modification and extension of these could then be considered in the light of changing circumstances and improvements in our present understanding of the effects of air pollution. Further, this review should examine the effectiveness and efficiency of existing emission control strategies and programs and should propose, where necessary, appropriate changes to ensure the achievement of present or revised objectives. Although all levels of government should take part in this investigation, the review might take the form of a “green paper” prepared by the appropriate federal department (Environment Canada).

6 New Avenues to Explore

In this Review, we have examined Canada's economic prospects by outlining future developments and studying the long-term growth potential of the Canadian economy. We have also observed and evaluated the economy's performance for 1974. In addition, we have established some medium-term targets and proposed a new set of performance indicators for measuring our progress towards these goals. In this chapter, we summarize our perception of the economic situation and discuss what actions may be necessary in the medium and the long term to overcome some of our present problems and to achieve growth and price stability.

Outline of Future Developments

Several important points emerged from our analysis of Canada's economic situation and prospects. Perhaps the most significant is that potential output will tend to grow less rapidly during the 1980s than it has since the mid-1960s. Such a change can be attributed to two emerging phenomena: first, the slower growth of the working-age population, which is expected to bring about a slackening in the growth of the labour force; second, the downward trend of productivity gains, which is associated with a shifting of economic activity towards the service industries – where productivity tends to increase more slowly than in the goods-producing sectors – and with the slowing-down of the exodus of manpower from the low-productivity sectors of agriculture. The combined effect of these two forces is expected to reduce the potential growth rate – that is, the extent of overall expansion of the Canadian economy that can reasonably be expected – to approximately 4 per cent per year during the 1980s, compared with an average of 5.0 to 5.5 per cent during the 1960s and the 1970s. Any improvement in the economic welfare of the country or in the relative prosperity of the population hinges on productivity advance. As we indicate, one may expect this advance to continue in the future, but at a reduced rate.

The slowdown in the rate of natural growth of the population and subsequently of the labour force is expected to have a greater impact on those regions with low net immigration. If the distribution of immigrants

in Canada remains much the same in the future as in the recent past, significant increases in their working-age population during the 1980s will occur in only two regions – Ontario and British Columbia. This implies that total output growth in the other regions – the Atlantic provinces, Quebec, and the Prairies – will depend only on productivity growth. Total growth will therefore be much slower than in the past. In this respect, our analysis in Chapter 2 concluded that productivity growth would benefit more from incentives to increase output per worker in all industries than from policies seeking to modify the industrial structure of each region.

Our second major conclusion is that, with the economic conditions projected for the beginning of the 1980s, it will become very difficult to avoid strains upon our balance of payments. Indeed, in the absence of corrective measures, the strength of Canadian trade will diminish. During the 1960s and in the early 1970s external demand was one of the main sources of growth. It appears likely that in future this foreign demand for Canadian products will be weaker. For example, factors bearing on the long-term development of the U.S. economy point towards a deceleration of its potential growth rate, and thus towards diminishing demand from our major trade partner. Also, the recent deterioration in Canada's competitive position and the anticipated slow increase in this country's productivity could well restrict our access to international markets. In addition, certain deliberate policies, such as the gradual decrease in Canadian oil shipments because of resource constraints, are likely to slow down the growth of exports of particular products.

While the proportion of exports to gross national product is projected to decrease over the long term, that of imports is expected to remain relatively stable. The balance of our current account with the rest of the world is thus likely to show a much larger deficit than in the past. Assuming a favourable external environment, the average deficit could reach 3 per cent of GNP in the early 1980s; a significant portion of the current account deficit would be attributable to the trade in oil products. Canada will soon be, or may already be, a net importer of oil and, barring very rapid development of its resources, will remain a net importer throughout the first half of the 1980s. The deficit for petroleum product transactions alone could be between 1.2 per cent and 0.6 per cent of GNP from 1981 to 1985, depending on whether moderate or high energy prices are assumed.

The third substantial finding of our study of future prospects is that substantial investments will be required in the late 1970s and the early 1980s to improve Canada's productive capability. With the exception of the cyclical expansion from 1964 to 1966, the growth of investment has

not been particularly strong during the past decade. This explains, in part, why the Canadian economy experienced strong productive capacity constraints and such poor productivity performance during the last period of cyclical expansion. Our simulations of the economy show that Canada should devote an average of more than 25 per cent of its resources to savings and investment. This includes provision for some catching-up, to modernize and expand productive capacity. Moreover, with an industrial structure less favourable to productivity increases, more and more sizable additions to the stock of capital will be necessary to sustain a given productivity growth rate. Finally, important new investments are planned in certain sectors of the economy, such as those associated with the development of energy resources and transportation facilities, as well as with the restructuring of industries threatened by international competition. It will not, therefore, be sufficient to redistribute investment between sectors, favouring certain industries to the detriment of others; what is required is an increase in overall investment and savings. This requirement, in turn, has obvious implications for both public expenditure and private investment.

A fourth major point to emerge from our analysis is that the volume of domestic savings required to finance this investment could be inadequate and that recourse to foreign savings may be necessary. Capital needs for the period from 1975 to 1985 will total between \$800 billion and \$860 billion (current dollars), depending on the extent of the development of natural resources and the external environment. Corporations would presumably supply approximately 60 per cent of the funds required, with the balance coming from governments, the external sector, and households. Reliance on foreign financing would likely be more substantial than in the past. This observation is consistent with that made earlier on the probable widening of the deficit in the current account of the balance of payments, which is, in fact, the only indicator we have of the inadequacy of domestic savings. We should emphasize that such straightforward comments on the arithmetic of the situation should not be interpreted as an indication of the Economic Council's position with respect to foreign investment in Canada.

Finally, we have drawn some conclusions that bear on the role of governments. Our projections assume that the share of the public sector in GNP will remain at the present level. Since the end of the Second World War, governments have been called upon to supply the population with an increasing volume of goods and services. From 1950 to 1975, the size of the public sector almost doubled, climbing from a little over 20 per cent to close to 40 per cent of GNP. Moreover, the nature and mix of government activities underwent deep transformations, the most important being associated with efforts to redistribute income.

Redistribution did not increase direct use of the nation's resources by governments, but shifted resources from one group of the population to another. Whatever the reason, governments have either directly or indirectly assumed ever-increasing control over the economy's total resources. To halt the growth in their share of economic activity, governments will have to agree to limit increases in their expenditures. If, nevertheless, they wish to pursue their objectives of economic stabilization, redistribution of incomes, and continued economic growth, they will have to resort to methods of intervention other than the tax system or increase the effectiveness of existing programs.

Rapid or Slow Growth

In the Keynesian tradition, few questions are ever raised about the desired rate of growth, because it is determined by the goal of full employment, which itself depends on the level of aggregate demand; that is, the desired rate of growth is simply that necessary to achieve and maintain full employment. In a larger perspective, however, one may also want to examine the nature and structure of the supply that corresponds to effective demand in a full-employment economy. Indeed, certain characteristics of supply can complicate the achievement of full employment. One might, for example, assume a set of unfavourable external conditions in which the maintenance of full employment, given specific labour supply conditions, would mean clearly unacceptable deficits both in the government budget and in the current account of the balance of payments. In such circumstances, supplementary measures to alter supply conditions might be useful, if not necessary.

In addition, certain aspects of supply conditions can themselves be undesirable, and public authorities may therefore be led to alter them, even though full use of productive resources has been achieved. It might be held that working hours are too long, that productivity is too low, that immigration has become too high or too low in relation to needs, or that labour force participation by certain groups should be encouraged or discouraged. Finally, mention must be made of the recent line of argument that it would be in Canada's interest to limit consumption and growth, so that future generations can inherit a more abundant stock of wealth in the form of a cleaner natural environment, more plentiful nonrenewable resources, and, presumably, a larger accumulated stock of capital and savings.

In our examination of the rapid- and slow-growth options in Chapter 3, we reversed traditional analytical procedures. Instead of considering supply conditions as given and determining the level of demand

consistent with full employment, we changed certain supply conditions and set the growth rate in order to ensure full employment without excessive inflationary pressures. From our moderate-growth scenario in Chapter 1, we obtained a growth rate of about 4 per cent for real GNP in the 1980-85 period. We then considered what labour supply conditions could lead to a more rapid growth rate. For a rate of 5 per cent, for example, we established that an addition to the labour force of 100,000 persons per year would be required. Two reservoirs of manpower could be tapped to obtain this increment: immigrants, and adults not presently in the labour market.

Since the welfare of the population would not necessarily be enhanced by more rapid growth, this scenario would likely be preferred only if the increase in the labour force required to achieve it could be accepted for other reasons. For example, the required increase in the labour force participation rate could reflect the preferences of the Canadian population of the 1980s. If all the additional manpower requirements were to come from persons not presently projected to be in the labour market, our rapid-growth scenario implies that about 50 per cent of women in Canada in 1985 would be in the labour force. In view of recent trends towards increasing female participation both in this country and abroad, this figure does not seem unreasonably high. Similarly, in the case of additional net immigration – which would need to rise from 100,000 to 300,000 persons per year (with a normal rather than exceptional increase in participation rates) – the advantage would be that, in the medium term, the stability of the economy would be maintained. Immigration would compensate for the slackening growth rate in the native-born labour force. Given the impact of demographic instability, it would thus be possible to prevent wider fluctuations in housing and in educational and health services, as well as in transfer payments associated with population changes.

On the other hand, a slower-growth perspective could be imposed by developments or deemed desirable under the circumstances. For example, external conditions could force us to slow the pace of growth. If we were to assume an unfavourable external environment and low energy prices, the economy would be characterized by very serious balance-of-payments and unemployment difficulties. Rather than stimulate internal demand at any cost and let the exchange rate of the Canadian dollar depreciate, in such circumstances it might be preferable to check growth in the labour supply and consumption. In this slow-growth scenario, net immigration was set at zero from 1980 onwards; the retirement age was lowered to 60; and the net number of working hours (on an annual basis) was reduced to 34 a week. In such a case, full employment would require a rate of growth in GNP of about 2.5 per cent a year.

Here again, we are free to take the initiative of slowing down growth as a matter of choice instead of in response to necessity. This raises the question of examining the reasons why a zero net immigration level would be desirable, and the case is not established. On the other hand, the expectation that working time will be reduced is deeply rooted in the population, although our own assumptions on this point are still very tentative. Finally, it must be noted that, to the extent that participation rates increase more rapidly than anticipated, more pronounced reductions in working time or other determinants of output will be required if we want to slow the growth of production and, at the same time, maintain employment.

Our slow-growth scenario also has the very important ancillary advantage that it sets the limits below which we cannot go without generating unacceptable unemployment. Within the framework of our assumptions, it is not reasonable, for example, to retain a solution of zero output growth. Despite the wisdom or foresight of the advocates of zero growth, we have to keep in mind that any addition to the labour supply requires an increase in production. Otherwise, zero growth would mean either a negative productivity growth rate, implying a marked drop in our standard of living, or a considerable increase in unemployment. The year 1975 is an example of a period of zero output growth accompanied by a significant increase in unemployment.

Productivity and Commercial Policy

All the scenarios described have ignored the possibility of changing, through appropriate policies, the very unsatisfactory productivity performance in Canada. Our assumptions imply "business as usual" or, more explicitly, a continuation of past trends without any specific intervention by public authorities. In the higher-growth scenarios, the industrial structure changes slowly, and productivity is slightly stronger.

If our projected productivity trends could be altered to indicate higher output per person employed, our previous scenarios would change completely. By definition, it would then be possible to obtain higher output with the same workload; inversely, it would be possible somehow to reduce labour input without decreasing production. Furthermore, the output increase so obtained would always be desirable insofar as the welfare of the population was concerned. This has not necessarily been the case hitherto when an increase in immigration was involved, since output per capita – that is, roughly speaking, the standard of living – could remain unchanged despite the increase in output.

These comments are still more appropriate when we consider the deterioration of our competitive position in recent years. Productivity in secondary industry increased more rapidly in Canada than in the United States during the 1960s, largely as a result of a particular set of circumstances: a favourable exchange rate, the Automotive Agreement with the United States, multilateral tariff reductions resulting from the Kennedy Round, and the sustained pace of economic activity in the United States during the Vietnam War, all of which had the effect of enlarging the market accessible to Canadian firms. Since 1970, productivity gains have been slower in Canada than in the United States, with the result that our unit costs increased much more; indeed, in the 1970-74 period, unit costs increased by about 5 per cent per annum in Canada compared with less than 1 per cent in the United States.

An examination of the statistics on international trade in manufactured products confirms this weakening of our competitive position. From 1965 to 1970, the balance of our external trade in manufactured products clearly improved, rising from a deficit of more than 11 per cent of gross domestic product in manufacturing to a surplus of about 2 per cent. Automotive products accounted for almost half the realized gains; processed natural resources, for a third. Between 1970 and 1973, however, when the world economy was experiencing unprecedented expansion, the balance of our external trade in manufactured products deteriorated substantially, with the surplus of 2 per cent of GDP in manufacturing turning into a deficit of 9 per cent. This trend continued in 1974, when the deficit reached 18.5 per cent. However, by this time, part of the deterioration was attributable to the cyclical strength of the Canadian economy in relation to our major trading partners.

In the longer-term view, this weakening of our competitive position is cause for deep concern. If we take for granted that the supply of labour will become tighter in the 1980s, it then becomes imperative to avoid wasting limited available resources. Within the larger context of our national goals and our position in the world, the Economic Council's report on commercial policy has shown that deliberate trade liberalization is the policy most likely to contribute to solving the productivity problem.¹

We wish therefore to reaffirm vigorously here the need for a shift in our commercial policy to help resolve the balance-of-payments dilemma that will have to be faced in the early 1980s. Either we must increase productivity by finding new markets that will give us a basis for further

1 Economic Council of Canada, *Looking Outward: A New Trade Strategy for Canada* (Ottawa: Information Canada, 1975).

industrial specialization or we will have to accept a slower rate of economic growth, with all that this implies for the prosperity of the Canadian population.

Inflation and Unemployment

Few industrial countries have escaped inflation and unemployment in recent years. As pointed out in Chapter 4, the Canadian economy managed quite well under the circumstances, with better price and growth performance than most other industrial countries. Canada's real gross national product increased by 2.8 per cent in 1974, and its growth will probably be close to zero in 1975. By contrast, in the United States, real output dropped by 2.2 per cent in 1974 and will probably slip more markedly this year. Increases in the consumer price index (CPI) have been less pronounced in Canada than abroad since the end of 1973, not because of a slower price rise in Canada, but because of the very strong acceleration of inflation elsewhere.

This relative success is partly due to the fact that Canada was less vulnerable than many other industrialized countries to the impact of the energy crisis, the immediate effect of which was to bring about a fourfold increase in international oil prices. More generally, because of the structure of its economy, Canada enjoyed an advantageous shift in its terms of trade to the end of 1974, which mitigated the negative effects of the worldwide recession on its balance of payments. In addition, the goals of Canadian policy were clearly directed towards sustaining expansion, while most industrialized countries adopted more restrictive policies. In a situation in which external pressures were dominating Canadian prices, employment was given as much, if not higher, priority than price stability.

Even though the performance of our economy was better than that of most other developed countries, it was nevertheless inadequate in many respects. The policies adopted in these circumstances failed to achieve either full employment or reasonable price stability. Even in the last phase of cyclical expansion, unemployment rates remained above 5.0 per cent – higher than the modest objective of 4.5 per cent advanced by the Council. Our price performance in the last two years has been even more disappointing, with consumer prices increasing by almost 8 per cent in 1973 and continuing upward at an annual rate of over 10 per cent in 1974, despite a marked slowdown in economic activity. In the first seven months of 1975, the CPI increased by more than 11 per cent over the corresponding period a year earlier.

As we have noted, the competitiveness of Canadian industry has weakened since the beginning of the 1970s. There is evidence of some deterioration in the cost position of Canadian manufacturing relative to that of our main competitors in the United States. On the other hand, only a part of the recent decline in our trade position in highly manufactured products can be attributed to total unit costs. Another major contributing factor has been the fact that the Canadian economy, up to the end of 1974, did not experience the same degree of recession as other countries. Nevertheless, if these developments continue unchanged, they could seriously affect the outlook for our exports and encourage the penetration of foreign goods and services in Canada.

This persistence of inflationary pressures in a period of economic slack is, to say the least, worrisome. It reveals the increasing importance of cost-push elements and the presence of a developing income/price spiral, even though demand may not be all that strong. In such a situation, resort to traditional demand-restriction policies would lead to a very high level of unemployment. Moreover, their implementation would slow down the pace of investment growth, with the result that, after the restrictive policies were eased, productive capacity constraints might well emerge again, starting a new inflationary spiral. We would then find ourselves in a situation similar to that of 1973, when industry was operating at full capacity without exhausting the labour resources available.

The prospects with respect to inflation in Canada are not very encouraging, compared with those anticipated abroad. We stressed in Chapter 4 that, even if domestic inflationary pressures were to moderate in the medium term, our relative price indicator would still tend to go beyond the band within which the price performance of the Canadian economy is considered satisfactory. In other words, on the basis of the best information available at the time of writing, we anticipate an upward movement in Canadian prices in excess of that of our major trading partners. Our analysis in Chapter 4 also suggests that, despite relatively rapid economic growth in the next few years, the unemployment rate will still remain above 5 per cent by 1978. Only by postulating strong fiscal stimulus could we bring unemployment down to 4.5 per cent of the labour force in our performance indicator solution.

When prices go up, as they are doing now, mainly because of a cost-push effect, monetary policy, while potentially effective, can only stop such inflation by increasing unemployment, which is already excessively high. And fiscal measures may not be appropriate because the expected deflationary effect of increased taxes does not always materialize. More and more, direct taxes are seen as costs that taxpayers seek to pass on by claiming wage increases that are high enough to maintain their real disposable income and the purchasing power of their after-tax incomes.

This tends to aggravate an important cause of existing inflation: the income/price spiral or "catching-up" process, in which incomes attempt to adjust to prices and prices to incomes.

We therefore face a dilemma. On the one hand, traditional counter-inflationary policies would aggravate unemployment. On the other hand, the implementation of demand-stimulating policies to reduce unemployment would likely increase costs and accentuate inflationary pressures, unless other measures were taken to provide for the renewal and expansion of the productive capacity.

Additional Anti-Inflationary Measures

At a meeting held on October 6, 1975, to discuss the *Twelfth Annual Review*, the members of the Economic Council emphasized the gravity of present and anticipated inflationary trends and the urgency of modifying the expectations of both business and labour with respect to claims on the economy's resources. The Council concluded that demand-management policies alone were insufficient to yield full employment and price stability in the foreseeable future and that additional new policy instruments were required.

The Council judged that the efficiency of fiscal and monetary policies could be enhanced by framing them within the context of a longer-term strategy, because policy changes geared to short-term fluctuations in the economy tend to increase, rather than reduce, instability and lead to uncertainty in decision-making. The existence of a time lag between the occurrence of an economic development and the impact of policy responses to that development has meant, in the past, that policy changes have often had too weak an impact when they were most needed and too strong, or even perverse, an effect when conditions had already changed. The extent of success of Canadian policy in the fight against inflation will depend largely on the degree of long-term consistency and the steadiness of stabilization policies. We note, in this connection, that the narrowly defined money supply rose at rates of 20, -5.5, 1.6, 25.7, and 12.7 per cent, respectively, in the six quarters ending with the second quarter of 1975, and that the budget position of all levels of government swung from a \$2.6-billion surplus to a \$3.8-billion deficit between the first halves of 1974 and 1975 – a shift of about \$6.4 billion. Even on a full-employment-budget basis, the change in fiscal position would appear to have been considerable.

In the Tenth and Eleventh Reviews, the Council discussed the economic climate and suggested an appropriate policy stance. It recommended that fiscal policy aim at keeping total demand moving smoothly

and steadily forward, in line with the growth of the economy's supply potential, together with moderation, but no drastic curtailment, in the rate of growth of the money supply. Such a stance implied that the money supply should not grow at a rate faster than that required to finance a desirable rate of expansion in real output and a declining rate of inflation, and that the fiscal posture for the combined government sector should involve a small budget surplus calculated on a full-employment basis. It also expressed support for the floating exchange rate system and expressed a desire to see the Canadian dollar appreciate if market conditions so dictate. Such a general position would still appear to be appropriate.

The rate of inflation has, of course, been influenced by the increased size of the government sector. The share of government expenditures in gross national product over the last ten years rose from about 30 per cent to close to 40 per cent. When the Council expressed deep concern about rising public expenditures in the Ninth Review, such a proportion was expected to be reached only by 1980. At the time, the Council urged the various levels of government to co-ordinate their expenditure policies more closely. In the Tenth Review, it again exhorted governments to show more gradualism in the pace of their spending increases and recommended that they reach agreement among themselves on a desirable level of increase in public expenditures for an upcoming three-year period. Expenditures of all levels of government increased by 23 per cent in 1974, after several years of increases of about 12 to 13 per cent.

A rapidly growing government sector has an inflationary bias to the extent that the public sector competes with the rest of the economy for scarce resources and that high wage and salary settlements in government set a precedent for labour in other sectors. Moreover, if government expenditures are financed through higher taxes, these in turn lower disposable income and increase wage demands; if, instead, they are financed through increases in the money supply, they inflate the economy directly. A longer-run strategy within which monetary and fiscal policies can be framed will only be successful in dealing with inflation if governments begin to exercise restraint in their expenditures and consequently the rate of revenue collection.

In view of the gravity of the problem, there is a need for other techniques to complement traditional policies. The Council recognized that the most desirable course would involve holding back domestically induced cost-push inflation through the impersonal workings of market processes, reinforced by clear government guidelines on income and price increases. In that context, efforts of the federal government in the first half of 1975 were valuable. Experience shows, however, that the

effectiveness of such a policy depends on the existence of national institutions with powers to make decisions in this field and to enforce them. Traditionally, such institutions have not existed in Canada. Experience also demonstrates that, while it is not easy to obtain general agreement on the establishment of appropriate wage and price guidelines, it is still more difficult to ensure general compliance and equity.

One alternative contemplated was a surtax on excessive income gains. Such an incomes policy would consist of a substantial levy on incomes that increase more rapidly than a specified rate. That rate, or the limit within which annual incomes would be allowed to increase without a surtax, would be the subject of an official announcement by the government at an appropriate moment. The purpose of the scheme would be to act as an effective deterrent to individuals and firms behaving in a way detrimental to long-run price stability, while avoiding direct interference in the decisions of individuals and corporations. The surtax, to be successful, must work directly on expectations, and lead to a significant change in the benefits and costs expected from choices, decisions, and actions of firms, labour unions, and workers in matters of incomes and prices, in order to discourage the inflationary spiral. In this respect, the surtax would be similar to other uses of the fiscal system aimed at inducing changes in decisions by making them more or less beneficial.

The basic mechanism for the implementation of this scheme would be the income tax system. The surtax rate would be set very high and would apply to all sources of personal and corporate income: wages and salaries, profits, dividends and other investment income, rental income, and professional fees. The tolerance limit would be established in such a way as to allow for productivity gains and a gradual reduction in inflation. A rate of increase of 10 per cent was envisaged as an appropriate limit for the first year. If the program were successful, the limit would be lowered in subsequent years. The surtax would be a permanent government policy option, supplementing existing fiscal and monetary policies; the parameters, such as the stipulated guidelines for income increases and the surtax rates, would be subject to modification, as appropriate. The surtax, if fully effective in preventing excessive income increases, would provide no additional revenue to government. If revenues were generated, modalities would have to be found to dispose of the funds without increasing current government expenditures. There are a number of ways to use such proceeds: other sources of government revenue could be reduced by the amount produced by the surtax; they could be placed in a fund for later repayment; or they could be used to stimulate saving and investment. The revenue

from the surtax should not be allowed to affect the monetary and fiscal stance of the government that would otherwise be established in an effort to achieve steady growth in the economy.

Use of the tax system to contain prices and costs could lead to a number of difficulties. Incentives to both workers and firms to increase output might weaken. The complexities of the tax system would increase and present administrative and legal problems. Regulations would be required to ensure that the surtax did not prevent individuals and firms from continuing to play a role in the determination of wages, prices, and profits; at the same time, the number of exceptions would need to be minimized. More fundamentally, the surtax could itself become inflationary to the extent that firms, rather than comply to avoid penalty, would choose to add it to costs and pass it on in the form of higher prices. It seems, however, that the economic system is still sufficiently decentralized and competitive to prevent this adverse reaction. While there is great merit in the idea of using the tax system to moderate cost increases, the Council felt that considerably more study would be required to resolve the administrative, technical, and legal difficulties before the surtax could be implemented.

A week after the Council's deliberations, the Prime Minister announced a comprehensive anti-inflation program. The next day the Minister of Finance tabled a policy statement in the House of Commons entitled "An Attack on Inflation – A Program of National Action," and a few days later the legislation was placed before the House. In advocating imposition of prices and incomes guidelines, the Prime Minister stressed the urgency of altering inflationary expectations: "Because they are afraid of falling behind, Canadians in large numbers are trying to overcompensate for the worst conceivable rate of inflation That is why there is an urgent need to cool the fires of inflation now." The Council's perception of the problems confronting the economy are clearly much the same as those that led to this decision.

The government program has four main elements: fiscal and monetary policies aimed at increasing total demand and production at a rate consistent with a declining rate of inflation; government expenditure policies directed towards limiting the growth of public expenditures and the rate of increase in public service employment; structural policies to deal with the special problems of energy, food, and housing, so as to ensure a more efficient and competitive economy and to improve labour-management relations; and a prices and incomes policy that establishes machinery for administering the guidelines and ensuring compliance, where necessary.

Although compliance with the prices and incomes guidelines is voluntary, the government has made provision for the statutory enforcement

of them for specified groups, including "firms which employ more than 500 employees; firms any or all of whose employees bargain in association with employees of other firms; firms in the construction industry which employ more than 20 employees; the federal government and all its emanations; participating provincial governments and their emanations, including municipal institutions; employees of the entities referred to above; and individuals or other firms that are carrying on a business that is a profession."² There is also provision for subsequent inclusion of other key groups at a later date.

The government has emphasized that the guidelines are "initial" and subject to change, after consultation with provincial governments and business, labour, and other groups. The incomes guidelines include a basic protection factor set at 8 per cent for the first year of any new contract and at 6 and 4 per cent for subsequent years, with an allowance for upward adjustment if the consumer price index increases at a higher rate; a sharing in national productivity increase of 2 per cent; a catching-up allowance of plus or minus 2 per cent, based on comparisons with national benchmarks; and a maximum raise of \$2,400. Increases of \$600 or less will not be constrained by the program.

Increases in prices are limited to what is required to cover increases in costs; that is, net profit margins or profit per unit of output are fixed at the level existing prior to October 14. Prices to producers of farm and fish products are exempted. Provincial governments have been asked to implement a program of rent controls on existing housing and to use their powers to ensure that professional fees are governed by the same principles as apply to other sources of income.

An Anti-Inflation Board and an administrator will implement, monitor, and enforce the new government program. The Board will be responsible for clarifying the government's intentions on profits, prices, dividends, and incomes, and for watching how these move in relation to the guidelines. The Board will report to the administrator if it is unable to achieve compliance through negotiations. The administrator will have legal powers to order an individual or organization to cease actions in breach of the guidelines and may require the repayment of the revenues derived from such breaches. An Anti-Inflation Appeal Tribunal will consider appeals on the decisions of the administrator. Under certain circumstances, there can be a further appeal to the Federal Court of Canada, and the Cabinet may overrule the administrator on its own initiative.

2 *Attack on Inflation - A Program of National Action*, Policy Statement tabled in the House of Commons by the Honourable Donald S. Macdonald, Minister of Finance, October 14, 1975, p. 12.

As with all incomes policies, the art of persuasion must obviously play an important role. The intent of such a policy is to bring the national interest more effectively to bear upon price and wage decisions. The effects of these measures will have to be judged in terms of both efficiency and equity. Efficiency will be of critical importance in the implementation of this incomes policy and in the orderly transition beyond it, to avoid wasting available resources now and later and to make the fullest possible use of the country's manpower resources. It must be emphasized, in this regard, that it appears dangerous to us to define a policy on the general level of prices without any reference to the kind of price policies being followed at the same time in foreign countries. The Council has recognized that Canadian prices cannot be made to differ significantly from those registered elsewhere. This has been reflected in its adoption of the relative price indicator for assessing Canadian price performance. Moreover, any form of incomes policy has an inherent element of arbitrariness, but its acceptability and effectiveness will ultimately depend on the concern that will be shown for equity in its administration. Beyond that, our primary concern should be to adapt the Canadian economy to the emerging conditions of the 1980s.

In assessing the performance of the Canadian economy in relation to its medium-term potential, we will have to monitor not only the impact of the policy but also its ultimate removal. As we have pointed out, the problem is how to return to slower rates of price increase without an explosion of those very demands that have accumulated during the period of controls. Even after having altered inflationary expectations in the short term, it may be necessary to develop persuasive policy mechanisms to supplement general demand policies. It is in this context that the Council will continue to examine other possible techniques to keep prices and incomes compatible with long-run stability.

Appendix A Energy Scenarios

The Oil Scenarios

The key to the two scenarios is the international price (f.o.b.) for crude oil. The moderate-price scenario assumes a constant nominal price to 1980, while the high-price scenario assumes a price increase of 5 per cent per annum over the same period. Beginning in 1981, prices increase 5 per cent per year in both cases. The domestic wellhead price moves to parity with the international price by 1980 (Chart A-1).

Chart A-1

Crude Oil Prices, Two Scenarios, 1974-85

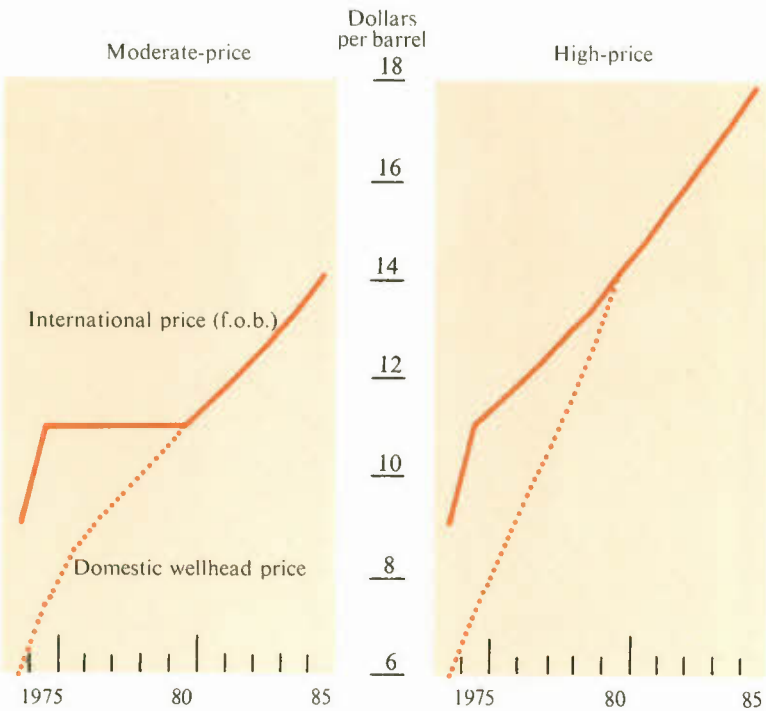


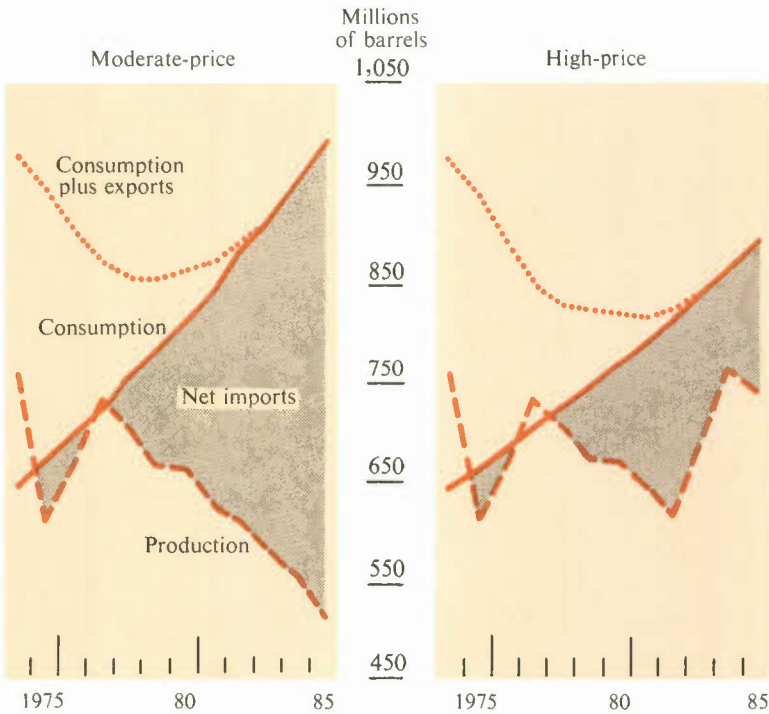
Table A-1

Output of Oil Sands Plants, Two Scenarios, Selected Years, 1973-85

	1973	1979	1982	1985
Plants in operation				
Moderate price	1	2	4	4
High price	1	2	4	5
	(Millions of barrels)			
Total output				
Moderate price	18	59	142	176
High price	18	61	147	217

Chart A-2

Oil Production, Consumption, Imports, and Exports, Two Scenarios, 1974-85



Output from conventional sources, as projected by the National Energy Board in October 1974,¹ together with output from the oil sands, determines total production for each scenario. Great Canadian Oil Sands is now in operation, and Syncrude is being developed. The number of additional oil sands plants that can overcome financial and other constraints is assumed to vary with the future price of crude oil (Table A-1). In the case of the high-price scenario, oil also becomes available from the Mackenzie Delta in 1983.

As prices rise, Canadian consumers are likely to economize in their use of crude oil. Consumption is assumed to increase at 4 per cent per annum in the moderate-price scenario and 3 per cent per annum in the high-price scenario. In both cases, exports are phased out by 1983. Imports are determined residually after the figures for production, consumption, and exports have been determined. Canada is expected to be a net importer of oil in 1975 and 1976, because a significant amount of our capacity will not be used until the Montreal-Sarnia pipeline is completed. By the late 1970s Canada will be a substantial net importer of oil (Chart A-2).

The Natural Gas Scenarios

It is necessary to calculate a price for gas exported, as well as a price for gas consumed domestically. The price of gas at the city gate is equated to the commodity value² of oil at the city gate in 1978. Subtraction of transportation costs from the city-gate price of gas yields the wellhead price of gas destined for domestic consumers. The export price of gas rises from its recent level of \$1.60 per thousand cubic feet to commodity value with oil for export in 1977. Chart A-3 shows the city-gate price of gas for domestic consumption and the export price associated with the two crude oil price scenarios.

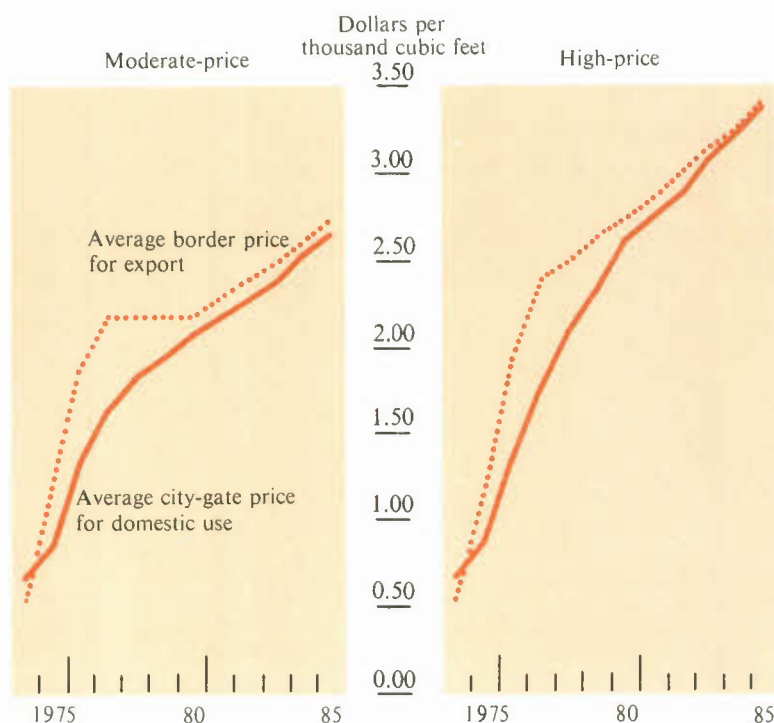
The natural gas scenarios distinguish between "underlying effective" demand and "potentially realizable" or "adjusted" demand for natural gas. If domestic demand is allowed to grow at rates dictated by our price assumptions and if no restraints are imposed because of supply limitations, the resulting series describes the development of underlying effective domestic demand. Domestic demand is combined with export

1 National Energy Board, *In the Matter of the Exportation of Oil* (October 1974).

2 By "equating commodity values," we mean that the prices for oil and gas are such that a dollar will purchase quantities of the two fuels that are equivalent in terms of energy content, measured in British Thermal Units. No adjustment is made for differences in combustion efficiencies.

Chart A-3

Natural Gas Prices, Two Scenarios, 1974-85



commitments to give a measure of total underlying effective demand. The excess of this amount in any given year over the projected total supply is equal to a shortage, which is assumed to be met by cutting back on both domestic demand and exports. Once underlying effective domestic and export demand have been reduced by specified proportions of the shortage, they are described as "adjusted" domestic and export demand.

Our projections for underlying effective domestic demand are based on forecasts made by the National Energy Board.³ Consumption is assumed to grow at a rate of 8.5 per cent per annum over the 1974-80 period in both scenarios. The tendency for consumption to grow at a very high rate arises from the fact that opportunities are available in energy-intensive industries, such as petrochemicals, and that gas is underpriced in relation to oil throughout much of this period and has desirable properties for a wide range of uses. After 1980, growth of

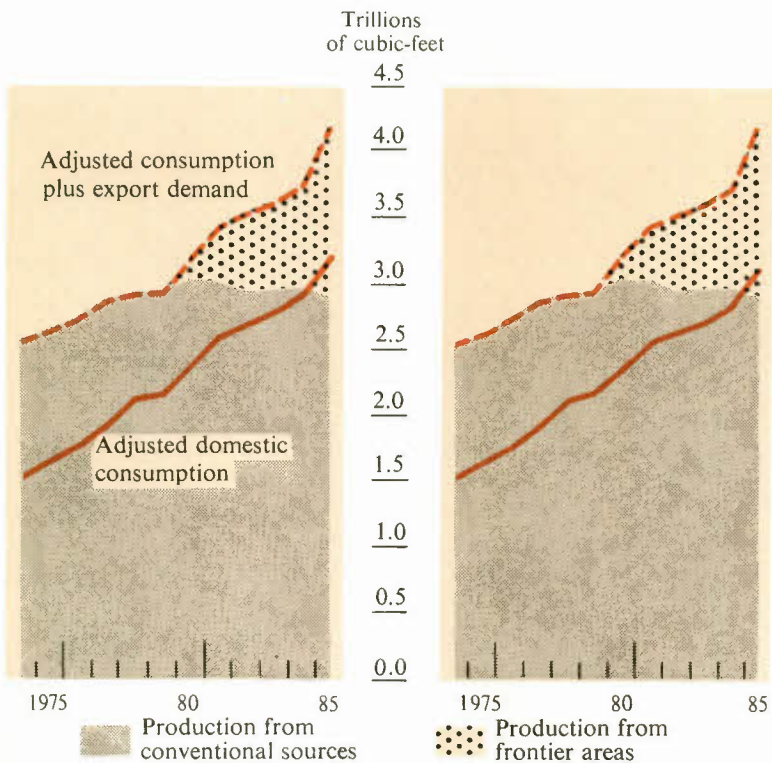
3 National Energy Board, *Canadian Natural Gas Supply and Requirements* (April 1975).

consumption slows to an average of 5.3 per cent per annum in the moderate-price scenario and to 3.8 per cent per annum in the high-price scenario. The combination of rising domestic consumption and a more or less fixed level of exports yields total underlying effective demand.

Natural gas from conventional sources and from the frontier areas constitutes total future supply. Gas from conventional sources including reserve additions, as forecast by the National Energy Board, is not sufficient to meet underlying effective demand. Under our assumptions, even frontier supplies, which become available from the Mackenzie Delta in 1980 and the Arctic Islands in 1985, are not adequate to cover the shortfall between conventional supplies and underlying effective demand until the mid-1980s. During the period of shortage, underlying domestic demand is assumed to be reduced by 40 per cent of the shortage, and export commitments are expected to fall by 60 per cent. This percentage distribution of the shortage is arbitrary, although the principle of sharing the shortfall is in line with announced federal policy.

Chart A-4

Gas Production and Consumption, Two Scenarios, 1974-85



Since total supply is the same in both scenarios but underlying domestic demand after 1980 is greater in the moderate-price than in the high-price scenario, the shortage is greater in the former than in the latter (Chart A-4). Consequently, adjusted export demand is lower in the moderate-price than the high-price scenario.

The Investment Implications

Table A-2 sets out the "additional" investment⁴ generated by the two price scenarios. Two alternatives are presented for each: the first includes investment in a Mackenzie Valley gas pipeline, built by Canadian Arctic Gas Pipeline Limited; the second includes a smaller-diameter pipeline from the Mackenzie Delta, built by Foothills Pipe Lines Ltd.

Table A-2

Additional Private Energy Investment Requirements, Two Scenarios, 1974-75

	Moderate price		High price	
	A	B	A	B
(Billions of 1961 dollars)				
1974	0.01	0.01	0.01	0.01
1975	0.12	0.12	0.12	0.12
1976	0.17	0.25	0.17	0.25
1977	0.24	0.39	0.24	0.39
1978	0.47	0.57	0.47	0.57
1979	1.08	0.94	1.08	0.94
1980	1.49	0.93	1.85	1.29
1981	1.49	1.01	2.23	1.75
1982	0.90	0.63	2.08	1.81
1983	0.47	0.36	1.65	1.54
1984	0.33	0.24	1.13	1.04
1985	0.24	0.20	0.73	0.69

A - A 48-inch pipeline from the Mackenzie area carries Alaskan and Canadian gas.

B - A 42-inch pipeline from the Mackenzie area carries Canadian gas.

In addition to a Mackenzie Valley gas pipeline, the moderate-price scenario provides for investment in a Sarnia-Montreal oil pipeline, in Syncrude, in two other oil sands plants, and in a polar gas pipeline from

4 The CANDIDE model generates increasing levels of investment over the 1975-85 period. To these levels, we have added the large amounts of investment in oil and gas pipelines and oil sands plants that would not be produced within the framework of the model. This we have called "additional" investment.

the Arctic Islands. The high-price scenario includes investment in yet another pipeline – an Arctic oil pipeline – beginning in 1980, and three additional oil sands plants, one of which commences operation before 1985.

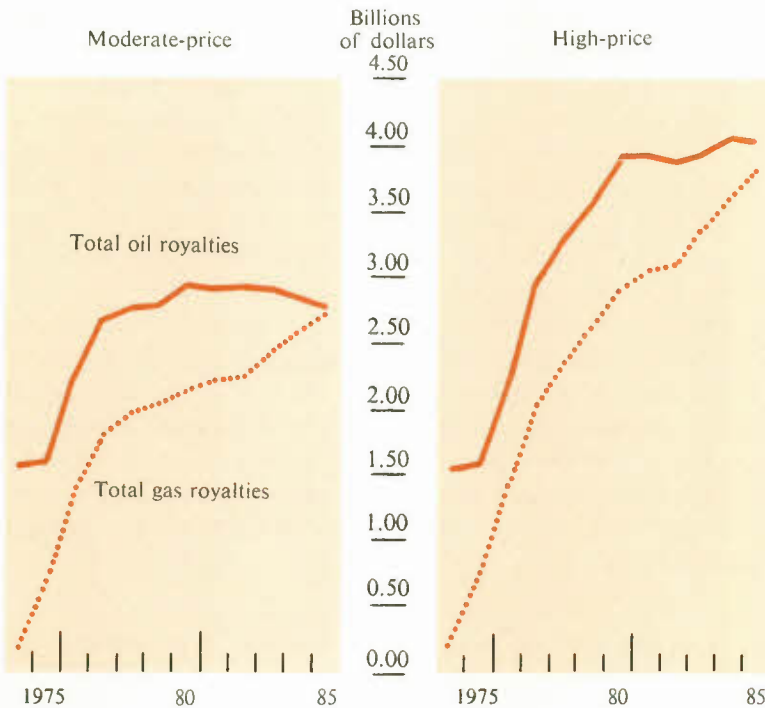
Oil and Gas Royalties

The implications of the scenarios for total oil and gas royalties appear in Chart A-5. All oil royalties accrue to the provinces, with the exception of a small amount for the federal government in the high-price scenario – the result of oil flowing from the Mackenzie Delta and the Beaufort Sea area in 1983. Similarly, most of the gas royalties accrue to the provinces, with the exception of gas from the frontier, which begins to provide royalty payments to the federal government in 1980.

Existing Alberta formulas are used to calculate provincial royalties on old oil and new and old gas coming from conventional sources. New

Chart A-5

Oil and Gas Royalties, Two Scenarios, 1974-85



oil from oil sands plants is subject to a provincial profit-sharing arrangement. Federal royalty rates of 5 per cent for the first three years of operation and 10 per cent thereafter are applied to oil and gas from the frontier areas.

Oil Subsidy Payments

An import compensation program has been adopted by the federal government to establish a single price for a barrel of crude oil across the country. Eastern Canadian importers are subsidized to the amount of the excess of the landed price of imported oil over the quality-adjusted price⁵ of Canadian oil delivered to Toronto. The subsidy is financed by a tax on oil exports to the United States.

In July 1975 the wellhead price of domestic oil was increased by \$1.50 per barrel. As a result, the subsidy on a barrel of imported oil and the tax on a barrel of oil exported to the United States were reduced by similar amounts. In October, the Organization of Petroleum Exporting Countries announced an international price increase of close to 10 per cent per barrel. This action implied an increase in Canada of about \$1.05 in the subsidy per barrel and the export tax per barrel.

The import compensation program will apparently record a deficit in 1975, since Canada is now a net importer of oil. The July domestic price increase improved the balance, while the October international price increase caused some deterioration. The federal excise tax on gasoline will help to cover some of the deficit, but any attempt to finance the subsidy payments by increasing the export tax will be met by resistance from the United States. This was demonstrated early in 1975, when an excessively high export tax created a higher price for Canadian oil than for other imported oil. The U.S. response was to substitute other sources of oil for the Canadian supply.

The energy scenarios assume the subsidy remains as long as the difference between the landed price of foreign and domestic oil exists. Canada will likely be a net importer until 1977, when the phasing-out of exports is stepped up and a decrease in imports is made possible. In subsequent years, Canada imports a significant amount of oil, with subsidy payments increasing with the excess of imports over exports and decreasing with any relaxation of the differential in prices for domestic and foreign oil.

5 "Quality-adjusted price" is the price after allowances have been made for differences in the quality of domestic and foreign oil.

Appendix B Investment Requirements, 1975-85

In order to evaluate the investment expenditures required for sustained growth, two series of assumptions have been used. In projection A, which corresponds to scenario 1 in Chapter 1, modest growth in foreign economies is assumed, and conditions on the international oil market are expected to induce only moderate price increases in Canada. In projection B, which replicates scenario 4 in Chapter 1, strong economic growth in the United States and high prices in the energy sector are assumed. These estimates provide a range of values within which intermediate solutions may be considered for the various categories of savings and investment.

The results in Table B-1 show that, in general, the need for investment will be higher in future. In the private sector the average growth rate in constant dollars should range from 5.3 per cent to 6.3 per cent per year during the 1975-85 period, compared with the actual average of 4.5 per cent from 1966 to 1973. Given the increase in prices, the overall growth of expenditures should range from 11.2 per cent to 13.0 per cent per year. Total investment should amount to between \$802 billion and \$863 billion (current dollars) for the projection period.¹ In the next decade the economy should recover from the situation in past years, during which modest growth in investment resulted in capacity constraints in the production system.

If that recovery coincided with the upturn of the U.S. economy, investments would grow at exceptionally high rates between 1975 and 1980, rising by an average of up to 16.8 per cent per year in B. During the 1975-85 period, investment activities are expected to be concentrated in the production of equipment, industrial plants, and infrastructures. Investment in residential construction is projected to accelerate at a slower rate, partly because of population changes in the 1980s.

1 This would include, in addition to business fixed investment in machinery and equipment and nonresidential construction (Table B-3), housing expenditures and government fixed capital formation.

Table B-1
Investment, 1975-85

	Average annual percentage change ¹					
	Actual, 1966-73	Projected, 1975-80 ²		Projected, 1980-85 ²		Projected, 1975-85 ²
		A	B	A	B	
		(In 1961 dollars)				
Business gross fixed capital formation	4.5	8.0	8.0	2.6	3.7	5.3
Machinery and equipment	4.6	8.5	8.3	4.5	5.6	6.3
Nonresidential construction	1.7	8.6	9.5	1.5	2.3	5.0
Residential construction	8.2	5.5	4.5	-0.3	1.2	3.0
Government gross fixed capital formation	2.6	3.5	3.5	3.3	3.3	3.4
		(In current dollars)				
Business gross fixed capital formation	9.2	15.9	16.8	9.0	11.1	11.6
Machinery and equipment	7.5	14.7	14.9	10.1	12.1	11.7
Nonresidential construction	7.4	18.0	20.3	9.2	11.1	12.5
Residential construction	14.4	14.1	13.5	6.5	9.0	9.7
Government gross fixed capital formation	7.0	10.6	11.2	10.0	11.1	10.1
Machinery and equipment	6.7	11.9	12.3	9.6	11.5	10.5
Nonresidential construction	7.0	10.5	11.1	10.0	11.1	10.1
Residential construction	11.8	7.8	8.2	6.9	7.8	7.1
Total investment ³	8.7	15.9	16.8	8.8	10.5	11.2
						13.0

1 Estimated using the restricted-least-squares method.

2 The rates in projection A are based on the assumption of moderate external growth and energy prices; those in B, on a more favourable external environment and higher energy prices.

3 Including changes in the value of inventories and the residual error of estimate.

SOURCE Based on estimates by the Economic Council of Canada.

Table B-2
Savings, 1975-85

	Percentage shares		Average annual percentage change ¹		
	Actual, 1975 ²	Projected, 1985 ³		Projected, 1975-85 ³	
		A	B		
		(In current dollars)			
Personal savings	21.7	22.2	21.8	11.1	13.0
Corporate savings ⁴	12.1	16.2	16.5	11.9	13.6
Government savings	2.9	-1.2	8.1	-4.3	6.6
Nonresident savings	16.0	16.6	9.6	20.5	16.6
Capital consumption allowances	47.2	46.2	44.1	12.3	13.5
Total savings ⁵	100.0	100.0	100.0	11.2	13.0

1 Estimated using the restricted-least-squares method.

2 Estimated value.

3 The rates in projection A are based on the assumption of moderate external growth and energy prices; those in B, on a more favourable external environment and higher energy prices.

4 After adjustment for changes in the value of inventories.

5 Including the adjustment on grain transactions and the residual error of estimate.

SOURCE Based on estimates by the Economic Council of Canada.

Table B-3
Investment, by Sector, 1975-85

	Percentage distribution						Projected average annual percentage change ^{1,3}						Cumulated value ⁴	
	Projected, 1985 ³			1975-80			1980-85			1975-85			Projected, 1975-85 ³	
	Actual, 1975 ²	A	B	A	B		A	B		A	B		A	B
(In current dollars)														
Agriculture	9.9	7.5	6.8	11.6	11.3		8.7	10.3		9.8	10.6		42,280.2	42,870.0
Forestry	0.6	0.9	1.0	22.5	23.2		10.7	13.5		13.0	15.8		4,586.8	5,228.5
Fishing	0.3	0.2	0.2	5.8	5.3		8.0	9.4		8.2	8.7		1,055.3	1,059.1
Mining, oil, and gas	13.4	14.4	18.0	17.7	20.5		9.2	15.2		11.9	16.6		76,688.2	93,624.0
Manufacturing	22.5	22.9	22.2	16.4	16.7		10.3	12.6		12.9	14.5		118,976.0	126,196.0
Construction	1.7	1.4	1.3	18.7	18.4		3.6	6.2		10.2	12.3		8,565.5	9,121.2
Utilities	15.9	18.9	17.6	17.0	17.2		13.7	15.4		14.9	16.0		89,658.5	93,148.2
Transportation, storage, and communications	17.4	17.8	18.0	20.4	24.2		5.7	5.4		10.7	13.1		100,603.0	120,964.0
Trade	4.0	3.0	2.7	10.4	10.4		8.4	9.8		9.7	10.4		17,129.7	17,399.5
Finance	5.8	6.2	5.9	13.2	13.3		13.3	16.1		14.0	15.5		30,289.3	31,252.1
Services	9.2	7.1	6.7	11.1	11.4		8.8	10.6		10.0	11.1		39,794.9	41,333.9
Adjustment	-0.7	-0.3	-0.4	0.0	0.0		0.0	0.0		0.0	0.0		-1,801.1	-1,801.1
Total investment ⁵	100.0	100.0	100.0	16.4	17.6		9.6	11.5		12.1	14.1		527,826.3	580,395.4

1 Estimated using the restricted-least-squares method.

2 Estimated value.

3 The rates in projection A are based on the assumption of moderate external growth and energy prices; those in B, on a more favourable external environment and higher energy prices.

4 In millions of current dollars.

5 Investment, by sector, and total private investment relate to machinery, equipment, and nonresidential construction.

SOURCE Based on estimates by the Economic Council of Canada.

Table B-2 shows the financing necessary to meet the total investment requirements. Personal, corporate, and government savings are inferred directly, according to their economic behaviour. The share of personal savings is expected to remain stable, and the share of corporate savings to increase. Nonresident savings are considered to be complementary to domestic sources of financing, in order to reach an equilibrium between total saving and total investment. The contribution of nonresident savings is projected to rise by up to 16.6 per cent of the total by 1985 in A.

With regard to government savings, the favourable environment associated with high energy prices in B is expected to lead to an increase in government revenues to a level where public savings would account for 8.1 per cent of total savings by 1985, compared with -1.2 in A. Thus the share of financing corresponding to the additional investment in the energy sector could come from government institutions. Consequently, the need for foreign savings would be reduced, their contribution accounting for only 9.6 per cent of total savings by 1985 under B, compared with 16.6 under A.

Table B-3 provides a sectoral disaggregation of investment required. The distribution of investment effort varies according to demand prospects. The sectors in which long-term demand remains rather strong are those in which above-average growth of expenditures on plant and equipment is anticipated. Investments in the mining, oil, and gas sector are projected to increase by 11.9 per cent annually under A and 16.6 per cent under B from 1975 to 1985; for utilities, these rates are 14.9 and 16.0 per cent, respectively. In financing services, expenditures are projected to increase from 14.0 to 15.5 per cent. Rapid expansion in the manufacturing industries since the early 1960s was accompanied, especially in the finished products sector, by strong export growth that was sustained by the 1962 devaluation and the 1965 Automotive Agreement. Since we assumed that similar favourable circumstances would not recur in the 1970s and the early 1980s and that domestic demand would not be sufficiently strong to overcome completely the slowdown in foreign demand, we anticipate that production growth in this sector, and consequently investment growth, will not significantly exceed the overall average.

Financing capacity, which is the other main element of investment, can differ considerably from one sector to another. Of course, the level of expenditures is often related to the long-term evolution of interest rates. However, it also varies according to the growth of corporate savings, which in turn depends to some extent upon the evolution of prices. The effect of prices on investment is expected to be particularly sensitive in the mining, oil, and gas sectors; a favourable environment

and high prices in the case of projection B would clearly bring about stronger growth in investments than would the situation of moderate prices under A.²

The rates for the 1975-80 and 1980-85 subperiods show the way in which investment projects should be spread over time. In the transportation sector, average growth of 20.4 to 24.2 per cent of investment expenditures in current dollars would be required between 1975 and 1980 in order to prevent bottlenecks that would slow down growth in all sectors – even those in which activity was thriving.

More generally, it will not be enough to promote investment over the next ten years in the sectors where needs are the most urgent. Investment, as a whole, rises as a proportion of GNP. In current dollars, it rises from 23 per cent in 1975 to approximately 27 per cent by 1981. This means that the contribution of total savings must increase by the same proportion. The share of current consumption of goods and services, in both government and private sectors, must therefore decrease accordingly.

2 The net effect of prices on investment cannot be directly perceived, because the rates also reflect the effect of a strong environment. However, since oil exports are assumed to be limited, it can be considered that the largest part of the difference in the growth rates is attributable to prices of production.

Appendix C Detailed Tables of Projections to 1985

Table C-1

Assumptions Regarding Tax Rates,
Scenarios 1 to 4, 1975-85

	1975	1980	1985
	(Per cent)		
Personal income tax			
Federal tax rate on first \$500	9.0	6.0	6.0
Federal tax rate on second income bracket	18.0	18.0	18.0
Corporate income tax			
Corporate income tax rate (federal)	31.2	31.2	31.2
Corporate income tax rate (provincial)	11.8	11.8	11.8
Indirect tax rates			
Federal sales tax rate on consumer goods	12.0	12.0	12.0
Federal sales tax rate on building materials	5.0	5.0	5.0
Effective customs duty rate	5.6	5.6	5.6
Weighted average provincial retail sales tax rate	6.3	6.3	6.3
Tobacco tax (\$/1,000 cigarettes)	10.0	10.0	10.0
Alcohol tax (\$/proof gallon)	14.3	14.3	14.3

NOTE Scenario 1 - Moderate-price energy and weak external environment;
Scenario 2 - Moderate-price energy and strong external environment;
Scenario 3 - High-price energy and weak external environment; and
Scenario 4 - High-price energy and strong external environment.

Other governments									
Revenues									
Succession duties and contributions to social funds ³	8.5	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
Other transfers from persons to provinces	13.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Provincial mining and logging taxes	1.6	9.5	9.5	9.5	9.5	9.3	9.3	9.3	9.3
Provincial and local property taxes	8.3	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Investment income ⁴	21.3	11.6	11.7	15.8	15.8	4.8	4.8	4.7	4.7
Expenditures									
Grants to postsecondary education	15.6	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Canada and Quebec Pension Plan benefits	n.a.	20.0	20.0	20.0	20.0	12.0	12.0	12.0	12.0
Social assistance payments	15.2	10.4	10.4	10.4	10.4	10.0	10.0	10.0	10.0
Other transfer payments to persons ⁵	11.9	14.0	14.0	14.0	14.0	12.0	12.0	12.0	12.0
Subsidies	20.4	5.5	5.5	5.5	5.5	4.3	4.3	4.3	4.3
Capital assistance	31.5	9.1	9.1	9.1	9.1	6.2	6.2	6.2	6.2
Interest on public debt	17.2	12.0	12.0	12.0	12.0	10.0	10.0	10.0	10.0

n.a. - Not available.

NOTE Scenario 1 - Moderate-price energy and weak external environment;

Scenario 2 - Moderate-price energy and strong external environment;

Scenario 3 - High-price energy and weak external environment; and

Scenario 4 - High-price energy and strong external environment.

1 Includes remittances from government enterprises, royalties, and interest income.

2 Includes world war pensions, war veterans' allowances, pensions to government employees, scholarships and grants, and the Adult Occupational Training Program payments.

3 Includes succession duties and contributions to public service pension funds, to workmen's compensation and industry employment vacation, and to Canada and Quebec Pension Plans.

4 Includes remittances from government enterprises, royalties, interest income, and CPP investment income.

5 Includes pensions to government employees, workmen's compensation benefits, and grants to benevolent associations and private noncommercial institutions.

Table C-3
Selected Assumptions Regarding the External Environment, 1975-85

	Average annual percentage change									
	Scenarios, 1975-80					Scenarios, 1980-85				
	1966-73	1	2	3	4	1	2	3	4	
U.S. economy										
Real GNP	3.3	5.3	6.0	5.3	6.0	3.1	4.0	3.1	4.0	
GNP deflator	4.5	5.6	5.7	5.6	5.7	5.6	5.9	5.6	5.9	
Real industrial production	3.6	5.6	6.4	5.6	6.4	3.1	4.1	3.1	4.1	
Mining	1.4	0.9	1.5	0.9	1.5	6.0	6.6	6.0	6.6	
Nondurables manufacturing	4.8	5.2	5.8	5.2	5.8	1.9	2.8	1.9	2.8	
Durables manufacturing	2.8	6.9	7.9	6.9	7.9	4.3	5.4	4.3	5.4	
Public utilities	5.0	2.2	2.9	2.2	2.9	-2.5	-1.5	-2.5	-1.5	
Rest of world										
Japan, United Kingdom, and EEC industrial production	8.8	6.3	6.3	6.3	6.3	5.0	5.7	5.0	5.7	
U.K. real GDP	2.3	4.0	3.9	4.0	3.9	3.0	3.4	3.0	3.4	

Exports and imports, and their prices										
Grain exports										
Grain export prices	5.5	4.2	4.4	4.2	4.4	2.0	4.4	2.0	4.4	4.4
Crude, natural gas, and sulphur exports	2.4	4.0	3.2	4.0	3.2	2.0	3.1	2.0	3.1	3.1
Crude, natural gas, and sulphur export prices	16.7	-15.0	-15.0	-15.0	-15.0	-3.5	-3.5	-1.9	-1.9	-1.9
Fuel imports	3.4	2.9	2.9	5.9	5.9	3.1	3.1	5.0	5.0	5.0
Fuel import prices	2.8	-5.9	-5.9	-9.9	-9.9	13.2	13.2	-1.6	-1.6	-1.6
	8.9	1.5	1.5	4.4	4.4	4.2	4.2	4.8	4.8	4.8
	1967-73	Annual averages, 1976-80					Annual averages, 1981-85			
U.S. unemployment rate (per cent)	4.6	6.0	6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0
U.S. commercial paper rate (per cent)	6.4	6.9	7.2	6.9	7.2	7.9	8.5	7.9	8.5	8.5
U.S. total bond rate (per cent)	7.4	8.1	8.5	8.1	8.5	8.5	9.1	8.5	9.1	9.1
Canadian exchange rate (cents/\$U.S.)	104.0	104.0	104.0	104.0	104.0	104.0	104.0	104.0	104.0	104.0

NOTE Scenario 1 - Moderate-price energy and weak external environment;
 Scenario 2 - Moderate-price energy and strong external environment;
 Scenario 3 - High-price energy and weak external environment; and
 Scenario 4 - High-price energy and strong external environment.

Table C-4
Main Aggregates, 1975-85

	Average annual percentage change									
	Scenarios, 1975-80					Scenarios, 1980-85				
	1966-73	1	2	3	4	1	2	3	4	
		(Calculated in 1971 dollars)								
Real gross national product	5.0	5.7	5.7	5.6	5.6	3.6	4.1	3.7	4.3	
Output per person employed	2.2	2.6	2.7	2.6	2.7	1.7	1.8	1.8	2.0	
Stock of business capital	5.2	5.7	5.7	5.7	5.7	5.7	5.9	6.1	6.3	
Business capital per person employed	2.4	2.5	2.5	2.6	2.6	3.9	3.7	4.2	4.0	
		(Calculated on the basis of number of persons)								
Employment	2.7	3.1	3.1	3.0	3.0	1.8	2.2	1.9	2.3	
Labour force	3.1	2.5	2.5	2.4	2.4	1.8	2.0	1.9	2.1	
Population	1.4	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	
		(Calculated in 1971 dollars)								
Consumer expenditure	5.1	5.6	5.6	5.4	5.4	4.4	4.9	4.5	5.0	
Residential construction	8.2	5.5	4.9	5.1	4.5	-0.3	0.7	0.1	1.2	
Plant and equipment outlays	3.3	8.5	8.5	8.8	8.8	3.3	4.0	3.5	4.2	
Government current expenditure on goods and services	5.2	4.3	4.3	4.2	4.2	3.6	3.9	3.8	4.0	
Exports	8.4	5.6	6.1	5.6	6.1	3.5	4.6	3.5	4.7	
Imports	8.2	6.9	7.1	6.7	6.9	4.4	5.2	4.3	5.2	

	(Calculated in current dollars)						(Calculated in 1971 dollars)					
Corporate profits before taxes	11.5	12.2	13.1	13.4	14.3	8.1	8.4	10.6	10.7	10.7	10.7	
Personal income	10.7	12.2	12.3	12.3	12.4	10.6	11.7	11.2	12.5	12.5	12.5	
Personal disposable income	9.7	11.8	11.9	11.9	12.0	10.2	11.1	10.7	11.8	11.8	11.8	
Real personal disposable income per capita	4.0	4.9	4.9	4.7	4.6	3.1	3.7	3.2	3.8	3.8	3.8	
	(Calculated on the basis of index numbers)											
GNE price deflator	4.4	6.9	7.0	7.3	7.4	6.4	6.8	7.0	7.5	7.5	7.5	
Consumer expenditure price deflator	3.8	5.4	5.4	5.7	5.8	5.6	6.0	6.1	6.5	6.5	6.5	
Consumer price index	4.2	6.6	6.6	6.9	6.9	6.5	6.9	6.9	7.3	7.3	7.3	
1967-73	Annual averages, 1976-80											
Housing starts (thousands)	216.3	244.8	240.5	241.1	236.9	277.9	282.1	279.5	284.5	284.5	284.5	
Current account balance (millions of current dollars)	-168.7	-3,872.4	-3,218.4	-3,349.4	-2,695.6	-13,320.1	-11,370.0	-11,531.2	-9,684.4	-9,684.4	-9,684.4	
Current account balance (percentage of GNP)	-0.2	-1.7	-1.4	-1.4	-1.2	-3.5	-2.9	-2.9	-2.4	-2.4	-2.4	
Government surplus (+) or deficit (-) in millions of current dollars	545.1	1,455.3	1,804.6	2,920.6	3,273.0	4,952.9	2,137.9	335.3	3,296.1	3,296.1	3,296.1	
Government surplus (+) or deficit (-) as a percentage of GNP	0.7	0.6	0.8	1.2	1.3	-1.2	-0.5	0.2	0.9	0.9	0.9	
Unemployment rate	5.4	5.7	5.6	5.8	5.6	4.6	3.7	4.3	3.4	3.4	3.4	

NOTE Scenario 1 - Moderate-price energy and weak external environment;
 Scenario 2 - Moderate-price energy and strong external environment;
 Scenario 3 - High-price energy and weak external environment; and
 Scenario 4 - High-price energy and strong external environment.

Table C-5
The Personal Sector, 1975-85

	Average annual percentage change											
	Scenarios, 1975-80						Scenarios, 1980-85					
	1966-73	1	2	3	4		1	2	3	4		
(Calculated in 1971 dollars)												
Consumer expenditure on goods and services	5.1	5.6	5.6	5.4	5.4	4.4	4.4	4.9	4.5	5.0		
Durable goods	7.6	7.2	7.2	6.8	6.8	3.5	3.5	4.3	3.7	4.6		
Nondurable goods	5.1	4.6	4.6	4.4	4.4	4.1	4.1	4.4	4.1	4.5		
Semidurable goods	5.6	6.3	6.3	6.1	6.0	3.9	3.9	4.5	4.1	4.7		
Services	3.8	5.3	5.3	5.2	5.1	5.3	5.3	5.7	5.5	5.9		
Residential construction expenditures	8.2	5.5	4.9	5.1	4.5	-0.3	-0.3	0.7	0.1	1.2		
Housing starts	8.7	8.6	8.1	8.1	7.5	-1.5	-1.5	-0.1	-1.2	0.4		
Multiple dwellings	7.4	11.1	10.7	10.3	10.0	-2.1	-2.1	-0.2	-1.7	0.4		
Single dwellings	10.8	5.1	4.2	4.9	4.0	-0.7	-0.7	0.1	-0.4	0.4		
Stock of housing	3.2	2.9	2.8	2.8	2.8	3.0	3.0	3.0	3.0	3.0		
Number of households	3.1	2.8	2.8	2.8	2.8	2.5	2.5	2.5	2.5	2.5		

NOTE Scenario 1 - Moderate-price energy and weak external environment;
Scenario 2 - Moderate-price energy and strong external environment;
Scenario 3 - High-price energy and weak external environment; and
Scenario 4 - High-price energy and strong external environment.

Table C-6
The Business Sector, 1975-85

	Average annual percentage change											
	Scenarios, 1975-80								Scenarios, 1980-85			
	1966-73	1	2	3	4	1	2	3	4			
						(Calculated in 1971 dollars)						
Investment in machinery and equipment	4.6	8.5	8.4	8.4	8.3	4.5	5.2	4.9	5.6			
Investment in nonresidential construction	1.7	8.6	8.5	9.5	9.5	1.5	2.2	1.8	2.3			
Plant and equipment outlays	3.3	8.5	8.5	8.8	8.8	3.3	4.0	3.5	4.2			
Total stock of structures	4.7	5.4	5.4	5.4	5.4	5.2	5.3	5.9	6.0			
Total stock of machinery and equipment	6.0	6.0	6.0	6.0	6.0	6.3	6.5	6.4	6.6			
Total real capital stock	5.2	5.7	5.7	5.7	5.7	5.7	5.9	6.1	6.3			

NOTE Scenario 1 - Moderate-price energy and weak external environment;
 Scenario 2 - Moderate-price energy and strong external environment;
 Scenario 3 - High-price energy and weak external environment; and
 Scenario 4 - High-price energy and strong external environment.

Table C-7
The Government Sector, 1975-85

	Average annual percentage change												
	Scenarios, 1975-80					Scenarios, 1980-85							
	1966-73	1	2	3	4	1	2	3	4	1	2	3	4
(Calculated in current dollars)													
Expenditures													
Current expenditures on goods and services	12.7	13.6	13.6	13.7	13.7	12.7	13.7	13.4	14.5				
(In 1971 dollars)	(5.8)	(4.4)	(4.4)	(4.3)	(4.3)	(3.7)	(4.0)	(3.9)	(4.1)				
Gross capital formation	7.0	10.6	10.7	11.1	11.2	10.0	10.5	10.5	11.1				
(In 1971 dollars)	(2.6)	(3.5)	(3.5)	(3.5)	(3.5)	(3.3)	(3.3)	(3.2)	(3.3)				
Transfer payments to persons	16.3	9.3	9.3	9.5	9.4	10.2	9.7	10.4	9.9				
Other transfers	13.3	7.3	7.3	7.1	7.1	9.6	9.6	8.9	8.9				
(Of which: interest on public debt)	(14.3)	(12.0)	(12.0)	(12.0)	(12.0)	(10.0)	(10.0)	(10.0)	(10.0)				
Total government expenditures	12.9	11.4	11.4	11.5	11.6	11.6	12.1	11.9	12.6				

Revenue										
Direct taxes on persons										
Personal income tax										
Other	15.5	14.2	14.3	14.3	14.4	12.6	14.2	13.3	15.1	
	17.6	15.1	15.2	15.2	15.4	13.2	14.9	14.0	15.9	
	9.3	9.7	9.7	9.7	9.7	9.3	9.6	9.5	9.9	
Direct taxes on corporations										
Indirect taxes	9.6	15.5	16.1	17.5	18.1	5.7	6.1	7.5	7.8	
	9.4	9.4	9.5	9.4	9.5	8.7	9.4	8.9	9.7	
Other government revenue										
Other transfers from persons	16.5	10.8	10.9	13.5	13.6	6.9	7.0	7.1	7.1	
Investment income	13.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Taxes on nonresidents	18.7	11.6	11.7	14.7	14.8	7.1	7.1	7.3	7.3	
	7.0	10.6	11.3	10.7	11.3	8.6	9.4	9.2	10.0	
Total government revenue (including capital consumption allowance)										
	12.5	12.2	12.4	12.9	13.1	9.9	10.9	10.5	11.5	

NOTE Scenario 1 – Moderate-price energy and weak external environment;
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 Scenario 4 – High-price energy and strong external environment.

Table C-8
The External Sector, 1975-85

	Average annual percentage change												
	Scenarios, 1975-80				Scenarios, 1980-85								
	1966-73	1	2	3	4	1	2	3	4	1	2	3	4
	(Calculated in 1971 dollars)												
Exports of goods and services													
Goods	8.4	5.6	6.1	5.6	6.1	3.5	4.6	3.5	4.7	3.5	4.7	3.5	4.7
Agricultural products	9.5	5.9	6.5	5.9	6.5	3.5	4.7	3.5	4.7	3.5	4.7	3.5	4.7
Industrial products	6.0	3.8	4.2	3.8	4.1	3.2	4.6	3.1	4.5	3.1	4.5	3.1	4.5
Primary	5.9	4.0	4.4	4.0	4.4	4.0	5.4	4.1	5.5	4.1	5.5	4.1	5.5
Processed	9.0	1.6	2.0	1.6	2.0	4.9	5.6	5.1	5.8	4.9	5.6	5.1	5.8
Auto and other advanced manufacturing products	4.2	5.2	5.6	5.3	5.7	3.6	5.3	3.5	5.3	3.6	5.3	3.5	5.3
Services	14.3	8.1	8.8	8.1	8.8	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
	2.8	4.0	4.3	4.0	4.3	3.6	4.3	3.6	4.3	3.6	4.3	3.6	4.3
Imports of goods and services													
Goods	8.2	6.9	7.1	6.7	6.9	4.4	5.2	4.3	5.2	4.3	5.2	4.3	5.2
Agricultural products	9.4	7.3	7.4	7.0	7.2	4.4	5.3	4.2	5.2	4.4	5.3	4.2	5.2
Industrial products	3.4	4.1	4.2	4.1	4.2	3.6	4.1	3.7	4.2	3.6	4.1	3.7	4.2
Auto and other advanced manufacturing products	7.2	5.2	5.4	4.8	5.1	5.2	6.0	3.6	4.4	5.2	6.0	3.6	4.4
Services	11.9	8.3	8.5	8.1	8.3	4.3	5.2	4.5	5.5	4.3	5.2	4.5	5.5
	4.8	5.9	5.9	5.8	5.8	4.2	4.7	4.5	5.0	4.2	4.7	4.5	5.0

NOTE Scenario 1 - Moderate-price energy and weak external environment;
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 Scenario 4 - High-price energy and strong external environment.

Table C-9

Population and the Labour Force, 1975-85

	Average annual percentage change												
	Scenarios, 1975-80				Scenarios, 1980-85								
	1966-73	1	2	3	4	1	2	3	4	1	2	3	4
Population													
Working-age population													
14-19	1.4	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
20-24	2.4	2.0	2.0	2.0	2.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
25-34	2.6	-0.1	-0.1	-0.1	-0.1	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5
35-44	4.2	2.4	2.4	2.4	2.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
45-54	3.7	4.0	4.0	4.0	4.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
55-64	-0.2	2.4	2.4	2.4	2.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
65+	1.9	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	2.8	2.3	2.3	2.3	2.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
	2.6	2.4	2.4	2.4	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Labour force													
Primary (men aged 25-54)	3.1	2.5	2.5	2.4	2.4	1.8	2.0	2.0	2.0	1.9	2.1	2.1	2.1
Secondary	1.9	2.4	2.4	2.4	2.4	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Men 14-24	4.0	2.5	2.5	2.5	2.5	1.3	1.5	1.5	1.5	1.4	1.6	1.6	1.6
Men 55+	4.6	1.2	1.3	1.1	1.1	-1.0	-0.3	-0.3	-0.3	-0.6	0.1	0.1	0.1
Women under 35	0.6	1.6	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.7
Women over 35	6.3	3.4	3.4	3.4	3.4	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Employment	3.3	3.0	3.0	3.0	3.0	3.4	3.5	3.5	3.5	3.5	3.6	3.6	3.6
	2.7	3.1	3.1	3.0	3.0	1.8	2.2	2.2	2.2	1.9	2.3	2.3	2.3

NOTE Scenario 1 - Moderate-price energy and weak external environment;
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 Scenario 4 - High-price energy and strong external environment.

Table C-10
Industrial Patterns of Growth, 1975-85

	Average annual percentage change												
	Scenarios, 1975-80				Scenarios, 1980-85								
	1966-73	1	2	3	4	1	2	3	4	1	2	3	4
Agriculture													
Output	1.5	3.6	3.6	3.6	3.5	2.9	3.6	2.9	3.6				3.6
Employment	-2.3	-2.3	-2.3	-2.3	-2.3	-2.0	-2.3	-2.1	-2.3				-2.5
Output per man-hour	4.5	6.2	6.1	6.1	6.1	5.1	5.8	5.1	5.8				5.9
Capital stock	2.3	4.4	4.4	4.4	4.3	4.4	4.5	4.4	4.5				4.4
Forestry													
Output	1.5	8.0	8.1	7.9	8.0	1.7	3.9	1.8	3.9				4.0
Employment	-0.7	3.0	3.1	3.0	3.0	-1.6	-0.1	-1.6	-0.1				0.0
Output per man-hour	-1.9	6.2	6.2	6.2	6.2	4.5	5.3	4.6	5.3				5.3
Capital stock	4.6	5.4	5.5	5.4	5.4	4.6	5.8	4.7	5.8				5.9
Fishing													
Output	-2.1	0.6	0.6	0.5	0.6	0.9	0.9	0.9	0.9				1.0
Employment	-1.6	0.5	0.5	0.5	0.5	0.7	0.8	0.7	0.8				0.8
Output per man-hour	-0.2	2.0	2.0	2.0	2.0	1.8	1.8	1.8	1.8				1.8
Capital stock	2.7	1.6	1.6	1.6	1.5	3.2	3.1	3.2	3.1				3.1

Mining, oil, and gas									
Output	6.7	5.8	6.1	6.2	6.5	2.0	2.7	4.1	4.7
Employment	1.1	1.2	1.4	1.6	1.9	-3.5	-2.7	-1.2	-0.5
Output per man-hour	6.2	5.2	5.1	5.1	5.1	5.7	5.7	5.6	5.5
Capital stock	8.3	7.8	7.8	7.9	7.9	6.8	7.0	7.7	7.9
Manufacturing									
Output	5.0	6.5	6.6	6.4	6.6	2.7	3.3	2.8	3.4
Employment	1.5	2.2	2.3	2.1	2.2	0.2	0.7	0.3	0.7
Output per man-hour	3.6	4.3	4.4	4.3	4.4	3.1	3.2	3.1	3.2
Capital stock	4.7	4.9	4.9	4.8	4.9	6.2	6.5	6.3	6.6
Construction									
Output	3.4	6.0	5.8	6.1	6.0	2.0	2.6	2.2	2.8
Employment	1.4	3.4	3.3	3.5	3.4	-0.4	0.2	-0.3	0.2
Output per man-hour	2.8	2.9	2.8	2.9	2.8	3.0	3.1	3.2	3.3
Capital stock	4.7	2.3	2.1	2.2	2.0	3.8	3.9	4.9	4.9
Utilities									
Output	8.5	6.9	7.0	6.8	6.9	5.0	5.3	5.1	5.5
Employment	2.7	0.5	0.5	0.4	0.5	-1.9	-1.6	-1.8	-1.4
Output per man-hour	6.7	6.6	6.7	6.7	6.7	7.5	7.4	7.4	7.3
Capital stock	6.7	6.8	6.8	6.8	6.8	6.6	6.7	6.7	6.8

(cont'd.)

Table C-10 (concl'd.)

	Average annual percentage change												
	Scenarios, 1975-80					Scenarios, 1980-85							
	1966-73	1	2	3	4	1	2	3	4	1	2	3	4
Transportation, storage, and communications													
Output	6.5	6.0	6.1	5.9	6.0	4.1	4.8	4.3	5.0				
Employment	2.6	0.5	0.5	0.4	0.5	0.0	0.4	-0.4	-0.1				
Output per man-hour	4.4	5.6	5.6	5.5	5.5	4.7	5.1	5.5	5.9				
Capital stock	3.8	5.3	5.4	5.5	5.5	4.7	4.9	6.1	6.2				
Trade													
Output	4.8	6.5	6.5	6.3	6.3	3.9	4.4	4.0	4.6				
Employment	3.1	4.3	4.3	4.2	4.2	2.7	3.1	2.8	3.3				
Output per man-hour	2.6	3.3	3.3	3.2	3.2	2.4	2.5	2.3	2.5				
Capital stock	3.4	3.0	3.0	3.0	3.0	3.7	3.6	3.7	3.6				
Finance													
Output	5.5	5.5	5.5	5.4	5.5	4.6	5.0	4.8	5.3				
Employment	4.5	4.2	4.2	4.1	4.2	3.4	3.8	3.6	4.0				
Output per man-hour	1.3	1.7	1.7	1.7	1.7	1.5	1.6	1.5	1.6				
Capital stock	8.4	7.5	7.5	7.5	7.5	7.5	7.6	7.5	7.6				

Services									
Output	5.1	4.6	4.6	4.5	4.5	3.3	3.6	3.4	3.7
Employment	4.9	4.4	4.4	4.3	4.4	3.4	3.7	3.6	3.9
Output per man-hour	1.1	0.5	0.5	0.5	0.5	0.0	0.1	0.0	0.1
Capital stock	8.3	6.3	6.3	6.3	6.3	5.2	5.3	5.3	5.4
Public administration									
Output	3.9	3.0	3.0	2.9	2.9	3.0	3.1	3.1	3.1
Employment	4.7	3.2	3.2	3.1	3.1	3.2	3.2	3.2	3.3
Output per man-hour	-0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total economy									
Output	5.0	5.8	5.8	5.7	5.8	3.5	4.0	3.7	4.2
Employment	2.7	3.1	3.1	3.0	3.0	1.8	2.2	1.9	2.3
Output per man-hour	3.0	3.2	3.2	3.2	3.2	2.3	2.4	2.4	2.6
Capital stock	5.2	5.7	5.7	5.7	5.7	5.7	5.9	6.1	6.3

NOTE Scenario 1 - Moderate-price energy and weak external environment;
 Scenario 2 - Moderate-price energy and strong external environment;
 Scenario 3 - High-price energy and weak external environment; and
 Scenario 4 - High-price energy and strong external environment.

Table C-11

Personal Disposable Income, 1975-85

	Average annual percentage change									
	Scenarios, 1975-80					Scenarios, 1980-85				
	1966-73	1	2	3	4	1	2	3	4	
		(Calculated in current dollars)								
Wages, salaries, supplementary labour income, and military pay and allowances	10.3	12.9	13.1	13.0	13.2	11.2	12.6	11.8	13.4	
Net farm income	8.3	10.5	10.2	10.5	10.1	5.3	6.6	5.4	6.7	
Net income of nonfarm unincorporated business	7.5	10.1	10.2	10.5	10.6	8.1	9.0	8.9	9.9	
Interest, dividends, and miscellaneous investment income	10.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Current transfers from government	16.3	9.3	9.2	9.4	9.4	10.2	9.7	10.4	9.8	
Transfer payments to persons	16.3	9.3	9.3	9.5	9.4	10.2	9.7	10.4	9.9	
Capital assistance	42.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Current transfers from corporations	5.2	3.4	3.4	3.4	3.4	2.9	2.9	2.9	2.9	
Current transfers from nonresidents	15.8	4.1	4.1	4.1	4.1	3.3	3.3	3.3	3.3	
Personal income	10.7	12.2	12.3	12.3	12.4	10.6	11.7	11.2	12.5	
Income taxes	17.6	15.1	15.2	15.2	15.4	13.2	14.9	14.0	15.9	
Contributions to social security	9.3	9.7	9.7	9.7	9.7	9.3	9.6	9.5	9.9	
Other transfers from persons	13.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Personal disposable income	9.7	11.8	11.9	11.9	12.0	10.2	11.1	10.7	11.8	
Real personal disposable income	5.5	6.2	6.2	5.9	5.9	4.3	4.8	4.4	5.0	
Real personal disposable income per capita	4.0	4.9	4.9	4.7	4.6	3.1	3.7	3.2	3.8	

NOTE Scenario 1 - Moderate-price energy and weak external environment;
 Scenario 2 - Moderate-price energy and strong external environment;
 Scenario 3 - High-price energy and weak external environment; and
 Scenario 4 - High-price energy and strong external environment.

Appendix D Regional Income and Productivity

Table D-1

Component Analysis of Changes in the Ratio of Regional Income to Total Income in Canada, 1954-73

	Atlantic region	Quebec	Ontario	Prairie region	British Columbia
(Percentage points)					
Nontransfer income					
Wages and salaries ¹	0.49	0.24	0.04	0.27	-0.32
Farm income	-0.13	-0.12	-0.12	-0.31	-0.10
Unincorporated non-farm income	-0.27	-0.27	-0.33	-0.32	-0.41
Dividends and interest	0.10	0.11	0.08	0.20	0.09
Subtotal	0.19	-0.04	-0.33	-0.16	-0.74
Government transfer income	0.44	0.21	0.15	0.13	-0.01
(Per cent)					
Total income	0.63	0.17	-0.18	-0.03	-0.75

1 Includes "other" income, which is mainly military pay and allowances.

NOTE Perhaps some explanation is needed to read this table. In the Atlantic region the ratio of Atlantic to Canadian income per capita grew 0.63 per cent per annum from 1954 to 1973. Of this percentage, 0.44 could be attributed to growth in transfer income and 0.19 to growth in nontransfer income. For the Atlantic region, Quebec, and the Prairie region, negative entries signify divergence, while positive entries signify convergence from below; for Ontario and British Columbia, positive entries signify divergence, and negative entries signify convergence from above in each case.

SOURCE Based on data from Statistics Canada.

Table D-2

Contribution of Output per Worker and Industry Structure to
Regional Differences in Productivity Level, 1961-71

(Based on constant dollars)

	Atlantic region	Quebec	Ontario	Prairie region	British Columbia
	(Percentage points)				
Output per worker					
Primary sector	- 3.54	-1.75	- .40	4.56	2.28
Agriculture	- 1.30	-1.43	.12	1.23	1.33
Forestry	- .83	- .31	.70	.23	.64
Fishing	- .23	.01	.01	-	.30
Mining	- 1.19	-.02	-1.23	3.12	.01
Secondary sector	-10.54	-3.61	3.46	-	5.74
Manufacturing	- 5.09	-2.93	2.47	- 1.23	3.39
Construction	- 2.04	-.42	.63	.05	.46
Transport and utilities	- 3.41	-.26	.36	.45	1.89
Tertiary sector	- 3.60	-3.35	2.92	.20	1.29
Trade	- 3.16	.19	1.10	- 1.02	.04
Finance	.50	-1.15	.10	1.56	-.07
Community, business, and personal services	- 3.31	-1.13	1.51	- .35	.92
Administration	2.37	-1.26	.21	.01	.40
Contribution to percentage difference from Canadian average	-17.68	-8.70	5.97	4.02	9.31
Industry structure					
Primary sector	3.45	-2.33	-3.05	8.79	-1.00
Agriculture	- 1.08	-1.00	-1.43	7.51	-3.05
Forestry	1.36	.41	-1.26	- 1.10	2.38
Fishing	1.35	-.16	-.17	-	.11
Mining	1.82	-1.58	-.20	2.49	-.43

Secondary sector	- 4.69	4.51	5.19	-14.12	-2.47
Manufacturing	- 9.32	4.63	7.38	-14.94	-5.41
Construction	1.04	- .07	- .27	- .21	.64
Transport and utilities	3.59	- .04	-1.93	1.02	2.31
Tertiary sector	.24	-1.35	.16	- 1.03	4.62
Trade	1.29	- .94	- .56	.91	1.78
Finance	- 3.09	.01	1.01	- 1.56	1.18
Community, business, and personal services	.43	.11	- .50	- .15	1.44
Administration	1.61	- .53	.20	- .24	.21
Contribution to percentage difference from Canadian average	- 1.00	.83	2.29	- 6.37	1.15
Total productivity					
Primary sector	- .09	-4.08	-3.45	13.35	1.28
Agriculture	- 2.38	-2.42	-1.30	8.74	-1.73
Forestry	.53	.10	- .56	- .87	3.02
Fishing	1.13	- .16	- .17	- .13	.41
Mining	.63	-1.61	-1.43	5.61	- .42
Secondary sector	-15.23	.90	8.65	-14.85	3.27
Manufacturing	-14.41	1.69	9.85	-16.17	-2.02
Construction	- 1.00	- .49	.36	- .16	1.10
Transport and utilities	.18	- .30	-1.57	1.48	4.20
Tertiary sector	- 3.36	-4.70	3.08	- .83	5.91
Trade	- 1.87	- .75	.54	- .11	1.82
Finance	- 2.59	-1.14	1.11	.00	1.11
Community, business, and personal services	- 2.88	-1.02	1.01	- .50	2.36
Administration	3.97	-1.79	.41	- .23	.62
Percentage difference from Canadian average ¹	- 18.68	-7.87	8.26	- 2.34	10.46

(Per cent)

¹ May not add up because of rounding.

NOTE For some explanation on how to read this table, see note to Table D-3.

SOURCE Based on CANDIDE-R databank.

Table D-3

Contribution of Output per Worker and Industry Structure in Manufacturing to
Regional Differences in Productivity Level, 1970-72

(Based on current dollars)

	Atlantic region	Quebec	Ontario	Prairie region	British Columbia
	(Percentage points)				
Output per worker					
Food and fibre	-14.5	-.6	2.6	-2.8	-1.2
Forest products	-3.9	-1.0	-.5	-0.0	6.0
Metals	-14.3	-3.3	3.5	-8.0	-3.3
Nonmetals	-0.7	-1.3	.3	3.7	-1.4
Subtotal	-33.5	-6.2	5.9	-7.1	.1
Industry structure					
Food and fibre	19.4	5.6	-5.4	9.9	-7.8
Forest products	5.4	-.3	-4.5	-.6	30.3
Metals	-12.1	-9.4	11.7	-6.1	-13.2
Nonmetals	-5.5	-.8	1.9	-.6	-4.9
Subtotal	7.1	-5.0	3.7	2.6	4.4

Total productivity					
Food and fibre	4.9	5.0	- 2.7	7.1	- 9.1
Forest products	1.4	- 1.3	- 5.0	- .7	36.3
Metals	-26.5	-12.8	15.1	-14.0	-16.4
Nonmetals	- 6.2	- 2.1	2.2	3.1	- 6.3
Percentage difference from Canadian average	-26.4	-11.2	9.6	- 4.5	4.5

(Per cent)

NOTE

The totals in this table indicate the percentage by which the productivity level in each region differs from the Canadian average - e.g., productivity in the Atlantic region is estimated to be 26.4 per cent below the Canadian average. The subtotals show how many percentage points regional output per worker and industry structure contributed to this percentage difference. The estimates of the contribution of output per worker tell what this productivity gap between the region and nation would have been if the region had had the same industries and employment structure as the nation. The structural effect is the difference between the output-per-worker gap and the actual gap. For example, output per worker in the Atlantic region contributed - 33.5 percentage points and industry structure + 7.1 percentage points to the overall difference of - 26.4 per cent.

Each of the two subtotals is composed of four subsectors: food and fibre, forest products, metals, and nonmetals. The estimated regional contribution of output per worker is positive if regional output per worker exceeds the national level; it is negative if it falls short of the national level. Estimates of individual contributions to the structural subtotals are given to maintain symmetry. Their meaning is by no means so intuitively appealing, although the subtotal is a perfectly valid measure of the structural effect. The contribution of an individual industry to the structural subtotal is positive if the regional employment share exceeds the national share, and negative if it falls short of the national share. The size of the contribution depends not only on the difference in employment shares but also on the national productivity performance of that industry. If output per worker in that industry is above the national average, the difference between regional and national employment shares is weighted more heavily than when it is below average. As a result a greater employment share in a more productive industry will contribute more to the structural component of productivity than the same employment share in a less productive industry.

SOURCE Based on data from Statistics Canada.

Table D-4
Contribution of Industries to Growth in Productivity, Canada, by Region, 1961-71
(Based on constant dollars)

	Atlantic region	Quebec	Ontario	Prairie region	British Columbia	Canada
	(Percentage points)					
Output per worker						
Primary sector						
Agriculture	.88	.11	.00	1.59	.23	.47
Forestry	.23	.08	.06	1.52	.09	.34
Fishing	.12	.12	-.01	-.03	.09	.06
Mining	.04	.00	.00	-.01	-.05	.00
Secondary sector	.49	-.09	-.05	.11	.10	.07
Manufacturing	1.38	1.58	2.11	1.11	1.45	1.72
Construction	.36	1.03	1.45	.51	.82	1.06
Transport and utilities	.25	.00	.14	.15	.12	.12
Tertiary sector	.77	.55	.52	.45	.51	.54
Trade	.60	.25	.59	.07	.08	.31
Finance	.42	.41	.40	.29	.18	.37
Community, business, and personal services	.03	.02	.05	-.06	.01	-.02
Administration	.33	-.13	.12	-.06	-.11	.01
Average annual contribution	-.18	-.05	.02	-.10	.00	-.05
	2.86	1.94	2.70	2.76	1.76	2.50
Industry structure						
Primary sector	.50	.42	.16	.86	.36	.31
Agriculture	.43	.16	.07	.24	.07	.14
Forestry	.04	.03	.01	.03	.03	.00
Fishing	.01	.00	.00	.00	.02	.00
Mining	.02	.23	.08	.59	.24	.17

Secondary sector	.15	.19	.14	.12	.35	.17
Manufacturing	.10	.06	.07	.01	.13	.07
Construction	-.03	.02	.00	-.01	-.02	.00
Transport and utilities	.08	.11	.07	.12	.25	.10
Tertiary sector	-.03	-.37	-.28	-.14	-.51	-.34
Trade	-.09	-.05	-.09	-.07	-.27	-.09
Finance	.27	.19	.22	.31	.31	.17
Community, business, and personal services	-.37	-.48	-.40	-.39	-.57	-.43
Administration	.16	-.03	-.01	.01	.01	.01
Average annual contribution	.62	.24	.02	.84	.20	.13
Total productivity growth						
Primary sector	1.38	.53	.16	2.45	.59	.78
Agriculture	.66	.24	.13	1.76	.16	.48
Forestry	.16	.15	.00	.00	.12	.06
Fishing	.05	.00	.00	-.01	-.03	.00
Mining	.51	.14	.03	.70	.33	.24
Secondary sector	1.53	1.77	2.25	1.22	1.80	1.89
Manufacturing	.46	1.09	1.52	.52	.95	1.13
Construction	.22	.02	.14	.13	.10	.12
Transport and utilities	.85	.66	.59	.57	.76	.64
Tertiary sector	.57	-.12	.31	-.07	-.43	-.03
Trade	.33	.36	.31	.22	-.09	.28
Finance	.30	.21	.27	.25	.32	.15
Community, business, and personal services	-.04	-.61	-.28	-.45	-.68	-.42
Administration	-.02	-.08	.01	-.09	.02	-.04
Average annual change in productivity ¹	3.48	2.18	2.72	3.60	1.96	2.63
(Per cent)						

¹ May not add up because of rounding.

SOURCE Based on CANDIDE-R databank.

Table D-5
 Contribution of Productivity and Employment to Growth of Production, Canada, by Region, 1961-71
 (Based on constant dollars)

	Atlantic region	Quebec	Ontario	Prairie region	British Columbia	Canada
	(Percentage points)					
Productivity						
Primary sector	1.38	.53	.16	2.45	.59	.78
Agriculture	.66	.24	.13	1.76	.16	.48
Forestry	.16	.15	.00	.00	.12	.06
Fishing	.05	.00	.00	-.01	-.03	.00
Mining	.51	.14	.03	.70	.33	.24
Secondary sector	1.53	1.77	2.25	1.22	1.80	1.89
Manufacturing	.46	1.09	1.52	.52	.95	1.13
Construction	.22	.02	.14	.13	.10	.12
Transport and utilities	.85	.66	.59	.57	.76	.64
Tertiary sector	.57	-.12	.31	-.07	-.43	-.03
Trade	.33	.36	.31	.22	-.09	.28
Finance	.30	.21	.27	.25	.32	.15
Community, business, and personal services	-.04	-.61	-.28	-.45	-.68	-.42
Administration	-.02	-.08	.01	-.09	.02	-.04
Average annual contribution	3.48	2.18	2.72	3.60	1.96	2.63
Employment						
Primary sector	-.89	-.32	-.06	-.47	.10	-.23
Agriculture	-.66	-.23	-.13	-.61	-.10	-.27
Forestry	-.17	-.11	.01	.01	.10	-.02
Fishing	.00	.00	.00	.00	.02	.00
Mining	-.06	.02	.06	.13	.07	.06

Secondary sector	.89	.74	1.05	.46	1.52	.91
Manufacturing	.53	.47	.68	.16	.68	.53
Construction	.16	.09	.21	.10	.43	.18
Transport and utilities	.20	.18	.16	.17	.41	.20
Tertiary sector	1.77	2.37	2.09	1.89	3.05	2.22
Trade	.39	.41	.42	.29	.94	.44
Finance	.14	.18	.22	.18	.29	.21
Community, business, and personal services	1.05	1.52	1.25	1.19	1.63	1.34
Administration	.19	.26	.20	.23	.20	.23
Average annual contribution	1.77	2.78	3.09	1.87	4.67	2.91
Growth of production						
Primary sector	.49	.21	.11	1.99	.68	.54
Agriculture	.00	.01	.00	1.15	.06	.20
Forestry	-.01	.04	.01	.01	.22	.04
Fishing	.05	.00	.00	.00	-.01	.00
Mining	.45	.16	.10	.83	.40	.30
Secondary sector	2.42	2.51	3.30	1.65	3.33	2.79
Manufacturing	.99	1.56	2.20	.68	1.63	1.66
Construction	.38	.11	.35	.23	.53	.29
Transport and utilities	1.05	.84	.75	.74	1.17	.84
Tertiary sector	2.34	2.25	2.40	1.82	2.62	2.20
Trade	.72	.77	.73	.51	.84	.72
Finance	.44	.39	.49	.43	.61	.36
Community, business, and personal services	1.01	.91	.97	.74	.95	.93
Administration	.17	.18	.21	.14	.21	.19
(Per cent)						
Average annual change in production ¹	5.25	4.96	5.81	5.47	6.63	5.54

¹ May not add up because of rounding.

SOURCE Based on CANDIDE-R databank.

Appendix E Rapid- and Slow-Growth Scenarios

The moderate-growth scenario presented in Chapter 3 is the same as scenario 2 in Chapter 1, which is based on the assumption of a favourable external environment and moderate energy prices. This scenario leads to an average annual growth of real GNP of 5.7 per cent in 1975-80 and 4.1 per cent in 1980-85. The assumptions of the rapid-growth scenario are modified for 1980 on, resulting in real GNP growth of 5.2 per cent in 1980-85, while those of the slow-growth scenario are modified for the whole 1975-85 period and produce an average annual growth of GNP in real terms of 5.2 per cent in 1975-80 and 2.7 per cent in 1980-85.

The rapid-growth scenario is based on assumptions of

- a favourable external environment and moderate energy prices;
- a strong demand stimulated by an increase in consumption, made possible by a postulated decline in the rate of personal savings;
- a rise in the female participation rate to 47.2 per cent in 1985, compared with 45.4 per cent in the moderate-growth scenario; and
- average annual net immigration of 200,000 for the years 1981 to 1985, based on the fact that net immigration is assumed to reach 150,000 in 1982 and to increase progressively to 300,000 in 1985.

The slow-growth scenario is based on assumptions of

- an unfavourable external environment;
- the adoption of measures designed to slow down oil consumption to $3\frac{1}{2}$ per cent per year, which would bring about a decrease in oil imports and would tend to lower import prices;
- a progressive increase in the federal personal income tax rate from 18 per cent in 1978 to 21 per cent in 1985 for incomes of \$5,000 and over;
- a progressive reduction in net immigration from 100,000 in 1975 to 0 in 1980, to remain at zero from then on; and
- a decrease in the participation rate of men aged 55 and over, from 51.7 per cent in 1975 to 35.4 per cent in 1985, as a result of lowering the normal retirement age to 60 in 1985.

Tables E-1 and E-2 describe the main features of the rapid- and slow-growth scenarios, respectively.

Table E-1
Rapid-Growth Scenario, Main Aggregates, 1960-85

	Average annual percentage change			
	Actual		Projected	
	1960-65	1965-70	1966-73	1975-80 1980-85
(Calculated in 1961 dollars)				
Real gross national product	5.8	4.8	5.0	5.7
Output per person employed	3.2	2.1	2.2	2.7
Stock of business capital	4.2	5.3	5.2	5.7
Business capital per person employed	1.2	2.5	2.4	2.5
(Calculated on the basis of number of persons)				
Employment	2.9	2.8	2.7	3.1
Labour force	2.2	3.2	3.1	2.5
Population	1.9	1.6	1.4	1.2
(Calculated in 1961 dollars)				
Consumer expenditure	4.8	4.4	5.1	5.6
Residential construction	6.3	4.1	8.2	5.0
Plant and equipment outlays	8.1	2.3	3.3	8.5
Government current expenditure on goods and services	5.2	5.9	5.2	4.3
Exports	8.1	10.8	8.4	6.1
Imports	6.7	7.9	8.2	7.1
				6.6

	(Calculated in current dollars)				
	1961-65	1966-70	1967-73	1976-80	1981-85
Corporate profits before taxes	11.3	5.0	11.5	13.2	10.8
Personal income	7.1	10.1	10.7	12.3	12.6
Personal disposable income	6.7	8.2	9.7	11.9	11.6
	(Calculated in 1961 dollars)				
Real personal disposable income per capita	3.2	2.8	4.0	4.9	3.9
	(Calculated on the basis of index numbers)				
GNE price deflator	1.9	4.1	4.4	7.0	6.7
Consumer expenditure price deflator	1.4	3.7	3.8	5.4	5.8
Consumer price index	1.6	3.9	4.2	6.6	6.7
	Annual averages				
	Actual			Projected	
	1961-65	1966-70	1967-73	1976-80	1981-85
Housing starts (thousands)	147.5	179.3	216.3	240.8	303.9
Current account balance (millions of current dollars)	-766.6	-313.8	-168.7	-3,225.2	-14,464.4
Current account balance (percentage of GNP)	-1.7	-0.5	-0.2	-1.4	-3.5
Government surplus (+) or deficit (-) in millions of current dollars	-371.8	759.2	545.1	1,775.2	846.7
Government surplus (+) or deficit (-) as a percentage of GNP	-0.9	1.0	0.7	0.7	0.2
Unemployment rate	5.4	4.6	5.4	5.6	3.8

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Table E-2
Slow-Growth Scenario, Main Aggregates, 1960-85

	Average annual percentage change				
	Actual			Projected	
	1960-65	1965-70	1966-73	1975-80	1980-85
	(Calculated in 1961 dollars)				
Real gross national product	5.8	4.8	5.0	5.2	2.7
Output per person employed	3.2	2.1	2.2	2.5	1.5
Stock of business capital	4.2	5.3	5.2	5.5	5.2
Business capital per person employed	1.2	2.5	2.4	2.7	4.1
	(Calculated on the basis of number of persons)				
Employment	2.9	2.8	2.7	2.7	1.1
Labour force	2.2	3.2	3.1	2.0	1.1
Population	1.9	1.6	1.4	0.9	0.7
	(Calculated in 1961 dollars)				
Consumer expenditure	4.8	4.4	5.1	5.3	3.2
Residential construction	6.3	4.1	8.2	3.4	-4.1
Plant and equipment outlays	8.1	2.3	3.3	6.9	3.0
Government current expenditure on goods and services	5.2	5.9	5.2	4.0	2.7
Exports	8.1	10.8	8.4	5.6	3.4
Imports	6.7	7.9	8.2	6.4	3.6

Corporate profits before taxes	(Calculated in current dollars)				
	11.3	5.0	11.5	10.0	4.4
	7.1	10.1	10.7	11.9	10.6
Personal income	6.7	8.2	9.7	11.1	9.4
Personal disposable income					
	(Calculated in 1961 dollars)				
Real personal disposable income per capita	3.2	2.8	4.0	4.7	2.5
	(Calculated on the basis of index numbers)				
GNE price deflator	1.9	4.1	4.4	6.7	6.7
Consumer expenditure price deflator	1.4	3.7	3.8	5.2	5.9
Consumer price index	1.6	3.9	4.2	6.5	6.8
	Annual Averages				
	Actual		Projected		
	1961-65	1966-70	1967-73	1976-80	1981-85
Housing starts (thousands)	147.5	179.3	216.3	232.0	206.2
Current account balance (millions of current dollars)	-766.6	-313.8	-168.7	-3,488.1	-8,625.9
Current account balance (percentage of GNP)	-1.7	-0.5	-0.2	-1.6	-2.4
Government surplus (+) or deficit (-) in millions of current dollars	-371.8	759.2	545.1	857.0	-665.1
Government surplus (+) or deficit (-) as a percentage of GNP	-0.9	1.0	0.7	0.4	-0.1
Unemployment rate	5.4	4.6	5.4	5.2	3.8

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Appendix F Control Solution and Performance Indicators, 1974-78

Table F-1

Control Solution, 1974-78

	Average annual change			
	1975	1976	1977	1978
	(Per cent)			
Gross national expenditure	-0.5	5.9	6.2	5.5
Consumer expenditure	2.7	5.7	5.2	5.3
Total fixed investment	-2.4	1.4	6.7	8.8
Machinery and equipment	0.9	0.8	9.0	10.5
Nonresidential construction	6.0	-0.1	7.4	9.8
Residential construction	-22.8	2.6	3.3	9.0
Government current expenditure on goods and services	5.9	0.8	5.8	4.7
Exports	-7.4	8.0	7.6	5.2
Imports	-7.4	5.2	7.4	7.4
Real disposable income per capita	0.5	4.0	5.3	5.3
Output per person employed	-1.8	3.3	3.2	2.5
Output per person employed in manufacturing	-2.6	5.3	5.0	4.2
Employment	1.3	2.7	3.4	3.1
Consumer price index	9.6	7.9	7.2	6.5
	(Thousands)			
Housing starts	188	214	224	257
	(Per cent)			
Unemployment rate	7.6	7.0	6.1	5.6

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

Table F-2

Performance Indicators, 1974-78

	Average annual change			
	1975	1976	1977	1978
	(Per cent)			
Gross national expenditure	-0.5	7.1	6.6	5.7
Consumer expenditure	2.7	6.5	5.8	6.2
Total fixed investment	-2.4	7.2	7.4	7.1
Machinery and equipment	0.9	12.6	8.9	6.2
Nonresidential construction	6.0	0.5	8.1	10.5
Residential construction	-22.8	9.0	6.2	8.0
Government current expenditure on goods and services	5.9	0.7	6.4	5.0
Exports	-7.4	7.9	7.5	5.1
Imports	-7.4	8.1	8.0	7.2
Real disposable income per capita	0.5	5.1	6.2	6.3
Output per person employed	-1.8	3.8	3.1	2.3
Output per person employed in manufacturing	-2.6	5.3	5.0	4.2
Employment	1.3	3.2	3.9	3.4
	(Percentage points)			
Differential between Canadian and foreign prices ¹	-0.62	1.54	1.55	n.a.
	(Thousands)			
Housing starts	188	234	250	282
	(Per cent)			
Unemployment rate	7.6	6.6	5.4	4.5

n.a. - Not available.

¹ Calculated using figures from Data Resources Inc.

SOURCE Based on data from Statistics Canada and estimates by the Economic Council of Canada.

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