ound Paper

PROSPERITY INITIATIVE

Issues for Discussion

CANADA'S PROSPERITY

CHALLENGES AND PROSPECTS

Government of Canada
Gouvernement du Canada

CANADA'S PROSPERITY

CHALLENGES AND PROSPECTS

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INTRODUCTION: ACHIEVEMENT AND CHALLENGE

This background document has served as input in drafting the document *Prosperity Through Competitiveness*, which was recently released in the framework of the government's Prosperity initiative. As emphasized in the government's recent constitutional proposals, as set out in *Shaping Canada's Future Together: Proposals*, "Canada must ensure that it is equipped to deal with the economic challenges of the next century. If we are to maintain our prosperity, ensure a high standard of living for our children, and continue our efforts to reduce the disparities that exist between the regions of Canada – one of the most important and enduring principles of Confederation – we must be prepared to work together more harmoniously and effectively. We must have an economic union that is both modern and truly functional".

Canadians can be proud of building one of the two most prosperous countries in the world. But we cannot be complacent. We must meet the challenges that have been brought home to us in recent years by high interest rates, a recession, and toughening competition in a global economy – the "competitiveness crunch". Even when the recession is behind us, there will be serious questions about how well we are equipped to build prosperity over the long term.

Canada is part of an increasingly liberalized international economy. We have just entered a trade relationship with the United States that exposes us to open competition with the world's largest and most productive economy. These developments offer enormous potential and extend the foundations of our past prosperity. Freer trade, greater competition, and growing prosperity have always gone hand-in-hand. But now, some worry that we will no longer be adequate to the challenge, that weaknesses in our economic structure and performance will cause us to slip back in the face of tougher competition.

Greater prosperity means greater productivity. As the noted American economist Paul Krugman has written, "Productivity isn't everything, but in the long run it is almost everything".

Productivity depends on the quality of human abilities and capital resources and the efficiency of their use. When productivity grew rapidly in the early postwar years, Canadians enjoyed an extraordinary advance in prosperity. But our productivity growth dropped off after a time and then stagnated in the 1980s. Failure to grow in productivity means flat real wages, static living standards, and decline in comparison with our trading partners.

Prosperity means different things to different Canadians: good jobs with high wages, strong corporate earnings, better pensions and health care, income support for the unemployed or the working poor, a high quality of public services and infrastructure, a clean environment. What all of these have in common is that over time they must be earned through a more productive economy.

This background paper presents a broad view of the issues bearing on our economic performance. It draws in large measure on the debate about these issues that has been so active recently.

The National Advisory Board on Science and Technology has carried out a series of insightful studies on our technology performance, our human resources, and our financial markets. The Economic Council of Canada has been preparing major studies on Canada's trade competitiveness and education. At the Prime Minister's request in February, the Council is also studying the impact of governments on Canada's competitiveness. In the private sector, the Conference Board and the Business Council on National Issues are engaged in important studies of our competitiveness. The Canadian Labour Market and Productivity Centre has been bringing new light to bear on the critical issue of our labour markets and productivity. Several provincial governments and advisory councils are also making significant contributions, as are private companies such as Kodak and Coopers Lybrand.

The federal government has sought to develop a consistent economic strategy in recent years designed to improve the fundamentals of our economic performance. Abroad, we have gained new trade opportunities and security of market for Canada's products. At home, markets have become freer and more productive through several measures of deregulation and privatization. The tax system is fairer, and more supportive of economic efficiency. Federal spending is under control, and we are on the way to reducing the deficit. Inflation pressures are sharply reduced, and the inflation targets announced with the February 1991 budget will be met. Now we must take up today's urgent challenge: improving Canada's productivity.

The most successful companies have learned that they must adopt new methods if they are to compete. They recognize the imperative of innovation, the skills and commitment of people, and the importance of details. As Northern Telecom Canada's president, Gedas Sakus, has said, "Quality means details. To put it another way, quality means looking for ways to be 1 per cent better in 1,000 things, not just 1,000 per cent better at one thing."

The same applies to countries. Success requires an attitude that even small improvements are important because cumulatively they make the difference. Many policies bear, in large ways and small, on our economic performance.

This explains the broad sweep of this background paper and indicates the magnitude of the task: to continue with fiscal and monetary policies that establish a stable environment and low inflation path for growth; to ensure that the general rules within which our economy operates – both at home and abroad – promote competitiveness; to improve the quality and quantity of the key inputs in our economy; and to develop better methods of management, whether in the boardroom, on the shop floor, or between governments and stakeholders. These elements are also closely linked with the government's constitutional proposals to strengthen the economic union. Progress on all these fronts is needed to ensure a prosperous future for all Canadians.

We must join together to rethink many old ways of doing things and to redefine the roles of government and business. We need to think hard and fashion coherent responses. The results of this dialogue will help the government in making the strategic decisions of the future. They will also help the provinces, private business, labour, professional groups, and many individuals to examine their own roles and contributions.

Prosperity and competitiveness are not just the affair of our governments; they are deeply rooted in our private institutions, practices and culture as well. Governments themselves are increasingly constrained in what they can do by the need to control deficits, to adjust to a more globalized and competitive economic environment and to respect tougher international controls on subsidies. The world is moving to less reliance on governments and this heightens the need for co-operation and partnership. The more we share a common vision and a common sense of our priorities, the greater the chances that we shall pull together and reinforce our strengths.

We must take up these critical economic challenges with imagination and good will. Canadians of all regions have a tremendous stake in co-operating at home to ensure that we are equipped to prosper in a rapidly changing and highly competitive international economy. It was largely to meet a similar challenge that we came together in Confederation in the first place, almost 125 years ago. Creating and sharing our prosperity has kept Canadians together and made this country one of the world's most successful nations. That is an achievement every generation owes to itself and its successors to repeat.

CHAPTER 1: PROSPERITY AND PRODUCTIVITY

VITAL SIGNS

Canadians are worried about our economic performance. They worry that incomes have not been keeping up with the cost of living, that we are having to work even harder just to keep up, that we may have to lower our standard of living to compete. They sense increasing tensions in society and ask whether our important social programs may be threatened. They worry that the next generation – for the first time in our history – may not be as well off as its predecessor.

Canadians are among the most prosperous and privileged people in the world, but there is a broad sense of concern that somehow, in some important ways, we have come off track. In part, the discontent reflects the impacts of a sharp recession and the uncertainties about the country's constitutional future. But, its roots are deeper and Canadians are right to be concerned.

Our economic performance has slowed. Chart 1.1[1] shows that growth in the average income of Canadians[2] increased from the 1950s to the mid-1970s but then slowed sharply. It slowed even further in the 1980s, averaging only 1.7 per cent; the stronger growth in the second half of the 1980s was partly the rebound from the recession.

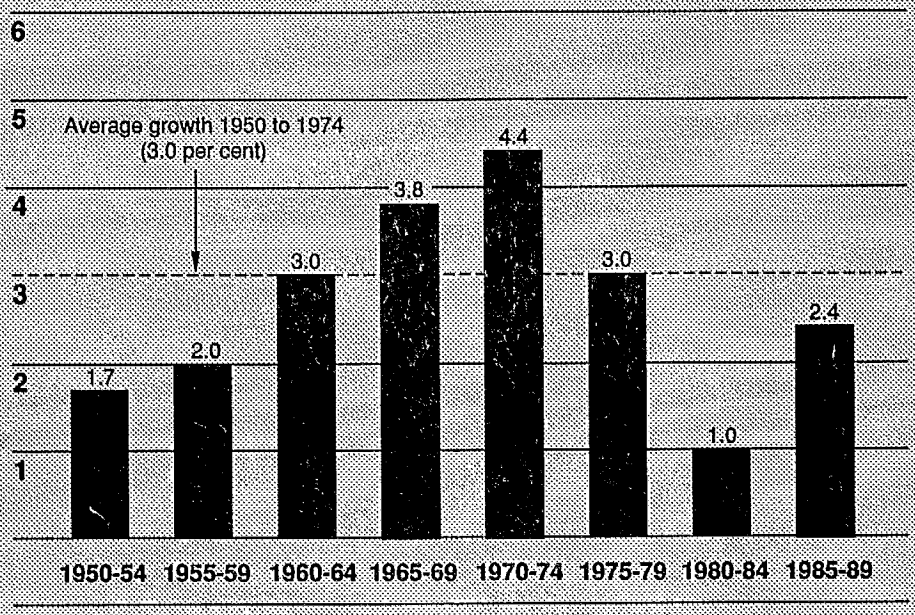
This slowdown has not affected all Canadians equally, because of structural shifts in our economy. Chart 1.2 shows that young families in particular have had a hard time getting ahead, even though most of them now have two earners. The Canadian economy has created jobs at a remarkable pace, but the share of middle earning jobs has declined and the shares of high and low earning jobs have increased. There are signs we may have more working poor, whose earnings are not adequate to support a family. Unemployment has risen and long-term unemployment is now a much greater problem than in the 1970s. Progress in reducing the hardship of poverty has slowed, creating increasing strains on society. Our social safety nets have had to assume a bigger role in maintaining the income of the poorer members of society. At the same time, our governments have been operating beyond their long-term fiscal capacity, leaving them limited room to respond with new spending initiatives.

This country has enormous reserves of strength, which we must draw upon if we are to create the type of society we want. Canadians value work and we want good jobs that challenge our abilities and reward us as well. We have a strong sense of social

[1] Data reported in this document reflect that available in September of 1991 and would not incorporate subsequent revisions.

[2] The measure shown is real net national income per capita, which captures incomes earned by Canadians both from their work and from their investments in Canada and abroad. It differs from gross domestic product (GDP), the production that takes place within Canadian borders (whether by Canadian or foreign owners), in adding income earned by Canadians from investing abroad and subtracting both income earned by foreigners investing in Canada and the cost of maintaining the existing capital stock. To put the measure in real terms, increases due to inflation are removed.

Chart 1.1
Real net national income per capita
Five-year averages of annual growth rates



Source: Statistics Canada.

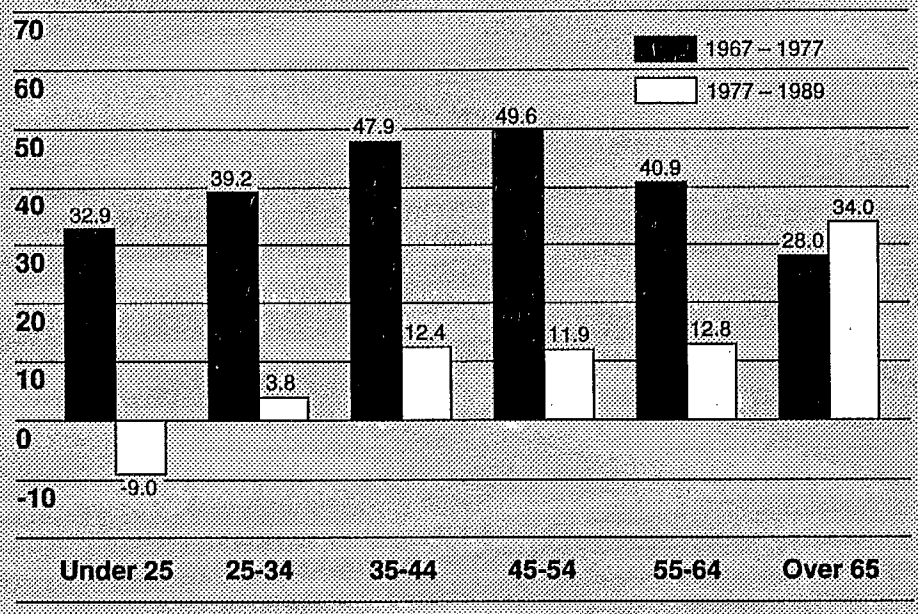
justice and take it for granted that all Canadians should have access to good schools, health care and pensions, and that those in need should receive adequate basic assistance. Increasingly, we are aware that we must pursue our activities with far more respect for our natural environment – that the ecological balances in our vast and beautiful land and even on our planet are more fragile than we had thought. We must meet the challenge of pursuing our economic goals in a manner that will give our children and grandchildren an environmental inheritance as rich as our own.

If we are to succeed in building the type of society we believe in, we need to work together to understand the nature and roots of our difficulties and to fashion a response. Governments, businesses, workers, farmers and fishermen, schools and universities, and consumers all will have roles to play.

THE KEY IS PRODUCTIVITY

Why did our real income growth slow so much over the last 15 years? The answer is that growth in national productivity slowed.

Chart 1.2
Growth in real family income by age of family head, 1967–89



Sources: Economic Council of Canada and Statistics Canada.

The potential for sustained growth in living standards depends on how quickly productivity grows. The more efficiently Canada uses its factors of production and the higher their quality, the greater the rewards in high income and living standards. Nations with high productivity have high standards of living. Nations with low productivity have low standards of living.

Productivity has a direct bearing on our ability to compete internationally while maintaining our standard of living. Low-productivity economies must compete through low wages. High-productivity economies compete by producing efficiently and selling high-quality goods and services: their workers are highly skilled, their goods and services are competitive, and they can maintain high incomes and standards of living.

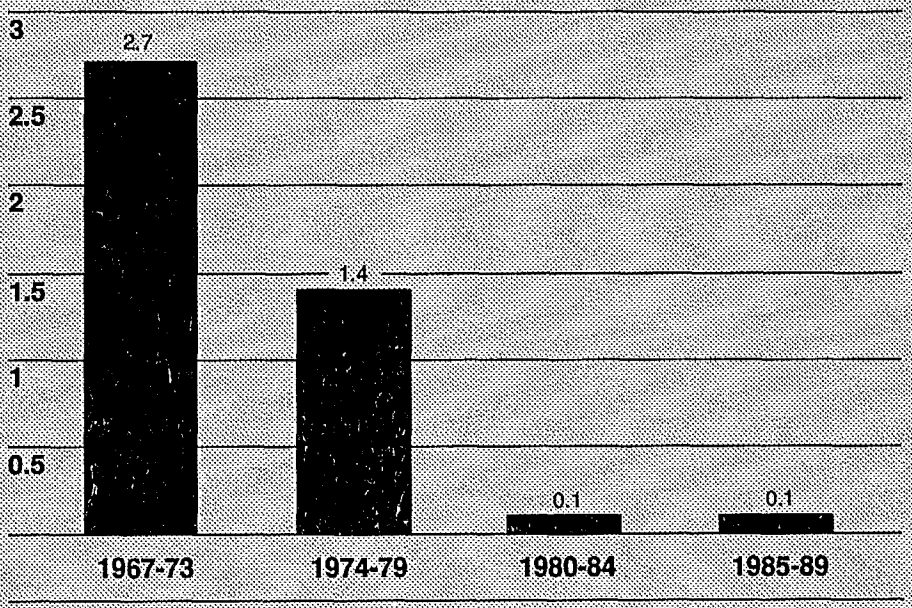
High productivity is not sought for its own sake. It is not even sought just so we can consume more. High productivity gives us choices. We can choose to consume more goods and services. Alternatively, we can choose more leisure: in the 1950s and 1960s, high growth in productivity permitted both higher consumption and shorter working hours. High productivity also permits us to choose to devote resources to other activities ranging from the preservation of the environment to support of the arts. Finally, high productivity makes it easier for us to choose to redistribute Canada's income, to improve the lot of the less fortunate members of society.

Chart 1.3 shows Canada's total productivity growth from the early 1960s to today (see box for definition and chapter Annex for an explanation of the productivity measurement used throughout this document). From 1967 to 1974 total productivity grew strongly, averaging 2.7 per cent. During this period, consumption also grew strongly, yet Canadians managed to have increasing leisure time. Finally, rising productivity permitted important improvements in Canada's social safety net, changes that permitted all Canadians to share in the benefits.

In the late 1970s, total productivity growth slowed sharply, to an average of 1.4 per cent. In the 1980s, our performance worsened even more: productivity barely grew at all. This poor performance was reflected in the slow growth in national income per capita. Slower growth in real incomes has undoubtedly exacerbated political and social tensions in Canada. It also threatens our ability to ensure that the least protected members of society are not left behind in a struggle to increase one group's income at the expense of another's.

Canada's productivity growth in the 1960s and early 1970s was encouraged by a stable macroeconomic environment with low inflation and low capital costs. As well, the increasing integration of Canada into the international trading system, because of lower international trade barriers and the Auto Pact, also encouraged specialization and rationalization. Both the primary and manufacturing sectors

Chart 1.3
Total productivity growth – annual average



Source: Department of Finance, estimates from Statistics Canada data.

achieved new heights of productivity. Since the early 1970s, however, the scope for further large gains from these external sources has become limited, contributing to the slowing of Canada's total productivity growth to near zero by the 1980s.

The growth of total productivity is a key determinant of growth of labour productivity, or output per worker, the source of sustainable growth in real wages. Chart 1.4 shows labour productivity, measured as output per hour worked, and the real hourly wage rate in the commercial sector in Canada, from 1962 to 1990. From 1962 to 1973, labour productivity grew at an annual rate of 3.9 per cent.

Measuring productivity

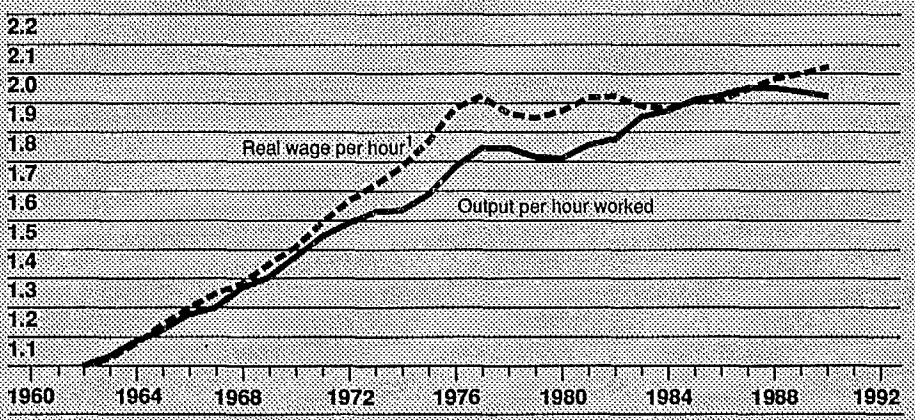
There are many possible measures of productivity. The concept we prefer to use is "total factor productivity" as it best captures the role of technology and efficiency. It is a measure of production after subtracting the amount of labour and physical capital used in production. It encompasses both the quality of the economy's capital and labour and the efficiency of their use. It is the broadest measure of an economy's productivity performance. It captures the effects of the size and scale of plants, the quality of the stock of capital, the organization of the workplace, the skills of the labour force, our capacity to invent and adopt new technologies, and the effectiveness of labour-management practices. It is also affected by the macroeconomic environment – the economy of the whole rather than the parts – and how government policies are applied.

The measure of productivity most often mentioned is labour productivity, a measure of output per worker or hour worked. Labour productivity is a useful measure in that it is the key determinant of the growth of real wages in the long run. But, as an indicator of the "productivity problem", it has limitations. One limitation is that it misses the role capital investment plays. Labour productivity is higher today than a decade or two ago in large part because we work with more and more efficient capital, ranging from robots in car plants to computerized cash registers at retail outlets. But the most important problem with using labour productivity is that it is sometimes taken to imply that productivitity is just a problem for workers. This is not true. Productivity is everyone's problem.

The estimates of total factor productivity used in this document are from the Department of Finance. The basic methodology, which is widely used, measures productivity growth as the increase in output not accounted for by increases in labour and capital inputs. The Department of Finance estimates differ from those available from organizations such as Statistics Canada and the Economic Council of Canada in focusing on the underlying long-run trend in total factor productivity, by removing short-term, cyclical influences from the estimates. The chapter Annex gives further explanation of these measurement issues.

Chart 1.4
Real labour income and productivity in Canada, 1962 to 1990

indices 1962 = 1.0

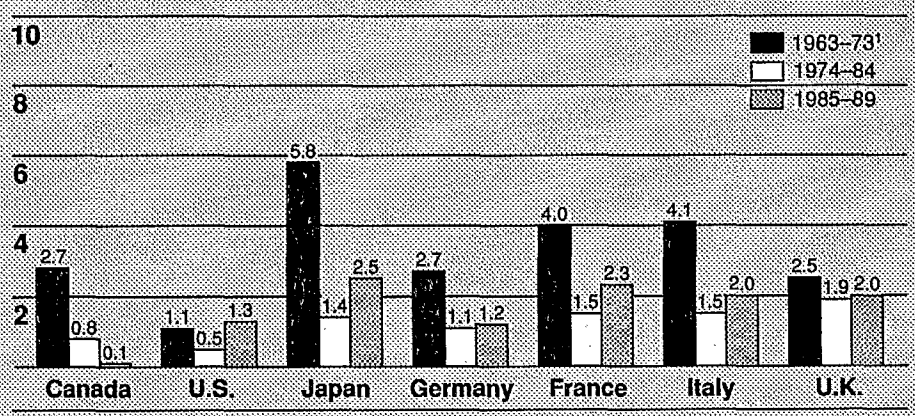


[1] Relative to implicit deflator for consumer expenditures.

Source: Statistics Canada.

Chart 1.5
Total factor productivity growth rate in G-7 countries Commercial sector – annual average

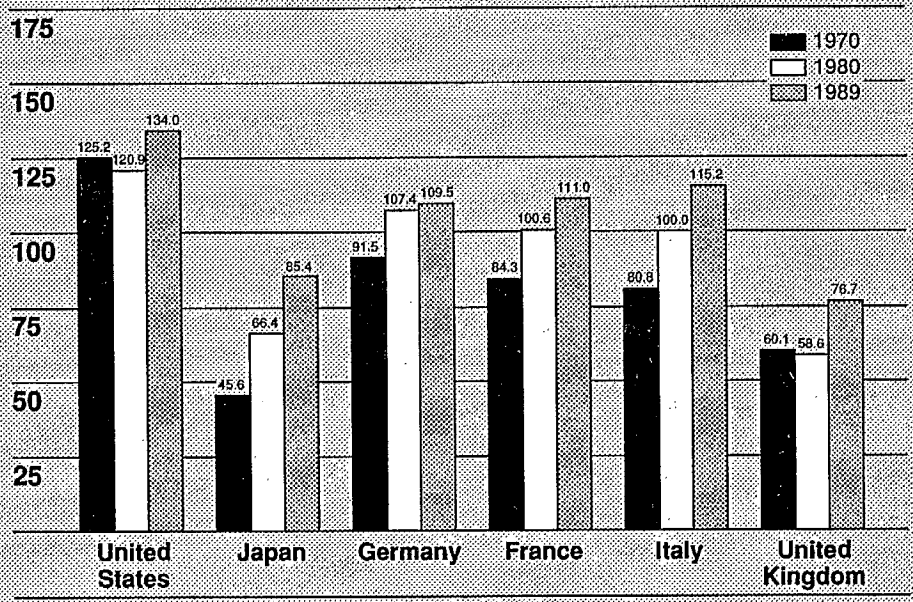
per cent



[1] 1967-73 for Canada and the U.S.; and 1964-73 for France.

Sources: Department of Finance for Canada and the U.S. and OECD for other countries.

Chart 1.6
Levels of manufacturing labour productivity (output per hour)



Source: Economic Council of Canada, 1991 Twenty-Eighth *Annual Review*.

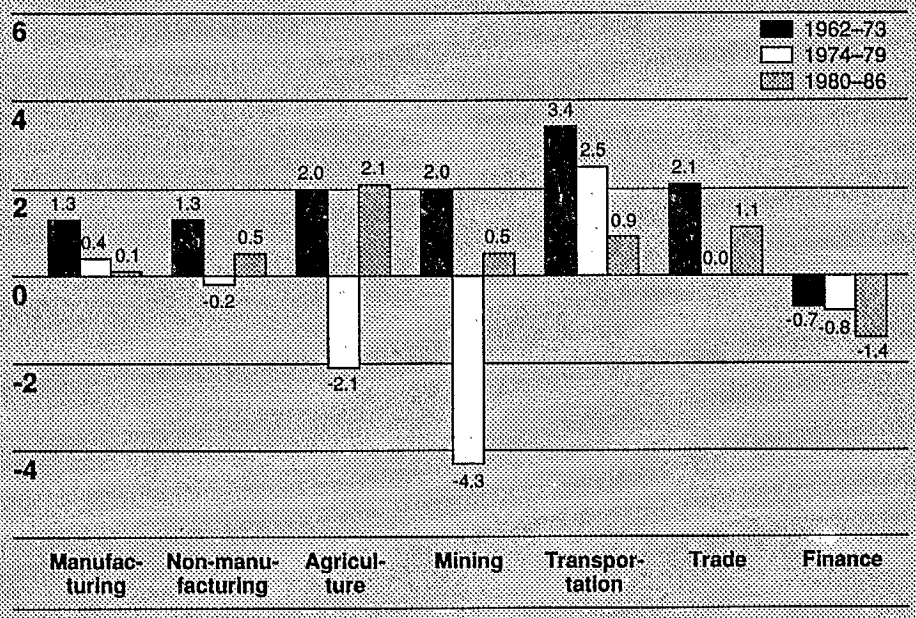
Correspondingly, the real hourly wage in the commercial sector grew by 4.5 per cent, a rate sufficient to double workers' real income in less than 16 years.

Beginning in the mid-1970s, growth in real wages began to outstrip slowing growth in labour productivity. This was not sustainable. From 1977 to the mid-1980s, real wages were little changed as productivity caught up. More recently, labour productivity growth has slowed while real wage growth has resumed. Continued increases in real wages will require much better productivity growth.

Chart 1.5 compares growth in total factor productivity in the seven major industrial economies, the G-7. The chart shows that the productivity slowdown after the mid-1970s was not exclusive to Canada, but was also experienced by other major countries. The difference is that they have all enjoyed productivity recoveries starting in the early and middle 1980s. Canada has not. Our total productivity growth is now the weakest among the G-7.

As a result, other countries are starting to catch up or exceed our productivity levels. For example, chart 1.6 shows the level of manufacturing labour productivity (output per hour) in the other G-7 economies relative to Canada. At the beginning of the

Chart 1.7
Total factor productivity growth rate in manufacturing and selected non-manufacturing industries[1] Canada – annual average



[1]Based on gross output measures.

Source: S. Rao and T. Lemprière, *The Productivity and Cost Performance of Canadian and U.S. Industries, 1961–1986*, Economic Council of Canada, 1991.

1970s, all other G-7 economies, except the United States, had lower productivity levels than Canada. By 1989, only Japan and the United Kingdom had lower levels than Canada.[3]

Looking only at productivity for the economy as a whole can hide important information. Chart 1.7 shows the slowdown in total productivity growth in several major sectors of the Canadian economy. In manufacturing, highly exposed to international competition, it fell from 1.3 per cent before the mid-1970s to almost zero in the 1980s, mirroring the economy as a whole. Most resource industries also had big slowdowns in productivity growth in the last half of the 1970s, followed, however, by significant gains in the 1980s. Finally, most components of the large service sector have also experienced lower productivity growth since 1973.

[3] While popular perception is that Japanese manufacturing productivity is extraordinarily high, this is true only of a number of important key sectors, largely export-oriented. This is why overall Japanese manufacturing productivity remains below that in Canada.

The breadth of the Canadian productivity slowdown has two implications. First, it indicates that economy-wide factors must have been important and that solutions must also be economy-wide. Second, it indicates the interdependence of productivity in different sectors. The productivity of a manufacturing industry depends heavily on the efficiency of the economy in supplying it with raw materials, energy, transportation services, communications, accounting and administrative services, marketing, and financial management. Gains in one sector may well help many other sectors. No single sector should be targeted for improved productivity at the expense of others. Canadians benefit equally from productivity gains in sectors oriented to international trade and those oriented to the domestic market.

RENEWAL IN THE 1980s

The reasons for early postwar strength and later weakness in the growth of Canadian living standards are complex. They involve the private and government sectors and their interaction, and an international dimension as well. Clearly, strong economic performance depends critically on a good fit between the whole and the parts: on a mutually reinforcing macroeconomic environment and underlying microeconomic structure.

The government recognized these strategic needs in the Agenda for Economic Renewal adopted when it took office in 1984. Canada needed to change course. The policies of the 1970s and early 1980s were undermining long-term productivity. Government had become too intrusive in the economy, not only through large deficits and rapidly growing debt, but also because spending or subsidy programs that piled up debt too often diverted investment decisions away from opportunities indicated by underlying economic criteria. The tax system had similar effects. Many policies, such as the National Energy Program, sheltered Canadians from necessary changes rather than encouraging those changes. Some aspects of transfer programs to individuals dulled incentives to work, save and invest. The regulatory burden was too pervasive and complex and led to hidden costs for businesses.

The 1984 Agenda for Economic Renewal raised a formidable challenge: to reverse the course of the previous decade and revive Canada's economic health. First and foremost, fiscal balance had to be restored to help create a stable non-inflationary macroeconomic environment that would lead to high levels of saving and investment.

Second, important structural reforms were needed. Measures that have greatly strengthened Canada's economy include:

- substantial deregulation of the energy and transportation sectors,
- major reform of the personal and corporate income tax and sales tax,
- privatization of many Crown corporations,
- liberalization of the regime for foreign direct investment,
- negotiation of a Free Trade Agreement with the United States, and
- reform of financial institutions legislation.

These measures attacked fundamental weaknesses in both our macroeconomic and microeconomic performances. We can see clear signs of progress:

- The federal government's structural reforms are projected to raise total productivity growth by 0.5 per cent per year in the next five years. The Free Trade Agreement and sales tax reform account for most of this increase.[4]
- New policies have reversed the relentless growth of the federal government; the deficit as a proportion of the economy is now down by half since fiscal year 1984-85. Financial requirements are expected to be in surplus from 1994 onwards. Expenditure restraint by the federal government reduced federal program expenditures from 19.6 per cent of GDP in 1984-85 to 16 per cent by 1990-91. Measures taken in the February 1991 budget (which will be reinforced by legislated limits on program spending) and earlier budgets will further reduce federal program expenditures to 14.5 per cent of GDP by 1995-96 – the lowest level in 30 years.
- The February 1991 budget announced inflation targets of 3.0 per cent by the end of 1992 declining to 2.0 per cent by 1994-95, to break the inflationary psychology and guide the economy on a path to price stability.

STRATEGIC DIRECTION FOR THE 1990s

Goals

The Speech from the Throne in May set some broad goals for the Canadian economy by the year 2000: the creation of two-and-a-half million new jobs and increasing our real incomes per capita by 25 per cent. Renewed Canadian unity and a strengthened economic union are fundamental to achieving these goals. The government's proposals for the renewal of Canada have already been set out in the document *Shaping Canada's Future Together: Proposals* and in a related background paper entitled *Canadian Federalism and the Economic Union: Partnership for Prosperity*. Achieving these goals will also require a change in the attitudes and actions of all Canadians: governments, business and labour. We need to focus on raising our productivity and finding new ways of working together to build on our strengths.

We face these issues in the context of a rapidly changing world. The shift in relative economic strength from the North Atlantic to the Pacific Rim, the move towards a knowledge-based and high value-added economy from a resource-based one, increased concern with the environment, and the globalization of market forces have all combined to effect radical change. These forces are acting on all economies, including Canada's, and they give both urgency and direction to the required response.

Canada's productivity is expected to improve in the coming years because of tax reform, free trade with the U.S. and the further opening of other markets. But further increases are required to ensure that we achieve these goals.

[4] Department of Finance, *Quarterly Economic Review*, "Special Report: Canada's Potential Growth Prospects", March 1990.

This document sets out the broad directions we might follow in pursuing greater prosperity. It deals with the policies and practices of both the public and private sectors. It focuses sharply on the need to get policies and players pulling in the same direction. That means economic policies at the macro and micro levels that are mutually supportive at all levels of government. It means a good deal more partnership and co-operation. Improving our investment performance will be essential: in some areas the private sector or governments should be investing more, while in others we need to improve the quality of our investments. The remainder of this chapter gives a brief overview of some of these key messages.

Sustainable development

The world has experienced unprecedented growth in population and economic activity since World War II. While the benefits of economic growth are well known, increasingly the potential environmental costs are being recognized as well – whether in the quality of air, water and soil or in the risks to vital systems that maintain natural balances. The World Commission on the Environment and Development, chaired by Gro Brundtland, did much to heighten awareness of the challenge we face.

Our target must be sustainable development – that is, development that meets the needs of the present while protecting the environment's ability to permit future generations to enjoy a similar standard of living.

The challenge is extraordinary because, as the Brundtland Commission pointed out, economic activity in the world economy may increase five to ten times during the next half century. The population, now 5 billion, is expected to reach some 8.2 billion by the year 2025, with more than 90 per cent of this increase in developing regions.

Fundamental changes will be required in how we do business and live our lives. Governments, businesses and individuals must all show creativity in adapting. Canada should lead by example and recognize the essential role of international agreements if many of the most difficult issues, like global warming and seabed pollution, are to be tackled successfully. No vision of prosperity can exclude environmental costs and quality. Any projection that is not environmentally sustainable would be partial and destined to fail in the longer term.

The Green Plan, released in December 1990, offers a framework for sustainable development in Canada. It recognizes that governments are responsible for leadership but that all members of society must work together if environmental challenges are to be met. In full support of this principle, the government's recent constitutional proposal envisages a "Canada Clause" which, among other things, sets out as a basic characteristic and value of Canada: "a commitment to the objective of sustainable development in recognition of the importance of the land, the air and the water and our responsibility to preserve and protect the environment for future generations".

A sound macroeconomic environment

Policies directed primarily at the whole economy – macroeconomic policy – are central to creating an environment for sustainable growth. Chapter 2 takes up the question of creating the right macroeconomic environment. International experience shows that economies with low inflation are also economies with higher productivity growth and lower unemployment. Fiscal and monetary policy must work together to create a non-inflationary climate that will encourage productivity growth. Decision makers in both government and the private sector must also consider how they can help combat inflation through their own practices, notably toward cost pressures. Lower fiscal deficits will reduce the burden on monetary policy to lower inflation. Governments should put their finances in order, eliminating deficits and reducing debt, and achieving an appropriate balance between government and the private sector. Over time, capacity of governments to deliver services cannot exceed the taxpayer's ability to pay for these services. As emphasized in the government's constitutional proposals, as well as a variety of other non-government studies (e.g. Economic Council of Canada, Twenty-Eighth Annual Review, 1991), it will be important to identify and agree upon ways to strengthen the co-ordination and harmonization of macroeconomic policies in future. Canada has made progress in restoring its finances, and we need to ensure there is consensus about direction and commitment to stay the course.

Improving the framework

Canada's governments establish a complex and changing framework of rules for firms and workers. As well, the federal government negotiates with other countries on international rules governing trade, investment flows, technology standards and other factors. These international and domestic frameworks, discussed in chapters 3, 4 and 5, affect the competitiveness of our economy in several ways:

- Globalization and economic integration are at the heart of the challenge facing Canada. Internationally, the opening of markets, particularly through the various negotiating rounds of the General Agreement on Tariffs and Trade (GATT), has fostered continual rationalization, specialization and increased productivity. As well, the international flow of capital has been critical, both because investment in Canada has typically exceeded Canadian saving and because investment brings advanced technologies, new management techniques, and privileged access to markets.
- Domestically, the same logic applies. Although the Canadian market is small compared with the giants in the global economy, it is the seventh largest in the Organization for Economic Co-operation and Development (OECD). Policies in areas ranging from competition to bankruptcy help create a competitive home market that encourages innovation, raises productivity, and makes Canada more competitive internationally. That is why the federal government has emphasized the importance of strengthening the Canadian economic union in its recent constitutional proposals by enhancing the mobility of people, goods, services and capital within Canada.

- Other kinds of government intervention affect the market. Governments must levy taxes to pay for social programs, collective services, and public infrastructure: public goods and services Canadians want and need. They regulate economic activities to promote workers' social goals, such as pay equity, collective bargaining, and health and safety. They deal with public concerns such as consumer protection, and preservation of the natural environment. The way regulations are implemented, and the costs of public services and the way they are delivered affect productivity and competitiveness. These framework rules must be reviewed to ensure they are efficient in promoting our economic, social and environmental objectives.

Improving efficiency and quality of capital and labour

Investment is spending today for benefits tomorrow. The quality and quantity of today's investments in increased physical capital, improved human resources, and increased knowledge will determine future prosperity. Our discussion of investment starts in chapter 6.

Investment may be in plant, machinery and equipment, or in social infrastructure like roads and ports. It may be in new technologies, either embodied in newly purchased machines or developed by firms. It may be in human resources – the workers firms employ – in the form of training, upgrading of skills, or developing new management techniques. Time and effort devoted by labour and management to organizing themselves more productively is a more subtle form of investment. But all these forms of investment, both public and private, make productivity grow faster. The efficient functioning of financial institutions and markets facilitates access to capital and helps ensure that the cost of funds is not excessive.

Plant and equipment At the beginning of the 1970s Canada devoted a smaller share of GDP to private-sector investment, particularly on machinery and equipment, than most major industrialized economies. Since then, investment has risen faster than in the other G-7 countries, except Japan. But the share of machinery and equipment investment in GDP still remains somewhat below that in most other G-7 countries. Moreover, the strong improvement in Canada's investment performance has not yet translated into an improvement in our productivity performance relative to other G-7 countries. Chapter 8 discusses investment in physical capital.

Infrastructure Government investment in physical infrastructure like roads, highways, ports, airports, and water and sewer facilities is also critical to increasing productivity. It is an essential complement to private sector investments. Public investment in schools, education, health care, and research and development also help to increase productivity. Government investment as a share of GDP has fallen significantly over the last two decades.

Research and development The fruits of investment in research and development, discussed in chapter 9, are new and better products, new and better production processes. Canada's investment in R&D, particularly by the private sector, has been low by international standards; the diffusion of new technologies also appears

to lag. Some of the reasons flow from the structure of our economy: a large resource sector, a high degree of foreign ownership, the small size of Canadian firms, and easy access to new technologies developed abroad. Even considering these factors, our efforts rank below those of other major countries. Our government investment in non-military research is comparable to that of other countries, though the priorities and effectiveness of our spending, notably on government laboratories, needs review. The linkages within our scientific and industrial communities are weak and may not encourage the technological clusters that can encourage innovation.

Education and training A highly trained, skilled and educated workforce is key to increasing productivity and prosperity. Without sufficient skills, the workforce will have neither the ability to adopt new technologies and techniques nor the capacity to adapt to changing circumstances. Chapter 10 discusses investment in human resources. Canada has traditionally emphasized education and training. The proportion of adults with post-secondary or university diplomas rose from 7 per cent in 1961 to over 30 per cent in 1986. The amount spent on education compares favourably with spending in other G-7 countries. Nevertheless, our dropout rate is too high. A large portion of Canadian young people do not appear to have the basic skills and training to meet the challenges ahead. Moreover, Canada lags behind many other countries in public vocational training and private-sector training for employees.

Labour-management relations How labour and management interact is critical to productivity. Getting the best out of a highly skilled workforce and its technology depends ultimately on management and labour working together. Following the lead of Europe and Japan, labour and management in Canada are increasingly working together, solving plant problems, and developing new and flexible compensation schemes.

In the broadest sense Canadians should ask whether Canada's investment record has overly emphasized hard assets with more immediate returns at the expense of longer term, less tangible investments in people, R&D and the organization of the workplace. More specifically, has private investment been too short-term or not sufficiently focused on innovation? Have Canadians been getting the quality of results we need in key areas of investment, such as education? Is the private sector devoting enough time and resources to upgrading skills? Have we been neglecting areas of investment where a greater effort is required, such as science and technology, or public infrastructure? Are changes required in the way business and labour are organized? Can governments themselves become more productive? These are complex questions, important to all the stakeholders in the debate, not just the government.

Process and players

No one player in the economy has either all the right answers or the ability to increase the prosperity of Canadians. Dialogue and co-operation are required: between levels of government, public and private sectors, labour and management, and among interest groups. Chapter 11 takes up the question of the partnerships and

co-operation essential to economic prosperity. Several extensive consultations have been held in recent years, such as on immigration, the Green Plan, and the Labour Force Development Strategy. Yet, these have focused on specific issues. Canada lacks a tradition – strongly developed in some of its trading partners – of ongoing business and labour consultation with each other and with governments on the broadest economic policy issues. It is important to rethink how Canadians and their governments can best work together to meet domestic and global economic challenges.

A BROAD CANVAS

This opening chapter has set out the fundamental nature of the prosperity problem. It is productivity growth. Slow growth in incomes and a deteriorating competitive position are only symptoms. Our objectives must focus on curing the problem, not the symptoms.

Another critical characteristic of the problem is its breadth. Just as the productivity slowdown was not confined to a few sectors, a turnaround must be sought in all sectors. A myriad of economic decisions, taken every day, determine our productivity. More of these decisions have to adopt productivity growth as a goal.

A final critical characteristic of the problem is that there is no single actor who can supply the cure. In particular, governments alone cannot solve it. Governments can play a role but the responsibility lies primarily with the private sector: both business and labour.

Governments themselves face major constraints. Their spending must be kept under control if we are to create a sound climate for long-term investments. International trade rules do not allow for significant elements of subsidy in most sectors and the world today is moving to a reduced reliance on government. Our private sector, both management and labour, will need to adapt to these realities.

The rest of this paper examines more closely many aspects of productivity growth and policies related to it. But the paper cannot aspire to provide full coverage of all aspects of each item required. Rather, it attempts to bring the elements together in one document so that their interdependence and relationship to one another are clearly apparent.

In some cases, we know the solutions we must seek. In some cases we know the objectives we must set. In some cases we only know the cause of the problem. And in some cases we don't even understand the cause. Extensive consultations are essential, whether to better understand what we don't understand, to define our objectives, or to act to achieve our objectives. If we are successful, every Canadian will benefit.

ANNEX: PRODUCTIVITY ESTIMATES

The estimates of total factor productivity used in this document are from the Department of Finance. The basic methodology is widely used, and measures productivity growth as the increase in output not accounted for by increases in labour and capital inputs. The Department of Finance estimates differ from those available from organizations such as Statistics Canada and the Economic Council of Canada in several important respects.

First, the Department of Finance uses a different measure of the capital stock. In calculating total factor productivity, the Department of Finance uses a Statistics Canada measure of the capital stock based on "delayed depreciation" in which new capital depreciates slowly at first and then faster later. In contrast, when estimating TFP, Statistics Canada and the Economic Council of Canada use a Statistics Canada measure of the capital stock based on "geometric depreciation" in which new capital depreciates at the same rate (same percentage) every year. In the view of the Department of Finance, delayed depreciation better reflects the depreciation in capital's productive capacity. However, in a growing economy such as Canada's, delayed depreciation results in a higher estimate of the capital stock and a somewhat lower estimate of growth in TFP than does geometric depreciation.

Second, the Department of Finance takes special care to eliminate short-run, cyclical influences and find the underlying, longer-run trend in total factor productivity. This includes adjusting the capital stock to reflect variations in capacity utilization over the business cycle. In that way, measured productivity growth reflects growth in utilized labour and *utilized* capital. Other organizations use the capital stock without adjustment so that their productivity estimate reflects growth in utilized labour and *available* capital. Over short periods, such productivity estimates are subject to variations due to changes in capacity utilization. For example, estimates of productivity growth from the mid 1980s to the late 1980s that do not adjust for capacity utilization would show an increase in productivity that really reflected a return from low levels of capacity utilization to high levels of capacity utilization. The Department of Finance estimates do not reflect such a purely cyclical and transitory influence.

The Department of Finance estimates of trend total factor productivity are also less sensitive to the choice of periods being analyzed. Other organizations often simply calculate the average increase in TFP between two points in time. This can be misleading because the variability in measured TFP from year to year (often due to errors in measuring output or capital or labour) may result in those two estimates being unrepresentative. This is especially a problem when not all cyclical influences have been removed from the data. The Department of Finance uses a regression-based approach which eliminates unrepresentative fluctuations in total factor productivity to find the underlying, long-run trend over a period of time.

In summary, the Department of Finance approach is best at capturing the underlying, long-term trend in productivity. However, it is important to note that *all* measures of growth in total factor productivity show the same general message: Canada's performance is much worse than it was in the 1960s and early 1970s.

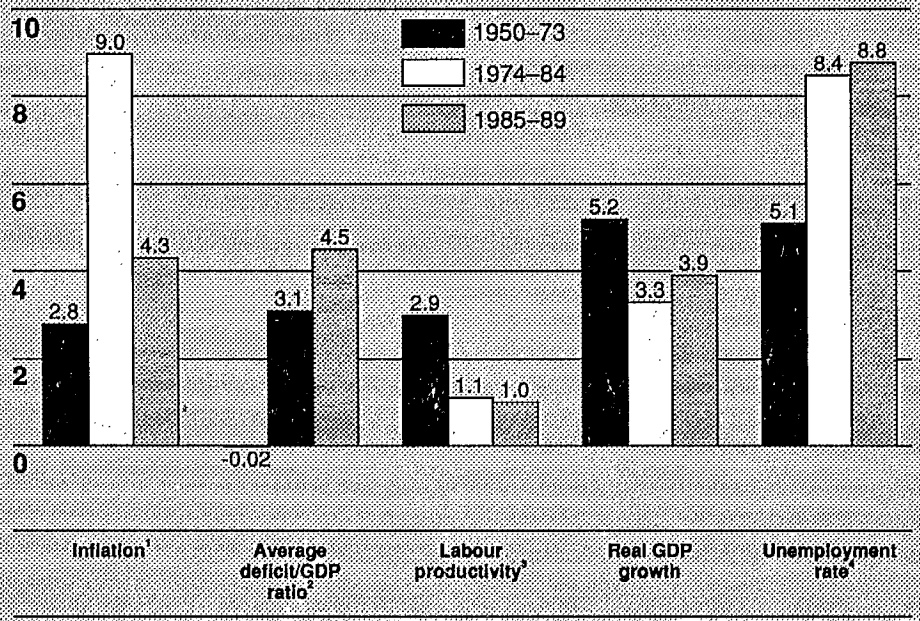
CHAPTER 2: CREATING THE RIGHT MACROECONOMIC ENVIRONMENT

LESSONS OF THE POSTWAR BOOM

Chapter 1 noted that no one player can raise national productivity and prosperity. Rather it is a shared responsibility in which both the public and private sectors play important roles. One area where government plays a pivotal role is in creating a healthy economic environment that is conducive to both productivity growth and the fullest possible employment of the economy's human and physical resources.

In the postwar period until the early 1970s, Canadian governments created such an environment. Chart 2.1 shows some key indicators of the macroeconomic climate: inflation, fiscal deficits, labour productivity, real growth of gross domestic product (GDP), and unemployment from 1950 to 1973, from 1974 to 1984 and then from

Chart 2.1
Key economic indicators – period averages
average per cent change



[1] Consumer price index.
[2] Total government sector, National Accounts basis, negative value is a surplus.
[3] Output per person employed in non agricultural industries.
[4] 1953 to 1973 only.
Source: Statistics Canada.

1985 to 1989. The chart shows dramatically how the macroeconomic environment was highly favourable for a quarter century but then deteriorated markedly in the decade from 1974 to 1984.

Until the mid-1970s, governments kept revenues and spending balanced over the business cycle, public sector debt declined as a proportion of the economy and inflation was generally kept low. Productivity growth was strong. Average GDP growth exceeded 5 per cent. The unemployment rate averaged only slightly above 5 per cent.

The sound macro policy environment and the healthy productivity performance reinforced one another. Macroeconomic policies favoured productive investment and the productivity growth allowed strong growth in real incomes and helped balance tax revenues and program spending.

In the succeeding decade, the macroeconomic climate changed for the worse. Government grew much faster than the economy and became more intrusive. An increasing variety of regulations, subsidies, grants, tax incentives, and Crown corporations encumbered the economy, increasing business costs and distorting decision-making. Moreover, government spending began to outstrip revenues. A string of deficits followed and debt loads rose dramatically. Inflation rose and was allowed to become entrenched, averaging 9 per cent over the decade. At the same time, unemployment rose sharply.

The economy became much more unstable. Inflation became high and volatile. Government fiscal and monetary policy swung from fighting inflation to fighting unemployment and then back again. The fiscal balance became increasingly unstable. Confidence in the economy faltered. The cost of capital increased, the investment climate worsened, and investment decisions were distorted. The macroeconomic environment was no longer conducive to strong growth in productivity.

The period since 1984 has been one of transition with improved performance on inflation and real growth, but continued weak labour productivity growth, higher fiscal deficits due to the legacy of debt, and slow progress in lowering unemployment.

Chapter 1 described how the government addressed these problems under the Agenda for Economic Renewal in 1984, taking both macro and micro economic actions. This chapter explores the macroeconomic side more fully and explains how these broad directions relate to strategies for longer-term growth in productivity and living standards. It begins with a discussion of the size and financing of government, then moves to a discussion of inflation and unemployment policy.

BALANCING GOVERNMENT AND PRIVATE SECTOR

Governments perform vital functions in modern-day economies that the market cannot adequately or efficiently perform on its own. Subsequent chapters will discuss many of these areas.

The costs and benefits of government spending must be carefully balanced. The first factor to consider is which sector can most efficiently provide a service. If government expands too much, it begins to consume scarce resources that would be more efficiently employed in the private sector. Moreover, governments are often less responsive than the marketplace to the needs of citizens. When consumer preferences for products or services delivered by the private sector change, the marketplace responds quickly. Government often responds slowly. Government spending or regulation that was once needed often persists long after the need has gone. When government gets too large, the whole economy becomes less efficient and less responsive to changing needs.

The second factor to consider is that government must pay its way over the long term: as the share of government expenditures in the economy expands, so – sooner or later – must the share of taxes. Paying for spending has additional costs. When higher spending is paid out of higher taxes, disincentives and inefficiencies can result: workers can decide to work less and investors can seek better after-tax returns elsewhere. When higher spending is financed by borrowing, savings of Canadians are not available to invest in raising the productivity of the economy. Investment must be either lowered or financed by foreigners. Moreover, as deficits rise, more and more government spending must be devoted merely to paying interest.

Hence, the balances struck between the government and private sectors can greatly affect economic performance. Three basic principles must be applied in judging how that balance should be decided:

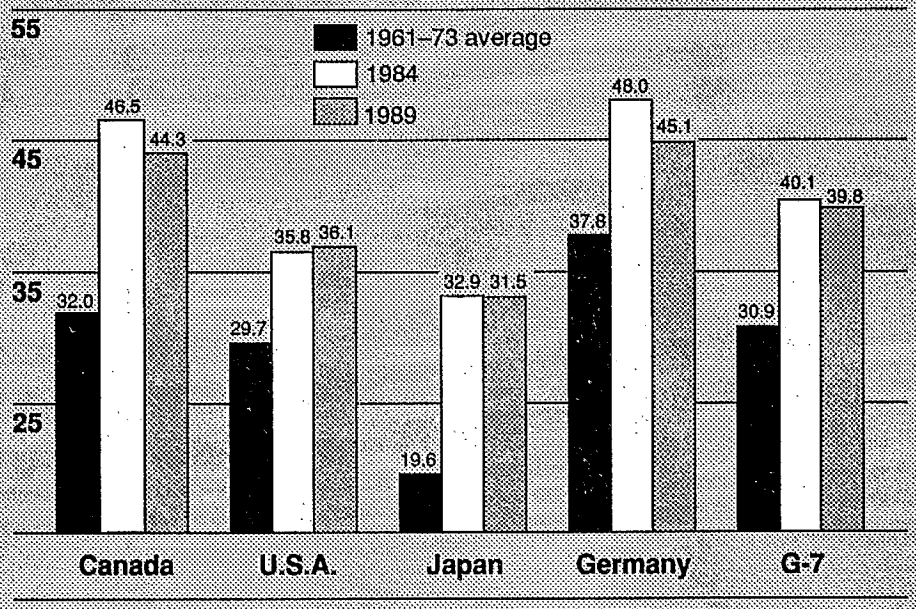
- First, governments must avoid expanding their activities into areas best left to the marketplace. The resources used are better employed by the private sector. Raising taxes to pay for unnecessary government bears its own costs. In short, governments must ensure that there is room for the private sector to grow.
- Second, governments should pay their way. They must not, over extended periods, run deficits that use scarce domestic saving to finance consumption. If they do, investment and our future productivity are put at risk.
- Third, governmental taxing, spending, and fiscal management should not be a source of economic instability. When governments follow unsustainable policies, such as letting debt grow faster than the economy, the resulting uncertainty makes private sector planning decisions more difficult and threatens investment.

Creating room for private sector growth

Chart 2.2 shows that governments in the OECD countries have become significantly larger since the 1960s. By the early 1980s, however, OECD governments of all political stripes generally recognized that government spending had become excessive. Over-expansion of government was impeding the functioning of the private, wealth-creating sectors of the economy. Government spending had intruded too far into areas best left to the private sector, giving rise to waste,

Chart 2.2
Size of government:
General government total outlays[1]
International comparison

per cent of GDP



[1] General government includes federal, provincial and municipal governments and the Canada and Quebec pension plans. Total outlays include all program spending and interest on the public debt.

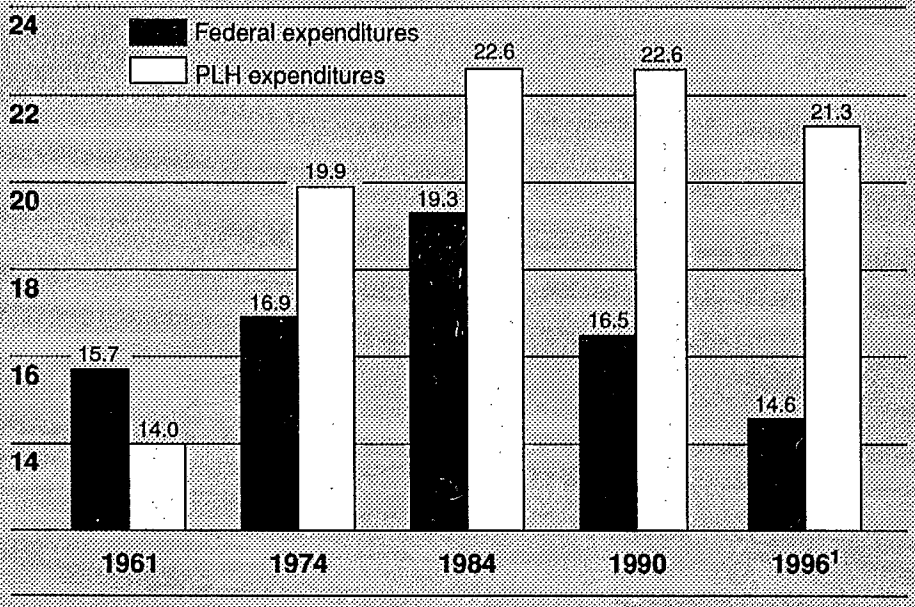
Sources: OECD July 1991, *Economic Outlook*; OECD National Accounts, 1991; and Department of Finance.

inefficiency and loss of incentives. Too much of government spending was in the form of subsidies that impeded rather than encouraged adjustment. Scarce resources were being used that could be better employed by the private sector.

The share of government spending in the economy stopped growing in the OECD by the early 1980s and has since declined, reflecting a firm resolve by most countries to create room for private sector expansion.

Canada's government sector, which was roughly comparable in size to the G-7 and OECD averages over the 1960-1973 period, grew much faster than the OECD average in the 1970s and early 1980s. Chart 2.3 shows how the growth of provincial and local governments and hospital administrations – the PLH sector – bulked large in that expansion.

Chart 2.3
Size of program spending by the federal and combined provincial-local-hospital government sectors in Canada (National Accounts basis)



[1] February 1991 budget forecast.

Sources: Statistics Canada and Department of Finance.

Between 1984 and 1989 this trend was reversed. Canadian total government expenditures – that is, total program spending and interest on the public debt – fell over 2 percentage points as a proportion of the total economy, almost entirely because of federal government control of its own program expenditure. (Expenditures as a share of the economy increased in 1990 and are expected to increase again in 1991 because of the recession, but the downward trend is expected to be reaffirmed in the medium term.) By 1996, total government expenditures are forecast to decline from their 1989 level by an additional one per cent of GDP.

The reduction in the size of government in Canada has been almost all due to the actions of the federal government. By 1990-91, restraint had brought federal government program expenditures as a share of GDP to just above the 1950-1973 average. The February 1991 budget continued in this direction. After some recession-related increases in 1991-92, program spending will continue to decline, reaching 14½ per cent of GDP by 1995-96, down five percentage points from 1984-85 and below the 1950-1973 average. Total federal expenditures will decline also but, because of the high cost of servicing the public debt, remain above the 1950-1973

average. The share of spending by the combined provincial governments, local governments and hospital sectors (often referred to as the PLH sector) in the economy, on the other hand, has remained virtually unchanged since 1984 and only a small further decline is expected over the medium term.

The reduction in government's role in the economy was not confined to spending. Since 1984, there has also been a sharp decline in the role of federal government regulation.

The fundamental limit on how much of an economy's resources can be devoted to government spending must be how much of an economy's incomes can be taxed. Since the Canadian economy is one of the most open in the world, we must ensure that our level and structure of taxation do not put us at a competitive disadvantage. As chapter 6 shows, Canada's total government revenues as a share of GDP increased in line with increases in other G-7 countries over the 1982-1989 period. Although Canada, along with Britain, had the third lowest revenue share – only the United States and Japan were lower – it was still above both the OECD and G-7 GDP-weighted averages. The only sure way to control the level of taxes is to control and reduce spending.

The federal government has also undertaken major tax reforms because how we tax – as well as how much we tax – is important to competitiveness. Personal and corporate income tax reform increased the incentives for Canadians to work and invest by lowering marginal tax rates and reducing distortions in the corporate tax system. Sales tax reform, by replacing the manufacturers' sales tax (MST) with the goods and services tax (GST), removed a tax disadvantage faced by Canadian goods in competing with foreign-produced goods in both Canadian and foreign markets. It also reduced tax-based distortions in the relative prices of goods and services. Chapter 7 deals with taxes more fully.

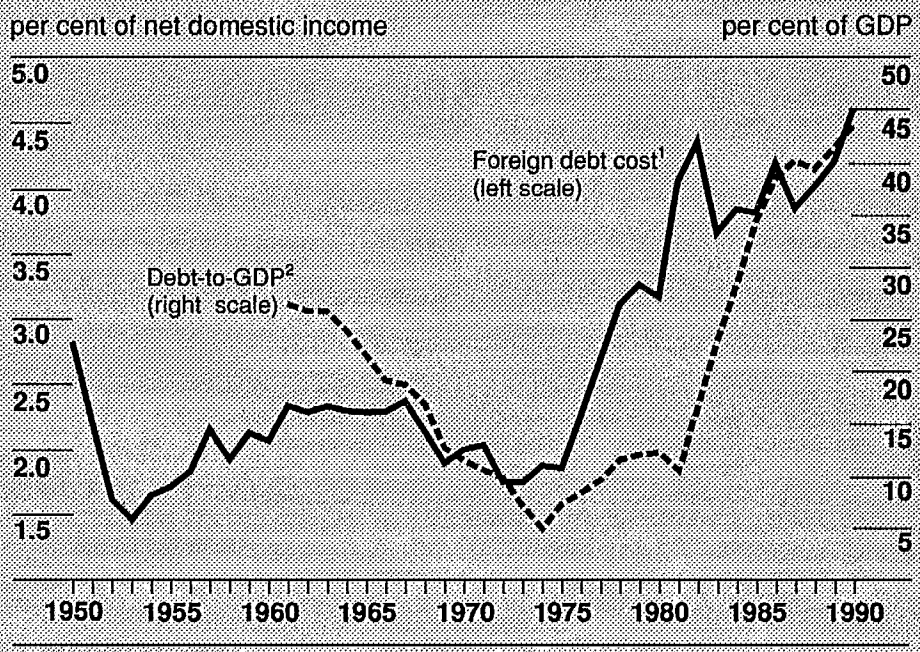
Reducing government dissaving

Historically, Canada has been a net importer of capital, relying on foreign saving to finance investment beyond the capacity of domestic saving. This reflects Canada's vast land area and resources and its relatively small population. Canada has benefited from this process. Foreign investment led to growth in productive capacity, which in turn provided the means to service the debt and pay a return on equity.

The cost of financing Canada's external debt can be measured by the difference between net national income (income that accrues to Canadians) and net domestic income (income that is generated by production within Canada). Chart 2.4 shows that this cost remained fairly constant at about 2 per cent of net domestic income until the mid-1970s. The government sector's fiscal position in this period was in rough balance. In fact, the government was on balance a small contributor to savings, so imported capital was used to finance private investment.

Persistent government deficits emerged in the mid-1970s. By 1984-85, the federal government spent $1.33 for every dollar of revenues. Governments became a

Chart 2.4
Cost of servicing the foreign debt[1] and debt-to-GDP ratio[2]



[1] Difference between net domestic income and net national income – essentially net interest and dividends paid abroad – as a per cent of net domestic income.

[2] Total government sector debt on a National Accounts basis as a per cent of GDP.

Sources: Statistics Canada and Department of Finance.

significant source of "dissaving". Their deficits did not represent increases in productive investment that would have provided the means to service the debt. The share of capital formation in total government expenditures declined to under half the 1950-1973 average. Instead, governments were borrowing largely to consume, and eventually just to service growing debt. As governments borrowed more and more of household savings, businesses were increasingly forced to rely on foreign borrowing to finance capital investment and research and development. Our current account deficit and foreign indebtedness rose. More and more of the economic rewards from Canadian production went toward servicing the foreign debt. The gap between income produced by Canadians and that received by Canadians widened rapidly.

Reducing government deficits makes more of our own private saving available to finance investment in Canada and lowers reliance on foreign sources. National income rises. More of the rewards from increased production accrue to Canadian rather than foreign investors. Over the next five years, increasing Canada's

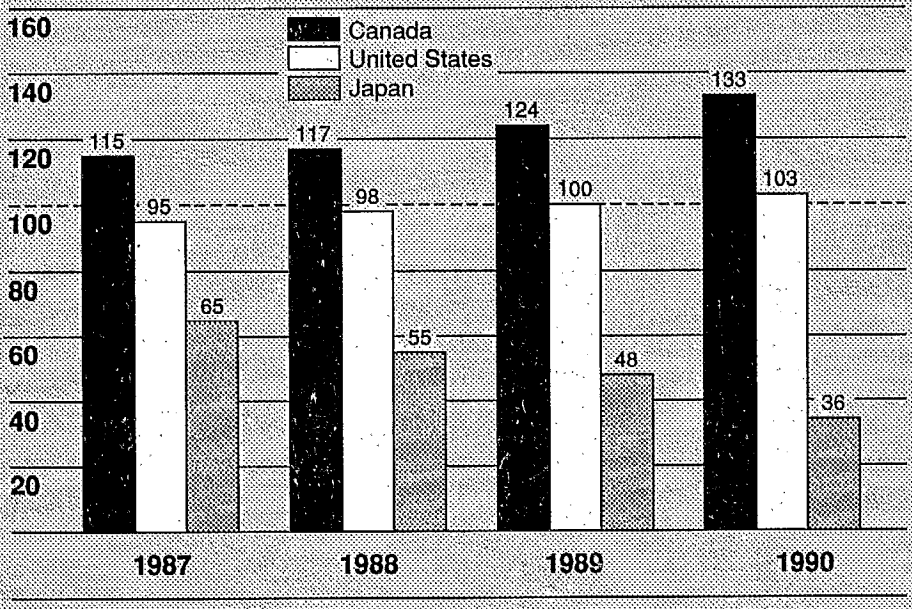
productivity may require even higher levels of investment relative to GDP than in the past. The most effective way to ensure that these investments are financed by Canadian savings is for governments to stop dissaving. The federal government is committed to such a plan. By 1994-95, it will be repaying outstanding marketable debt for the first time in 25 years.

Restoring stability to public finance

As a consequence of the excessive federal deficits of the late 1970s and 1980s, Canadian public debt has been growing too fast and remains too high. Indeed, until recently, debt has been growing dramatically faster than the economy. Canada's debt is the second highest relative to GDP among the G-7 countries, coming after Italy; chart 2.5 shows that it is significantly higher than in either the United States or Japan, our major trading partners. Prior to 1984, the rate at which this ratio had been rising was also the second fastest after Italy.

At the federal level, the debt burden is at the core of the fiscal problem. Interest payments now use 35½ cents of every revenue dollar, three times the proportion in 1974. Each year, the deficit adds to the level of debt and to the amount of debt servicing that must be paid in the future. We are caught in a vicious upward spiral

Chart 2.5
International comparison of general government net debt[1]



[1] Debt-to-GDP (or GNP for the U.S. and Japan) ratio expressed as a per cent of the G-7 average. Debt figure includes total net debt owed by all levels of governments.

Sources: OECD July 1991, *Economic Outlook*; and the Department of Finance.

in which deficits and debt feed on one another. Unchecked, this would bring financial collapse.

Fiscal instability – persistent deficits and increasing debt – has threatened the health of the Canadian economy. Rising debt generates concern that government is not in control of public finance or the economic affairs of the country. Investors fear the government may be forced to increase taxes or cut programs in a crisis atmosphere. They may even fear that governments will monetize part of the debt by letting inflation rise and reduce the real value of existing government debt. Such fears lower confidence, increase the cost of capital, reduce investment, and weaken the health of the economy. Establishing fiscal stability by eliminating structural deficits and thereby first stabilizing and then reducing the debt as a proportion of GDP improves the macroeconomic environment, reduces uncertainty and risk, contributes to establishing price stability, and lowers risk premiums on interest rates. This encourages investment and improves the functioning of the economy.

The deficit-reduction actions taken in the February 1991 budget reinforce and build on those of earlier budgets. There is a substantial decline in the public accounts deficit from 4.5 per cent of GDP in 1991-92 to less than one per cent by 1995-96. The federal debt-to-GDP ratio stabilizes in 1991-92 after 17 years of increases and declines steadily from then on. The growth of debt servicing costs slows and by 1995-96 they are declining. Debt servicing payments decline to 25.9 cents of each revenue dollar by 1995-96. Provincial governments must also do their part to ensure that government debt is brought under control.

INFLATION AND UNEMPLOYMENT

Price stability is among the most important contributions a government can make to prosperity. As chart 2.1 shows, the years from the early 1950s to 1973 were characterized by low inflation, averaging 2.8 per cent. This was a time of strong growth and relatively low unemployment, averaging 5.1 per cent.

By the early 1970s, however, governments came to believe that they could trade off inflation and unemployment: they could raise inflation and this would permanently lower unemployment. They were wrong. There is no permanent trade-off. As inflation rose, inflation expectations rose – putting further upward pressure on inflation. Higher inflation reduced the purchasing power of Canadian incomes and eroded Canada's competitive position. Unemployment rose. Policy swung from fighting inflation one year to fighting unemployment the next and then back again. In the end, the period from 1974 to 1984 saw inflation more than treble to 9 per cent and unemployment jump to 8.4 per cent. The experience culminated in the recession of 1981-82 in which the unemployment rate climbed to over 12 per cent. Other industrialized economies shared this experience: both inflation and unemployment rose.

Several important lessons emerged from this experience. First, stimulating an economy to lower unemployment can often create, not just higher inflation, but continued increases in inflation. These increases ultimately cost jobs. International experience shows that low inflation economies are usually low unemployment

economies. Second, inflation has significant costs to an economy. The 1981-82 recession showed that running an economy at less than full employment of its productive potential can lower inflation pressures. But, it also showed how costly it is to lower inflation if it is allowed to become entrenched. Also, governments learned that microeconomic policies for labour-market adjustment and incentives are critical in determining a nation's sustainable, long-run unemployment rate. In summary, the lessons of the 1970s and early 1980s were that to achieve a strong economy fully employing its human and capital resources, inflation must be lowered substantially, and price stability must eventually be achieved.

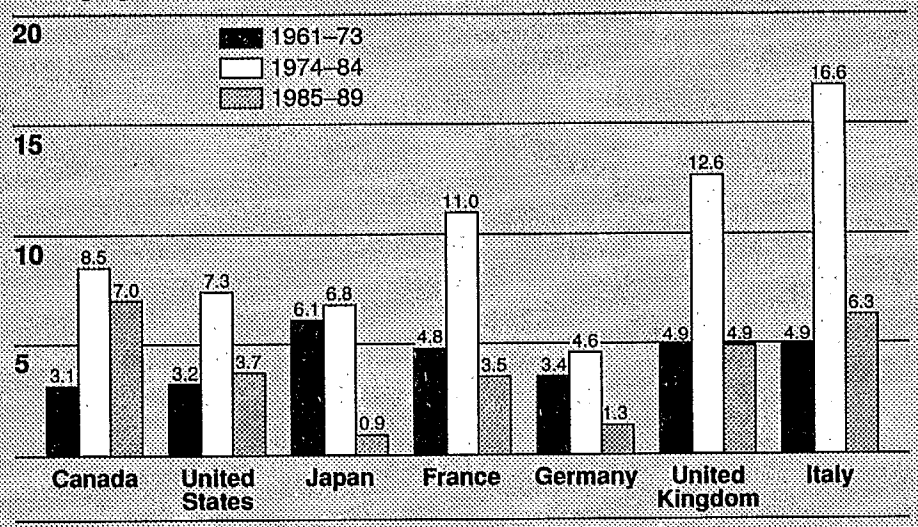
Costs of inflation

Canadians know that inflation cannot increase economic growth and living standards. Less well known is the fact that inflation actually impedes growth and higher living standards. The experience of most industrialized countries – depicted in chart 2.6 – is that lower inflation and faster growth in productivity and living standards go hand in hand. Lowering inflation is one of the most important steps Canadians can take toward greater productivity and prosperity.

Inflation undermines productivity and growth in many ways. These are the main ones:

Economic distortion Inflation interacts with the tax system to distort the economy. For example, deductions allowed for wear and tear on capital stock are based on

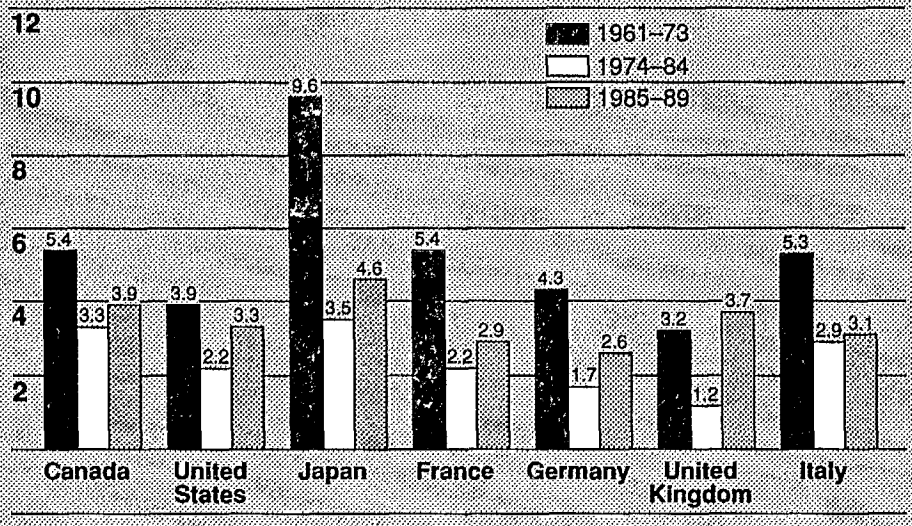
Chart 2.6a
Inflation[1] performance, G-7 countries
average growth rate



[1] Consumption deflator.

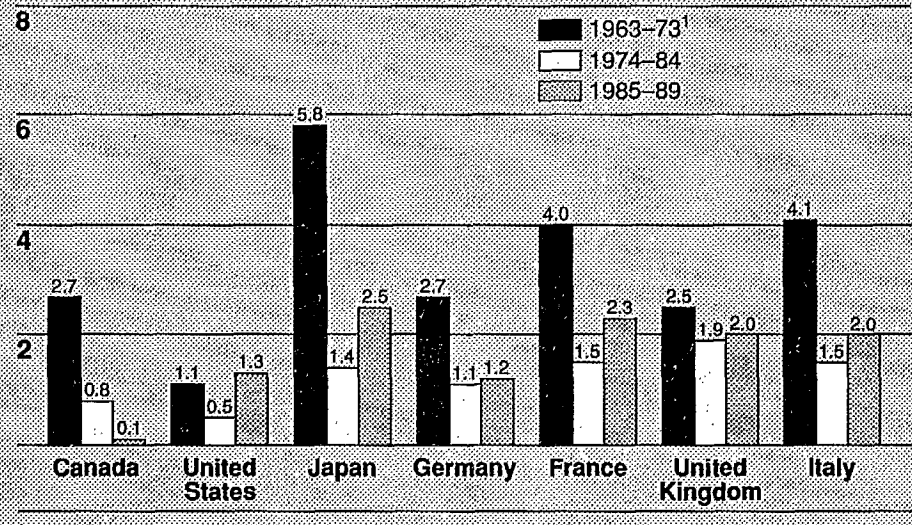
Source: OECDBASE *Economic Outlook*; CANSIM for Canadian data.

Chart 2.6b
Real growth performance, G-7 countries
average growth rate



Source: OECDBASE Main Economic Indicators; CANSIM for Canadian data.

Chart 2.6c
Total factor productivity growth in industrialized countries
average growth rate



[1] 1967-73 for Canada and the U.S.; and 1964-73 for France.

Sources: Department of Finance for Canada and the U.S., and OECD for other countries.

what businesses pay for capital, not on what its future replacement will cost. This distortion can reduce incentives to invest.

Erosion of competition Inflation erodes the economy's competitive position when it raises costs relative to those of trading partners. Depreciating the Canadian dollar is not a cure; it only temporarily masks the symptoms and diverts attention from the cause of the declining competitive position. A falling dollar raises import prices, worsening the vicious spiral of wages chasing prices. A lower dollar also raises the value of the debts Canadians owe foreigners.

Social stress Rising inflation creates stresses in society. Labour-management relations are strained as workers seek higher wages to keep up with the rising cost of living. Companies seek higher prices from consumers to keep up with the rising costs of labour and other inputs. A vicious inflationary spiral ensues. Those on fixed incomes are left behind, increasing strains on families. By contrast, stable prices ease labour-management relations and permit them to shift focus to improving productivity, the true source of rising living standards.

Uncertainty Inflation breeds economic uncertainty. International experience shows that inflation at higher rates is more variable and accordingly less predictable, increasing the risks of long-term investments. In part, this reflects the swings in government concerns, from fighting inflation to fighting unemployment and back again. To reduce risk, investment becomes more and more confined to projects that pay quick returns. Businesses demand a higher return – a risk premium – when inflation is uncertain. The cost of capital – discussed in chapter 7 – rises.

Achieving stable prices will thus substantially lower the risks and raise the returns of investing in Canada's future. Lowering inflation is particularly important now when the economy is adjusting to the Free Trade Agreement and other structural changes. Without lower inflation, the potential gains from these reforms are threatened. The benefits of price stability over the long term will be substantial, since the economy will function better after inflation-related distortions and risks are removed.

Costs of unemployment

The experience of the 1980s shows that lowering inflation, once it is entrenched, can result in temporarily higher unemployment. The 1981-82 recession brought inflation down from double-digit levels to 4 per cent, but unemployment rose temporarily to over 12 per cent. Such temporary increases in unemployment also bear costs:

Lost output There is a loss of output as both workers and capital are under-utilized. Moreover, lost output and incomes lower government revenues and increase government expenditures.

Loss of workforce skills There is an important loss of workforce skills and experience. Many of the skills needed in today's knowledge-based world are not learned in school but learned on the job. When unemployment is high, new entrants to the labour force can miss out on that crucial early development of work skills and attitudes. Existing workers can lose skills. This is especially true

when unemployment becomes more dominated by long-term unemployment, as it has in the 1980s. Older workers may find it especially difficult to reacquire those skills.

Human costs There is a high human cost. High unemployment creates strains on social and family relations and decreasing trust and confidence.

These costs can be substantial. And, like the cost of inflation, they fall on all sectors of the economy. Businesses too must pay the price of high unemployment. They may have to lay off valued employees and bear the costs of keeping valuable plant and equipment idle.

The costs of both inflation and unemployment show how important price stability is. Once achieved, price stability will help in achieving full employment. The costs also show how important it is that government, business, and labour work together to quickly move the economy to both price stability and full employment.

Role of the government sector

Achieving price stability is a critical goal for an economy. Price stability, in turn, will help create a macroeconomic environment conducive to high activity and employment levels. But achieving this requires a determined and consistent effort by both the public and private sectors. We will have to do much better than we did from the mid-1970s to the mid-1980s. Even the record of the last six years could be improved.

Over the longer term, monetary policy must be the main instrument for lowering inflationary pressures and attaining price stability and keeping it. Fiscal policy also has a role: spending restraint is especially important when demand pressures accumulate, as they did during 1988 and 1989. Without sufficient fiscal restraint, monetary policy must bear too much of the burden, pushing up interest rates and the exchange rate excessively. Investment is discouraged and exporters and firms exposed to imports have difficulties competing. Governments can also help by increasing the flexibility of regulation and the pricing of services from government agencies and Crown corporations. Inflation originating in the government sector is not easing as it should.

Reducing inflation can have significant costs in lost output and unemployment, especially if inflationary expectations become entrenched, as they did during the last half of the 1970s and, more recently, in 1988 and 1989. The more entrenched the inflation psychology, the more difficult the adjustment. The faster expectations adjust to lower inflation, the lower the costs.

The government and the Bank of Canada are committed to reducing inflation and achieving price stability. The successive inflation targets announced in this year's February budget will attack the inflation psychology directly by marking a clear trail to price stability. The government's wage strategy and measures to lower the deficit and restore fiscal stability will also help to achieve this goal. Canadians must

acknowledge that inflation harms the economy. The faster inflation falls, the faster the economy can move back to full employment.

These targets will be most effective if governments, business, and labour all do their utmost to achieve them. As indicated in the government's constitutional proposals, consistent and co-ordinated fiscal and monetary policies enhance the benefits that can be derived from economic union. As well, government, business and labour must promote a new partnership, from the shop floor to the management of the national economy, which will ease the transition to an environment of stable prices and full employment. New mechanisms for this partnership are discussed later, especially in chapter 11.

Government support of employment must correspond to the needs of a contemporary market economy: a highly dynamic labour market, new products and successful firms displacing old products and unsuccessful firms, repeated restructuring of production systems and even of industries; all driven by technological innovation and the globalization of production and markets. As is already evident, job security will increasingly come, not from having one or a series of jobs with the same employer over a lifetime, but from having plentiful job opportunities.

The public sector must play a role because the demands of adjustment are greater than many firms or workers can cope with. Only the largest and most stable firms can hope to achieve full "internal adjustment". The government's employment policies must create an environment that assists workers to adapt to changing job settings.

Recently, for example, the Economic Council of Canada proposed that the unemployment insurance program would be better thought of as an "employment insurance program", since employment rather than unemployment is the real objective. Thus, the program should be oriented toward training, counselling, placement and relocation services for workers while they are unemployed. This is what is meant by an active approach to labour adjustment. To work effectively, however, it demands the involvement and participation of the workers who are seeking jobs and of the employers who can provide them.

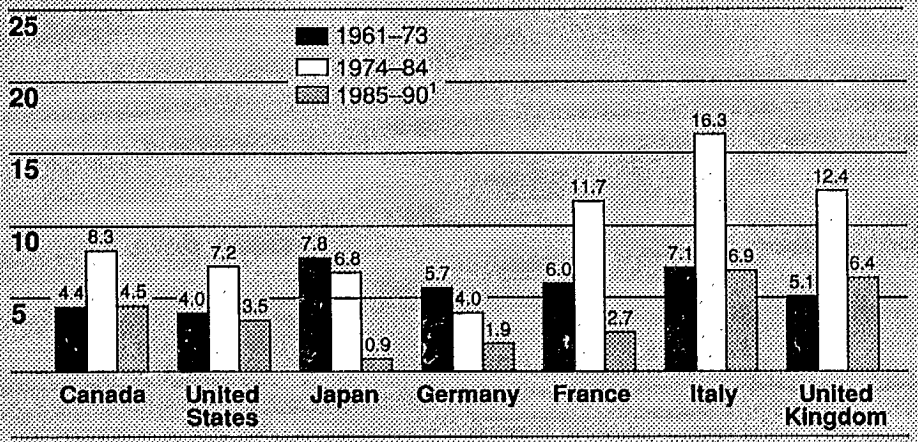
The Economic Council also suggested that assistance to business should be designed to foster adaptation and internal adjustment rather than preserving outmoded industrial practices.

Role of the private sector

The private sector, both business and labour, will largely determine how smooth will be the transition to stable prices and, consequently, to high levels of activity and employment.

Controlling costs is crucial – to both business and labour – because of the openness of our economy. This is true for all aspects of costs but especially wages, since they account for 70 per cent of business costs. When real wage increases outpace labour productivity gains, unit labour costs – the wage cost per unit of output – increase and inflation pressures rise. These lead to pressures on companies to reduce

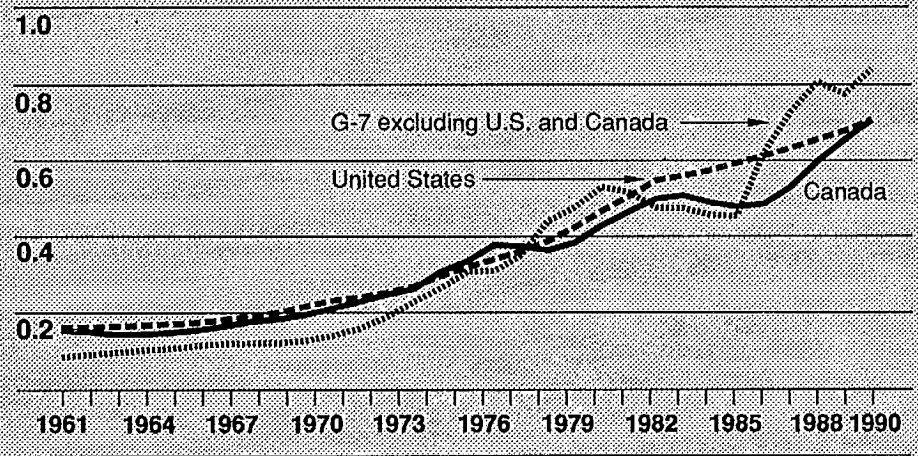
Chart 2.7a
Growth in unit labour costs – local currency
average growth rate



[1] Data for Japan and Italy are available only to 1989. Forecast data from the OECD are used to derive estimates for 1990.

Sources: IMF and OECD.

Chart 2.7b
Unit labour costs – common currency basis
Total economy
U.S. dollars



Sources: IMF and OECD.

employment. If Canadian unit labour costs grow faster than those of our major trading partners, Canada's competitive position deteriorates and employment declines.

Slowing the growth in unit labour costs need not require slower growth in real incomes. Higher productivity growth can produce higher real wages without jeopardizing Canada's competitive position.

In the last half of the 1980s, as illustrated in chart 2.7a, the growth of unit labour costs in Canada and all the G-7 economies slowed sharply in domestic-currency terms as the growth of labour productivity recovered somewhat and the growth of wage costs slowed. But because our growth in unit labour costs was still above that of our three principal trading partners, our competitive position deteriorated.

Since a country cannot rely on depreciation of the exchange rate to deal with these problems, the surest way to improve competitiveness is to raise productivity and directly attack cost and inflation pressures. Chart 2.7b shows that from the mid-1970s to 1980 a declining Canadian dollar kept the growth in Canadian unit labour costs measured in U.S. dollars more or less in competitive line with the United States. But this was also a period of rising inflation, partly generated by that depreciation. In the early 1980s, the Canadian dollar remained under downward pressure and reached a historic low in early 1986. Then, in the last half of the 1980s, the economy continued to strengthen, fiscal deficits remained high, and inflation pressures mounted despite falling oil and gas and grain prices. Monetary policy remained firm to avoid letting inflation get out of control. The dollar rose, ending the decade in roughly the same position as it started.

The effect of the exchange rate on unit labour costs compared with those in the U.S. over the whole decade was minimal. Canada's competitive position against the U.S. – detailed in table 2.1 – deteriorated because real wage increases outstripped

Table 2.1
Sources of unit labour cost growth in U.S. dollars (average growth rates)

	Nominal wage		CPI inflation		Real wage		Output per worker		Exchange rate		Unit labour costs	
	81-86	87-90	81-86	87-90	81-86	87-90	81-86	87-90	81-86	87-90	81-86	87-90
Canada	6.8	6.0	6.9	4.5	-0.0	1.5	1.7	0.7	-2.9	4.3	2.1	9.9
United States	5.6	4.7	4.9	4.5	0.8	0.2	0.9	0.9			4.6	3.7

Note: Totals do not add due to rounding.

Sources: Department of Finance and the OECD.

productivity gains by a far wider margin than in the United States. This was particularly true in the second half of the 1980s when growth in unit labour costs slowed in the United States despite continued declines in the U.S. unemployment rate. Canadian domestic unit labour costs increased (about 1½ percentage points) faster than those in the U.S.

If the Canadian dollar had stayed at its record low of early 1986, inflation would have been much higher and our domestic unit labour costs would have been much higher. Our competitive position and standard of living would have been much worse. On the other hand, if Canada had experienced the same growth in unit labour costs measured in domestic currency as had the United States, the level of our unit labour costs would have been about 6 per cent lower in 1990.

The private sector also has an important role in helping create full and stable employment. Obviously, the most important task of all is for labour and business to work together to increase productivity, which is essential for employment and income security.

They should also be ready to explore and experiment with new forms of compensation and new ways of reacting to cyclical employment stresses.

Business, in collaborating with labour, must be ready to increase its investment in training and skills development. Some firms have already made it a practice to invest in their workforce and labour has begun investing in business.

Labour and management together must find innovative approaches to ensure that knowledge, skills and experience of workers are not lost as a result of employment separation. As we move into the information age, employees are more clearly than ever the greatest resource of every enterprise, and should be the first to benefit from investment and the last to lose.

PRIORITY FOR CREATING THE RIGHT MACROECONOMIC ENVIRONMENT

This chapter has dwelt on the importance of having the right macroeconomic environment as a secure foundation for strong growth, increasing productivity, and rising living standards. A supportive macroeconomic environment is a necessary complement to a sound microeconomic structure.

The most important issue now is achieving as quick a transition as possible to price stability. Better partnerships amongst government, business, and labour are critical to minimizing the costs of this transition. Proposals for better macroeconomic policy co-ordination among Canadian governments form part of the government's constitutional proposals. The importance of partnerships amongst government, business and labour is discussed extensively in Chapter 11.

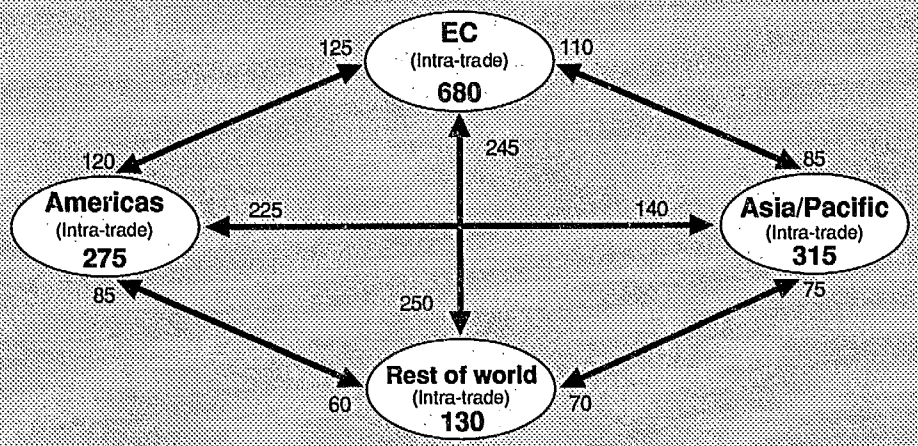
CHAPTER 3: TRADE IN A CHANGING GLOBAL ENVIRONMENT

COMPETING GLOBALLY

Canada's prosperity is tied to the global economy. We have benefited enormously from the postwar opening-up of the world trading system and other major developments. Exporting is one of the main engines of growth and job creation in the Canadian economy and imports have greatly enriched the quality of our lives. We must constantly ask what we can do to take advantage of the internal economy and the opportunities it provides.

From our earliest days, Canada's relatively small domestic market has forced us to look outwards for growth. We have been one of the main beneficiaries of postwar international economic co-operation as the progressive liberalization of markets in successive GATT negotiating rounds lowered tariffs and opened opportunities around the world. This encouraged our economy to adapt and become more integrated with world markets. Canadians in all regions have responded by specializing in what they do best and employing their skills, resources and imagination to exploit new opportunities. As a result, Canadians' standard of living more than tripled in real terms between 1950 and 1990. With the Canada-U.S. Free Trade Agreement in place, Canadians have obtained improved and more secure access to their most important market.

Chart 3.1
World trade flows - 1989
billions of U.S. dollars



Source: IMF.

The accelerating pace of global change and interdependence is, however, reshaping the stable postwar trade and economic system we all grew up with. Globalization and economic integration are at the heart of the changing global environment facing Canada. Countries compete on their productivity records for scarce and mobile flows of investment and technology. This rapidly evolving and increasingly competitive environment challenges all nations, including Canada, to come to grips with the issue of whether they have the right policies and programs, whether their domestic policies reinforce their international competitiveness, and whether they are organizing themselves in the best way to ensure future success.

Globalism has brought great benefits, but it has also spawned new problems and tensions, and undergone setbacks. The global trading system came under pressure from the oil shocks of the 1970s and the macroeconomic imbalances of the 1980s. Many governments, while dismantling traditional protectionism, have been creative in inventing new barriers to trade and disrupting markets in third countries.

Increasing integration in product and capital markets, as well as in ownership linkages and technology flows, has blurred the distinction between international and domestic policies. All countries face constraints on their traditional independence in deciding resource allocations and policy priorities. This broadening of the international agenda to address even structural differences in economies and societies requires a consensual approach and effective co-ordination of our policies.

Canada's future prosperity can only be assured by adapting to this new and demanding global environment quickly. Long-term prosperity requires a supportive domestic framework for investment, innovation, skills development, and trade development. With one in every three Canadian jobs depending, directly or indirectly, on our ability to compete effectively in export markets, Canadians will want to make informed choices so that we can manage our external relations in trade, investment and technology to our advantage.

SHIFTING PATTERNS OF TRADE

Global trends

The trends towards globalization and economic integration are fundamentally altering the shape of our world. Growing interdependence among countries in the 1950s and throughout the 1970s was driven by a rapid expansion in world trade. By the 1980s, while trade grew strongly, investment flows also became a leading force for economic integration. During the last decade, technology and innovation became, in turn, major influences in the global strategic planning of firms, exerting additional pressures for greater trade and investment liberalization.

Postwar international economic co-operation, founded on the three pillars of the International Monetary Fund (IMF), the General Agreement on Tariffs and Trade (GATT) and the World Bank, provided a stable international trade and payments system and facilitated a substantial liberalization of markets. Within this framework, the major industrialized countries experienced almost continuous

growth. Trade has grown three times faster than output over the past three decades and now exceeds 20 per cent of the total output of the industrialized countries – twice its share in 1970.

Over the past decade or so, this growth has generally been strongest in the Asia-Pacific region. It has lagged noticeably in Africa and in Latin America, although signs of recovery in Latin America have become evident in the past two years. Trade within Europe and between Canada and the U.S. has intensified. Canada's performance has broadly parallelled that of the OECD countries.

The composition of world trade has shifted dramatically over the past decades. Led by the explosion in demand for more sophisticated consumer products from cars to microwaves, the share of manufactured goods in total world trade grew from 35 per cent in the 1950s to 57 per cent in 1989. It outperformed the growth in exports of agricultural goods. The share of mineral-based products actually declined. Goods with significant economies of scale in production, extensive product differentiation, or a knowledge-intensive base have grown fastest. Resource-intensive trade, Canada's traditional strength, grew much less quickly.

The volume of world trade increased by 50 per cent over the past decade, reflecting ongoing integration of the world economy and growing competitiveness in world markets. The strength of trans-national corporations led to steady increases in intra-corporate trade – anywhere from one-third to one-half of trade in manufactured goods is now in non-arm's length transactions. In Canada's case, this portion is estimated at more than two-thirds of our total trade.

Trade in services grew even faster than merchandise trade, and now accounts for one-fifth of world trade, more than twice the share of either mining or agricultural products. The looming dominance of the service sector in every industrial economy heralds its increasing importance in international trade, particularly in support of strong performance in new technologies and innovation. In the last decade, the services sector generated nine out of ten jobs created in Canada. It now accounts for three-quarters of Canadian employment and 64.5 per cent of GDP. The line between goods and services has blurred with the incorporation of an ever greater number of services in industrial activity. Exports of services and service inputs incorporated in exported goods are now estimated to account for approximately 20 per cent of Canada's total export receipts.

Significant changes in competitiveness underlay these broad developments. An OECD study said the member countries' export performance was affected most by changes in competitiveness across the board, rather than in one sector. It commented:

This suggests that export performance mainly reflects more general determinants of efficiency rather than a specialization in one set of product lines against another, for example "high" versus "low" technology.[1]

Canadian trade performance

Canada held its own with its major competitors, growing from the tenth to the eighth largest trading nation between 1979 and 1990. We maintained a sizable trade surplus and our merchandise trade grew faster than world trade. Canada increased its export orientation from 15 per cent of output in 1960 to about 30 per cent today, which is comparable to Germany and well above the United States at 10 per cent and Japan at 14 per cent. Our major dependence on trade for our prosperity is underlined by the fact that more than 40 per cent of domestic manufacturing output is exported, dominated by automobiles and auto parts.

Our long-standing merchandise trade surplus has declined since the mid-1980s, however, and our share of world exports has returned to the level of 1980. There has been an appreciable shift away from Europe, especially from Britain, towards the U.S. and Japan. Our trade growth with non U.S. destinations has been less than with the U.S., despite more favourable exchange rate shifts since 1985.

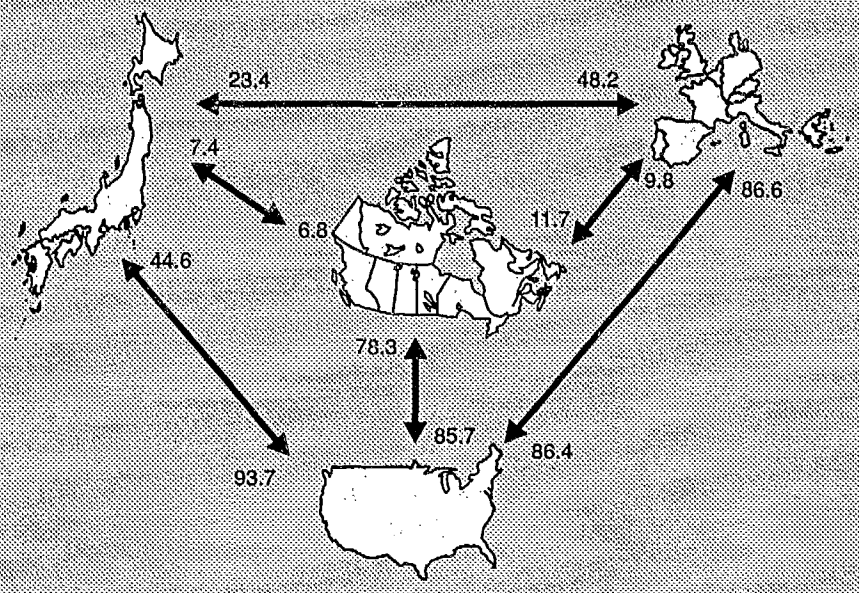
A second major shift has been in the composition of Canada's trade. Canada, with a large factor endowment of natural resources, has tended to specialize in the production and export of resource and resource-based products. Most resource industries are capital-intensive and heavily export-oriented and count disproportionately in total export trade. The share of manufactured exports rose strongly, however, from under 10 per cent in 1960 to over 40 per cent in 1990 – largely because of the explosion in bilateral automotive trade after the Auto Pact with the U.S. was signed in 1965.

Canada maintained a steady trade surplus in crude materials, such as metal ores and concentrates, and in semi-fabricated products such as newsprint, over the past decade. Trade in the automotive sector, about 46 per cent of all trade in end-products, products, maintained a general balance. The overall surplus was counterbalanced by the deficit in non-automotive end-products, which increased tenfold to $30 billion from 1966 to 1988.

The resource sector continues to play an exceptional role in Canada's export performance, despite the decline in its share. Producers have coped with a variety of challenges in the last decade. As chart 3.3 shows, the real price of resource commodities has declined on the world market, affecting the income of our resource sector and requiring it to become more productive. At the same time, the underlying resource base in some industries has been stable or even declining. Canada has done less than some other resource-rich economies, like the

[1] *Structural Adjustment and Economic Performance*, Organization for Economic Co-operation and Development, Paris, 1981.

Chart 3.2
Japan-U.S.-European Community-Canada
1989 exports
billions of U.S. dollars

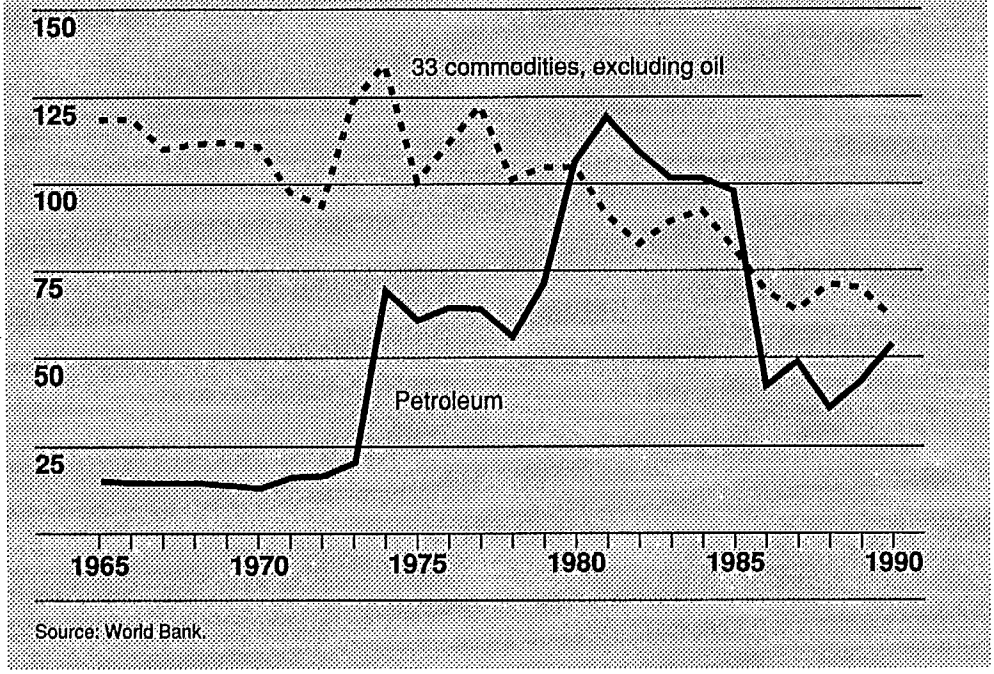


Sources: OECD; Investment Canada; Statistics Canada.

Scandinavians', to process resources into higher valued exports. Finally, parts of the resource sector, notably agriculture, have confronted more distorted and difficult world markets in the 1980s and Canada has been less able to benefit from its natural advantages. Most of these conditions will probably continue to characterize our resource markets in the 1990s. Resource sectors will face continuing challenges to improve productivity and develop new products to enhance earnings potential.

Comparative advantage is recognized to be an evolving concept – witness the shift in Japan's exports towards machinery and transport equipment and away from other manufactured goods. Some countries have made conscious efforts to engineer advantage in particular products, particularly in the high-tech, knowledge-intensive goods that hold the prospect of increasing returns to scale. Experience has underlined difficulties in this approach, including the need to bring competitive pressures to bear early in the process and the key role of investment in infrastructural support.

Chart 3.3
Real commodity prices, 1965-90



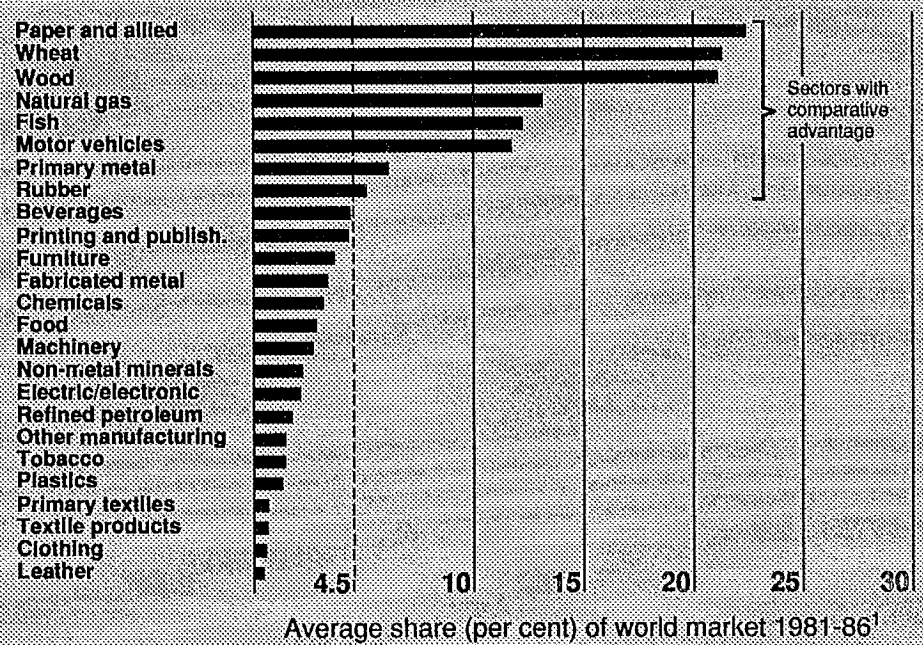
Source: World Bank.

Table 3.1
Canada's evolving export patterns

	1960	1990
	(per cent)	
Destinations		
United States	56	75
United Kingdom	17	2
Western Europe	11	7
Japan	3	6
Rest of World	13	10
Composition		
Food	18	8
Energy – natural resources	72	45
Other manufactured goods	10	47

Source: Statistics Canada.

Chart 3.4
Canada's revealed comparative advantage (selected sectors)



[1] Canadian share of total world exports was 4.5 per cent over the period.

Canada has always run a substantial deficit in high-technology trade, which includes such sectors as computers and electrical and scientific equipment, though we have surpluses in aerospace and telecommunications. Our high-technology exports account for less than 4 per cent of our total exports and our share of world high-technology exports declined from 3.5 per cent in 1971 to 2.6 per cent in 1986. Proportionately, this is similar to declines in the U.S. and European Community shares of trade in this sector, reflecting new sources of production and more intense competition. At the same time, while Canada moved up during the 1980s to become 12th among world services exporters, services represent roughly one fifth of Canada's trade.

Despite the increased share of manufactured goods in our total exports, Canada remains one of the most reliant of the industrialized countries on the export of natural resources, with unprocessed goods taking a relatively large share of total exports. The key question raised by our evolving trade performance is whether we can improve our performance relative to our competitors and incorporate greater value-added in all of our exports.

DYNAMICS AND CHALLENGES

In the past two decades, economic power and productive capacity have become more widely dispersed. Japan and the European Community now share the stage with the U.S. as economic superpowers. An increasing number of developing countries are also climbing the industrial ladder, most notably South Korea and the other dynamic Asian economies. Several, such as Mexico, are undertaking dramatic reforms of their economic policies to open their markets, encourage competition and attract investment. The U.S.S.R. and other Eastern European countries are also embarking on the difficult process of transforming their economies from central planning to market-based principles.

New dynamics are exerting major influences on the evolution of global economic activity. They include: globalization, growing services role, financial interdependence, and new economic relationships. All require strong creative and coordinated responses:

Globalization of firms and markets As trade barriers have fallen, a new global industrial structure has taken shape. It is led by a relatively small number of large companies that participate in many national markets and are often engaged in the production of many related products or services. In the 1950s and 1960s, American multinational companies provided the most prominent example and generally followed branch-plant strategies. Today, large, internationally oriented firms based in a number of countries are adopting a variety of strategies, including direct investment, joint ventures, licensing agreements and other forms of corporate alliances. They seek to build a certain critical mass to enhance their global market shares, to make long-term investments in new and expensive technology, and to achieve intra-firm economies and efficiencies in R&D and production.

A significant number of such firms are in high value-added manufacturing or service industries, which are characterized by high development risks and substantial R&D costs, and require specialized technical, administrative and marketing expertise. Notable examples are pharmaceuticals, telecommunications and computer software. For many of these firms, decisions about locating new investment or plant modernizations are not necessarily determined by national allegiance. Rather, such firms, guided by longer term strategic considerations, are increasingly in a position to consider many possible locations and to search out the most accommodating economic environment consistent with corporate goals. For many, the dynamism offered by regionally concentrated "clusters" of related industries is a major consideration.

Increasing importance of services In all industrialized countries, services account for a growing share of economic activity. As well, the line between goods and services is becoming increasingly blurred as manufacturing incorporates an ever wider range of service inputs, and as more sophisticated

services, such as industrial design and engineering, become high value-added products in their own right.

Growing financial interdependence In the past two decades, financial interdependence has grown even more rapidly than trade. Borrowing and lending across national borders – facilitated by new telecommunications technologies, the relaxation of capital controls and financial sector deregulation – have progressively integrated national financial markets. The development of new financial instruments, the globalization of major financial institutions, and the development of financial service networks increasingly constrain the ability of countries to maintain domestic financial policies that differ significantly from those abroad.

Shifting resource production and trade relationships Contrary to predictions in the 1960s and 1970s, the world has not experienced acute resource shortages, or "limits to growth". The discovery and exploitation of new reserves, more efficient extraction methods, the expanded use of substitute materials and advanced technologies, the advent of economically viable recycling, the success of the green revolution have all contributed to this. Indeed, in most primary commodity areas, traditional commodity price cycles have again become the norm, and in some areas, such as coal and certain grains, the more important medium-term issues relate to the management of, and adjustment to, structural surpluses. Market prospects for most natural resources are such that these industries will be under continuing pressure to improve productivity while meeting other challenges, such as higher environmental standards.

Broadening of the international economic agenda Environmental standards, industrial standards, subsidies, preferential access to natural resources, investment incentives, intellectual property protection, exclusionary marketing arrangements and supply management structures now are all part of the new economic agenda. Globalization is resulting in a historically unparalleled intrusion of the international scene into domestic jurisdictions. As the international dimension of policies traditionally considered within the sole domestic purview expands, it will be critical to ensure that our own approaches and those of our main trading partners do not conflict and hinder our ability to compete effectively.

TRADE POLICY ENVIRONMENT

Global evolution: Multilateralism and regionalism

Growing interdependence and the need for larger markets to promote greater domestic efficiency fostered a broad consensus for trade liberalization and the opening of protected markets after the Second World War. This approach to trade policy has been underpinned by a rules-based international trading system, with the GATT being the principal regulatory instrument, complemented by a number of regional trade liberalizing initiatives with broadly the same principles, objectives and negotiating agendas.

In response to the trading chaos of the period between First World War and Second World War, the GATT developed two key principles – most-favoured nation and national treatment. It encourages transparency and provides a forum to negotiate further liberalization, improve trade rules, and resolve disputes. Its multilateral disciplines served to constrain restrictive unilateral trade action by the more powerful economies and has encouraged a greater export orientation by other countries. In recent years, an increasing number of developing countries and non-market economies have joined the GATT as they turned to market principles.

The international framework of trade rules, built upon the principles of the market economy, has provided a stable basis and a more open environment for the economic growth experienced by the industrialized countries over the past four decades. The GATT has advanced the liberalization of trade through successive rounds of multilateral trade negotiations. Average tariff levels on manufactured imports into industrialized countries fell from around 30 per cent in 1947 to 6 per cent at the end of the 1980s. As well, firm commitments or bindings of tariff reductions gave exporters the necessary assurances to plan and invest.

This opening of markets varied a great deal by product. Highly differentiated and science-based manufactured products and most scale-intensive products have benefited, while tariffs on resource and certain labour-intensive products, such as clothing and footwear, have not benefited as much or have been subject to differential regulations. Agriculture has, to date, escaped much of the GATT's disciplines, as have services, although the latter have benefited from disciplines found in voluntary codes developed at the OECD. The rapid trend toward globalization and interdependence of the world economy in the 1980s has highlighted the difficulties of the GATT system to respond to the evolving international environment and reinforced the will of the world's trading partners to do something about it.

Progress in trade liberalization slowed in the 1980s, largely because of the stresses brought on by the oil shocks and global slowdown. Countries had increasing recourse to subsidies, non-conventional forms of protection such as "voluntary" quantitative restraints, anti-dumping and countervailing actions. The growing trade deficit of the United States and surpluses of Japan and Germany heightened tensions further; they reflected macroeconomic imbalance in saving and investment in those countries. More recently, agricultural trade has become a major source of tension, particularly between traditional grain-exporting countries and the European Community, once a large net importer of grain but now a significant exporter because of massive subsidies to its farmers. The United States has retaliated with large export subsidies and like other countries, Canada responded with substantial income support for grain farmers.

The current Uruguay Round of multilateral trade negotiations (MTN) has undertaken an ambitious agenda to provide new impetus to freer trade by including areas such as agricultural trade, services, intellectual property and trade-related investment measures. The complexity of this expanded agenda and the sheer number and diversity of GATT members has made consensus difficult to achieve.

Since the stakes in a well-functioning international trading system are so clear to all countries, they have extended their efforts to conclude negotiations successfully. This would still leave issues for the 1990s such as the interrelationship between trade and the environment, competition policy, the further liberalization of agricultural trade and trade in services, and possibly the institutional framework governing world trade.

The development of the multilateral system has increasingly been complemented by the emergence of regional economic arrangements. Creation of the European Community (EC), which has both political and economic elements, has been the most far-reaching. The EC now includes 12 members and will expand further; as well, its internal market will become truly integrated through the broad-ranging measures to take effect in 1992. Canada entered its first regional trading relationship, the Canada-U.S. Auto Pact, in 1966; the Canada-U.S. Free Trade Agreement, in 1989, took bilateral liberalization a great deal further. Australia and New Zealand have also developed a regional economic arrangement.

Such regional approaches build upon the principles of the GATT, but can go beyond as well. They have in some cases been motivated by a desire to achieve a more immediate expansion of regional and historical markets than is possible through the GATT.

The impulse for trade liberalization and economic co-operation will likely increase even faster within regions than between them. For example, Canada's exports to the U.S. market increased from 63 per cent of total exports to 73 per cent between 1980 and 1989. In Western Europe, intra-EC trade now accounts for almost 60 per cent of total EC trade, and the 1992 economic integration will likely intensify competition within the EC market including that faced by imports from third countries. Intra-regional trade in Asia-Pacific has grown dramatically and regional interdependence via trade and investment links are likely to continue to grow strongly, though the prospects for formal regional arrangements are less certain.

Failure to make progress on multilateral trade liberalization holds the risk that issues will have to be tackled bilaterally, or even unilaterally. At a time when multilateral rules are lagging increasingly behind the need for disciplines in new areas and dimensions of trade, the threat to a smaller economy like Canada's is that tensions between systems will be increasingly managed directly by the major players. That is, Canada risks seeing system-setting decisions arrogated to the Washington-Tokyo and Washington-Brussels axes, particularly in the light of recent changes in the global political environment.

Canadian trade policy

The GATT is one of the cornerstones of Canada's trade policy and the best guarantee of our broad trade and economic concerns. The GATT multilateral system, with its rules and mechanisms, has helped secure access for Canadian products in international markets. Canada has been at the forefront of efforts to update and extend the international trade rules building on earlier GATT rounds.

Barriers remain, however, and the existing global rules have been inadequate to deal with many changes in the global marketplace.

Canada remains committed to a successful, comprehensive outcome to the Uruguay Round of the GATT that will assure better access to overseas markets, in particular Japan and the EC, improved GATT rules and disciplines, including fairer and more effective trade rules in areas such as subsidies, countervail and anti-dumping. It will also resist the trend towards bilateralism. Concentrated efforts have been made to conclude the negotiations. A strengthened GATT institutional framework would also help to provide for a more stable and certain trading environment for Canadian investors and traders.

While multilateral trade liberalization remains the best guarantee for our broad trade and economic concerns, it was clear by the mid-1980s that we were running the risk of being left by the wayside due to a number of interrelated factors: a level of domestic protection for industrial products that was still high in comparison with other major developed countries; productivity and competitive constraints in our small domestic market; the limited growth potential for resource-based industry, with the shift to higher-end manufactured products; and the globalization of production and markets, with increased competition for mobile capital. As well, growing threats of protectionism characterized our most important market, the United States.

In response, Canada adopted a two-track approach to improve domestic market access and increase competition. It complemented the pursuit of a stronger multilateral trade framework through the GATT by negotiating a comprehensive agreement with its principal trading partner, the United States.

The Free Trade Agreement (FTA) is a significant achievement, building on GATT disciplines and going beyond them to assure improved and more secure access to Canada's most important market for goods and services. The FTA also created bilateral mechanisms to settle disputes expeditiously and fairly. The agreement is enabling Canadian producers to rationalize production on a North American basis. It is enhancing foreign confidence in the economy, making Canada a more attractive place to invest. Reduction and elimination of Canadian tariffs on U.S. products are also stimulating domestic industrial adjustment and increased specialization.

The recent decision to participate in negotiations for a North American Free Trade Agreement (NAFTA) with the United States and Mexico fulfils the government's commitment to broaden trade opportunities and foster an outward-looking and competitive domestic economy. The conclusion of NAFTA would create a North American market with gross output exceeding $7 trillion, more than the output of the European Community's 12-nation market. NAFTA would enable Canadian companies to compete in the expanding Mexican market on the same terms as U.S. companies. It would ensure that Canada is not placed at a disadvantage for investment to serve the entire North American market. The NAFTA approach might, in time, be expanded to embrace other Latin American countries.

Our approach to market access in European and Asian countries continues to give priority to the GATT and the assiduous management of our bilateral relations. We must, for example, pay careful attention to the implications of the bilateral negotiations between Japan and the United States to remove so-called "structural" impediments to trade. In addition, the OECD provides a useful forum for developing additional mechanisms for international co-operation on issues with a trade-related dimension such as investment codes, competition policy, and industrial policy.

Trade policy is also about import competition. Mechanisms and instruments that govern our import regime can have an effect on our ability to compete both domestically and internationally. Our approach to the administration of our tariffs, contingency protection and trade remedy laws have to be geared toward securing improved competitiveness for Canadian industries. Practices that permit our costs to get out of line with global trends merely assist our competitors in gaining ground at our expense, in our domestic markets and abroad.

Although Canadian tariffs have been substantially reduced – and are being eliminated with the United States under the FTA – the Canadian tariff schedule remains too complex. Rationalization and simplification of the schedule would make it more transparent and understandable for the private sector. As well, certain Canadian tariffs on goods from third countries that are higher than the U.S. tariff rate and tariffs on key imported inputs may be making it difficult for Canadian firms to compete or be discouraging investment. The Customs Tariff and related regulations would benefit from a review to simplify the tariff structure and make it a more effective, up-to-date competitive tool for Canadian industry.

Temporary protection measures are important to provide breathing space for our industries facing import competition challenges and to facilitate structural adjustment. At the same time, these measures may incur costs, not only to consumers, but also to industrial users. Inadvertently, protection offered to one industry can severely hamper the competitive position of others. We should promote ways of making domestic trade measures, and the decision-making process, more transparent, while ensuring that the system responds to the need of our industries. This would help to increase public awareness of the costs of protectionist measures and ensure that the interests of all potentially affected parties were properly considered.

Amongst our trading partners, protectionist measures such as countervailing duties and anti-dumping, have become more popular over the last decade, sometimes with devastating impact on our export interests. Canada, has reacted strongly by pursuing strengthened multilateral rules through the MTN in the areas of subsidy-countervail and anti-dumping. Canada can also pursue bilateral negotiations on these issues with the United States under the FTA. To achieve better rules, we may have to constrain our own subsidy practices. This would generally be in our interest, not only because subsidies lead to inefficient resource allocation, but also because our trading partners, especially the EC and the United States, can engage in subsidy wars at less relative cost than comparable subsidies in Canada.

Industrial assistance of the type provided to so-called "strategic industries" in the high-technology sectors in the United States, Europe and Japan, calls into question the rules for international competition. Smaller countries will clearly be disadvantaged if this type of program grows significantly. Canada has an interest in the development of international rules to constrain practices that distort trade and investment and to ensure that where there is a legitimate role for governments to assist "pre-competitive" research, it is done in a non-discriminatory fashion. Work in the OECD must also be completed to increase disciplines on governments' assistance for exports to the developing countries, especially on tied aid credits and financing practices that do not reflect market costs of capital.

Canadian trade promotion

Promotion efforts help Canadians realize the full potential of the international trading system when they are tailored to the characteristics of our economy, notably the relative smallness and low levels of research and development of Canadian businesses in many sectors. Promotion and international co-operation on technology are key aids to trade.

In Canada, government has an important role in trade development. Exporter counselling, market intelligence, promotional events, export financing and assistance with technology inflow and foreign investment are provided through trade promotion programs and specialized assistance. Political involvement of ministers in lending support to secure major foreign contracts can be critical. Federal government export services are geared to the small- and medium-sized firms that often lack the knowledge and resources to access foreign markets. The services are uniformly accessible to all Canadian companies in all areas of the country, facilitating the expensive process of entering foreign markets.

Good marketing is increasingly an integral part of competitive business as markets become more global, differentiated, and fragmented. Markets are changing faster as product life cycles shorten. The emphasis in marketing has shifted to developing long-term co-operative relationships with customers. Competitive firms learn from their customers – by listening to them and working with them they change the very nature of their products and services. Traditional exporting techniques are no longer adequate to exploit market opportunities for many products. Technology partnerships and investment linkages are often a superior strategy. Canadian industry knows well the link between investment and trade – some 70 per cent of our trade in manufactured goods is intra-corporate – but more often as the subsidiary than as the parent.

Marketing success in this kind of trade depends heavily on information and analysis concerned with market intelligence, technology assessment, product testing, competitor analysis, distribution and marketing channels. Many firms, particularly small- and medium-sized ones and first-time exporters, find access to such information through normal corporate resources problematic and expensive. Accordingly, governments and trade associations try to provide it in market development programs.

The federal government launched a five-year, $94 million "Going Global" program in 1989, aimed at our major markets in the U.S., Europe and Asia. The program emphasizes technology, investment, and marketing arrangements and partnerships. It provides support through market intelligence, exporter services, improved representation abroad, fairs and missions, development of language and cultural awareness skills, and institution-building for trade associations.

"Going Global" at present focuses on traditional trade development activities to exploit Canadian industrial opportunities in the United States under the FTA. This thrust recognizes the importance of restructuring our industry to compete in the American market, since up to 72 per cent of Canadian manufacturers, by one estimate, have no significant U.S. market presence. Many of them now also face increased American competition in the domestic market.

The new and different global market raises major questions about the most effective forms of organization – between government and industry, and within industry – to promote our objectives. Private sector involvement is more extensive in Japan, through large trading houses, and in Europe, particularly in the German model, where Chambers of Commerce and industry associations devote extensive resources to trade development. The Canadian and Australian approaches are similar and the Americans appear to be moving more in the direction of the Canadian approach in recent years.

Consultations should consider the extent to which public sector expertise in trade, investment and technology flows might change to enhance our competitiveness and to develop a more unified approach to our export effort. Government-business co-operation must be based upon close consultation with the concerned stakeholders and could be expected to consider:

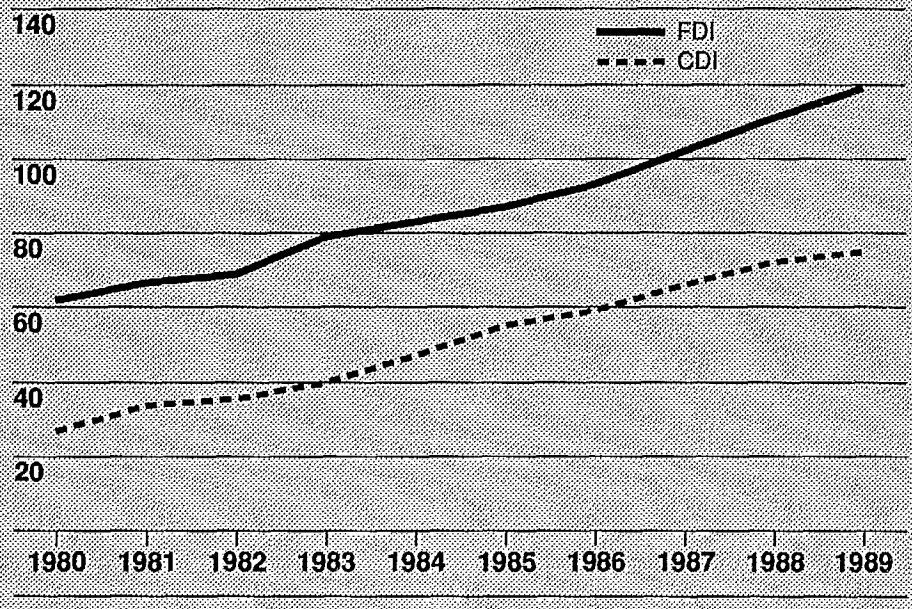
- greater application of the principle of cost-sharing between the government and the private sector (as in parts of the "Going Global" program and the Program for Export Market Development);
- greater reliance on industry initiatives and involvement; and
- enhanced trade promotion efforts with a strong private-sector role in developing markets and promoting trade abroad, and through private sector involvement in exploring any alternative approaches to trade development mechanisms.

FOREIGN DIRECT INVESTMENT

Globalization and new investment patterns

International investment increased much more rapidly in the 1980s than either world trade or world output. This cross-border investment has taken two forms: portfolio investment, which entails little or no foreign control, and direct investment, which does entail a significant degree of foreign control. Direct investment, in particular, has facilitated access to markets, technology transfer, improved opportunities and returns for skilled human resources, and the sharing of advanced management techniques.

Chart 3.5
Foreign direct investment
(Canadian direct investment abroad)



Source: Statistics Canada.

The enormous increase in international investment globally is more than a parallel of trade developments. The business sector is having to restructure itself in order to meet international competition, and global corporations are becoming more dominant. Joint ventures, mergers, acquisitions and other forms of strategic alliance are breaking down the distinction between domestic and foreign firms. Indeed, foreign investment is rapidly becoming the strategic instrument by which firms are assuring themselves access to overseas markets. Foreign investment is also increasingly a means for facilitating access to new technology and skilled human resources.

The extraordinary growth in international direct investment – 24 per cent between 1986 and 1987 alone, rising to exceed U.S. $1 trillion – has not been without controversy. The latter part of the 1980s witnessed a wave of merger and acquisition activity in Europe and North America. Critics have expressed concerns about the degree of debt leverage exercised to finance these mergers and acquisitions, as well as about the consequences of foreign control, particularly in high-technology sectors. The debate became especially active in the United States, where foreign ownership of corporate assets soared fivefold during the 1980s, though foreign control of the manufacturing sector was still only 13 per cent in 1987.

Shifts in the flows of international direct investment have been dramatic. The United States used to be the overwhelmingly dominant source of direct investment abroad, but during the 1980s the European Community and Japan rivalled its position. Moreover, the United States is now the major host country in the world for foreign direct investment, 25 per cent of the global total. The nature and direction of these flows have also changed significantly. Investment in new businesses used to account for the lion's share of international direct investment, but now mergers and acquisitions are increasingly important. International investment used to be primarily in the resource and manufacturing sectors, now it is mainly in the service sector.

The integration of financial markets and the surge in international direct investment have contributed to globalization. Governments are increasingly finding that they must harmonize their policies – such as those towards foreign investment – in light of international trends. Most industrialized countries have a relatively open policy towards foreign direct investment, or are liberalizing their policies. All countries maintain some restrictions in sensitive sectors. And some countries, notably Japan and Germany, have informal barriers to foreign investment. Barriers such as state ownership, large private holdings and interlocking relationships between the commercial and banking sectors are difficult to resolve, but it is very much in Canada's interests to endeavour to do so.

International investment in Canada and Canadian investment abroad

Recent trends

Canada's competitive position is affected by both foreign direct investment (FDI) here and our direct investments abroad. Both have been growing rapidly.

The stock of FDI in Canada in 1989 was $119 billion, compared with approximately $50 billion in 1978. The stock of Canadian direct investment abroad in 1989 was $74 billion, compared with approximately $16 billion in 1978. While FDI has grown more slowly through the whole period, since 1985 it again overtook Canadian direct investments abroad.

Growth in the stock of FDI in Canada has come far more from reinvested earnings and adjusted book values when FDI changes hands than from cross-border flows. The wave of cross-border mergers and acquisitions in the late 1980s, however, has meant that cross-border flows have become more important. While net cross-border inflow of FDI was negative during the first half of the 1980s, it is now strongly positive. Net inflow of $5.7 billion in 1990 was a record.

A growing share of the inflow of FDI is accounted for by mergers and acquisitions, as distinct from FDI in new businesses and business expansions. More than half the gross inflow of FDI is now accounted for by acquisitions, compared with less than 10 per cent in the early 1980s.

Despite this, foreign control of Canadian corporate assets declined steeply between 1971 and 1985, from 37 per cent to just under 24 per cent of non-financial corporate assets. This was due to a decline in control by U.S. investors. The U.S. share has

continued to fall, while FDI by Japan, Britain and a number of other countries has been growing much more rapidly.

Canadian direct investment abroad, which is roughly half the level of FDI in Canada, increased dramatically in the latter half of the 1980s. Canadian direct investment abroad helps Canadian businesses to expand their markets and to network with key technology developments. About two-thirds is in the United States. Canadians may need to expand their investment horizons; for example, free trade with Mexico will call for Canadian investment in that country to take advantage of new export opportunities.

For most of the early 1980s, Canada was a net exporter of direct investment funds. Since 1985, however, it has become – as it was during the postwar period up to 1978 – a significant net importer of direct investment funds.

Evolution of policy

Foreign direct investment has been a major engine of growth in Canada since well before Confederation. By 1971, foreign control of the economy had reached 37 per cent and was particularly significant in the manufacturing and petroleum sectors.

The scale of FDI in Canada, seen against our relatively small direct investments abroad, made investment policy controversial in the 1960s and 1970s. The federal government introduced the Foreign Investment Review Agency (FIRA) in 1974, followed by the National Energy Policy in 1981. These measures conveyed an unwelcome message to foreign investors, with consequent weakness in international interest in Canada as a place to invest. By the late 1970s, this approach was increasingly questioned and at odds with international trends. Moreover, Canadian attitudes towards foreign investment were becoming much more receptive. Upon coming to office in 1984, the government, as part of its new agenda for revitalizing the economy, undertook a fundamental reform of investment policy.

The reform has recognized that foreign investment helps to strengthen Canada's productivity performance. The message to foreigners is now one of welcome. Whereas FIRA reviewed all foreign investments regardless of size, including investments in new businesses, its successor, Investment Canada, reviews only major foreign acquisitions and investments in sensitive sectors such as culture. Investment Canada's review process focuses on improving the research commitments and other benefits normally associated with foreign acquisitions.

Investment Canada, External Affairs and International Trade Canada (EAITC), and Industry, Science and Technology Canada (ISTC) share the mandate to promote foreign investment in this country. The Investment Development Program, in operation for five years, has reversed Canada's formerly negative image as a place to invest. Increasingly, promotion focuses on specialized activities specific to particular companies and sectors, such as assisting Canadian firms to form joint ventures with foreign firms.

Current issues

The importance of foreign direct investment for the flow of technology, the development of markets, and global rationalization of production will continue to require Canada and other countries to review policies and practices.

Trade and investment have become much more closely linked as direct investment is increasingly a complement to trade rather than a substitute. The nature of many major international firms is changing, as they rationalize production globally and decentralize key decision-making and development responsibilities to affiliates in different countries. This requires a re-examination of the distinction between foreign and domestic firms and whether Canada should be adopting an even more welcoming and promotional policy. On the other hand, we must understand what the new global environment of corporate linkages means for many of our small- and medium-sized firms. Is management in these firms sufficiently attuned to strategic issues of establishing a direct presence abroad and forging corporate links with foreign partners? If our promising small- and medium-sized firms do not expand internationally, they may themselves be taken over.

Governments will need to examine the impediments to the international expansion of our firms. One of these is barriers to foreign direct investment in some key markets, such as informal barriers in Germany and Japan and the strategic investment policies of several governments. These issues will attract increased importance as the trends in globalization continue. It remains to be seen whether existing multilateral institutions can deal successfully with them or whether new mechanisms will be required.

INTERNATIONAL TECHNOLOGY CO-OPERATION

Technology is at the root of the success of the most competitive firms and countries and is particularly the subject of chapter 9. All countries recognize the importance of technological sophistication and many are trying to harness it with new policies to advance their competitiveness. International co-operation is important, since no country can be at the leading edge in all technologies. Even in their areas of technological strength, a nation's scientists, firms and governments have a strong interest in exchange with other countries. This is especially true for a country the size of Canada.

Canada has a strong interest in the existence of an international regime that provides for the flow of knowledge and technology, while protecting the rights of those who finance research and development. We are working towards this goal of an improved international intellectual property regime, as discussed in the next chapter.

The federal government promotes scientific and technical co-operation through its network of scientific counsellors in key embassies and scientific co-operation agreements with important partners. The $25 million Japan Science and Technology Round, which establishes a framework for direct participation by Canadians in Japanese private sector R&D facilities, is a useful beginning in that country and a possible model for other relationships in the region. By contrast, technology

relations with the United States may be underemphasized. Historically, technology flows between the two countries have been between parent companies and affiliates or have been connected to defence requirements. The FTA does not deal with technology. Private sector co-operation and joint Canadian and American business participation with government in technology programs could be expanded. Similarly, technology arrangements could be a key to a reinvigorated approach to improving trade access to Europe.

LINKAGES BETWEEN DOMESTIC AND INTERNATIONAL POLICIES

The investment and technology issues we have discussed illustrate the new blurring of international and domestic concerns. The focal point of international economic relations has shifted from border-crossing constraints, like tariffs and quotas, to domestic practices and institutions affecting international competitiveness.

At its broadest, the new issue has become the differences between the whole market systems of trading partners and rivals. This is strikingly the case in the Structural Impediments Initiative, under which a vast range of impediments to trade between the United States and Japan has been considered. The issues have been as diverse and deeply embedded in the domestic economies of the two countries as the low savings rates in the United States, inefficiencies in the Japanese wholesale and retail system, and perceived under-investment in physical infrastructure in Japan.

No international agreement exists on what policies are legitimate for international trade discussion, negotiation, or harmonization, or on what forums should be used. Policies affecting the competitiveness of firms are the most relevant: FDI policy, technology and industrial policies, intellectual property rights, competition policy, product standards and testing, and capital market regulations. The GATT put some of these issues on the agenda of the Uruguay Round. These and other issues are also being discussed in the OECD and other international institutions. Canadian economist Sylvia Ostry has argued that the OECD should group these issues for study in the context of the structural differences between societies and economies.

Tensions in international economic relations over perceived unfairness arising from structural or domestic policy differences risk triggering an upsurge of protectionism. That is why Canada has to be alert in its bilateral relations and respond vigorously to unfair measures against our trade. For the same reasons, proposals like Mrs. Ostry's have been made in an attempt to bring more international harmony to domestic policies, which would be a long process but offers promise of avoiding a great deal of bilateral friction.

The other side of the coin is that each country must look at the full range of its domestic policies to see how they contribute to international competitiveness and prosperity. The chapters that follow take up discussion of Canada's domestic policies.

ISSUES FOR DISCUSSION

Canada's prosperity depends in large measure on our adapting to the evolving global economy. This chapter leads to questions about Canada as an effective global player.

Meeting international challenges

- Canada needs to enhance aggressively its access to foreign markets in response to globalization trends in industry. Also, we must ensure that domestic policies are not impediments to our international competitiveness.

How can we best use the GATT, OECD and other institutions to further liberalize trade and to address the importance of the international dimension of domestic politics? Should additional initiatives, beyond the FTA and NAFTA, be taken to build stronger ties with Europe, Asia-Pacific and Latin America?

How can we ensure Canada's domestic policies, including our import regime of tariffs, anti-dumping and countervail policies, other import barriers, as well as competition and other policies, adapt quickly to international best practices and reinforce our economic performance?

Are we properly organized and do we have the right policies to benefit from the increases in global investment flows, both inward and outward, in a manner that advances our private and public interests?

Trade, investment and technology

- We need an innovation-friendly domestic environment that links trade, investment and technology flows and encourages the formation of strategic alliances in order to ensure access to the latest technologies which Canadians need to compete.

How can we better encourage closer partnerships among business, labour, educators and governments at all levels to ensure that our trade, investment and technology programs are best directed to the needs and objectives of Canadians?

Do existing trade promotion mechanisms need revising to ensure closer private sector-government co-operation?

Can we make our existing technology and investment programs more supportive of our longer term trading interests?

CHAPTER 4: SETTING THE FRAMEWORK FOR A DYNAMIC MARKET AT HOME

THE PRESENCE OF GOVERNMENT

The public sector has come to exert great influence in all modern societies in response to strong public demand. Governments have become major players in guiding, regulating, stimulating, assisting, and controlling the economy. In recognition of government's pervasive role, in February 1991, the Prime Minister requested the Economic Council of Canada to undertake a major study of how governments in Canada affect the competitiveness of the economy, particularly in terms of tax burdens and regulatory impacts. The government's recent constitutional proposals recognize the important role that governments play, and include proposals for better co-ordination of macroeconomic policies and for streamlining the delivery of government services and better serving Canadians at all levels of government. Even policies with primarily social objectives affect as well our economic objectives of efficiency and effectiveness. Our framework policies, both social and economic, work best when they are designed to achieve their objectives in the most economically efficient manner possible.

In this and later chapters, we turn to examine some of the important governmental policies and programs affecting the microeconomic functioning of our economy, notably in our markets for goods and services, and for labour and capital. This chapter looks at the government as regulator, and at some of the issues in major framework policies and regulation. The next chapter treats the microeconomic programs related to services and to structural adjustment in the economy. Chapter 6 explores financial services, the regulation of financial institutions, and the associated issues of the availability and cost of capital in Canada. Chapter 7 continues the theme, reviewing the importance of taxation in the functioning of our economy.

We have already seen in chapter 3 the importance of foreign trade and investment policies to domestic economic activity. Domestic laws and programs themselves – to which we now turn – are the other half of the equation that defines the framework for our economy. These laws and programs are critical not only to promoting the effective functioning of our internal economy but also in making us internationally competitive. They should permit domestic markets to be responsive and productive, but also provide protection for consumers and investors, and promote environmental protection and other important social objectives.

CREATING COMPETITIVE MARKETS

The importance of competition

Economists have long recognized that creating competitive markets within the economy is critical. Recent studies of the most successful companies and sectors in the industrialized countries, such as Michael Porter's *The Competitive Advantage of Nations*, have pointed out how often intense rivalry in the home market, with

domestic firms competing among themselves, is a condition for competitive success in global markets.

Competitive markets get the right signals flowing through the economy to improve long-term productivity growth. Are we producing the right things – those in which we are best placed to compete internationally? Are we making the best use of our scarce human, physical and financial resources in what we produce?

Evidence is accumulating that Canada has significantly less effective competition than its trading partners. A study conducted for the 1985 Macdonald Royal Commission on the Economy found that oligopolistic or government-supervised segments accounted for 56 per cent of the Canadian economy in 1980; in contrast, such non-competitive segments accounted for only 23 per cent of the U.S. economy.[1] The manufacturing and construction sectors were the most competitive in Canada in that year; mining and transportation and communications were the least competitive. Developments since 1980 might have increased the degree of competition in Canada, but competition still probably plays a smaller role in Canada than in the U.S. and other foreign economies.

Lowering tariffs and other formal barriers to international competition is probably the most important single thing an economy can do to get the right messages flowing to producers. But this is not enough. Governments can have – intentionally or not – domestic policies or laws that run counter to their trade policies, providing backdoor protection and disincentives to adjust to economic changes, as we have seen in the preceding chapter on trade.

Consumers and consumer policy play an important role in fostering competitiveness. Information about products assists consumers in their purchasing decisions, thereby sending the correct signals to producers. This encourages the manufacture of quality goods and services. In addition, consumer policy sets safety standards to ensure that Canadian and foreign consumers have high levels of confidence in Canadian products.

Even in the most open economies, the larger part of productive activity is not directly exposed to international competition because of services that do not enter into international trade, such as most retailing and personal services, which have to be provided locally. As well, governments regulate certain aspects of markets or provide services and products themselves, as in health and education. For all these reasons, we cannot rely simply on our trade policy to ensure competition. Our domestic framework policies must also encourage a demanding, competitive home market.

This chapter examines framework policies and instruments by which governments in Canada affect the competitiveness of our internal markets. These include barriers

[1] R.S. Khemani, "The Extent and Evolution of Competition in the Canadian Economy", Chapter 3 of *Canadian Industry in Transition*, D.F. McFetridge, Research Coordinator; University of Toronto Press and the Royal Commission on the Economic Union and Development Prospects for Canada, 1986.

to interprovincial trade, competition policy and other framework laws required to foster competitive business markets, and other regulation. The next chapter will consider other policies affecting competitiveness: provision of public services themselves, and specific microeconomic policies and programs affecting economic adjustment.

Freeing-up interprovincial trade

Awareness of the tremendous importance of international trade to Canada's well-being should not make us indifferent to the potential of our internal market, the seventh largest in the OECD. We derive three-quarters of our income from trading among ourselves. In 1984, interprovincial trade in goods equalled about 75 per cent of our international exports of goods.

The internal market is the testing ground for Canadian business. Our home market is where Canadian firms first encounter their competitors, and where they assure their capacity to compete in global markets. If firms do not face open competition in the internal market, they are ill-prepared to face international competition.

As elaborated in the government's recent paper, *Canadian Federalism and Economic Union: Partnership for Prosperity*, both levels of government in Canada, in exercising their constitutional powers, have impacts on the operation of internal markets. In some cases, exercise of these powers has, whether intentionally or unintentionally, created what amount to barriers to interprovincial trade. Canada lacks full free trade in goods and services. As well, capital and labour cannot always move about unfettered. This leads to inefficient allocation of resources and economic activity. In the longer term, these impediments lower productivity and competitiveness, both nationally and in the protected provincial economies. All provinces suffer from barriers of this type, but the smaller provinces suffer most by increasing their dependency on small local markets. Paradoxically, the smaller provinces have sometimes been particularly inclined to protect their producers behind such barriers. Although economic efficiency is not the only criterion, it is clearly desirable to pursue other legitimate policy objectives in a manner that interferes as little as possible with the efficient operation of our internal market.

The 1985 Macdonald Royal Commission on the Economy and other studies have uncovered a long list of internal barriers. Here are the main ones by category.

Barriers to movement of goods and services

- Government procurement policies favouring local suppliers over lower-cost external ones.
- Regulations reducing the ability of trucking firms to operate freely across provincial boundaries.
- Agricultural marketing boards that limit supply through the use of quotas and control movement of quota from one province to another.
- Health and labelling standards that differ by province.
- Policies favouring local wine, liquor and beer industries.

Barriers to labour mobility

- Hiring policies that give preference to local residents over those from other regions.
- Entrance standards for professionals and tradespersons that restrict entry for residents of other provinces.
- Labour standards that vary among provinces.
- Regionally differentiated unemployment insurance provisions.
- Minimum residence requirements on access to welfare services.

Barriers to capital mobility

- Controls on ownership of land by non-residents.
- Use of provincial control over financial institutions to influence investment decisions.
- Special concessions to provincial Crown corporations – tax breaks, borrowing guarantees – and actions by such corporations that favour local interests.
- Grants, subsidies and tax breaks intended to influence company location.

Concerns about these barriers and their costs are being expressed more and more frequently. Many private and public groups have argued that internal barriers are an increasingly costly problem and have called on governments to take concerted action to address the problem. For example, the Royal Commission on the Economic Union and Development Prospects for Canada (Macdonald Commission) pointed to numerous internal market barriers that hamper the ability of Canadian firms to conduct business across the country and that create direct and indirect costs for all Canadians. The Consumers' Association of Canada has echoed these concerns in identifying internal barriers as a source of increased costs to Canadian consumers.

More recently, many business organizations – including the Canadian Chamber of Commerce, the Business Council on National Issues, the Canadian Construction Association, and the Canadian Manufacturers' Association – have argued strongly that interprovincial trade barriers are weakening our international competitiveness and effectiveness. The C.D. Howe Institute has also found that internal trade barriers impair our competitiveness and should be reviewed with a view to enhancing mobility and creating a stronger Canadian market.

In recognition of the growing costs of internal barriers – both economic and non-economic – governments in Canada have launched numerous efforts to reduce them over the last decade. In particular, there have been two important federal-provincial thrusts. First, since 1987, at the request of First Ministers, the Intergovernmental Committee of Ministers on Internal Trade has sought to reach agreement on the reduction of internal trade barriers in selected priority areas – government procurement, beer marketing, and wine and spirits. In this regard, it was announced at the Annual Premiers' Conference in August 1991 that an agreement had been reached for all provinces to end provincial preferences on any goods procurement in excess of $25,000. Second, federal and provincial agriculture ministers signed a

Memorandum of Understanding in 1989 to consult on new regulations which could adversely affect the movement of agricultural and food products, and are now working on follow-up arrangements.

There have also been attempts among provincial governments to address specific kinds of internal barriers. The four Western provinces concluded an agreement, effective April 1989, for open tendering on government procurement, and the three Maritime provinces concluded a similar agreement, effective April 1990. In addition, in May 1991 the Council of Maritime Premiers issued a discussion paper on Maritime economic integration, noting that internal barriers within the region cost businesses and taxpayers money and made it more difficult for workers to get jobs. The Council proposed a systematic effort to remove barriers.

However, despite these efforts, progress has been modest. It has been modest largely for two reasons. First, governments in the past have generally been reluctant to address internal barriers. In addition, in many instances, governments have overlooked the economic costs of internal barriers to the broader Canadian economy or have seen them as tolerable in relation to the perceived benefits. In the past, this may have been because governments and the public were less aware of the full range of costs than they are today.

By contrast, the European Community, an association of independent nations with even greater regional economic, cultural, linguistic and historical diversity than Canada, has established momentum towards a fully integrated internal market. The EC has overcome a number of internal barriers that we still tolerate, even though Canada has been one country for almost 125 years. Other federations, such as the United States and Germany, have been more successful in preventing internal trade barriers. Internal barriers are not only costly but deprive Canadians of what most developed countries would regard as basic rights of citizenship: the ability to do business and to earn an income anywhere in the country without discrimination based on geography. Canadian governments have failed thus far to launch initiatives comparable to either Europe 1992 or the GATT attack on non-tariff barriers. However, there have been movements in this direction. The May 1991 Speech from the Throne called for the elimination of barriers to interprovincial trade by 1995. In addition, the provincial Premiers at their 1991 annual conference in Whistler called for removing internal trade barriers. More recently, the government's constitutional proposals spoke to the need to secure the full potential of our economic union.

Fostering competitive business markets

To reach potential, business requires a legal framework of incentives and assurances establishing a competitive, flexible, productive market. The aim is to encourage modern business practices and adequately protect consumers, investors and creditors. Such policies recognize the needs of domestic firms competing internationally and the important role of foreign firms in the domestic economy.

Competition policy

Competition policy is a key part of the framework for a prosperous and dynamic market economy. By promoting healthy rivalry among firms, it enhances choices for consumers and strengthens pressures that lead to innovation and efficiency. It

assures a market alternative to intrusive government regulations, and helps to protect the integrity of the domestic common market. By providing a common set of rules for all participants in the marketplace, competition policy also fosters efficient international trade and investment flows.

Canada's competition legislation, the *Competition Act*, was extensively overhauled and modernized in 1986. The legislation incorporated new, non-criminal provisions to deal with anti-competitive mergers and abuse of a dominant position in a market. These provisions replaced the previous, ineffective criminal sections of the act that dealt with these matters. While enabling the government to deal effectively with business transactions or practices that thwart competition, these sections also make due provision for arrangements that enhance efficiency. For example, the merger review provisions, which are intended to prevent corporate restructuring that substantially lessens competition, contain an exception for transactions that yield offsetting efficiency benefits. The legislation also provides special treatment for joint ventures, export consortia and specialization agreements that result in efficiency gains.

The purpose clause of the *Competition Act* indicates that the act is intended to maintain and encourage competition in Canada, in support of four specific objectives: (1) to promote the efficiency and adaptability of the Canadian economy; (2) to expand opportunities for Canadian participation in world markets (while at the same time recognizing the role of foreign competition in Canada); (3) to ensure that small- and medium-sized businesses have an equitable opportunity to participate in the Canadian economy; and (4) to provide consumers with competitive prices and product choices. Thus, it should be noted that, in Canada, competition is not viewed as an end in itself. Rather, it is viewed as a means of promoting a diverse set of objectives relating to firms and consumers through the operation of a dynamic, competitive market system.

Since the *Competition Act* came into force, a major effort has been made to foster voluntary compliance with the legislation through the issuance of guidelines and other public information activities. In particular, detailed guidelines have been issued for the application of the merger review provisions. Recently, some aspects of the legislation have been challenged on constitutional grounds. Amendments may be needed to ensure consistency of the act with the Charter of Rights and Freedoms.

The strengthening of competition policy in Canada is part of a continuing international trend. In the European Community, implementation of an effective Community-wide competition policy is a central element of the 1992 market integration exercise. Important measures to strengthen competition rules are also being implemented in Japan, as part of an effort to open the Japanese market internationally. In the U.S., the antitrust laws have long played a key role in protecting consumers and ensuring structurally competitive markets. With the globalization of markets, there is also growing interest in exploring measures to ensure the compatibility of national competition policy regimes. It is important that Canada, as an open economy, participate actively in upcoming discussions of this matter at the OECD and in other international fora.

The application of competition policy both domestically and internationally is increasingly intertwined with other aspects of microeconomic framework policy.[2] For example, promoting a competitive domestic marketplace is now recognized as a key objective of industrial policy. The application of competition rules is an important consideration in the exercise of intellectual property rights. In addition, as discussed in chapter 3, there are important areas of overlap between competition and international trade policy. Competition policy also has an important interface with sectoral economic policies in areas such as transportation, telecommunications, energy and agriculture. Here, competition policy complements and reinforces effective implementation of related policies.

Incorporation and bankruptcy measures

Two other framework laws, the *Canadian Business Corporations Act* (CBCA) and the *Bankruptcy Act*, establish key rights and obligations of owners, managers and creditors. Together they have a significant bearing on Canada's investment climate. Over half of Canada's top 300 corporations are incorporated under the CBCA, often to enhance their international recognition and competitiveness, rather than under provincial acts. The CBCA, dating from 1975 and serving as a model for many provincial acts, is under review. One aim is to ensure that the act maintains its ability to safeguard the rights of minority shareholders, especially because of new and sometimes revolutionary practices in mergers and acquisitions. The review also focuses on insider trading and enforcement powers.

Canada's bankruptcy law is due for modernization as well. The act governs the rights of creditors and debtors when a business fails. It restores to productive use resources that have been locked up in insolvent businesses. Critics say the present act inadequately protects the rights of workers and allows secured creditors too much leeway in forcing viable businesses to close. Proposed amendments are designed to help viable businesses reorganize and make efficient use of assets and maintain employment, to assist the rehabilitation of individual bankrupts and to lower the repeat rate of bankrupts, which is now over 10 per cent.

Intellectual property

Intellectual property legislation has had increasing attention internationally. Companies with large investments in research and development naturally want strong proprietary rights in the fruits of their labours. Canada's intellectual property regime is important in promoting investment in R&D in Canada and in facilitating the transfer of foreign technology to Canada. This issue was debated in Canada in 1987, when the *Patent Act* was being amended. Multinational firms producing patented medicine sought strong protection as a condition for undertaking major research and development in Canada; the Canadian generic drug producers argued for weaker patent protection so that they could manufacture and sell drugs at lower prices without incurring significant R&D costs. In the event, under Bill C-22 the patented medicine producers received greater protection in exchange for

[2] Bureau of Competition Policy, *Competition Policy in Canada and its Interface With Other Economic and Social Policies*, Hull, Quebec: September 1989.

commitments to increase Canadian research and development, although the extent of patent protection remains lower than that afforded in some other developed economies that have adopted patent extension to compensate for regulatory delays. The consumer interest was protected by creation of the Patented Medicine Prices Review Board, which monitors both research and development performance and prices. The first two reports of the review board show that the industry has surpassed its target commitments with R&D expenditures reaching 6.1 per cent of sales in 1988, up from the benchmark year figure of 4.9 per cent, and reaching 8.2 per cent of sales in 1989. Established targets are 8.0 per cent by 1991 and 10 per cent by 1996. The board has not identified any extraordinary pressures on prices attributable to Bill C-22.

Intellectual property protection is not just an issue for high-tech, manufacturing sectors. The recently enacted Plant Breeders' Rights legislation, for example, provides economic incentives for private plant breeding in Canada, an important potential source of productivity growth in the crop sector of Canadian agriculture.

Sound copyright legislation is essential to the existence of vibrant creativity in broadcasting, music, film, dance, and other cultural activities. It is also important for competitive and productive commercial activities ranging from communications to computer technology.

Canada has joined in discussion of global harmonization of intellectual property protection. The World Intellectual Property Organization (WIPO) continues to be the central forum for the development of treaties and conventions on intellectual property. Canada recently joined the Patent Co-operation Treaty and is participating in efforts to harmonize patent and trade-mark laws. In addition, Canada is participating in discussions at the GATT concerning trade-related intellectual property (TRIPs). Countries that produce substantial intellectual property favour strong rights for the developers of it in the GATT Round. Canada, as both an important creator and user of IP, is interested in being able to balance incentives for creators of intellectual property with the ability to exploit intellectual property developed elsewhere. The problem of negotiators is to strike a balance between these two types of interest.

The federal government has established the Intellectual Property Advisory Committee to help modernize its intellectual property statutes. Recently, the Committee has been focusing on issues in a new Intellectual Property Improvement Bill, which would amend intellectual property provisions in a number of statutes, including the Patent Act, Trade-marks Act, and Copyright Act. Most of the amendments are aimed at clarifying ambiguities and correcting technical problems on which there is a broad consensus for change.

REGULATIONS AND THE MARKETPLACE

Role and significance of regulation

Governments regulate to achieve a variety of public policy objectives – economic, health and safety, technical, social, or environmental. Business activities can be subject to regulations oriented to a variety of policy objectives. While governments regulate because they believe that market forces on their own would not protect

some aspects of the public interest, it is important that they review the need for regulation as market circumstances change and that they seek to make regulations that are as economically efficient as possible within their broader objectives.

Regulations that encourage high standards of service and product quality, promote good working conditions, or prevent potentially costly problems for the economy can contribute to our competitive advantage, as well as our general well-being. Health and safety standards are a good example. The application of safety and health regulations can contribute to productivity by reducing human and financial losses from workplace injuries and illnesses.

On the other hand, outdated or poorly conceived regulations can mean higher costs for consumers, encourage market rigidities, discourage innovation, and generally impede competitive behaviour and enhanced productivity. How regulations are designed and implemented, once regulation is decided upon, is important. This is illustrated below in the next section, using the examples of environmental protection and labour market regulation.

Although all regulation has economic dimensions and consequences, specifically "economic" regulation entails some form and degree of public control over both the structure of an economic sector and the behaviour of the economic players. It could cover entry into, or exit from, a particular activity, the prices charged, the level of profits earned, and the quality of services provided.

Economic regulation has been employed to control the behaviour of "natural monopolies" and as a substitute for competitive forces. It has been most extensively applied to public utilities such as electricity, gas, water, transportation, and communications services. It has also been used, often in combination with public ownership, to protect key national industries and sectors such as airlines and broadcasting from competitive international forces, and to pursue broader public policy objectives. In the past decade, most industrialized countries have shifted to the view that these traditional objectives can be achieved with less regulation. In transportation and telecommunications, for example, greater economic maturity and the introduction of new technologies have greatly diminished the need for economic regulation, or its effectiveness, in preventing potential abuse by natural monopolies. The same is true in many other areas. At the same time, these developments have created new opportunity for market-oriented approaches.

Opportunities for the more effective and efficient application of economic regulation in Canada are reviewed in the section below entitled "Economic regulation for effectiveness and efficiency", using telecommunications and natural gas distribution as examples.

Effective design of regulations

Once regulation is decided upon, the question is how to do it. The sheer volume and detail of regulations make them less amenable than larger policy issues to ministerial management and parliamentary oversight. Nevertheless, provision must be made for political guidance over the principles that shape regulatory activity in each area, and for sensitive administrative processes.

Recent conferences on improving regulatory processes have ranged over issues such as simplicity of language, better evaluation of the indirect impacts of regulations, and alternatives to regulation, including self-regulation and standards. Effective public participation and harmonization and co-ordination among different levels of government have been constant themes. It is also important to ensure that regulation is consistent with social and market forces and not counter-productive. One area where this is particularly important is the area of labour-market regulation, which is discussed below. Economists have dwelt increasingly on cost-effectiveness in regulation, particularly in connection with environmental questions.

Environmental regulation

The public in nations around the world has made a quantum leap in awareness of environmental problems, spurred by advances in scientific knowledge of such matters as the complex interactions within larger ecological systems. Widespread support has been won for the goal of sustainable development, which would tie economic activity over the long term to the capacity of the environment to sustain it – that is, the environment's capacity to absorb economic impacts. Environmental resources are increasingly recognized as contributions to our prosperity. Opportunities for developing and commercializing new products and processes are associated with properly designed, rigorous product and environmental standards.

The criteria for environmental standards and targets will include the economic consequences of acting or not acting, and of acting on a shorter or longer timetable. Clearly, standards and targets should be based on the best scientific knowledge available. Sometimes, though, decisions may have to be taken despite scientific uncertainty or measurement problems. For example, what actions on global warming are justified by the cost of action, compared with uncertainty about the risk and cost of inaction? Collective international consideration is clearly essential for effective approaches to global environmental problems. By spreading the burden, the international approach will have little effect on relative competitiveness. Similarly, within Canada, consensus and co-operation among our governments on key environmental targets will be far more effective than disparate approaches.

One of the practical difficulties in integrating the environment and the economy is the absence of good data to measure progress. National accounts provide useful measures of economic activity as valued through the marketplace but they make no allowance for the quality of the environment or for activities intended to enhance it in the future. The feasibility of supplementing national accounts with measures of environmental wealth and other environmental indicators is being studied widely. At the 1989 G-7 Economic Summit, the Prime Minister called for the development of environmental indicators to measure the state of the environment and its relationship to economic development. The final communique of the meeting asked the OECD to examine how selected indicators could be developed and Canada responded by establishing an Indicators Task Force.

The means of pursuing environmental targets are critical, too. Under the traditional command-and-control approach, regulators specify certain prohibitions or limits on environmentally damaging emissions. In many cases, the cost could be high for the benefit achieved. So-called "economic instruments" offer an alternative or a complement to these more traditional approaches.Using economic instruments could mean charging a tax or fee, which limits the damage by making it more expensive. Or it could mean creating a tradeable right to make a specified emission. Under this approach, the government creates a system of emission rights that could be bought and sold by companies so that the mandated level of emissions is achieved in the most economically efficient method.

The Environment and Finance Ministers will be publishing a technical discussion paper on the use of economic instruments for environmental objectives.

Labour market regulation

Advanced industrial development with strong productivity and competitiveness requires a high-quality workforce and an efficient system of industrial relations. Virtually all industrialized nations have labour laws, and standards or regulations dealing with occupational safety, collective bargaining and industrial relations, termination notice and pay, vacations, and employment and pay equity. These standards may be exceeded by more generous terms and conditions in individual or collective employment contracts. We must assess the impact of regulation in these areas on our international competitiveness and move to eliminate internal inconsistencies that might hamper the Canadian market.

Labour regulation in Canada is primarily a provincial responsibility. In many other countries, it is primarily a national responsibility. Federal authority to enact labour laws derives from the right to regulate certain subjects expressly assigned to Parliament or expressly excepted from provincial jurisdiction under the Constitution. In its constitutional proposals, the federal government has stressed the need for increased mobility of labour throughout Canada. To strengthen the economic union, the federal government proposes modernizing the so-called common market clause (section 121) to prohibit laws, programs, or practices that, on the basis of provincial or territorial boundaries, constitute barriers or restrictions to such mobility.

Regulations establishing labour-market standards have economic significance and can have a positive impact on productivity. They have at times occasioned concern about imposing a disadvantage on domestic producers compared with foreign competitors. But the issue has not been studied enough to make judgement possible. Regulations requiring high standards would not necessarily impose a competitive burden on firms if the benefits of the regulations caused worker productivity to increase. As well, the same sorts of protection may be provided in our competitors' economies by different means, such as individual labour contracts, or standards in different form than Canada's. Indeed, in some areas such as employment termination, some of our competitors have much more stringent standards than Canada's.

Different countries take a wide range of approaches to industrial relations standards. For example, European and Japanese legislators are less concerned with stipulating procedures than their North American counterparts; the more complex of their laws set out principles and leave the details of their application to collective bargaining or to employers. The difference suggests that European and Japanese standards, if not necessarily lower or more lax, may be more flexible, or at least more negotiable at the firm level, than those enforced by regulation in North America. Does our reliance on regulation result in a more rigid system than is necessary? Does it leave us with a system that is still competitive with systems in other countries?

At present, we do not have the information and analysis on which to assess the implications of our labour regulations for our ability to compete internationally. That is, we cannot venture an answer to the basic question of whether our standards put Canadian firms at a competitive disadvantage with the rest of the world and, if so, whether this price for achieving particular social objectives is acceptable. Closing this information gap should be treated as a priority.

Economic regulation for effectiveness and efficiency

Governments in all market economies use regulations to control possible abuses by producers, such as public utilities, which have advantages because of natural monopolies or restricted competition. As well, they sometimes regulate to limit competition, where it may be feasible but is thought to have undesirable consequences for broader public interests: thus, in Canada, there has been regulation of broadcasting to maintain content standards, of transportation and telecommunications to ensure service to remote areas, and of some agriculture markets to limit the destructive effects of commodity cycles. The last decade in North America has seen the most serious and concentrated attempt to assess the appropriateness and effectiveness of such economic regulation since the 1930s.

This chapter opened with a discussion of the importance of competition for enhanced productivity performance. There is ample evidence that the regulation of industries has had a poor record as a substitute for competition in promoting economic efficiency, whatever its record in controlling unacceptable market power. Thus, one significant element of regulatory reform has been to introduce more competition into markets. This has been central to the reforms in the transportation sector, where regulatory barriers to entry were removed and prices permitted to move more freely in response to market forces. Similarly, the government deregulated oil and natural gas prices (which had not been regulated for reasons of natural monopoly) and has brought about a structural separation of natural gas transportation and marketing, which encourages competition in marketing.

When regulators are authorized to oversee an activity, they can be given statutory direction or other policy advice on whether competition and market forces are to be favoured: this was done very clearly in the *National Transportation Act* of 1987 but has not been extended to some other areas, such as telecommunications.

Certain types of regulatory reform have been directed explicitly at the lack of incentive some regulated industries may have to increase productivity. A variety of regulatory approaches that seek to reward performance and not just investment have been used to avoid the problems of rate-of-return regulation. These include price caps, which link allowable price increases to measures of inflation such as some fraction of the consumer price index (CPI), or CPI less a fixed percentage. Another approach, known as "incentive regulation", provides scope for regulated companies to share with consumers any returns above prescribed levels. A more relaxed approach is the "social contract", under which companies have substantial pricing freedoms in some markets, but may be required to provide certain public services in other areas at less than cost. Under each of these approaches, regulators may structure pricing to provide cross-subsidization, typically from the corporate sector to households. Such cross-subsidies can lead to overuse or underuse of a utility by some subscribers. As extra charges on business, they can reduce competitiveness.

Within their respective jurisdictions, all levels of government should keep economic regulation under review. It could be appropriate to question regulation of some industries – such as gasoline retailing in some provinces and taxis in most municipalities – and our techniques for regulation. In some industries that are natural monopolies, governments in Canada have tended to use a combination of regulation and Crown corporations; policies and practices in these industries merit review. In looking at our regulated industries, we should avoid excessive recourse to simple formulas like "deregulation" because successful reform must often consider multiple objectives. At the same time, we should recognize that regulatory reform is replete with possibilities for improving our productivity as well as customer service and other social objectives.

Keeping pace in telecommunications

The telecommunications industry offers particularly interesting examples of regulatory issues, and the difficulty of keeping pace with rapid economic and technological change. Public telecommunications in Canada are monopoly services provided by regulated telecommunications carriers. Until recently, most advanced economies took the same approach. Increasingly, however, technological advances are undermining it; the United States, Britain, Japan and some other countries have competitive practices and cost-based rate structures. In the United States, substantial reductions in the price of business services and a greater range of services have resulted.

In Canada, progress toward reform in telecommunications has been gradual and, some argue, too slow. Regulatory agencies have played a bigger role than policy makers. Indeed, the federal regulator, the Canadian Radio-television and Telecommunications Commission (CRTC), though acting within the constraints of the turn-of-the-century *Railway Act*, has introduced substantial new areas of competitive access to telecommunications. Examples include decisions affecting terminal attachment and enhanced services, resale and sharing, and the competitive supply of private line services.

Until recently, however, introduction of new telecommunications service at the national level required the approval of at least eight independent regulators. Canadian business argues that the range and cost of our domestic telecommunications services are no longer fully competitive with those of the U.S. (Indeed, there are now examples of companies bypassing the Canadian system by sending signals south to the U.S., east or west on the American system, and then north to a Canadian customer.) Higher domestic costs not only undermine competitiveness, but may limit the ability of Canadian business and high-technology industries to innovate in service and product. Businesses worry that over-regulation and limits to competition hold up the introduction of low-cost telecommunications, such as high-speed data networks.

In August 1989, the Supreme Court of Canada determined that the federal government has full jurisdiction over our major telephone companies. As a result, all but two of these companies are now regulated by the CRTC; a change in legislation is required to complete this transition. The federal government intends to introduce a new *Telecommunications Act* which will not only resolve the jurisdiction issue but also establish a single national policy framework for telecommunications to guide the regulator. A central objective is to increase the efficiency and competitiveness of the telecommunications industry and its contribution to Canada's international competitive position.

Changes in the gas industry

A number of factors, such as the interconnection of U.S. pipelines with Canadian markets and a greater potential for substitution between fuels among industrial consumers, are contributing to a much more competitive marketplace for natural gas. Significant deregulation since 1984 has had an important role to play. There remain, however, opportunities to enhance the competitiveness and efficiency of the natural gas system through regulatory reform.

Although export licences are still subject to review, the National Energy Board (NEB) has adopted a market-based procedure that, barring exceptional circumstances, leads to approval of export applications. The principal constraint on natural gas exports is now the capacity of transmission systems, although actions by regulatory bodies within the United States have recently affected the competitive position of Canadian natural gas sold there. Pipeline access in domestic markets has also greatly improved. Board regulations guarantee shippers open access to pipelines, although there may be some queuing for space.

Natural gas prices for both domestic and export sales are determined by market considerations. Small commercial users have access to direct sales of gas. Provincial governments do, however, make some effort to protect core-market customers, such as residential customers and institutional customers, from the risk of future market shortages by insisting on long-term contractual purchases of gas.

The pricing of pipeline services could perhaps be made more efficient. Under the present pipeline tariff structure – the "rolled-in" system – all users share the costs when extensions are built to a pipeline system to exploit new markets. In effect, all

users pay the average cost. An alternative would be to charge the cost of the pipeline extension exclusively to its new customers. The NEB reviewed the issue in 1990 and retained the rolled-in policy, although it has ruled in favour of treating facilities on an incremental basis on occasion. Some economists argue that utilities should attempt to price on marginal cost to ensure the most efficient use of resources.

Tariff determination also assumes an assured rate of return for investment on the basis of allowable cost. Present rate regulation provides an economic incentive for pipelines to be efficient in their operations, but there may be room for continuing improvements in rate-making methodology to assure that pipelines share some of the marketing risk associated with volume sales and have a higher incentive to restrain capital costs.

ISSUES FOR DISCUSSION

Internal trade barriers

- The federal government is committed to working with provinces to bring down barriers to interprovincial trade, services and investments no later than 1995.

What additional approaches are needed to promote intergovernmental co-operation to create a single integrated market by 1995?

Framework policies

- Framework policies play an important role in determining how well business can respond to market signals. They must also be compatible with our need to build an economy capable of competing internationally.

What further changes should be made to our framework policies to address the competitive challenges facing industry as a result of rapidly evolving technology, globalization and the opening of new markets?

Regulation

- Within their respective jurisdictions, governments at all levels, now regulate a wide range of economic activities to achieve a number of policy objectives (environment, health and safety, equal opportunity). A co-operative approach among governments and with the private sector is needed to ensure that such regulations are consistent with Canadian firms' ability to meet the foreign competition.

How might the design of our regulatory mechanisms be improved to achieve the policy goals which are important to the quality, safety and fairness of Canadian society in ways which are consistent with the competitiveness of our economy?

CHAPTER 5: GOVERNMENT PROGRAMS AND MARKET EFFICIENCY

EFFECTIVE ADJUSTMENT AND EFFICIENT SERVICES

The preceding chapter stressed the importance of competition and appropriate market signals in directing resources to what we do best and where we are most productive. In this chapter we explore the impact government can have on the economic adjustment process – the actual shifting of resources from less to more productive and competitive activities. The more effective the adjustment, the greater the economy's productivity and competitiveness.

We also explore the role of government as a supplier of services. The public sector in Canada, especially at the provincial and local levels, provides and prices many public goods and services that are vital to Canada's international competitiveness, as well as to the quality of life in Canada. How well Canadian governments provide and manage major services, such as health and education, can have substantial impacts on economic growth and productivity. As one commentator put it recently, a principal role for government and government-funded institutions, at all levels, in a competitiveness agenda for Canada is to become more efficient and more innovative in the provision of public goods and services.[1] In this connection, the government's recent constitutional proposals include a number of measures designed to streamline the delivery of government services and to have Canadians served better at all levels of government.

FACILITATING ECONOMIC ADJUSTMENT

How adjustment boosts the economy

Economic adjustment is an ongoing, natural economic process, but one that can be facilitated or hindered by government policies and interventions.

All modern economies have been dramatically restructured since the Second World War. As indicated in table 5.1, the decline in the agricultural and primary industries and the rise of the service sector have been particularly notable, although primary sectors continue to be important sources of output, and exports and have realized significant productivity gains over the years.

These broad patterns do not capture the even more remarkable shifts at the level of individual firms and workers, which demonstrate the Canadian economy's flexibility in adjusting to change. One recent study prepared for Statistics Canada and the Economic Council of Canada demonstrates the huge amount of change and adjustment as unsuccessful firms die and new ones appear, and as workers leave old jobs for new.[2] The study calculated that manufacturing firms in 1979 that did not exist in 1970 accounted for 33 per cent of all firms and 29 per cent of employment. Conversely, 43 per cent of firms existing in 1970, accounting for 32 per cent of

[1] Bryne Purchase, *The Innovative Society*, C.D. Howe Institute, Toronto, 1991.

[2] Paul Gorecki and John Baldwin, *Structural Change and the Adjustment Process*, 1990.

Table 5.1
Canada: Sector share of employment and output (per cent of total)

	1950	1970	1990
Agriculture and primary			
Employment	24.4	9.2	5.6
Output	16.7	11.0	6.7
Manufacturing and construction			
Employment	33.1	28.2	22.1
Output	34.9	27.7	24.5
Services			
Employment	42.5	62.6	72.3
Output	48.3	61.3	68.8

Source: Statistics Canada.

employment then, had disappeared by 1979. The study also estimated that annual job separations for all reasons in Canada amount to about one-third of the labour force.

In such a changing and dynamic environment, certain sectors, regions or firms are always experiencing difficulties or even decline, as their competitive positions change. At the same time, others gain higher growth potential. To maximize productivity, resources should flow from the declining to the rising industries. This process, however, is neither automatic nor instantaneous. Governments can facilitate or inhibit the appropriate adjustments through programs that encourage or discourage adaptation. Canadian governments have established a broad network of programs to facilitate adjustment and mitigate transitional costs for workers and communities. The following sections briefly review important policies, programs, and challenges of economic adjustment.

Labour force adjustment

Unemployment insurance (UI) smooths adjustment by assuring that displaced workers will not bear an undue share of the burden. The federal government administers the program, which acts as a bridge for workers between unemployment and employment. In 1990, total UI benefits, now financed entirely by employer-employee contributions, amounted to about $13 billion, or about 2 per cent of personal income in Canada. Unemployment insurance permits a systematic job search, which helps to match unemployed workers and available jobs. It is thus important in facilitating a flexible and dynamic labour market.

Unemployment insurance can sometimes have the effect, however, of discouraging workers from making adjustments. In some high unemployment regions of Canada, for example, seasonal employees who can requalify for UI benefits every year with

as little as ten weeks' work may lack incentive to find full-time work elsewhere. In some regions, governments add to this cycle of dependence by creating short-term jobs that serve as gateways to UI. The Macdonald Royal Commission on the Economy, the Forget Royal Commission on UI, the House Royal Commission on Employment and Unemployment in Newfoundland, and the Council of Maritime Premiers have studied these questions in some depth. Their reports suggest that regionalized UI benefits may have served to impede adjustment and make regional workers, firms, and economies less efficient and less competitive in the long term. As well, the imbalance between income support and active training measures in our UI and adjustment programs has received increasing attention.

Recent reforms to unemployment insurance have dealt with some of these issues. They have increased the amount of counselling and training available to the unemployed through developmental uses of UI funds. This is a shift from passive income support to active measures to help workers get long-term jobs. Older workers are particularly vulnerable, since they may have little prospect of re-employment owing to the limits on their working lives, skills, and mobility. In addition, the related Program for Older Worker Adjustment (POWA) is designed to provide financial assistance to long-service older workers who have no prospect for re-employment following a major permanent layoff.

Effective training and retraining are also essential to adjustment in the economy. Chapter 10 explores the Canadian experience and the problem of ensuring a high-quality workforce in the future.

Labour adjustment and supporting programs clearly work best in an environment where declining enterprises are offset by rising economic opportunities and workers can seek better jobs without having to move a long way off, or into completely unfamiliar surroundings. Owing to Canada's geography and distribution of economic opportunities, however, many places and regions offer few or no alternative employment opportunities when their traditional sources of jobs go into competitive decline. This Canadian reality helps explain why governments have often felt obliged to follow policies that many economists would view, on purely theoretical grounds, as inhibiting economic adjustment and potentially detracting from national and regional economic growth and competitiveness.

Regional development policy

In a country as young and geographically diverse as Canada, some regional economies naturally develop faster than others because of regional differences in such factors as population, natural resources, trading commodities, and proximity to markets. Since Confederation, establishing policies that recognize this regional diversity and effectively address regional disparities has been one of the greatest challenges to Canadian governments.

Regional disparities not only add to divisiveness within the country, they also involve significant economic and fiscal costs. Higher rates of unemployment in some regions mean under-utilization of otherwise productive resources. The efforts

of the federal government to compensate for these losses of income and revenue through fiscal transfers to governments and individuals also involve a heavy burden on federal expenditures and do little in themselves to promote wealth creation and competitiveness. This is why the government, in its current approach to regional development, has focused its attention on more effective means to promote locally based development.

The current approach to regional development is based on building on strengths and facing realities. Programs are designed to meet the unique set of economic circumstances in particular regions. These programs are working toward bringing stability to regions that have always been subject to dramatic economic shifts. They appear more likely than earlier programs to help address the main economic development problems affecting these regions.

The Federal Economic Development Northern Ontario Agency (FEDNOR), created in 1988, was designed to furnish assistance to small and rural businesses, to provide a loan insurance facility, and to administer a core industrial program.

The prime objective of the Atlantic Canada Opportunities Agency (ACOA), established in 1987, is to create, implement and co-ordinate federal initiatives contributing to long-term economic development in Atlantic Canada. Its activities are concentrated in four areas: advocacy of the interests of Atlantic Canada within the federal system, co-ordination of federal programs in the Atlantic region, co-operation with provincial governments, and providing financial assistance to the private sector.

The mandate of the Department of Western Economic Diversification (WD), established in 1987, is to help broaden the economic base of Western Canada, and to act as an advocate of the region within the federal government through direct involvement in the decision-making process in Ottawa. A focal point of the department is the Western Diversification Program, which provides financial contributions to projects possessing the potential to broaden the economic base of the West.

The Canadian Federation of Independent Business and the Council of Maritime Premiers appear to believe that the regional programs of WD and ACOA are unlikely to be sufficient in themselves to ensure appropriate adjustments. Indeed, the Maritime Premiers indicate in *Standing Up to the Future* that the impact on interest and exchange rates of federal fiscal and monetary policies has much more to do with Atlantic Canada's ability to cope and prosper in the competitive 1990s than regional policies do.

Regardless of these views about the role and importance of direct regional development programs, the objective remains of making them ever more effective in contributing to the competitiveness and future prosperity of the regional and national economies. With respect to the Atlantic region and ACOA, for example, Donald Savoie, an authority on public expenditure in Canada, has suggested spending be shifted away from support for the establishment and expansion of

Atlantic firms, and "towards human resources development, technology transfer, research and development and all facets of promoting entrepreneurship". Indeed, in the Atlantic region, ACOA has already undertaken significant initiatives in this direction in conjunction with the private sector. If regional competitiveness is to be enhanced, consideration must be given to how national policies and programs and the regional development agencies can best respond to the competitiveness challenges facing all regions of the country in the 1990s and beyond.

Assisting troubled sectors

The buoyancy of the OECD economies in the 1950s and 1960s meant that most structural adjustments in those years were fairly smooth. This changed in the 1970s. The pressures for restructuring became even greater, partly because of the effects of higher oil prices, but the slowing of growth made adjustment more difficult. Many OECD governments, notably in Europe, gave in to the temptation to intervene to protect declining industries. While Canada was not particularly interventionist, its experience with such policies was unimpressive, as can be seen from the following programs:

Support for textile and clothing industries

This included extensive tariff protection and other bilateral trade restrictions under the Multi-Fibre Arrangement, and millions of dollars in capital assistance for modernization and automation from the Canadian Industrial Renewal Board and the Industrial and Regional Development Program. The textile industry, more exposed to foreign competition, did have some success in rationalizing with this assistance, but the clothing industry had less.

Voluntary export restraints on Japan and Korea

These were to protect the Canadian automobile industry in the face of small, fuel-effective competition. North American auto makers have made significant progress in developing their product lines to compete with Asian producers, but the estimates of the cost per job protected by these voluntary restraints were high: between $179,000 and $226,000 in 1985.

Shipbuilding Industry Assistance Program (SIAP)

This was implemented in 1975 to help the industry improve its international competitiveness and to maintain stable employment with less reliance on government assistance. At the industry level, SIAP could not achieve its objectives: the industry could not become internationally competitive on the scale hoped, nor was reliance on government assistance reduced. When SIAP expired in 1985, it was replaced by more comprehensive tariff coverage and increased government procurement. Rationalization has been significant in Quebec and Ontario, modest in British Columbia, and almost non-existent in the Atlantic. Overcapacity still exists, all new shipbuilding is for government, and domestic procurement remains considerably more expensive than offshore procurement.

Increasing recognition of the importance of forward-looking policies and programs focused on innovation and marketing led the federal government to revamp its approach in 1988, with formation of a restructured department, Industry, Science and Technology Canada (ISTC). It brought together industrial and science and technology policy by combining the industry activities of the former Department of Regional and Industrial Expansion with the activities of the Ministry of State for Science and Technology. The ISTC and International Trade portfolios have recently been assigned jointly under a single senior Minister which is further evidence of the government's commitment to rationalize the use of its policy and program levers to support development of a more innovative, internationally competitive economy.

The new approach is phasing out most targeted industrial programs that provided capital assistance and sector-specific subsidies. The principal exception is the long-standing Defence Industries' Productivity Program. The main aims now are to offer increased services and business information to industries, rather than financial support, and more horizontal sectoral assistance through information and technology development programming. New programs like Sector Campaigns and Strategic Technologies focus on improving productivity through technology enhancement and transfer. Chapter 9 discusses the changes in more detail.

Determination will be required not to revert to sheltering or propping up declining industrial sectors or individual firms that run into difficulty from increased exposure to international competition.

Challenges in fisheries and agriculture

Adjustment challenges are already upon us in the Atlantic fisheries and loom ominously in agriculture.

Overcapacity in East coast fishery

The Canadian fishery has been of great importance to generations of Canadians, particularly on our two coasts. It has had a turbulent evolution, seldom providing wealth or a stable income to those who depend upon the resource for their livelihoods. Cyclical downturns have become accepted as the pattern profoundly affecting many coastal communities with few alternative sources of employment. Overcapacity has been a chronic issue.

The extension of the offshore economic zone to 200 miles in 1977, along with a major restructuring of the deep sea fishery in the 1980s, seemed to provide new hope for the fishery. In fact, however, an increase in capacity from 88,000 jobs in 1986 to 99,000 in 1988 did not lead to an improvement in average real incomes for most involved in the industry. With over-exploitation of wild stocks, the Canadian fishery in 1989 was again faced with a difficult situation. In 1989-90 a dramatic decline in the most valuable stock, Northern Cod, forced a lowering of quotas from 266,000 tonnes to 197,000 tonnes.

In May 1990, the federal government announced a $584 million Atlantic Fisheries Adjustment Program (AFAP) to help individuals and communities adjust to a viable fishery based on current realities.

The AFAP has four main elements: a package of short-term measures to assist affected communities and workers; an income support program for displaced older workers; increased scientific research and conservation measures, coupled with expanded surveillance measures to rebuild the stocks; and government support for economic diversification both within and outside the fishery to respond to the hardship felt in fisheries dependent communities. Progress has been made in all four. But long-term adjustment must continue if we are to have a productive competitive fishery providing prosperity for all participants.

Continuing efforts will be required to reduce capacity and increase productivity. To ensure that products maintain market share and recognition for high quality, operating efficiencies and technological innovation will have to be introduced. Only a reduced workforce can be competitive. Skills upgrading will be essential for those who remain in the fishery. Because of the scarcity of other employment, transitional assistance and training will be required for those leaving the industry. Income stability will be needed to facilitate rather than discourage adjustment.

The Canadian fishery is coming under many pressures for change. Increased trade liberalization, growing aquaculture production, competition for other species, and changing international markets are among the challenges. Adjustment has begun but will take many years. Dialogue will be essential to keep it going.

Competitiveness in agriculture

Canadian agriculture consists of a number of major subsectors, including the red meats and the grain sectors which trade on international markets at world prices, and the supply-managed sector where production of commodities like dairy and poultry products, as well as imports, are controlled and, in some cases, prices are regulated. Canadian agriculture has achieved significant productivity gains over the years. As indicated in the report of the Task Force on Competitiveness in the Agri-Food Industry and in other reports associated with the Agri-Food Policy Review launched in 1989, however, some subsectors are facing significant competitive and adjustment challenges.

Table 5.2 shows that direct support to agricultural producers by Canadian governments has been, and remains, substantial. In addition, Canadian consumers provide indirect support (significantly exceeding direct support through program payments) to the sector through the higher prices associated with supply-managed commodities. These prices are also a competitive concern for Canada's food processing industry, which increasingly operates in a larger North American context.

Table 5.2
Total program payments to agricultural producers by Canadian governments

	Federal government	Provincial governments	Total
		(millions of dollars)	
1984	1,141	594	1,735
1985	1,529	687	2,216
1986	1,956	979	2,935
1987	3,179	648	3,827
1988	2,924	851	3,775
1989	2,495	1,224	3,719
1990 (Forecast)	1,139	1,147	2,286

Source: Agriculture Canada, *Farm Income, Financial Conditions and Government Expenditures: Data Book*, April 1991.

Grain sector

The grain sector has traditionally been competitive internationally. Since the mid-1980s, however, a combination of poor weather and an international subsidy war, largely between the U.S. and the European Community, has caused record low prices and commensurate income problems for Canadian grain farmers. The government has cushioned the blow with significant income support and, along with the farm community and provincial governments, has developed new, more stable income safety nets. International negotiations to control and reduce export subsidies may still be successful, giving some relief to Canadian grain farmers and the federal treasury. If not, we face the question of the extent to which we should try to protect our farmers from "unfair" competition from the European Community and the U.S. Could we afford to continue to protect our farmers from the effects of a subsidy war to the same extent indefinitely?

To what extent would our grain sector still be internationally competitive if international negotiations were successful and market discipline was returned to world grain markets? Although our grain farmers could potentially face lower real commodity prices and increased production from competitors, there is every reason to believe they would again be competitive in a freer trading environment. This, along with ensuring a more stable income base for grain farmers, will require the continued adoption of innovative production and marketing, pursuit of profitable diversification opportunities, and possibly supplementary income through off-farm employment. Government policy should look toward assisting the sector in meeting these continuing challenges and in assisting in the transition and adjustment process.

Supply management systems

The ongoing multilateral trade negotiations also have implications for supply management systems. Some countries have argued that the import controls that underpin these systems should be converted to tariffs and gradually reduced. Canada has rejected this approach, insisting on the need for a balanced package of reforms that will bring discipline to international markets and subject agriculture to a clear and fair set of trade rules. As a result of the Uruguay Round of multilateral trade negotiations, some increases may be made in import levels for some commodities under supply management. This may require a certain amount of adjustment in these industries. In any case, adjustment to changes in population, production technology, and consumer demand is inevitable.

Regardless of the outcome of trade negotiations, costs to consumers and the food-processing sector might be reduced, and the sector's longer-term competitiveness enhanced, by modifying the present arrangements without abandoning the supply-management concept. Competitive pressures are reflected in the increasing extent to which dairy and poultry products figure in the cross-border purchases of Canadian consumers. In addition, as noted in the report of the Task Force on Competitiveness in the Agri-Food Industry, the food-processing sector, which employs some 250,000 Canadians, is concerned about increasing competition in domestic markets from foreign producers with lower costs for inputs of raw materials.

DELIVERING GOVERNMENT SERVICES

The quality and efficient delivery of public goods and services have a major bearing on our prosperity and competitiveness, owing to the roles government plays in our economy.

Since 1984, the federal government has pursued a number of important initiatives in the management of programs, including privatization of Crown corporations, introduction of more economic pricing and cost recovery for government-supplied services and facilities, and greater flexibility for managers to introduce efficiencies and improvements in their services.

At the provincial level, efficiency, quality and innovation in our health and education programs will be critical. Issues and concerns associated with government as an efficient provider of services are illustrated below.

Health and education

Governments throughout the world devote substantial resources to health and education which are key to our growth potential. All levels of government are involved in Canada. Federal transfers to the provinces for Established Programs Financing (EPF) are the block funding mechanism that replaced cost-sharing in 1977 to support post-secondary education and health care. EPF contributions alone will amount to over $20 billion this year. As well, poorer provinces receive further federal support, which can be spent on health and education, through equalization payments. Provincial governments themselves spend substantially on health care – an average one-third of their budgets – and on all levels of education, local school boards are also involved in primary and secondary education.

Canada spends about the same percentage of national income on health care as does Germany, France, Sweden and the Netherlands, all in the range of 8.5 to 9 per cent of GDP. The U.S., which does not have a publicly funded national health insurance program, spends about 11.2 per cent of its national income on health. Consequently, the U.S. also spends substantially more per capita on health (over $2,000 in 1987), but Canada, at just under $1,500 per capita, is second, spending substantially more per capita than European countries, according to OECD estimates.

Some authorities maintain that, although Canada is second only to the U.S. in health spending as a percentage of GDP, the health of Canadians is not commensurate with the outlay. This raises questions about the efficiency of our health system. Although the Canadian system is apparently cost competitive relative to the U.S. system and has been praised in recent U.S. studies, some suggest that high costs relative to other industrial countries indicate the need for improvement.

In the recent C.D. Howe Research Institute paper, *The Innovative Society*, Bryne Purchase writes:

> The list of inefficiencies in the Canadian system that could be addressed by institutional reform is long: inefficient incentive structures in hospital-funding mechanisms; inefficient payment schemes for doctors; ineffective or even dangerous medical procedures; excessive use of medical technology; and excessive testing and over-prescription of drugs.

Are there more effective and efficient ways of providing key services such as health and education? How do we deal with managing demand when most of these goods and services are provided free or at heavily subsidized prices?

Are taxpayers getting as much for their tax dollars as they should expect from this substantial fiscal effort? Governments not only influence the supply of these services by their willingness to pay, but also influence the demand by the prices they charge for them, and by the standards that they set for the services rendered and received. Chapter 10 discusses the effectiveness of the education system for the challenges ahead, raising important issues for consideration and action.

Better government management

Judging the efficiency of governments is difficult; their outputs are mostly different from those of other sectors of the economy, so comparable measurements are lacking. Nonetheless, improving the productivity of this large sector is as important and as challenging as improvement in other sectors.

The absence of traditional measures of product and price leads to the use of indirect measures and instruments. For example, the recent budget proposal to legislate global spending caps for the federal government can be viewed as an efficiency measure as well as a means of restraining expenditures. Under these legal limits, the government will only be able to introduce and fund new programs by finding

funds within the established limits. Consequently, funds will have to be allocated carefully among competing demands, and that allocation will have to be re-examined and adjusted as new demands for programs arise. Government managers, as well as ministers, will be required to pay strict attention to their portfolios and the government's priorities.

More efficient government management across the board has been a major federal government objective since 1984. The federal public service is roughly the same size now as it was in the mid-1970s, despite 67-per-cent growth of the economy and a consequent increase in the volume of work under existing programs and services. This increased efficiency in the operations of government has resulted, in part, from rigorous control of expenditures, with annual growth in operating and capital spending, including public service salaries, dropping to an average of 3.3 per cent over the past six years – well below the annual rate of inflation. It also reflects close attention to the better management of government.

Some provincial governments have also made special efforts at improving the efficiency of their operations. A number of provinces have taken steps to control the growth of their civil services, or even reduce them and most have been attempting to curtail growth of expenditures. In part because of the demand-driven nature of many of the services provided by the provinces, their workforces have expanded by about half over the last 15 years, still well below the increase in the size of the economy.

In addition to Crown corporations' privatization and management and to enhanced cost recovery and more economic pricing, federal management initiatives have included:

- the creation and use of Special Operating Agencies aimed at improving the delivery of public services, and
- a policy of contracting-out certain functions to the private sector where this is in the public interest because of cost, efficiency or quality of service.

The public will continue to insist on the importance of all levels of government reducing the size and cost of the public sector while equipping it and organizing it to meet the real needs of Canadians in a way taxpayers are entitled to expect.

Crown corporations

The federal government has taken a threefold approach to Crown corporations: dissolving them if they no longer serve a useful public purpose, privatizing them if they are predominantly commercial, and improving management and accountability if they continue to be the best way to deliver important and necessary service to the public. Since 1984, 21 federal Crown corporations and other government holdings have been privatized or transferred to other levels of government. Eight other corporations have been dissolved. With the initial public offering of shares in Petro-Canada completed in July of this year, the scope for further privatization at the federal level has been narrowed.

A particularly good example of how substantial improvements in Crown corporation performance can be effected is to be found in the experience of Canada Post. In fiscal 1984-85, Canada Post received a $395 million operating deficit subsidy, as well as an additional $226 million in payments from the federal government for providing services at less than full cost. In the 1986 federal budget, the federal government indicated its determination to come to grips with Canada Post's financial and operating problems. After much determined effort, Canada Post improved its labour productivity and its on-time delivery of letters, earned a profit in 1988-89 (and expects to continue doing so over its strategic planning horizon), while at the same time, keeping its letter rate increases below inflation and virtually eliminating its reliance on government funding.

Provincial Crown corporations operate in virtually all sectors of the economy, ranging from agricultural and industrial development to public utilities and transportation. In 1986, the Economic Council of Canada identified 203 enterprises wholly owned or controlled by provincial governments; these firms, in turn, owned or controlled 187 subsidiaries. The assets of the combined provincial public enterprise sector were found to be larger than the federal counterpart.

In many cases, provincial Crowns, like their federal counterparts, are called upon to pursue a number of objectives that are often in conflict. Many provincial enterprises provide goods or services similar to those of federal agencies – for example, farm credit. Rationalization across federal-provincial lines could reduce overlap and duplication. Further examination could determine whether all the remaining Crowns actually still constitute the most appropriate way of achieving public policy objectives.

The efficiency and competitiveness of provincial electric utilities could potentially be enhanced through privatization or through subjecting them to more competition in the marketplace. Most provinces have acted along these lines, adopting policies or introducing legislation to foster private power generation, which in 1989 supplied only a small percentage of Canada's power needs. Ontario seems particularly hopeful of widespread development of private power based primarily on co-generation plants fired by natural gas.

Amendments in 1988 to the B.C. *Public Utilities Commissions Act* allow for third-party access to a public utility's transmission facilities if it is deemed in the public interest and will not adversely affect the public utility's service. United States experience in planning to minimize electric utility costs and in rapidly expanding private generation in the past five years suggests ways of increasing competitiveness. The extent to which the large utilities should compete with each other in their own markets is another major question in both the United States and Canada, though a difficult one because of the integration of electricity generation and distribution systems.

Pricing government services

More economic pricing of government-supplied services and facilities would guide and discipline their allocation more soundly, although the competitive position of affected industries and users must be taken into account. Much remains to be done in Canada at all governmental levels to introduce more economic pricing mechanisms – including water and sewer systems at the local level. Canadians have the lowest water prices in the world, partly because they are subsidized. Consumption, not surprisingly, is very high – twice the per capita consumption in Western Europe. Economically wasteful, this is also potentially damaging to the environment. Full-cost water and sewage pricing would be beneficial both economically and environmentally.

Returning to electrical power, Canadian electric utilities are efficient by world standards. Taking advantage of comparative natural advantages in electricity generation, they generally have considerably lower costs than similar utilities of similar size in other countries. This has been an important competitive edge for many Canadian industries. The practices of some utilities, however, can serve to artificially lower electricity prices to end users, thereby promoting over-consumption and over-capitalization, and contributing to under-investment in energy efficiency. Under-priced electricity is an inefficient use of resources, though not unique to Canada. Many of the same practices – notably "average cost pricing" – are used in the United States and other competing countries. The issue may become increasingly important both at home and internationally as environmental or energy-supply constraints are encountered.

In Canada, governments influence electricity prices, since low-cost electricity is seen as a tool for economic development. Provincial governments, however, are increasingly recognizing that there is scope for more efficient operations and more competitive prices. They have started to implement changes, including altered pricing methods, policies for purchase of co-generated electricity, and demand management schemes. Utility mandates have also begun to change to include the objective of promoting more efficient use of energy. Scope remains for federal-provincial co-operation to improve efficiencies in areas such as interprovincial electricity trade and in avoiding unnecessary multilevel regulation.

In transportation, the cost-recovery rate for federal services is much lower in Canada than in the United States, although the federal government has been pursuing policies of increased cost recovery from users of marine, air and railway services since the mid-1980s. Canadian cost recovery from all government-supplied marine-related services, for example, is now about 44 per cent; cost recovery of airport and aviation services is about 70 per cent.

ISSUES FOR DISCUSSION

Adjustment programs are vital in keeping the economy on an even keel as it evolves. Issues of efficient, innovative service from governments and institutions are equally important to Canadians; they will figure prominently in the Economic Council's Study, mentioned earlier, of how governments in Canada affect the competitiveness of our economy. Both adjustment and service efficiency suggest many questions for discussion.

Economic adjustment

- The more effective our economic adjustment processes in Canada, the greater the economy's productivity and competitiveness. At the same time, the adjustment process can place hardships on particular groups of workers and on specific communities. A determined and consistent effort on the part of all partners – governments, business and labour – is required to facilitate adjustment and achieve employment stability.

How can management and labour work together to facilitate workforce adjustment through better training and skills upgrading in firms and longer term approaches to the use and development of their workforces?

How can governments work together and their policies be improved in the areas of regional development, restructuring, and training to foster industrial competitiveness and to facilitate adjustment?

Provision of government services

- Issues of efficient, innovative service from governments and institutions are important to Canadians.

What measures would encourage greater efficiency in the demand for, and supply of, the goods and services provided by governments, including Crown corporations?

CHAPTER 6: INVESTMENT IN CANADA'S FUTURE

ROOTS OF PROSPERITY

Investment is at the root of Canada's prosperity. It leads to increased production, higher productivity, more highly skilled jobs, bigger incomes, and growth in living standards. Through investment we have developed our natural resource base, built our manufacturing sector, and established a vibrant and rapidly growing service sector.

This and the next five chapters explore various aspects of investment. This chapter reviews the nature of investment and the factors that enter into decisions to invest. It reviews the important linkages between investment and the availability of savings, whether from Canadians or foreigners. It discusses the cost of funds in Canada: the return borrowers must give to lenders. It concludes with a review of the role financial markets and governments play in ensuring that saving is channelled to the best possible investments through financial markets and institutions.

Chapter 7 then discusses the role of the tax system, an important determinant of incentives to save and invest. The following four chapters pursue in more detail the different objectives of both private and public investment: the increase of physical capital, improvement in science and technology, development of human resources, and productive management-labour practices.

INVESTMENT: WHERE PRODUCTIVITY STARTS

Growth in the output of the Canadian economy depends on increases in the basic factors of production – physical capital and labour – and on the total productivity of those factors. Productivity rises as a result of improvements in technology and the quality of human resources. These are often lumped under the term "productivity gains", because they are not easy to measure. Yet, like the capital stock, each reflects different forms of investment.

Firms, individuals, and governments invest in four ways:

In physical capital They purchase machinery and equipment and construct buildings, schools, roads, sewers and so on.

In knowledge They undertake research and development and purchase the best available technologies.

In people They develop and upgrade people's skills through more and better training and education.

In the organization of production This comprises many diverse elements, from reliance on markets to labour-management relations. Economies with similar availability of qualified labour, capital and technology can still show widely diverging productivity growth depending on whether resources are put to their most productive use.

Often investment decisions combine many of these elements. The decision to acquire new equipment is typically also a decision to invest in new technology (since equipment embodies technology), to equip labour with the skills needed to use it, and to change the organization of production.

Investment increases potential output in two ways: directly, by increasing the stock of capital used by workers, and indirectly, by incorporating improved production techniques in that new capital. Investment therefore can add to both the quantity and quality of capital. Better quality results in higher total productivity: more output can be produced by a given quantity of capital and labour. As a general rule, the more a country invests the more its economy will grow.

A complete picture of the investment performance of one economy relative to others is difficult to obtain. Businesses, governments and households all make investments. These include both physical assets and intangibles like education and research. The sources of investment can be quite different across countries. Private households in Japan and the United States play a greater role in financing education than they do in most other OECD countries, including Canada. Government plays a smaller role in financing research and development in Japan than in other OECD countries; this has probably resulted in less spending on basic research there. Yet, over all, Japan is now investing more than the United States – a much larger economy. It is not hard to imagine that such high investment is laying the foundation for a further improvement in Japan's productivity relative to the United States.

Canada's investment record can be broadly summarized as follows:

Physical capital Total spending on non-residential physical capital has risen strongly in recent years. Most of the increase has been in machinery and equipment. Nevertheless, the share of machinery and equipment investment in GDP remains somewhat below that in most major OECD countries. Spending on public infrastructure has declined as a share of GDP, but is comparable to most OECD countries; it is significantly less than in Japan but more than in the United States.

Research and development Canada's total spending on research and development, as a share of GDP, remains low among G-7 countries: government spending on civilian R&D is comparable to that of other industrialized countries, but we spend little on defence R&D. Spending by private industry on R&D is particularly low in Canada, though it has risen a good deal in recent years.

Education and training Investment by Canadian governments in primary and secondary education is high by international standards. As well, the share of GDP spent by governments on post-secondary education is relatively high, though declining. Total spending per student in the post-secondary sector is now relatively low, however, since households spend relatively little on education. Spending on vocational training appears low, especially compared with levels in some northern European countries and Japan. Spending by the private sector on training also appears low by international standards.

These investment records are discussed in more detail in subsequent chapters.

DETERMINANTS OF INVESTMENT

Firms invest on behalf of their owners to ensure that their businesses will be strong and viable and able to generate future returns. Government investment aims to ensure that people are equipped with the skills, knowledge and infrastructure required to be productive in society and to generate high incomes.

Private sector investment decisions are based on many considerations, including the cost and availability of funds, and the expected return from investments. Here are some of the main ones.

Future net income An investment will not be made unless sales are expected to be high enough to exceed costs and provide a return.

Prices The price of different productive inputs is important. For instance, if the price of physical capital rises relative to labour, more use may be made of labour. Conversely, if the cost of labour rises relative to other inputs, investment in physical capital would rise. In general, the price of physical capital has fallen relative to labour over the last 15 years.

Tax effects The tax system can influence investment decisions in several key ways, as outlined in chapter 7. Taxes that are higher in Canada than elsewhere discourage investment. Incentives for certain kinds of investment discourage others that might have been more profitable. But if a private investment in an activity like research and development brings benefits to society beyond the returns to investors, the tax system can appropriately provide incentives to encourage it.

Availability of funds A full range of specialized instruments is needed to finance different types of investment in different parts of the economy. The amount of funds available for investment is determined by saving, both domestic and foreign.

Cost of funds This is a key financial variable in investment decisions. It is determined by the returns required by a firm's shareholders and creditors to make them willing to finance a given investment. A high cost of funds means that only projects with high expected returns will be undertaken. The risk premium is a key component of the cost of funds. It is the return above that on safe investments, such as government bonds, required to compensate investors for the greater risk of suffering a loss on an investment. When risk premiums are high, investment may go to less-risky short-term projects rather than longer-term projects.

Efficiency of financial markets Financial markets link savers and investors in Canada and globally and provide much of the funds for investment. How efficiently they operate is important to the capital-raising process, and to the returns that individual savers receive. The financial institutions at the centre of this process must be sound and competitive, and have adequate opportunities to participate profitably, both at home and abroad, in channelling the flows of Canadians' saving and investment. Increasingly, Canadian investors and savers are looking to global financial markets to finance investment or to earn a return on their savings, the

interaction between policies here and elsewhere has become steadily more important.

These last three factors – availability and cost of funds, and financial-market efficiency – are discussed in greater depth in the rest of this chapter.

Another important factor determining investment is the attitudes of companies and investors towards short-term or long-term returns. Many commentators have noted that a fundamental difference between Japanese and North American investors is the preoccupation of North Americans with short-term earnings, as reflected in quarterly financial statements. Japanese companies lost money for years trying to establish themselves in the North American automobile market, eventually with great success. Would a North American company have been as patient? Many investments in new technology must have such a long-term perspective since start-up losses can be substantial and persistent.

The short-term perspective of North American managers may have several sources. First, many North American investments are made by institutional investors, such as mutual funds and pension plans. These institutions must often judge a company's performance by its short-term earnings, forcing companies to focus on these to attract investment. Second, North American debt holders often have little equity in firms they lend to. They have little control over the running of a company; their interests frequently lie in ensuring the firm has the cash flow to cover its immediate interest obligations. Third, even shareholders often have little influence on corporate direction. Management plays that role, and management's compensation is often linked directly to short-term earnings. Academic and other analysts have increasingly dwelt on these issues of corporate governance as factors explaining corporate performance. They merit more study.

Availability of savings

From an economy-wide perspective, the decision to invest is essentially one not to consume current production, but to use it to generate future benefits. Current income that is not consumed is saving. For example, individuals and families often choose to consume less than they earn while working: the invested savings provide them with income during retirement. Owners may choose to forego current dividends so their firm can invest to create an even greater future return.

In an economy with a developed financial market, investors need not do their own saving, and savers need not themselves seek out productive investments in technology or physical capital. For instance, the household sector in most economies is a net saver, consuming less than its income. Conversely, the business sector is frequently a net borrower, using the savings of others to finance new investment. Both savers and investors rely on an efficient financial-services industry to gather savings and channel them to those who can use them most profitably. The borrower may then finance a new manufacturing plant, with the saver getting a return in the form of dividends or interest, often indirectly through a mutual fund, a pension, or a registered retirement savings plan (RRSP).

An open economy, such as Canada's, can invest more than it saves because it has access to saving from other countries. Traditionally, Canada has relied on foreign saving to supplement domestic saving. To the extent that we rely on foreigners to finance our investment, consumption can be higher today than if Canadian saving alone financed today's investment. But foreign borrowing creates future obligations to pay returns on those borrowings: foreigners will reap at least part of the returns in the form of dividends, capital gains and interest income. If investment is financed by Canadian saving, then Canadians reap more of the returns.

Governments can have a major impact on the availability of domestic saving. The tax system, as discussed in chapter 7, can have a significant impact on the incentive to save: the after-tax return on investment determines that incentive.

More importantly, by total domestic saving includes net government saving – the government budget balance. As discussed in chapter 2, government dissaving (a budget deficit) can absorb domestic saving that would otherwise be used to finance investment. If investment is to proceed when fiscal deficits are high, reliance on foreign saving must also be higher, as shown by experience during the 1980s. In the aftermath of the 1981-1982 recession, investment was low and private saving high. Government deficits could be financed by available private saving. As the recovery progressed, it was fuelled by growing consumer spending, the counterpart of which was lower household saving, and an investment boom. Although government deficits fell, they did not fall fast enough to free the needed domestic saving. Canada began to borrow more and more from other countries to finance its spending. The current account deficit, a measure of the inflow of foreign saving, rose substantially.

Further progress in the 1990s on reducing the government deficit as a proportion of GDP will make a larger pool of Canadian saving available to finance investment. Reducing reliance on foreign funds will enable us to claim a greater share of the future rewards of investment.

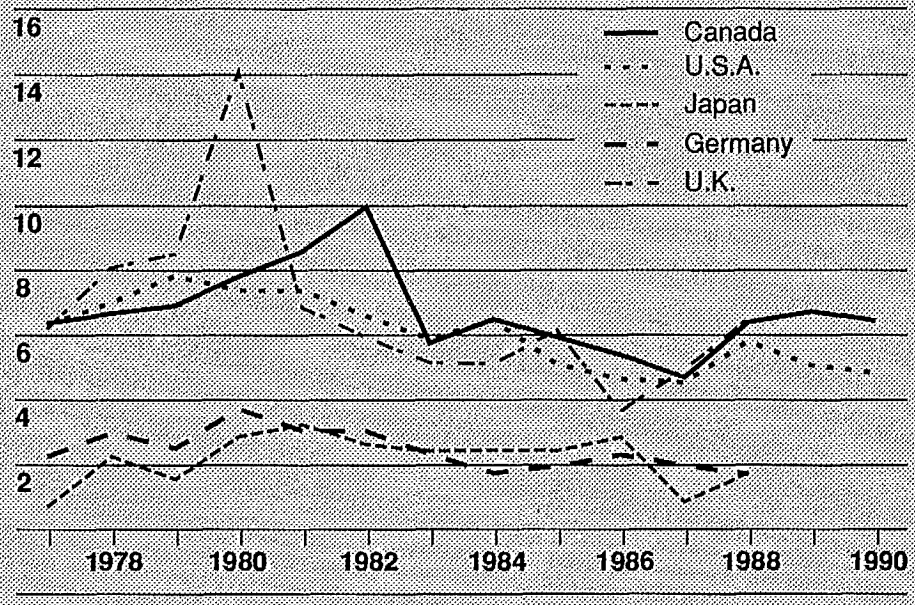
Cost of funds

The real cost of funds to investors is the real return that savers require to choose consumption later over consumption now. That return must be positive because we would rather consume a dollar of goods today than the same dollar of goods tomorrow. Moreover, savers require a higher return on investments in risky assets than on investments in safe assets, such as government bonds, to compensate them for the riskiness.

The real cost of funds comprises the costs of both debt and equity financing. Equity financing includes both share issues and retained earnings of firms, retained earnings being the more important of the two.

Sustained differences in the real cost of funds among countries probably helps account for differences in investment spending, hence ultimately for differences in productivity and living standards. How then does the cost of capital in Canada compare with that in our trading partners?

Chart 6.1
Real cost of funds – international comparisons



Source: Department of Finance estimates.

Chart 6.1, which compares the cost of funds in Canada, the U.S., Britain, Germany, and Japan, shows that Japan and Germany have consistently had the lowest cost of funds since the mid-1970s. Costs of funds in Canada and the U.S., our major trading partner, were close together.

Many reasons can account for differences in the real cost of funds among countries, including institutional factors, the structure of financial markets, and tax systems. Chapter 7 shows that our tax system is broadly competitive with those in other OECD countries. The cost of funds in Canada, the U.S., and Britain appears to diverge from that of Japan and Germany mainly because of differences in the inherent perceived risk of investment. Underlying factors, such as economy-wide risks and industrial structure, may decide whether particular perceived risks translate into a competitive disadvantage at the level of the firm.

Smaller economy-wide risks appear to be at the source of lower Japanese and German costs of funds. These countries adapted much more quickly and effectively to international shocks in the 1970s and 1980s than Canada, the U.S., and Britain did. They have also had consistently lower and more stable inflation. By contrast, Canada required prolonged periods to adjust to the international shocks and had high and volatile inflation during much of the period.

Cost of funds in Japan

The Japanese cost of funds may not be as low relative to Canada as the estimates here suggest.

The earnings-price ratio in the stock market is an important element in the cost of funds. If earnings are high relative to the price of shares, it is because investors are demanding high returns on their investments. The cost of funds is then high. The capital gains associated with the rapid increase in Japanese land prices in recent years would have pushed up equity values. To the extent that these capital gains are not realized they would not be reflected in reported earnings, causing the earnings-price ratio to be understated.

As well, although Japanese firms hold equity in other firms, only the dividend portion of earnings from such cross-holdings appears on income statements, with accrued capital gains excluded, leading to a further understatement of the earnings-price ratio.

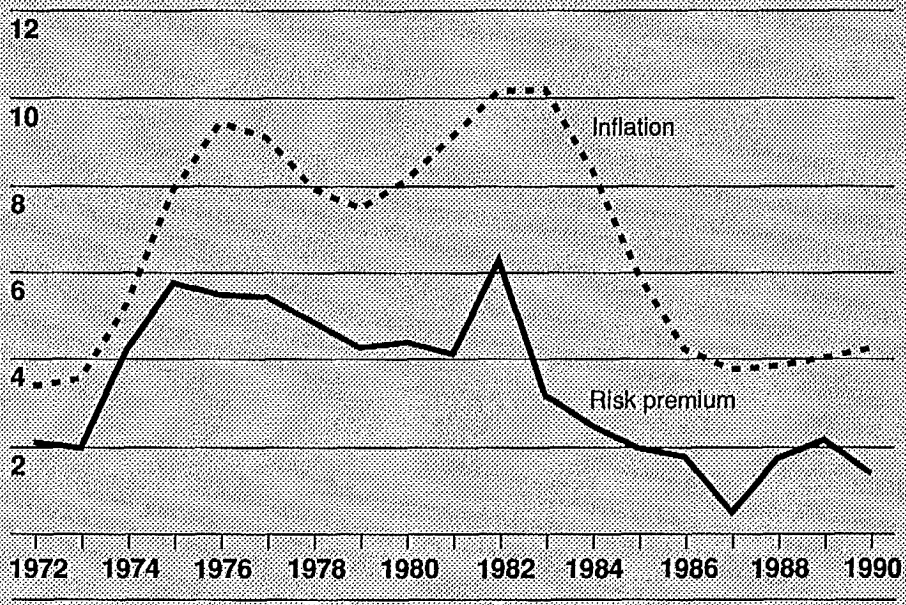
There may have also been a speculative bubble in Japanese equity markets in 1987 and 1988. In a bubble, the anticipation of speculative capital gains further inflates equity values and depresses reported earnings-price ratios.

The gap between the cost of capital in Japan and other economies may now be narrowing. One recent study concluded that recent developments – the nearly 50-per-cent rise in Japanese long-term interest rates and the decline in equity values – are fast eroding the Japanese advantage in cost of capital.

Inflation infuses an economy with uncertainty and higher risk. Chart 6.2 shows a pronounced correlation between inflation and the risk premium in Canada. (The risk premium is measured as the real cost of funds minus the real return on long Government of Canada bonds.) A reduced risk premium and a lower real cost of funds have already resulted from the dropping of inflation rates in the 1980s from the 1970s levels. Further progress could be made in the 1990s.

All sectors of the economy are hit with a higher cost of funds when economy-wide risk increases. Canadian firms suffered a competitive disadvantage owing to our poor inflation performance compared with that of Japan and Germany in the 1980s.The objective of the relatively tight Canadian monetary conditions during 1988-90 was to achieve lower inflation, so as to reduce uncertainty and the real cost of funds.

Chart 6.2
Canadian corporate risk premium and three-year moving average of inflation



Source: Department of Finance estimates.

Since the Canadian and U.S. costs of funds have generally been similar, it does not appear that Canadian entrepreneurs face a structural disadvantage in financing investment compared with their American counterparts. Moreover, many firms operating in Canada are integrated in the North American market. They have U.S. dollar earnings and are able to borrow in the U.S. market, matching their interest obligations with their U.S. dollar earnings to avoid the risk of exchange rate fluctuations.

A study by the National Advisory Board on Science and Technology (NABST) states that "issues relating to the high cost of capital or inadequate access to capital would be of much less concern in an economic environment of stable prices, with low government debt". It goes on to argue that, until a stable environment is achieved, measures are required to "support increased industrial innovation through improvements in the financing of industrial innovation".

The debt-equity mix and the cost of funds

It is sometimes argued that Canada has a higher real cost of funds than Japan and Germany because equity, which is more costly after tax than debt financing, represents a higher proportion of total financing in Canada than in Japan and Germany. In other words, Canadian firms are less levered.

It would be wrong, however, to argue that Canada's or any other country's overall cost of funds would necessarily be lowered through greater reliance on debt-financing. Increased reliance on debt would make the return to equity investors more risky, after allowing for the firm's need to service the debt. Shareholders would demand a higher earnings-price ratio for stocks in compensation for this risk. With higher debt reliance, the real cost of funds might actually be greater than before.

Differences in leverage between countries reflect differing tax structures, leverage-related costs such as bankruptcy risk, and institutional arrangements. They do not in themselves represent an explanation for international differences in the real cost of funds. Nor will changes in institutional arrangements and their resulting debt leveraging patterns likely provide a solution to reduce the cost of funds.

LINKING SAVING AND INVESTMENT THROUGH FINANCIAL MARKETS

Since savers and investors are often not the same, financial markets play a critical role in channelling saving into the most productive investments. That role is complicated by the wide diversity of saving and investment needs. Savers have differing interests. Young people may be attracted by riskier – but higher – returns. Older people, nearing the age of retirement, may be more interested in the prospect of safer returns. Some savers seek passive investments while others seek a role in controlling a firm.

Similarly, borrowers have diverse needs. The amount, form, and urgency of capital requirements vary from business to business, and over a firm's life cycle. Emerging businesses often rely on personal savings, loans, and – at some point – venture capital financing. For some companies, such as technology and resource businesses, various partnership arrangements have been important vehicles, affected in no small degree by tax rules. Bank financing is always important, making competitiveness of these financial institutions a key to an efficient capital market. Second-tier venture capital financing and private placement financing are often important to further growth in expanding businesses. At some stage in a business's life cycle an initial public offering of stock may be desirable, its feasibility affected by the state of equity markets, as well as the business's track record and profitability outlook.

Public debt markets and equity markets are viable options as sources of capital for companies once they reach a certain size and maturity. The importance of retained earnings varies over the growth cycle. Public or quasi-public pools of capital, government financing or guarantee programs, and employee share ownership are specialized sources of capital. For some businesses, joint venture arrangements with domestic or foreign partners can be important. A vibrant and efficient capital market would encompass all of these and allocate saving to its most productive uses.

Capital markets in Canada, as elsewhere, have undergone rapid change in recent years. The impact of many of these changes on access to particular types of capital is not yet clear. The traditional role of financial institutions in corporate finance has been changing significantly. For example, some large firms are able to raise funds directly and more cheaply than they could if they went through established financial intermediaries.

The importance of institutional investors has grown and that of retail investors declined in public equity markets. During the 1980s, the household sector invested a declining proportion of its growing portfolio directly in common equity – from an average of 6.1 per cent of the growth of total financial assets in equities in the first half of the decade to only 3.2 per cent in the second half. The trend raises questions about the role of retail investors in financing investment, particularly for smaller and medium-size businesses, and whether market liquidity may be reduced in the longer term.

As well, new common equity issues have generally been on a downward trend since the 1987 stock market crash. The cost of equity capital and cyclical factors, including poor earnings, have had an effect. Some observers have called for changes to the tax regime to promote broader-based equity investment. In preferred share markets, the flow has been reasonably steady for some categories of business in recent years, though the level is, understandably, lower than it was before the mid-1980s when the incentive to issue preferred shares solely to generate tax savings was removed.

Institutionalization of personal savings in the past decade – as in pension funds – may also have affected availability of capital, if institutional investment behaviour differed significantly from individual behaviour for taxation or regulatory reasons.

At the same time, anecdotal evidence suggests that non-traditional sources of equity or quasi-equity have been playing a greater role, including such forms as private placement debt with quasi-equity features, and other innovations.

These trends, together with increased competition, the end of fixed commissions, and the increase in securities transactions undertaken on a principal basis, rather than on an agency basis for a fee, are causing structural change in the securities industry. At the same time, deregulation has led to bank-owned securities firms accounting for half of the securities industry's capital. These firms are widely diversified, have capital to commit to underwriting and trading and absorbing losses, and may be able to realize operating economies.

Securities markets are also evolving in an international sense, with potential efficiencies for users of capital and implications for financial intermediaries. For example, recent trends indicate mutual recognition of prospectuses between Canada and the United States. That will enhance Canadian firms' access to the much larger U.S. capital market, but raise the issue of regulatory barriers that limit the ability of Canadian financial institutions to fully participate in the enhanced cross-border flow of funds.

POSSIBLE GAPS IN THE AVAILABILITY OF CAPITAL

Concerns remain that Canadian financial markets may not be providing the full spectrum of services and capital needed to help finance investment in all areas where they are needed. Gaps may develop in subsectors of financial markets, with an apparent shortfall in the availability of capital. Although relatively small, such subsectors may be strategically important. For example, venture capital is an important source of financing for small- and medium-size firms. But only $343 million was provided in 1989.[1]

Many industry representatives argue that an apparent shortage of both debt and equity financing is particularly troublesome for smaller, technology-driven firms. Several studies have pressed this view, including the Canadian Manufacturers' Association's report *The Aggressive Economy – Daring to Compete*, the Chamber of Commerce's Focus 2000 report on *Making Investment Capital Available*, and the NABST study cited above. These reports maintain that viable projects exist for which firms are denied financing. Reasons cited include a lack of technical knowledge among lenders, inadequate management skills in the small business sector, a regulatory regime that does not encourage close links between commercial and industrial firms and financial institutions, and a frequent inability of knowledge-based firms to use their soft assets as collateral.

Lenders commonly reply that truly viable projects and firms have no difficulty obtaining financing, owing to the competitive environment of financial markets. Venture capitalists point out that returns for early-stage, technology-driven firms have been poor, and point to a lack of diversified investment opportunities. Compared to the U.S., Canada seems to have roughly the same proportion of funds available for venture capital.

Deposit-taking institutions are often viewed as having more room now than in the past to take equity positions in commercial companies, to complement their lending role and increase the flow of equity investment. The financial reform package takes account of some of these concerns by allowing federally regulated financial institutions to create specialized financing corporations that would have more flexibility than previously to invest in equity ventures.

[1] *Canada Venture Capital Review*, Venture Economics.

The federal government also plays some role in trying to fill financing gaps. It administers a number of programs aimed at providing capital to small- and medium-size business for investment in start-ups, expansions, modernization, and related activities. Assistance is available in a number of forms, such as repayable and non-repayable contributions, grants, loans, loan guarantees, and interest buy-downs, and is channelled directly through government departments, notably Industry, Science and Technology, as well as through government-owned corporations such as the National Research Council, the Farm Credit Corporation, and the Federal Business Development Bank. Support is also offered through regional development measures such as the business assistance programs of the Atlantic Canada Opportunities Agency and the Department of Western Economic Diversification. In the past, tax incentives were also widely used to encourage investment in desired areas and small businesses still benefit from significant tax advantages. All provincial governments and some local governments have provided similar assistance, using a variety of instruments.

These initiatives were intended to fill gaps in capital markets. The present federal government has changed such assistance to minimize undesirable distortions due to government intervention, and to obtain maximum leverage from public funding for private investment and productive economic activity. The government has reduced tax incentives while lowering tax rates, to reward success more than effort. Direct assistance is being changed to reflect the principle that contributions to profitable commercial projects should be repayable. More important, increased emphasis has been placed on stimulating and supporting innovation, technology development and diffusion, and generally strengthening productivity and competitiveness, rather than on funding capacity expansion through brick-and-mortar projects.

NABST has suggested that the government provide more direct, but arm's length assistance to ease access to capital for start-up and early-stage, technology-intensive ventures. It has proposed a pilot investment fund that would match up to 75 per cent of equity funds raised by these firms. Government would finance the creation of the fund. Funds would be "bonded" as to use and would be made available without government review. Funds would be repayable by royalties on sales.

This proposal gives rise to a number of issues, including the degree of need for such a fund (that is, the actual extent, if any, of the shortfall in venture capital), the precise nature of the ventures that would be eligible for matched funding, the treatment of losses, and the fiscal implications.

Labour-sponsored venture capital funds are an innovative approach supported by governments. They promote worker involvement in the economy. Two operate in Canada: the Quebec Federation of Labour's Solidarity Fund and the Canadian Federation of Labour's Working Ventures. The federal and Quebec governments, besides providing tax credit advantages for investments in these funds, also assisted their creation through financial contributions and low-interest loans. The Quebec Solidarity Fund, created in 1984, is reported to have assisted in the creation and

maintenance of more than 18,000 jobs. It has 95,000 shareholders and assets of $315 million. Working Ventures, launched in February 1990, has assets of over $3 million. In April 1991, the Manitoba government announced that it would contribute $2 million to an investment fund being established by the Manitoba Federation of Labour. The Canadian Labour Congress, is investigating the possibility of sponsoring a national venture capital fund. Labour-sponsored investment funds tend to invest with a long-term perspective, not demanding high short-term returns, thus providing the kind of patient investment that is much needed in Canada.

A SOUND AND COMPETITIVE FINANCIAL SECTOR

Efficient and secure financial institutions facilitate the flow of funds from lenders to borrowers and from savers to investors. They help ensure that a diverse array of needs for investment funds is matched with a diverse array of sources, at the lowest possible cost. Indeed, financial institutions are a critical intermediate service in the production of virtually all goods and services in Canada. The soundness and efficiency of financial markets are fundamental to the well-being of the economy as a whole and the prosperity of Canadians.

Canadians are fortunate to have one of the most efficient and stable financial systems in the world. In its 1987 review of the Canadian economy, the OECD noted: "Since the Bank Act revision of 1967, the operation of financial markets in Canada has been remarkably free of constraints and distortions ..." The Canadian financial system has also proven to be resilient in the face of the major international shocks and the rapidly evolving financial situation of the past two decades.

In September 1990, the federal government announced a comprehensive program of reform to increase opportunities for federally regulated financial institutions and to benefit their users. The reform strengthens the process – under way for some time – of breaking down the barriers between the traditional four pillars of this sector: banks, trust and loan companies, insurance companies, and investment dealers. The resulting stimulus to competition in the sector should benefit all users of financial services.

The reforms balance the objective of building internationally competitive Canadian financial institutions, on the one hand, and concerns about concentration, on the other. They permit a mixed regime of closely held and widely held institutions, and provide for a role for the government, through the Minister of Finance, to approve corporate acquisitions to ensure they are in the best interests of the financial system and the economy at large. The reforms also enhance the ability of the system to provide venture capital, by permitting specialized financing corporations offering "merchant banking" services in a more flexible manner than is currently possible.

The reforms recognize that advances in telecommunications have made possible a global financial market. They will allow financial institutions to invest without restriction in companies having broad capabilities in information and data processing. Again this opens up the possibility for more joint ventures between financial institutions and other high technology firms in this area.

The federal and provincial governments share regulation of the financial sector, creating the potential for overlap between Ottawa and the provinces, and among the provinces. While banking is largely federally regulated and investment dealers are largely provincially regulated, many financial institutions are potentially subject to multiple regulatory regimes. Regulation imposes costs on the institutions and consumers of financial services. If the regulators do not work together, the costs of compliance for institutions operating in several jurisdictions can be unnecessarily high. Institutions and their customers can be placed at a competitive disadvantage. The regulatory framework should allow institutions to operate efficiently on a national basis.

The provinces set out two years ago to attempt to resolve the issue of regulatory overlap, particularly in the trust and loan area. The proposed federal reforms provide a basis for achieving a greater consistency between federal and provincial rules. An early resolution of regulatory overlap is particularly important for trust companies, lest their ability to compete with other institutions within the national market be impeded. In this connection, as elaborated in *Canadian Federalism and Economic Union: Partnership for Prosperity*, the federal government's constitutional proposals include a proposed stepped-up federal-provincial effort to reduce overlap and duplication in the regulation of trust and loan companies, and to seek better ways to co-ordinate approaches to regulation, international negotiation and standard setting in the areas of securities matters generally.

The European Community has given high priority to solving jurisdictional issues and achieving a single market in financial services. It has harmonized minimum standards and recognized Community-wide supervisory responsibilities for the regulator in a financial institution's jurisdiction of incorporation. That is, an institution incorporated in one member country of the Community can operate Community-wide under a single licence. Canada risks placing its financial institutions and users of financial services at a serious disadvantage if it fails to resolve the issue of regulatory overlap when it is being resolved elsewhere.

Breaking down financial restrictions and barriers is an international phenomenon, but it is not occurring at the same pace in all countries. The differences lead to questions of "fairness", owing to friction between regulatory regimes. For example, while the distinction between commercial and investment banking has largely disappeared in Canada, it remains in the United States and Japan. Canadian financial institutions consequently do not enjoy the same range of competitive opportunities in these countries as all foreign financial firms established in Canada do.

Slowing down or reversing the process of financial liberalization and reform in Canada because of failure to obtain the same treatment abroad would be short-sighted. Canada's approach has been to negotiate solutions with other countries, consistent with the trend toward greater liberalization. In seeking greater access to foreign markets, Canadian financial institutions have tended to focus on the United States, although a number of institutions have interests elsewhere. Over the coming years, it is essential that access to foreign markets for our financial institutions be

extended. Canada's interests must be effectively represented in international forums and there is a need for more co-operation and agreements among Canadian and foreign regulators.

ISSUES FOR DISCUSSION

This chapter has dealt with several issues concerning cost of funds, availability of funds, and other points critical to adequate investment in Canada. A number of questions need to be taken up.

Cost of funds

- Canada needs to encourage productivity investments with relatively longer time horizons to take advantage of opportunities offered by the FTA and other trade liberalization initiatives.

What measures should be considered to lower the cost of funds in Canada in a sustainable way?

Availability of funds

- Canada needs a diverse system of business financing that facilitates access to capital for business investment and expansion.

What changes to the Canadian financial sector would enhance the supply of capital, while ensuring that scarce financial resources are efficiently allocated?

What steps should be taken in order to reduce the apparent knowledge gap between financial institutions and their business customers?

Regulatory framework

- Our regulatory framework must promote the provision of the most efficient financial services possible.

How can the costs of regulatory overlap best be minimized?

CHAPTER 7: THE TAX SYSTEM

A COMPETITIVE FISCAL ENVIRONMENT

Taxes play a key role in fiscal management and promotion of efficient markets, the government's two basic policy areas for maintaining the competitiveness of the Canadian economy. As pointed out in the preceding chapter, they also play an important role in establishing the economic environment in which investment decisions are made.

Taxes are important not only for their revenues but also for the way in which these revenues are raised. First, they must provide a stable source of revenue to fund government expenditures, reduce the deficit, and sustain a sound macroeconomic environment. Second, the tax system must raise these revenues in a way that minimizes interference with economic decisions and the efficient operation of markets.

This chapter explores the various effects of the tax system on competitiveness and highlights key factors that should be considered in assessing the Canadian system. One of the critical reasons for the recent reforms to the tax system was to provide a competitive fiscal environment. The reform process began in 1987 with the overhaul of the income tax system, both personal and corporate, and culminated in sales tax reform in January 1991.

TAXATION AND COMPETITIVENESS

The effectiveness of the tax system in promoting a competitive economy depends on the general level of taxation and the mix and structure of individual taxes. Provincial taxes and their relationship to federal taxes are clearly important in a federal system. Combined, these factors determine the impact of the tax system on the macroeconomic environment and the allocative efficiency of markets.

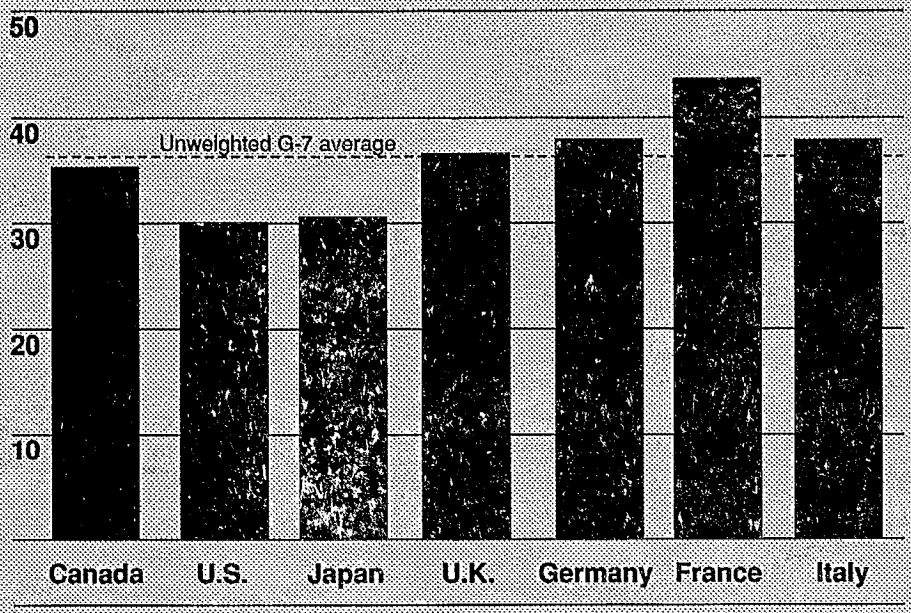
Although the tax system affects private decisions on where and how much to save, consume, and invest, it is only one of many influences on competitiveness. Normally, the overall economic situation, conditions in product markets, and the institutional framework will be more important than taxes.

Level of taxation

The level of taxation is often viewed as the yardstick of the competitiveness of a country's tax system, but it should not be viewed in isolation from the level of expenditures and the fiscal position of the government. The level of taxation is largely determined by the demand for government services, which reflects citizens' values. The choice between public and private consumption does not, in itself, directly affect the ability of a country to use its resources productively.

Historically, total tax revenues in Canada have averaged about 30 per cent of GDP. Of this, the federal government collects roughly 45 per cent, and provincial and local governments the remaining 55 per cent. Chart 7.1 shows that in 1989 Canada's tax burden as a percentage of GDP was between the burdens of Japan and Germany, two countries that are extremely competitive internationally.

Chart 7.1
Levels of tax revenues in G-7 countries, 1989



Source: Revenue Statistics of OECD Member Countries, 1965 – 1990 (latest available data 1989).

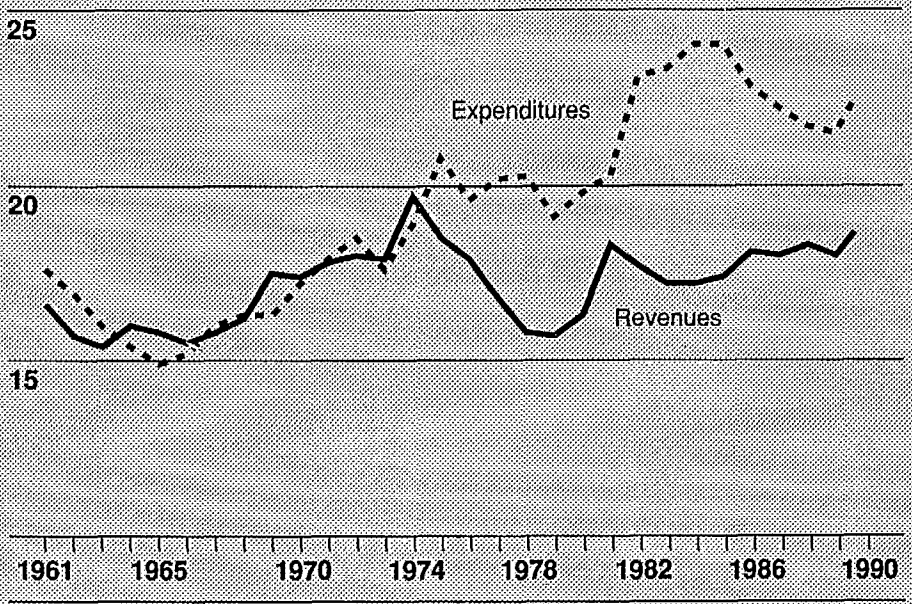
This level of taxation must be assessed in relation to federal expenditures. Chart 7.2 demonstrates that, as a percentage of GDP, revenues were roughly in line with expenditures until the mid-1970s; that is, the fiscal position of the federal government was roughly in balance. In the late 1970s and early 1980s, however, federal revenues declined and expenditures increased, widening the federal deficit to roughly 7 per cent of GDP by 1984. This period of deterioration of the federal government's fiscal position was one of high interest rates and high inflation, which also contributed to a deterioration in Canada's competitiveness.

Since 1984, the federal government has made deficit reduction a top priority. Indeed, as chart 7.2 demonstrates, the gap between expenditures and revenues narrowed to roughly 3.7 per cent of GDP by 1990. As this gap continues to narrow, the improving fiscal position will steadily increase Canada's competitiveness.

Tax mix

Canada raises revenue from a variety of sources: principally personal and corporate income taxes, sales taxes, payroll taxes and property taxes. Since each of these taxes has different economic impacts, the mix of taxes used by a government affects competitiveness. Table 7.1 shows that Canada relies more than other G-7 countries on income and sales taxes, less on social security taxes.

Chart 7.2
Federal revenues and expenditures – National Accounts basis



Source: *National Income and Expenditure Accounts*, Statistics Canada.

Table 7.1
Sources of tax revenue in G-7 countries, 1989

	Personal	Corporate	Sales	Social security	Other[1]
	(percentage of total tax revenues)				
Canada	38.4	8.5	29.5	13.0	10.6
U.S.	35.7	8.5	16.2	29.2	10.4
Japan	24.7	24.4	12.6	27.9	10.4
Germany	29.5	5.5	25.6	36.3	3.1
U.K.	26.6	12.3	30.9	17.6	12.6
France	11.8	5.5	28.7	43.9	10.1
Italy	26.7	10.1	26.9	33.2	3.1

[1] Other includes payroll and property taxes.

Source: OECD, Revenue Statistics of OECD Member Countries, 1965-1990.

The underlying tax mix is subject to a number of influences. Canada is an open economy relying heavily on trade with other countries. International considerations are therefore important in shaping tax policy to keep Canada competitive. For example, the ease with which funds and economic activity move across international borders requires that Canada's corporate tax system not be dramatically out of line with those in other countries. To a lesser extent, the ability of firms to attract and retain highly skilled labour that is mobile across international boundaries will be affected by differences in personal income taxes between countries.

International constraints on income tax levels highlight the importance of a stable and secure source of sales tax revenue. Consumption taxes encourage savings, by comparison with income taxes, and thus stimulate the investment that supports long-term competitiveness. Further, sales taxes on final consumers do not increase costs to exporters and other businesses, while income taxes and taxes on business inputs do. Therefore, having an efficient sales tax helps Canadian producers compete in international markets.

Structure of the tax system

When taxation levels are broadly consistent with international norms, competitiveness is affected more by how a government raises revenues – the structure of the tax system – than by general tax levels. Taxes affect price relationships, which in turn influence the allocation of investment and economic activity. Tax incentives can counter market forces, leading to a misallocation of economic resources that reduces efficiency and productivity. Accordingly, competitiveness is generally enhanced to the extent that taxes are raised in a way that least distorts economic activity.

Incentives do have a place, however, in a well-designed tax system if they respond to market imperfections or constraints imposed by tax structures in other jurisdictions. In these cases, broad-based incentives can avoid some of the consequences that targeted measures have on the allocation of economic activity.

Role of the provinces

Provincial governments also impose taxes in each of the major areas: corporate, personal, sales and excise, and payroll. Since provinces collect a substantial proportion of total government revenues, these taxes must be considered in assessing Canada's competitiveness. Provincial actions also affect levels of taxation, the mix among various tax bases, and the structure of the tax system. Consequently, they affect the allocative efficiency of the tax system across sectors and among the provinces. Co-ordination and harmonization in design and collection of federal and provincial tax systems can minimize overlap, reduce conflicting impacts, and reduce administrative and compliance burdens.

Table 7.2 shows how the significance of provincial taxes has increased in relation to federal taxes in the past two decades. In particular, provinces have substantially increased income, payroll, and capital taxes on businesses. Indeed, the ratio of provincial corporate taxes to total corporate taxes has increased from about 25 per cent in 1970 to a current ratio of about 50 per cent.

Table 7.2
Federal/provincial distribution of taxes, 1970-71 to 1990-91

	1970-71		1980-81		1990-91	
	Federal	Provincial	Federal	Provincial	Federal	Provincial
	(percentage share)					
Personal[1]	70	30	61	39	62	38
Corporate[2]	75	25	66	34	50	50
Commodity[3]	50	50	45	55	47	53
Total	64	36	58	42	56	44

[1] The dramatic shift in federal-provincial shares of personal taxes between 1970-71 and 1980-81 was due to changes in the structure of federal-provincial financing arrangements in 1977. The federal government reduced its tax rate to make room for provinces to raise revenues directly as part of the block-funding arrangements that replaced cost-sharing of health and post-secondary education.

[2] Includes corporate income taxes, capital taxes and payroll taxes.

[3] Commodity is defined as retail and excise taxes.

Sources: *Federal Government Finance* (68-211), *Provincial Government Finance* (68-207), Statistics Canada; CANSIM matrices 2751 and 2777.

In addition, municipal governments levy property taxes that can directly affect business costs. In assessing the effects of property taxes on competitiveness, however, benefits returned to business through municipal services must be considered. In property taxation, the services provided are more commensurate with the amount paid than in other types of taxation.

THE TAX SYSTEM

The imperative of reform

By the mid-1980s, the Canadian tax system was obviously beset by serious problems. A range of special incentives had led to narrow tax bases with high statutory rates needed to raise required revenues. The result was a tax system that significantly distorted economic activity and impaired the ability of Canadian firms to compete.

At the same time, many of our major trading partners were examining their tax systems. This led to reforms that, like Canada's, broadened tax bases and reduced statutory rates.

Extensive tax incentives also reduced the stability and reliability of the tax system as a source of revenues. Such incentives weakened the corporate income tax and the sales tax systems in particular. By the mid-1980s, the value of unused federal tax deductions and credits was over twice the level of corporate tax collections. This

"overhang" inspired the development of techniques to transfer deductions to taxable corporations, resulting in a large revenue cost to the government.

Similar problems were evident in the old federal sales tax. Its administration required over 22,000 separate rulings – almost one for every three of the 75,000 businesses that collected the tax. The number of court cases challenging the base and structure of the tax was growing dramatically, posing a substantial risk to federal revenues.

The government responded with comprehensive reform in two stages. First, the income tax system was reformed. Second, the federal manufacturers' sales tax was replaced by the goods and services tax (GST). The whole initiative improved Canada's competitiveness in three ways.

- Reform improved the structure of the tax system by broadening its base, lowering rates, and minimizing the use of specific incentives, so that decisions of individuals and businesses would be based more on market signals and less on tax consequences.
- Reform removed the bias in the federal sales tax against domestic manufacturers competing with importers, and removed the tax on business inputs of exporters.
- Reform provided the government with a more secure and stable source of revenue, vital to managing the deficit and providing a macroeconomic environment favourable to growth.

Federal and provincial tax changes since 1988 have increased revenues from all sources. The federal changes included the introduction of the large corporations tax (LCT), the personal income surtaxes, and increases to the sales and excise taxes. The government made the increases, along with substantial expenditure cuts, in the interests of fiscal management and reduction of the budget deficit. Although these tax changes increased business costs, their effect on competitiveness was substantially offset by structural improvements under tax reform.

Corporate income tax

Corporate income tax changes were an important part of reform because this tax affects the rate of return to capital; it therefore directly influences investment decisions, with implications for productivity and economic growth.

The tax base

Reform broadened the corporate tax base, primarily by removing special incentives. Taxable income as a percentage of financial statement income increased from about 70 per cent before reform to about 85 per cent afterwards. In particular, reform lowered the levels of accelerated capital cost allowances, broadened the tax base of financial institutions, and reduced or removed a number of other deductions. Reform also effectively broadened the tax base of corporations by eliminating most investment tax credits.

The incentives were removed because they were generally found to have been ineffective in stimulating investment. Typically, the increase in investment arising from an incentive was less, often substantially less, than the revenue foregone by the government. Incentives had been offered for investments that would have occurred in any event.

Also, specific incentives increase the complexity of the tax system, both in rules for implementation and, as in Canada's experience, the need for complex rules to preserve revenue yield in the face of tax planning. These complexities impose significant administrative and compliance costs; they lead to uncertainty for business and instability in tax collections for the government.

Although tax incentives are generally inefficient, they can be appropriate when private markets do not reflect all the costs and benefits to society of a particular activity. Research and development (R&D), for example, is particularly important for competitiveness. Typically it provides benefits to a broad range of individuals or corporations and not only to those carrying out the R&D activity. That is, the social returns from R&D typically exceed the private returns. Accordingly, market factors would lead to a lower level of investment in R&D than is socially desirable. In response, Canada, like most industrial countries, provides income tax incentives to support R&D expenditures.

Federal income tax incentives for R&D include full deductibility of both current and capital expenditures in Canada and a system of R&D tax credits. The credits range from 20 per cent to 35 per cent, depending on where the research is undertaken and whether the company is a Canadian-controlled private corporation. In addition, a system of refunds of unused credits is available to smaller companies. In 1988, Canadian firms earned more than $600 million in R&D investment tax credits. More than $100 million was paid out in refunds.

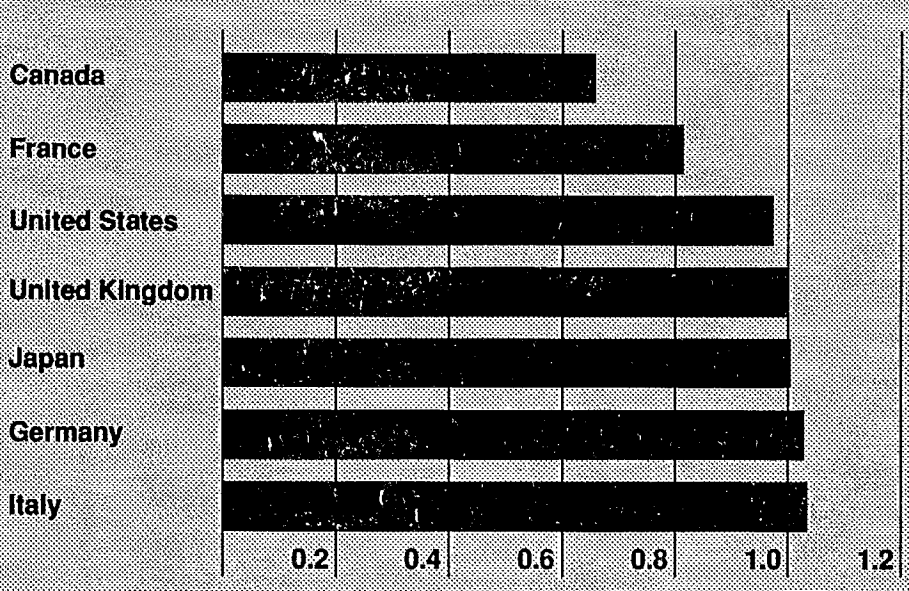
Canada, as shown in chart 7.3, ranks first among major industrial countries in the R&D tax incentives provided by the federal and provincial governments, according to a study by the Conference Board of Canada. A study by Deloitte & Touche[1] indicated that the after-tax costs of R&D in Ontario were much lower than in the United States. Indeed, they were about 15 per cent lower for incremental R&D costs that qualify for special incentives in the U.S. For other costs, the gap was even larger.

Clearly, statutory tax rates can affect competitiveness through their impact on the level of taxes paid. This tax burden can, as in the past, be mitigated by incentives and tax credits. However, the level of the statutory tax rate itself can play an important role in determining the competitiveness of Canada's tax system. In particular, statutory rates can affect the tax planning of multinationals and can influence the location of certain types of economic activity.

Multinational businesses will attempt to reduce tax liabilities by allocating costs to subsidiaries in countries with high tax rates. For example, debt can be raised in jurisdictions with higher tax rates to reduce taxes payable in those countries. Such

[1] Deloitte & Touche: *A Comparison of Tax Incentives for Performing Research and Development in Canada and the United States*; prepared for Industry, Science and Technology Canada, May 1990, p. 26.

Chart 7.3
Comparison of R&D incentives in G-7 countries
(B index[1])



[1]The B index is an analytic tool used to rank the relative attractiveness of a country's R&D tax system. The B index ratio represents a minimum benefit-cost ratio at which, in a given tax jurisdiction, an R&D investment becomes profitable. Other things being equal, the lower the B index, the greater the amount of R&D a firm will undertake.

Source: *International Competitiveness of Canadian R&D Incentives: An Update*, Jacek Warda, Conference Board of Canada Report 55-90.

tax planning can reduce the share of international tax revenues accruing to high-rate countries. The effect is to constrain the level of statutory tax rates in all industrial countries and is particularly important for an open economy like Canada's.

Statutory tax rates may influence business decisions about where to manufacture products when there is capacity available in more than one jurisdiction. This factor is particularly important during economic downturns when there is excess capacity. Differences in taxes between jurisdictions can be large relative to other cost differences, such as wages and transportation, in determining after-tax profits.

In the mid-1980s, a number of our major trading partners reduced their statutory rates. The base-broadening measures discussed above enabled Canada to stay

Tax design and competitiveness

The introduction of the Large Corporations Tax (LCT) in 1989 reflects the limitation that international considerations place on the tax structure. The new tax was preferred to increasing the existing 3-per-cent surtax on corporate income tax because it avoided increasing the statutory tax rate. At the same time, it ensured that all large corporations made a contribution to deficit control in addition to their payments of income taxes.

competitive by reducing the general Canadian corporate income tax rate at the federal level from 36 to 28 per cent. A number of provinces did not, however, parallel the federal initiative. Combined tax rates in some provinces are consequently higher than those in other jurisdictions.

Tax reform reduced the rate applicable to manufacturing industries from 30 to 23 per cent. This reflected the need to have competitive statutory rates, particularly in light of the system of foreign sales corporations (FSC) in the U.S. Although the overall tax burden on the sector rose under tax reform, it remains competitive with the burden on manufacturing in the United States. The Conference Board of Canada recently released a study entitled *Canada-U.S. Tax Competitiveness in Manufacturing Industries* which compares tax levels in Canada and the U.S for several manufacturing sectors in a number of states and provinces. Of the four types of manufacturing projects considered total taxes in one sector, slightly lower in another, and mixed results in the other two (depending on the jurisdiction of the activity).

The Foreign Sales Corporation

The Foreign Sales Corporation (FSC) system in the United States provides an export incentive for American-produced goods. The FSC rules reduce the effective tax rate on eligible export income to about 32 per cent from about 38 per cent. In Canada, manufacturing and processing income is eligible for a reduced tax rate of 23 per cent. The reduced rate is more significant than an export incentive like the FSC because it applies to income earned both on exports and domestic sales.

The proposal in the 1991 budget to limit the deductibility of provincial capital and payroll taxes was also designed to respond to concerns about competitiveness. Simply denying deductibility would have increased taxation and eroded competitiveness. The proposal would keep revenues constant by replacing the deductibility of these taxes with an allowance of 6 per cent of taxable income. This effectively reduces the federal statutory tax rate by about one and three-quarters

percentage points, enhancing competitiveness where the rate is important in business decisions.

Reform of the federal corporate tax system has resulted in smaller variations in tax burden across sectors and across various types of investment. Investment decisions are therefore likely to reflect underlying economic factors more than tax incentives. Although corporate taxes rose over all, the more neutral treatment prevented the competitiveness of the system from deteriorating. Reductions in the statutory rate lowered incentives for corporations to locate offshore. They also lowered incentives for multinational corporations to avoid Canadian income tax.

Personal income tax

The personal income tax system affects competitiveness in two ways. First, personal income taxes can increase the wages and benefits required to attract and retain skilled labour. Second, they may influence the supply and cost of capital by affecting after-tax returns to investors.

Impact on labour markets

Personal income and social security taxes reduce disposable income. Canada's personal income tax revenue measured as a percentage of GDP is high in comparison with other major industrialized countries. When social security contributions are taken into consideration, however, the level of taxes on labour is not significantly different from other G-7 countries. Indeed, the combined burden of

Table 7.3
Personal income taxes (PIT) and social security taxes (SST) as a percentage of GDP in G-7 countries, 1989

Country	PIT	SST	Combined PIT and SST
		(per cent)	
Canada	13.5	4.6	18.1
France	5.2	19.2	24.4
Germany	11.2	13.8	25.0
Italy	10.1	12.5	22.6
Japan	7.6	8.5	16.1
United Kingdom	9.7	6.4	16.1
United States	10.7	8.8	19.5
Average	9.7	10.5	20.2

Source: OECD, Revenue Statistics of OECD Member Countries, 1965-1990.

personal income taxes and social security contributions in Canada is the third lowest in the G-7. Table 7.3 summarizes the most recently available data.

Another useful indicator of the tax burden faced by individuals are the average production worker statistics published by the OECD. These statistics provide a standardized comparison of the tax burden faced by typical workers across countries expressed as a percentage of gross earnings. Table 7.4 shows that the tax burden on the wages and salaries of an average production worker in Canada is the second lowest in the G-7.

Table 7.4
Tax burden on typical production worker[1] in G-7 countries, 1989

Country	Income tax	Social security contributions	Total
		(per cent of gross earning)	
Canada	10.8	3.8	14.6
France	–	18.0	18.0
Germany	9.2	17.4	26.6
Italy	14.8	8.5	23.3
Japan	1.9	7.0	8.9
United Kingdom	15.6	8.4	24.0
United States	11.5	7.5	19.0
Average	9.1	10.1	19.2

[1] The typical production worker statistics are derived from single-earner families, with one dependent spouse and two children.

Source: OECD, the Tax/Benefit Position of Production Workers, 1986-1989.

Although the overall level of taxation on labour in Canada is comparable to that of our major trading partners, concerns have been expressed about Canada's ability to attract and retain highly skilled labour. Some argue that the top marginal tax rate is particularly important when top quality managers and entrepreneurs decide where to live and work. The statutory rate reductions under tax reform were beneficial in this regard. The top federal marginal tax rate was reduced from 34 to 29 per cent. While surtax increases were necessary in 1989 to help reduce the deficit, the top federal-provincial tax rate is lower than it was before tax reform.

The top personal income tax rate in Canada is not out of line with rates in other major industrialized nations. It is, however, higher than the top rate in the United

States, which is particularly relevant for labour mobility owing to the United States' proximity to Canada.

However, in comparing top rates between Canada and the United States, two factors must be considered. First, the higher burden on upper-income taxpayers in Canada reflects the decision to raise revenues in a manner that is fair. Second, it is important to recognize that substantially more government services are provided in Canada than in the United States. For example, education and health care are provided almost entirely through the public sector in Canada whereas these have much greater private sector involvement in the United States. The difference in disposable incomes between individuals in Canada and the United States is reduced when the differences in government expenditures and services are taken into account.

Impact on supply of investment capital

The personal income tax system can influence both the availability and the cost of investment capital by affecting the after-tax returns available to investors. Taxes can also affect the allocation of such investments. However, these effects are difficult to evaluate. To the extent that firms are able to raise capital on international markets, their cost of capital will be largely unaffected by conditions in Canadian capital markets. Canadian tax incentives could affect the proportions of domestic and foreign capital for these firms, but may not significantly affect the overall supply or cost of capital in Canada.

Canada has used a variety of tax provisions to stimulate the supply of capital, particularly equity capital. Narrowly targeted incentives have not worked, but broad-based incentives may be appropriate to encourage strong Canadian capital markets.

Tax shelters are an example of the use of targeted incentives. Before tax reform, high statutory tax rates and a number of special provisions stimulated the marketing and use of tax shelters, such as capital cost allowances for films, and limited partnerships for real estate. The high tax rates and large write-offs combined to sharply reduce the after-tax cost of investments and diverted a significant amount of funds to particular activities. These incentives often encouraged unproductive activity and typically there was significant leakage of tax benefits to intermediaries. Accordingly, targeted investment incentives and the vehicles used to market them were curtailed.

Nevertheless, the tax system does contain a number of important broad-based measures designed to encourage strong capital markets in Canada. These measures are particularly important for businesses who may not have access to international capital markets. For these businesses, domestic capital markets can represent the primary source of funds. The dividend tax credit, capital gains incentives, and particular support provisions for small businesses are the most significant of these measures.

The dividend tax credit allows recipients to claim a credit on the grounds that dividends are paid out of the after-tax income of corporations. The credit therefore

alleviates double taxation and provides an incentive for equity investment compared with tax systems, such as the United States, which fully tax dividend income at the individual level.

Integrated versus classical tax systems

The taxation of both personal and corporate income raises the question of how these two taxes should interact. There are two basic approaches: an integrated or a classical tax system. An integrated system recognizes the connection between corporate and personal income taxes by providing relief at the personal level. In the Canadian system, the mechanism for providing this relief is the dividend tax credit. This credit reduces personal income taxes on dividends to compensate for taxes already paid at the corporate level. That is, the adjustment reflects the fact that corporations pay dividends out of after-tax profits. A classical system, on the other hand, does not integrate the two systems – dividends are not adjusted and thus are taxed as ordinary income. The Canadian and British systems are examples of partially integrated systems. The U.S. system is a classical system.

The broadly-based $100,000 lifetime capital gains exemption also encourages individual participation in equity markets. Only three-quarters of capital gains are included in income and are taxed only when the property is sold. This defers taxation and further lowers the effective tax rate on equity income.

Several tax measures are specifically designed to help small firms, which might have more difficulties obtaining financing from conventional sources. The capital gains exemption is increased to $500,000 for investments in qualified small business shares. Several other incentives are provided to small businesses at the corporate level, such as the reduced tax rate for small business income and the higher rate of R&D tax credit. These measures help to support a dynamic small business sector which plays an important role in promoting innovation and enhancing competitiveness.

To encourage Canadians to save for their retirement, the limits on tax-assisted saving in registered pension plans and registered retirement savings plans have been reformed. By providing a uniform limit on tax-assisted saving that is accessible to all, the reform gives Canadians better opportunities to save for retirement. Canadians now have fairer access to tax assistance. In addition, a carry-forward of unused contribution room gives individuals more flexibility to vary their retirement saving from year to year according to their financial situation. These reforms encourage high saving levels by Canadian households, stimulating investment and long-term growth.

Sales and excise taxes

Sales tax

In January 1991, the manufacturers' sales tax (MST) was replaced by the goods and services tax (GST). The MST had major structural flaws and seriously impaired the competitiveness of the Canadian economy. The GST improved competitiveness by:

- broadening the tax base and lowering the rate,
- removing sales tax from capital goods and other business inputs,
- removing the bias in favour of imported goods over domestically produced goods, and
- providing a more secure source of sales tax revenue.

The MST was generally levied on the manufacturer's sale price. Imported products were taxed on duty-paid value. The tax was levied at three different rates: 13.5 per cent generally; 9 per cent on construction materials; and 19 per cent on alcohol and tobacco. A separate charge of 11 per cent was levied on telecommunication services and programming services.

The MST caused effective tax rates to vary substantially across goods and services because it had a narrow base, was imposed at the manufacturer's level, and did not tax services. By affecting relative prices it affected consumption and production decisions, distorting economic activity and the allocation of resources.

The GST substantially broadened the federal sales tax base by including most goods and services and by moving the tax to the retail level. This allowed a reduction in the rate of tax to 7 per cent. The lower uniform rate applied to a broad base dramatically reduced the distortions induced by the MST.

Although a sales tax is intended to be mainly a tax on consumption, about one-half of MST revenue came from taxing business inputs. This was a burden on exported goods, impairing the ability of Canadian firms to compete in world markets. It amounted to an effective sales tax on capital goods of 4 per cent, lowering the after-tax return to capital, and reducing investment and productivity.

Although exports were exempt from direct application of the MST, they were indirectly taxed because the MST applied to capital goods and other production inputs. These indirect taxes amounted to an average one per cent of the final sale price, or more than 10 per cent of the profit margin of the average exporter.

Under the MST, costs included in the tax base of domestic manufacturers, including marketing and distribution costs, were often excluded from the tax base of imports. Imported goods consequently bore on average only two-thirds as much sales tax as competing goods produced and sold in Canada, a significant disadvantage to domestic firms competing against foreign producers in Canadian markets. Indeed, before the removal of the MST, Canada was the only industrialized country in the world to give imports an advantage over domestically produced goods.

Under the GST, imported goods and domestically produced goods are taxed on a consistent basis, enabling Canadian producers to compete more strongly in their own markets.

The MST was vulnerable to avoidance through the use of marketing and distribution companies, making it an unstable source of revenue. The GST is a much more secure revenue source.

Because of all its advantages over the MST, the GST has substantially improved the competitive position of Canadian firms. Over the long term, it will increase real output in Canada by an estimated 1.4 per cent.

Harmonization of provincial sales taxes to the GST would give competitiveness another boost. It would significantly reduce compliance costs for vendors. It would further reduce the cost of capital, since the provincial taxes are now charged on production inputs. The reduction would be about 3 per cent, for a total reduction of 7 per cent including the earlier effects of the GST. Quebec and Saskatchewan have already announced plans to harmonize with the GST; discussions with other provinces are proceeding.

Excise taxes

The commodity tax system imposes excise taxes and excise duties on a select range of goods. They are important sources of revenue for funding government programs and managing the national debt. The excise levies on tobacco products and gasoline were increased in 1989 as part of the government's program of fiscal action to manage the deficit. Similarly, with the introduction of the GST, consequential adjustments were made in the excise levies on alcoholic beverages and tobacco products to maintain revenue from these sources. The 1991 budget raised the excise tax on cigarettes and other tobacco products as part of the government's effort to reduce tobacco use.

Sales and excise taxes on motive fuels at both levels of government have caused concern in the transportation sector. The replacement of the MST by the GST, however, has removed federal sales tax from motive fuels used for business purposes. Although the 4-cents-per-litre excise tax on diesel fuel remains, its level has not been raised since February 1987, despite increases in the excise taxes on other motive fuels. In contrast, the U.S. increased its federal excise tax on diesel fuel in December 1990 from about 4.6 cents to 6.2 cents a litre. Thus, Canadian federal taxes on automotive fuels are competitive, but concern remains about the effect on competitiveness of provincial taxes. Table 7.5 contrasts levels in Canadian provinces and nearby American States.

The effect of controls established under the *Excise Act* to collect the excise duties on beer, tobacco products and distilled spirits have also raised concern. Unlike other federal commodity taxes, which are imposed at the time of sale, excise duties are production taxes, payable at the time excisable goods are produced, or packaged in the case of beer and tobacco products, or removed from a bonding warehouse in the case of distilled spirits. The impact of the Act and its administration on the

operational efficiency and competitiveness of the brewing, tobacco, and distilling industries is one of the issues being studied in the government's current review of the *Excise Tax Act*.

Table 7.5
Tax rates for automotive diesel fuel (July 1991)

	Canada	United States
	(cents per litre)	
Federal excise tax	4	6.2
Provincial/State tax		
British Columbia/Washington	12.3	7.2
Alberta/Montana	9.0	6.2
Saskatchewan/North Dakota	10.0	5.3
Manitoba/Minnesota	10.9	6.2
Ontario/Michigan	12.6	4.7
Quebec/New York	10.6	9.8
New Brunswick/Maine	13.7	6.2
Nova Scotia/Maine	14.7	6.2
Prince Edward Island/Maine	11.4	6.2
Newfoundland/Maine	15.6	6.2

Sources: Canada: Energy, Mines and Resources; U.S.: Petroleum Marketing Monthly.

CHANGES UNDER STUDY

Although tax reform has greatly improved the competitiveness of the Canadian tax system, areas for improvement remain. Several issues are at present being examined.

The federal-provincial dimension

Since provincial taxes form a significant portion of the tax burden in Canada, they must enter into any consideration of the country's overall productivity and competitiveness. In the income tax field the main instrument for tax harmonization is the system of federal-provincial tax collection agreements. These agreements are designed to foster tax harmonization in Canada, and to reduce compliance and administration costs for taxpayers and businesses. The 1991 budget announced that federal and provincial governments were discussing ways to provide provinces with more flexibility under the tax collection agreements. Provinces are seeking ways to meet their social and economic priorities through their personal income tax.

As noted above, the potential gains from sales tax reform would be increased substantially if provinces also adopted a sales tax structure similar to the GST. More broadly based harmonization would pay major dividends. It would reduce the costs faced by businesses in complying with the sales taxes. It would increase economic efficiency and strengthen our national competitiveness.

Research and development incentives

The government will also be examining changes that would make the system of R&D incentives more effective and easier to administer. Problems include administration and compliance related to overhead expenses, the treatment of mixed-use capital expenditures and changes in use over time, and the eligibility of pilot plants and prototypes. Modifications, while not altering the overall level of tax assistance provided to Canadian business, could improve these aspects of the incentives and will be considered in consultation with industry.

ISSUES FOR DISCUSSION

Tax systems are naturally a constant subject of questioning and criticism. We suggest here a few of the questions that it might be most useful to pursue at this time.

Taxation

- Canada's tax system must address a wide variety of objectives. It should provide sufficient revenues to support needed public programs and services, be fair and equitable, promote international competitiveness, and encourage productive investment. Harmonization, as between the federal and provincial tax systems, is also important.

How can we ensure that the Canadian tax system does not contain impediments to competitiveness?

How can better tax harmony be achieved among federal and provincial tax structures?

CHAPTER 8: INVESTMENT IN PHYSICAL CAPITAL

LINKING INVESTMENT AND PRODUCTIVITY

Investment in all the physical capital we use to produce goods and services – from machinery and equipment to roads and bridges, from office buildings to airports – is clearly vital to productivity and competitiveness. It enlarges the total stock of capital, which should raise output per worker. It embodies advances in technology that should raise total factor productivity.

One of our challenges in considering ways to increase Canada's prosperity is to find out why total factor productivity did not grow in the 1980s despite the increased share of GDP devoted to investment in machinery and equipment. We need to know more about the nature and strength of links between investment in physical capital and productivity growth.

This discussion of physical capital deals only with non-residential spending. Although investment in housing is obviously important to our well-being, it is investments in new plant and equipment used by workers in the production process, or in better supportive infrastructure, that raise productivity growth.

Growth in the real value of non-residential investment expenditures has generally outstripped growth in the whole economy since the beginning of the 1970s. As a result, the share of non-residential investment in real GDP increased from 13.1 per cent in the 1970s to nearly 15 per cent in the 1980s.

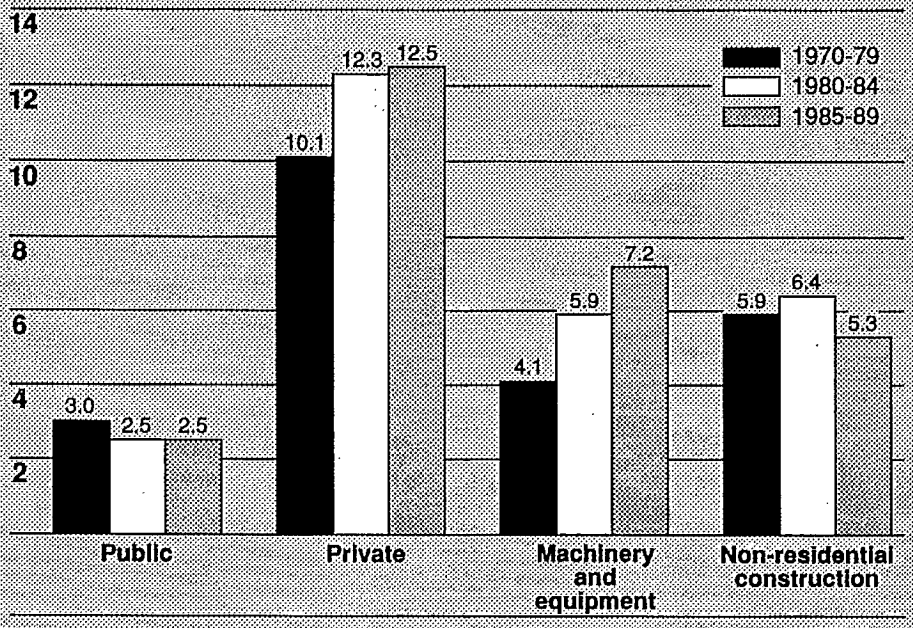
Chart 8.1 gives the share of real GDP accounted for by non-residential investment spending in the public and private sectors from 1970 to 1989. It also breaks down private sector investment into its principal components: machinery and equipment, and non-residential construction. The chart shows these key trends:

- Public investment as a share of GDP slipped from 3 per cent in the 1970s to 2.5 per cent in the 1980s. Most of the decline was at the provincial-local-hospital level which typically accounts for about 85 per cent of government investment in Canada.
- Private investment as a share of GDP increased strongly from 10 per cent in the 1970s to nearly 12.5 per cent in the 1980s.
- The increase in the share of private-sector investment was entirely in machinery and equipment. The total share of non-residential investment slipped in the second half of the 1980s.

Chart 8.2 splits non-residential investment as a share of GDP into public and private sectors. Two trends stand out:

- The share of government in total non-residential investment fell sharply, from about 26 per cent in 1970 to 17 per cent in 1990.

Chart 8.1
Real non-residential investment spending



Source: Statistics Canada.

- The machinery and equipment share of non-residential investment grew dramatically, from 27.5 per cent in 1970 to 50 per cent in 1990; the share of business construction declined commensurately.

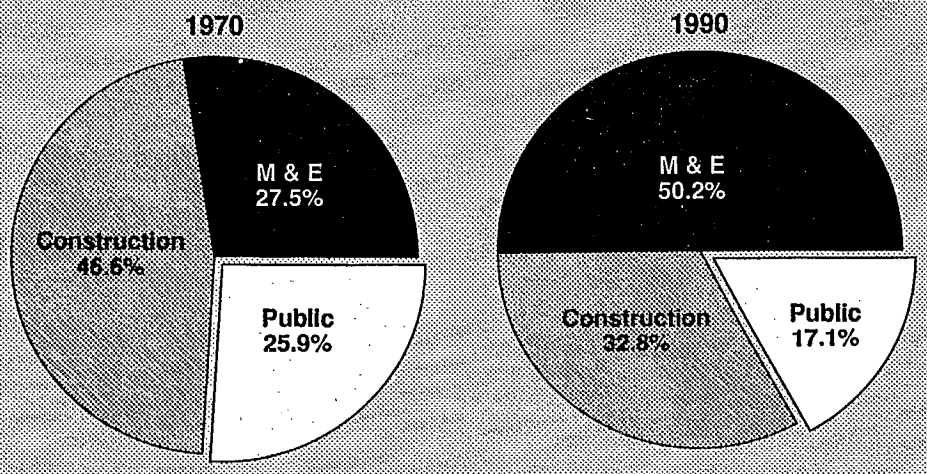
This chapter reviews these trends in greater detail, looking at shares in GDP, sources and types of investment, and comparisons with other OECD economies. The chapter concludes with a discussion of possible reasons why the strong increase in Canada's real private investment – from 10 per cent of GDP in the 1970s to nearly 12.5 per cent in the 1980s – has not had a positive effect on total productivity over the period.

PUBLIC INVESTMENT IN PHYSICAL INFRASTRUCTURE

Investment in public infrastructure is critical to an economy's flexibility and growth potential. Private-sector production is supported directly through the provision of such things as roads, highways and airports. Without a sound, well-maintained road system, for example, goods would not be moved efficiently to and from market and people would spend unnecessary and unproductive time commuting.

Chart 8.2
Composition of non-residential investment spending

per cent of total



Source: Statistics Canada.

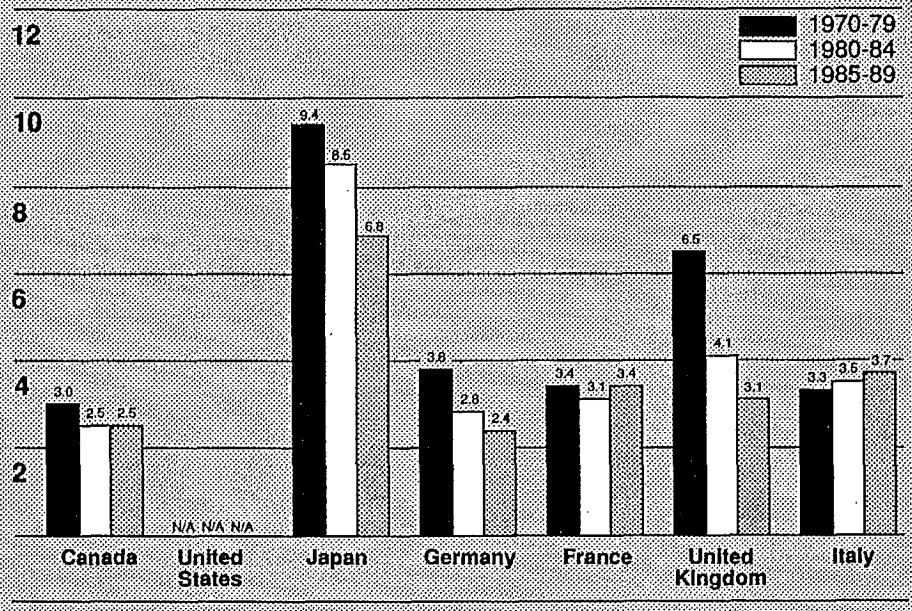
Public infrastructure complements private-sector investment. A modern water and sewage system enhances the health and well-being of the workforce, leading to greater productivity and spurring private investment. Similarly, proper buildings for schools and universities enhance the quality of our education system, which benefits the private sector through a better-educated workforce.

Public infrastructure investment has trended down sharply in most of the G-7 countries in the past 25 years. In Canada, it rose from under 2 per cent of real GDP immediately after the Second World War, peaked at 4 per cent in 1967 at the end of a sustained period of heavy infrastructure spending, and declined to 2.5 per cent in the 1980s. Chart 8.3 shows similar trends in Germany, France, and Britain. Japan, by contrast, has had a high level of infrastructure spending, and the decline from peak levels came later than in other countries.

There are several reasons for the slowdown in infrastructure spending in the 1970s and 1980s. In Europe, the huge investments needed to rebuild economies after the war were completed. In North America, major projects such as the Canada-U.S. St. Lawrence Seaway, the Trans-Canada highway, and the Interstate highway system in the U.S. were largely complete by the end of the 1960s. As the baby-boom generation moved through the education system, fewer schools were required in

Chart 8.3
Real government investment in G-7 countries

per cent of GDP



Source: OECD *Economic Outlook*.

the 1970s and 1980s. Finally, much of the last two decades was marked by general restraint on government expenditures, including capital spending.

Several voices have been raised decrying deterioration of the infrastructure in, and between, Canadian population centres.

The Federation of Canadian Municipalities has warned that municipal infrastructure has deteriorated to the point of crisis, mainly because of a lack of funding. It claims that a major remedial program involving expenditures of about $15 billion over five years is required. While the precise nature and extent of municipal infrastructure problems remain to be determined, there can be little doubt that a problem does exist.

Some of our difficulties have been brought on by uneconomic practices. As described in chapter 5, municipal sewer and water services in Canada are commonly priced well below the cost of providing the service. Regional supply problems are aggravated by an increasing demand, spurred on by some of the lowest water prices in the world. Revenues are too low to cover maintenance, let alone new infrastructure. Many water systems have seriously deteriorated. Although water pricing and water infrastructure are the responsibility of provincial and municipal

governments, the federal government believes co-operative efforts are needed to promote conservation, realistic pricing, and development of water-conservation technologies.

A major study of Canada's national highway system by the Roads and Transportation Association of Canada – in co-operation with the federal and provincial ministers responsible for transportation – reported that $13 to $18 billion worth of investment is needed over the next ten years. Further work is needed to refine these estimates, establish priorities, and decide on funding.

Canada's railways require substantial investment to remain competitive. They have also borne costs of maintaining historical investments in fixed infrastructure as a public responsibility. Canada's transportation systems of the future will clearly need to ensure adequate infrastructure investments through pricing and funding mechanisms that make best use of each transportation mode. The resolution of these problems will be critical, not only to the competitiveness of our transportation industries, but also ultimately to the competitiveness of all Canadian industry.

Neglect of the core infrastructure can be costly to the whole economy. Nevertheless, rehabilitation of core infrastructure and addition of new infrastructure is expensive. The need for fiscal restraint makes it questionable whether the governmental role can be as substantial as it once was. The absence of market-based price signals makes it questionable whether the government is providing the mix of infrastructure goods and services that Canadians require.

Cost recovery is one way of financing infrastructure investments, based on a user-pay principle. Individuals benefiting from particular parts of the infrastructure pay their fair share. In addition, the federal government is devolving some services such as airports to local authorities. Over time, these policies will make certain infrastructure investments more responsive to public and private sector needs, improve the targeting of infrastructure investments, and relieve governments of funding pressures.

One mechanism that might improve the quality of government investment decisions is capital budgeting: isolating those elements of government expenditures that will deliver benefits long after spending is done. Governments could rationalize borrowing to finance investments, just as the private sector has. In these days of fiscal restraint, government may have disproportionately cut back on investment spending because it is inherently postponable. Still, defining government investment can be extremely difficult. Does one include only long-lived physical assets or does one include intangibles such as education? Much government investment, unlike private sector investment, does not generate a direct return that can later be included in revenues. In its 1991 budget, the Ontario government adopted a narrowly defined form of capital budgeting, limiting it to long-lived physical assets.

Exclusive public responsibility for some aspects of infrastructure will remain. Here, the need for new and upgraded infrastructure must be clearly determined, jurisdictional responsibilities clarified, and appropriate funding sources decided.

PRIVATE INVESTMENT IN PHYSICAL CAPITAL

Private-sector investment in non-residential physical capital is fundamental to a country's economic prospects over the longer term. It replaces existing capital as it wears out or becomes obsolete, and adds new capital as an economy grows. The greater the capital stock of an economy, the larger the share of its resources that must be devoted simply to replacing existing capital as it depreciates.

Physical capital is divided into two main categories: non-residential construction, and machinery and equipment.

Non-residential construction consists largely of new buildings and plants, but also includes expenditures on railways, pipelines, power-generating facilities, and exploring for and developing mines and oil and gas reserves. Non-residential construction investments usually last for many decades. They usually survive technological change. Changes in the fortunes of industries can result, however, in premature abandonment of non-residential construction capital – say a mine abandoned because of falling ore prices. In Canada, the stock of non-residential construction capital has grown at roughly the same rate as the economy.

Machinery and equipment ranges from machine tools and computers to transportation equipment such as planes, trains, and trucks. Such investment is especially important because it embodies the latest technology. Machinery and equipment assets tend to have short lives, measured in years rather than decades. They depreciate as they are used and are vulnerable to obsolescence as technology changes. In Canada, the stock of machinery and equipment has grown faster than the economy over the past decade.

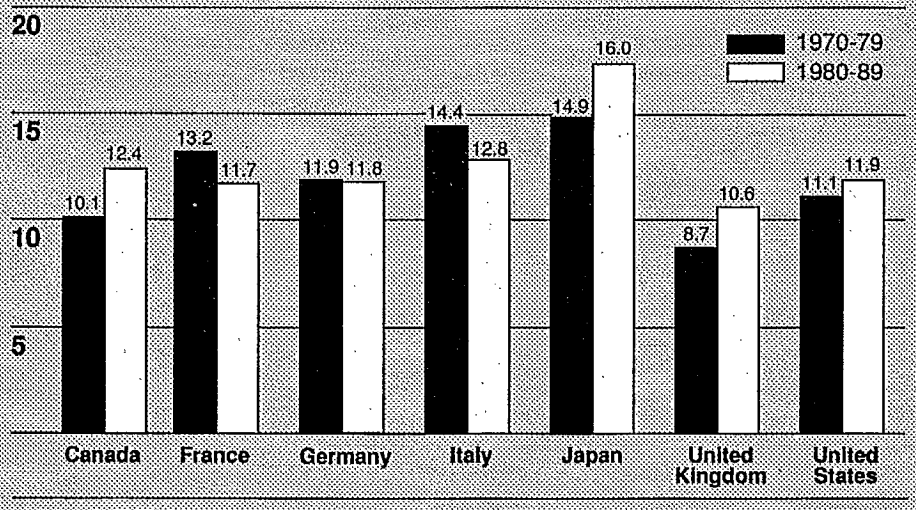
In the 1970s, Canada devoted 10.1 per cent of real GDP to private-sector non-residential investment, less than in major competing industrial countries, except Britain. It was slightly below the share in our largest trading partner, the United States, and well below that in Japan and Germany.

The share of real private-sector non-residential investment in GDP has, however, increased substantially in Canada in the past two decades, from the 10.1 per cent of the 1970s to 12.4 per cent in the 1980s. This increase brought the share of GDP to a level comparable to that in most of our major trading partners, although below that in Japan, which devoted 16 per cent of GDP to real private-sector non-residential investment in the 1980s. The increase in Canada was due entirely to a higher share for machinery and equipment, which increased its share of real GDP from 4.1 per cent in the 1970s to 6.5 per cent in the 1980s. The sharp increase occurred for several reasons:

- Machinery and equipment prices have been generally declining since the early 1980s, with sharp falls in prices for computer equipment, especially when quality improvements are taken into account. Machinery and equipment has become much cheaper relative to labour.

Chart 8.4a
Private non-residential investment in the G-7

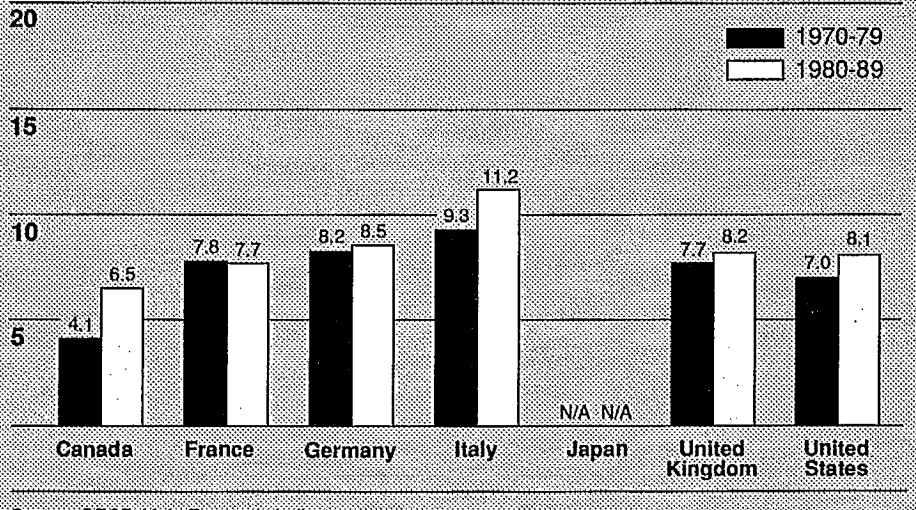
per cent of GDP



Sources: OECD *Main Economic Indicators* and OECD *Economic Outlook*.

Chart 8.4b
Private machinery and equipment investment in the G-7

per cent of GDP



Source: OECD *Main Economic Indicators*.

- As discussed in chapter 7, the real cost of capital in Canada was roughly the same in the 1980s as in the 1970s. Lower costs for equity capital – because lower inflation brought down the risk premium – offset an increase in real interest rates.
- The mix of machinery and equipment investment has shifted toward assets with shorter lives. More machinery and equipment investment is thus needed simply to replace the capital that is wearing out.
- Pressure on producers to modernize equipment has risen, especially because of the Canada-U.S. Free Trade Agreement, but also because of pressures from our other major competitors.

Despite the sharp increase in the share of GDP devoted to investment in machinery and equipment, chart 8.4 shows that Canada still lags behind the major industrial economies, although the gap is much narrower than in the 1970s.

The share of GDP invested in non-residential construction was unchanged at 5.9 per cent in the 1970s and 1980s. This share tends to exceed that of our major industrialized competitors due to the greater importance of resource industries in Canada.

Sources of investment have changed significantly by sector, largely because of underlying changes in the structure of the economy. The main change has been the rising share of the service-producing sectors, including government, in GDP. That share has risen from 60 per cent in 1970 to 65.4 per cent in 1990. During the same period, the share of GDP accounted for by manufacturing has slipped from 21 per cent to 17.9 per cent.

Table 8.1 shows the shares of private investment by major sector. The key change is a fall in the share devoted to goods-producing industries, including:

- a sharp decline in the investment share of the primary sectors of agriculture, forestry, and fishing, which started in the early 1980s and has since gathered momentum; and
- a significant decline in the share of mining, including oil and gas exploration and development, in the late 1980s after a surge in the early 1980s, a rise and fall reflecting the rise and fall in oil and gas prices.

In contrast, the share of manufacturing investment rose strongly in the second half of the 1980s.

The share of investment devoted to services has increased sharply. The share of finance, insurance, and real estate has more than doubled, and that of commercial services nearly tripled, since the early 1970s. The only service sector whose share declined was transportation, storage, and communications. Here again, the shift in production toward services is evident: the share of transportation, which is more closely related to goods production, has fallen, while the share of communications is up.

Table 8.1
Shares of real private sector investment by sector

	1970-74	1975-79	1980-84	1985-89
Agriculture, forestry and fishing	12.7	15.2	10.5	5.6
Mining	13.5	13.7	19.3	12.3
Manufacturing	23.8	20.0	19.8	23.1
Construction	2.2	2.6	2.4	2.5
Transportation, storage and communication	16.7	13.9	14.5	12.5
Trade	4.0	3.5	3.5	4.2
Finance, insurance and real estate	5.6	7.2	7.1	11.9
Commercial services	5.5	7.0	7.4	14.4

Source: Statistics Canada fixed capital flows and stocks.

The increased share of machinery and equipment investment in total investment is most evident in the service-producing industries. A significant part of this increase reflects the increasing real value of a dollar of computer purchases, as measured in computing power. In the goods-producing industries, only manufacturing experienced a large increase in the share of investment accounted for by machinery and equipment, from 69 per cent in the 1970s to 79 per cent in the 1980s.

Investments in physical capital are largely irreversible. They are particular to the sector in which they are made. A pulp and paper mill cannot be turned into an auto plant. A machine tool cannot be turned into a computer. Hence, as discussed in chapter 6, it is especially important that private sector investment be allocated to the right types of physical capital and to the right sectors for it to be most effective. Investment can end up in the wrong sector if it is based on decisions influenced by taxation, inflation, or risks that artificially favour one sector over another. Investment can also end up in the wrong sector if the world or domestic economy changes, or if expectations about what are the best investments turn out to be wrong.

The volatile economic environment of the late 1970s and 1980s may have made it harder to decide on the right investments in the right sectors. Upheavals in the energy and resource sectors were particularly strong:

- Before the first oil shock of 1973 investment decisions were based on low energy prices. The sharp increases in energy prices of the late 1970s may have made much of the capital stock less cost-effective than expected: vehicles that use energy inefficiently are the classic example. Business may have used this

equipment less intensively than planned to save on energy bills; it may even have prematurely scrapped capital. The investments may not have made their expected contribution to productivity growth. The evidence, however, is far from clear. In any case, the effect on productivity should not be permanent, indeed cannot be substantial a decade or more after the event.

- In the 1970s, world prices for agricultural and fishery products, minerals, metals, and oil and gas all tended to move up strongly. Expectations were that prices would continue to rise, so investment in the resource sectors expanded rapidly. In the first half of the 1980s, however, these expectations were dashed as energy, metals, and grain prices fell steeply. The investments may therefore have been less productive or cost-effective than originally planned; there is evidence that many were prematurely scrapped. The interventionist National Energy Program of the early 1980s also distorted private sector decisions and resulted in non-productive energy investments.
- Just as the effectiveness of energy-intensive investments of the early 1970s was reduced by energy price increases, so too the value of investments in energy-efficient equipment in the late 1970s and early 1980s was affected by the drop in prices after 1981.

THE PRODUCTIVITY CONNECTION

The advantages of new technology are incorporated into production by investment in machinery and equipment. The absence of growth in total factor productivity in the 1980s despite the increased share of GDP devoted to machinery and equipment investment is disturbing. It raises questions about the nature and strength of the links between physical capital investment and productivity growth in Canada. A number of possible explanations have been offered.

- The substantial changes in the economic environment in the late 1970s and 1980s may have rendered investments less productive than originally planned, as we outlined in the preceding section. Indeed, some capital may have been prematurely scrapped because it was no longer cost-effective. But it is questionable whether such phenomena would have been more pronounced in Canada than elsewhere and explain Canada's relatively poor productivity performance.
- The poor productivity performance may to some extent reflect the fact that falling prices for machinery and equipment, such as computers, encourage their use in less-productive or less-intensive activities than before.
- Some observers have pointed to the fact that while aggregate investment and certain components of investment, such as private sector machinery and equipment, have grown strongly, others, notably public sector spending on infrastructure, have not kept pace. This raises the question of whether potentially strong productivity gains from private sector investment are somehow being held in check by slower investment in public infrastructure.
- Others have suggested that an increasing share of investment in physical capital may have gone to purposes that do not result in a measured increase in productivity. For example, increased investment in pollution abatement or

health and safety may not add to measured productivity growth, though beneficial to society. Again, however, other industrialized economies have also been spending more on pollution abatement and health and safety.

- Finally, in the service sector, rapid advances in computer and information-based systems have required new and often untried management techniques that may have been unsuccessful at first. While measured investment in such physical capital has kept pace with the growth of the sector, full exploitation of the new technology may have proven difficult.

The connection between investment and productivity growth is thus far from being clear and straightforward. Empirical studies do show a general relationship between aggregate investment performance and productivity growth. But getting down to cases is another matter. We can say that strong investment performance is necessary, although not sufficient, for gains in total productivity.

ISSUES FOR DISCUSSION

- Investment in physical capital, as our brief discussion indicates, is critical to achieving productivity. This includes not just private investment but also public investment. Having a strong and up-to-date system of public infrastructure is essential for an economy to function efficiently.

  Given the importance of public infrastructure to our productivity potential, how might infrastructure priorities be set and how should they be financed, given the areas of responsibility and the fiscal constraints faced by all levels of government?

CHAPTER 9: INVESTMENT IN SCIENCE AND TECHNOLOGY

BUILDING SYSTEM-WIDE STRENGTH

Weaknesses in science and technology may help explain why Canada's gains in productivity have not been commensurate with increased investment, as described in the preceding chapter.

The importance of technological advance to improved productivity is highlighted by the economic history of the OECD countries since the Second World War. While technology leaders such as the U.S. were first to realize high levels of productivity, Japan and Western European countries have rapidly caught up in many sectors, largely through a process of technology acquisition and diffusion.

Technology raises productivity by permitting existing products or services to be produced more cheaply and by introducing new, or improved and more highly valued, products. Technological innovation is not a boon simply for the high-technology sector. Technology underpins the performance of firms of all sizes in all sectors – from primary resource industries to the most complex manufacturing and service enterprises. It allows resource-rich industrial economies such as Canada's to become more productive in exploiting resources by improving extraction and upgrading processes, and by fostering moves into higher value-added products and related fast-growing, knowledge-intensive industries. In addition, technology often permits linkages between sectors – supplier-customer relationships for example – that create strong regional and national clusters of activity.

Signs have appeared of Canadian failure to keep pace in a world where investments in technological capability are of increasing importance. Canada's total research and development spending is low by international standards, mainly because of low levels of private-sector spending. Canadian firms appear to be slower than foreign competitors to apply new technologies in the workplace. Recently, the number of university students in natural sciences and engineering has been a decreasing proportion of overall enrolment.

Technological advance is rooted in a total system involving the invention, production and use of technology. It includes the entire spectrum of science and technology, from basic research to applied research, technology development, and commercial applications. Typically, strength in fundamentals enhances performance in applications. Investments all along the spectrum – in the invention, production or use of technology – are investments in our future productivity.

The human dimension is critical to effective technological advance. Research scientists, motivating teachers, technologically aware managers, highly qualified technologists, and skilled workers are all necessary for successful effort, as are work practices and structures that encourage initiative and innovation. Any attempt to raise productivity through innovation cannot focus solely on scientific substance, but must also address ways of mobilizing the required human resources. Investments in this area are also investments in the nation's productive capacity.

Finally, the scientific and human dimensions operate within a system of opportunities, framework policies, organizational flexibility, and linked efforts in research, diffusion and commercialization. The linkages can occur across sectors; for example, technological advances in computer sciences will have impacts on television reception, office work, air traffic control, and so on. If successful, clusters of industries can advance together. Such success requires a system-wide approach to incorporating scientific and technological advance into our economy.

This chapter surveys Canadian and international experience in the public and private sectors in search of the strengths and weaknesses of our science and technology performance. Human resources, their brains, skills, and capabilities, are of course the foundation for achievement in this area as in others; their contribution will also be discussed.

CANADA'S INVESTMENT IN R&D

Canada's expenditures on research and development are some 2 per cent of total world expenditures. The country has always relied heavily – and effectively – on foreign sources for technology. At the same time, Canada's research and development have contributed significantly to a few successes in advanced fields such as telecommunications, space technology, and nuclear engineering.

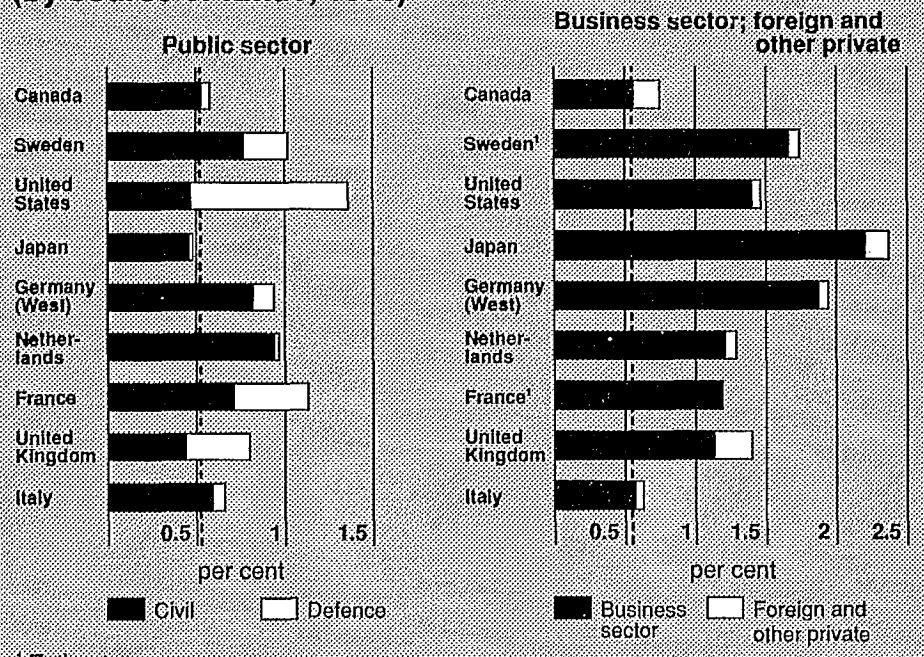
Lag in private sector research and development

Research and development makes possible the creation of new technology and facilitates the adoption of appropriate technology from elsewhere. It does so both directly, by leading to new products and processes, and indirectly, by fostering and supporting the skills and expertise of the scientists, engineers and technicians who translate science and technology into economic and social benefits. Research and development spending provides an important indicator of the pattern of investment in technological capability.

Canada's investment in R&D, especially with our low level of private R&D, is more typical of a small economy than of a large or technologically advanced economy. Chart 9.1 shows gross expenditure on R&D as a proportion of GDP in 1989 for Canada and eight other advanced economies, separating the public and private sectors. Canada's public sector spending has been lower than that in many other countries but is close to the average when defence is excluded. Canada's private sector R&D, on the other hand, is well below the level of most of the other countries shown in chart 9.1.

This could be a serious shortcoming, since a growing body of literature links research and development directly to competitiveness through increases in productivity. Research by the Economic Council of Canada shows that about 20 per cent of the growth in productivity in Canadian manufacturing between 1974 and 1985 was attributable to R&D. One study, based mainly on U.S. data, also suggests that the mix of R&D can be important, with higher rates of return obtained from basic research than from applied research or development, from company-financed R&D than from publicly funded R&D, and from R&D linked to new processes than from R&D linked to new products.

Chart 9.1
Comparisons of R&D spending as a proportion of GDP for selected OECD countries (by source of funds, 1989)



[1] Estimate.

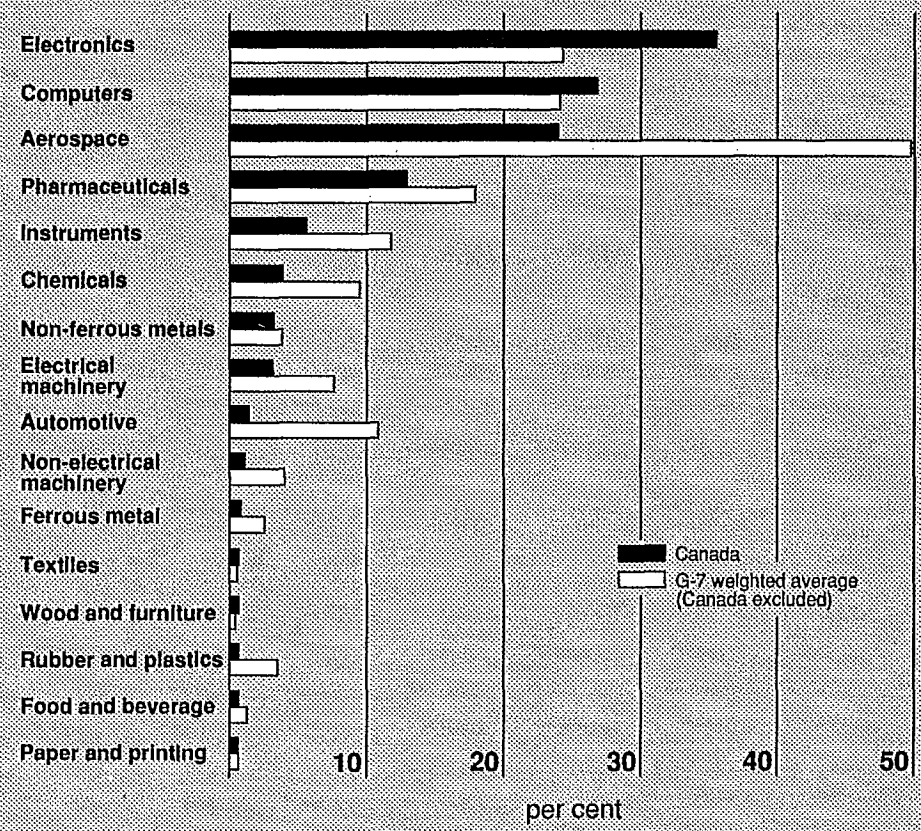
Sources: OECD, ISTC.

Research and development in one firm or sector spills over to other firms and other industries, with resulting increases in productivity. Equally, innovation by one firm leads to adaptation and further innovation by others. In this way, the technological capacity of the economy is steadily upgraded.

Canadian private sector R&D has grown quite rapidly, particularly between 1976 and 1986, but this has been true of most other OECD countries. Our private R&D funding, as shown in chart 9.1, remains low compared with that of our leading competitors. The majority of Canadian firms have no research capacity. In the manufacturing sector, for example, only an estimated 1,700 of 40,000 Canadian manufacturers undertake any R&D at all.

Our private sector is continuing to increase its R&D effort. Statistics Canada estimates that private sector R&D spending increased by about 5.9 per cent in 1990. The Conference Board forecasts that the rate of growth will remain at about

Chart 9.2
Business R&D spending as a percentage of value added – Selected manufacturing sectors Canada and other G-7 countries, 1987[1]



[1] Data is 1987, or latest year available.

Sources: OECD, ISTC.

6 per cent through 1995. Allowing for expected inflation, these levels would still represent real – if small – increases.

Explanations for Canada's laggard performance most often cite our industrial structure, firm size, and level of foreign ownership. The economy has been based

primarily on resource industries, which perform relatively little R&D. The manufacturing sector in Canada accounts for only about 20 per cent of total output, while it accounts for more than 30 per cent in Germany and Japan.

Chart 9.2 compares Canada to other G-7 countries, looking at ratios of business expenditures on R&D to value added for several manufacturing sectors. Canada has a high R&D effort in the electronics and computer industries, outdoing the other G-7 countries. This reflects the strength of some leading Canadian companies. In all other manufacturing industries, except wood and furniture and textiles, our effort is lower than these other countries – in some cases substantially so.

While much of the debate on Canada's technological capability focuses on manufacturing, the impact of technology on our resources is apparent. Technological advances in machinery and seeds have greatly improved productivity in agriculture. Technology in mining has extended the resource base, enabling access to and utilization of previously inaccessible or commercially non-viable deposits. Technology provides us with information about our resources, permits us to "see" deeper into the earth, and provides refined age-dating techniques, geophysical deep-sounding and land and marine remote sensing techniques, which are essential to geoscience mapping.

Although our resources are critical to our economy, Canadian R&D spending in these sectors is well below international levels. A 1989 study by the Advisory Council on Adjustment showed that Canadian R&D expenditure in mining and quarrying in 1983 was about 0.6 per cent of the industry's domestic product, compared with about 3.8 per cent in West Germany, 2 per cent in Finland, 1.8 per cent in Sweden, 1.2 per cent in France and 1.1 per cent in Japan. In agriculture, forestry and fishing the Canadian number for the same year was about 0.1 per cent, compared with 0.7 per cent in Sweden, and 0.3 per cent in France.

Reasons for lagging private sector R&D

As noted earlier, a number of factors other than Canada's mix of economic activities contribute to our trailing performance in private sector R&D. We look at two of them briefly here.

First, the argument is often made that generally firms must be of a certain size before performance of their own R&D becomes economical. Thus, the many small- and medium-size firms in Canada may help explain why the overall private sector R&D effort is low by international standards.

Another argument is that even among those firms that do perform R&D, Canada's small average firm size might negatively affect our R&D effort. Canadian firms with under 500 employees account for 64 per cent of total manufacturing shipments, but for only 30.5 per cent of R&D expenditures. A similar pattern is found in the U.S. (21.6 per cent of shipments and 9.2 per cent of R&D expenditures). In Germany, however, small- to medium-size firms contribute a disproportionately high level of R&D expenditures relative to their manufacturing output. In that country, firms with under 500 employees account for only 12.9 per cent of total manufacturing shipments, but for 16.8 per cent of total R&D expenditures.

Canadian firms may also devote fewer resources to R&D because of the relative ease with which many of them can import technologies. Although information is limited, the transfer of technologies within multinational enterprises is clearly an important source of new technology for Canada.

Some argue that foreign ownership leads to a low R&D effort in Canada, but the issue is more complex. Foreign-controlled firms spend more on R&D in their home-base than they do in Canada. Also, on average, foreign-controlled firms devote a lower percentage of their sales to R&D than do Canadian-controlled firms, although the difference is not great: 1.2 per cent of sales for foreign-controlled firms compared with 1.5 per cent for Canadian-controlled firms. In both cases, average R&D expenditures are quite low. There are, however, notable exceptions to this pattern. In the aircraft and parts industry, the ratio of R&D expenditures to sales for Canadian-controlled companies in 1988 was only 13.5, compared with 16.8 for foreign-controlled companies. The ratios in three other industries were: food, beverages and tobacco – Canadian 0.2, foreign 0.6; non-metallic mineral products – Canadian 0.3, foreign 0.8; textiles – Canadian 0.5, foreign 1.6. Over all, in 1989, over half of Canada's top 20 R&D performers were foreign-controlled firms.

Industry R&D capability

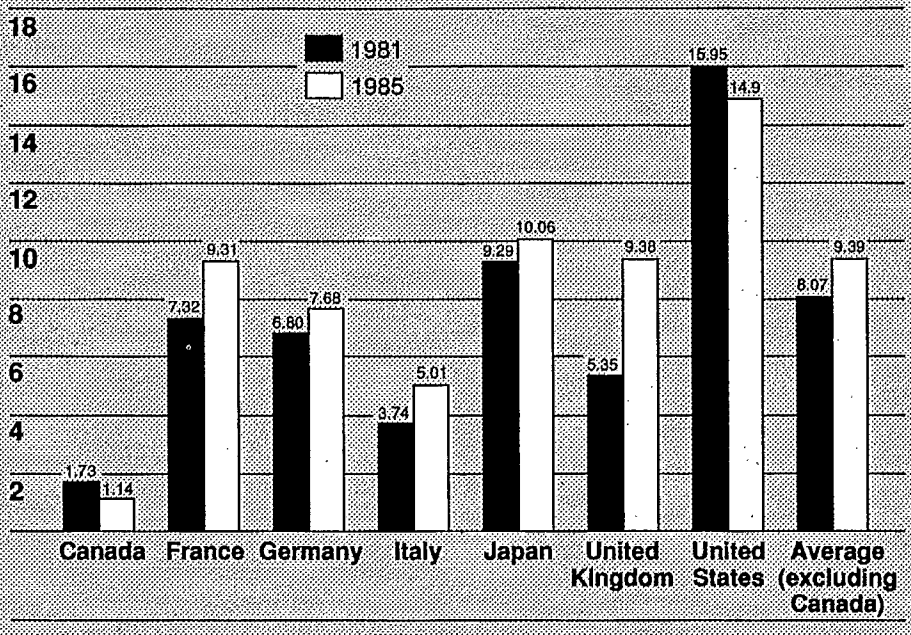
Many industry executives recognize that our private sector R&D lag, whatever the cause, could hurt the performance of our firms. They increasingly accept the view that the private sector must find ways to increase its R&D effort to remain competitive.

The automobile industry in Canada is a case in point. Chart 9.3 shows that R&D investment in the Canadian industry, as a percentage of value added, is about an eighth of the average for other industrialized countries. Innovation in the design of product and process has traditionally been centralized in Detroit, with the technology transferred to Canadian operations.

More efficient Japanese methods of designing product and process are now forcing American assemblers to rethink their practices. New methods of simultaneous engineering (designing product and process simultaneously), and the delegation of design responsibilities to suppliers will increasingly require Canadian auto-parts suppliers to develop an in-house engineering and R&D capability. Tier one, or prime suppliers, will be required to have full product and process design. These changing requirements present both opportunities for Canadian companies to expand their role, and a threat of declining sales if they do not.

Much uncertainty remains, however, about whether companies in the automotive and other industries will be able to respond to such pressures. The Science Council and the Economic Council of Canada, are studying the driving forces of R&D in particular industries, and will make recommendations. They will take into account variations in the importance and character of science and technology activity in particular industrial sectors.

Chart 9.3
International comparisons of R&D as a percentage of value added for the motor vehicle sector, 1981 and 1985



Sources: OECD, STAN database.

PUBLIC SECTOR INVESTMENT IN R&D

Rationale for public support

Governments support research and development because these activities, especially basic research, provide significant economic and social benefits – what economists call externalities – beyond those obtained by the individual scientist, laboratory, or firm carrying out the research. At the same time, the risks of R&D are fairly high, with outcomes uncertain despite the requirement of large fixed investment. The combination of substantial externalities and high risks means that private firms acting on their own are likely to under-invest in R&D, particularly basic R&D.

Governments therefore generally support research and development to the extent that the private sector is expected to under-invest relative to the returns to the whole economy. In a well-developed innovation system, the roles of government and industry are complementary and mutually supportive. Linkages between the R&D activities supported by industry and government are important to a country's system-wide strength.

The public also has an interest in supporting R&D when the research is related to government objectives in health, environment, and other public policy areas. Recently, governments have emphasized supporting R&D for economic development reasons, in which technology diffusion, as well as R&D, is extremely important.

A number of governments advocate or implement proactive industrial policies aimed at strategic industries, typically in high-technology sectors. Such industries display the following characteristics:

- high costs and risks involved in technology development;
- strong impact on – and wide application to – other sectors of the economy; and
- great export potential.

This reasoning has led countries around the world to adopt support policies for a number of industries in sectors such as biotechnology, computers, and aircraft, as Canada has through its Defence Industry Productivity Program. Such policies have produced mixed results: some successes, some failures, and some industries that continue at significant public expense.

Level of public investment in R&D

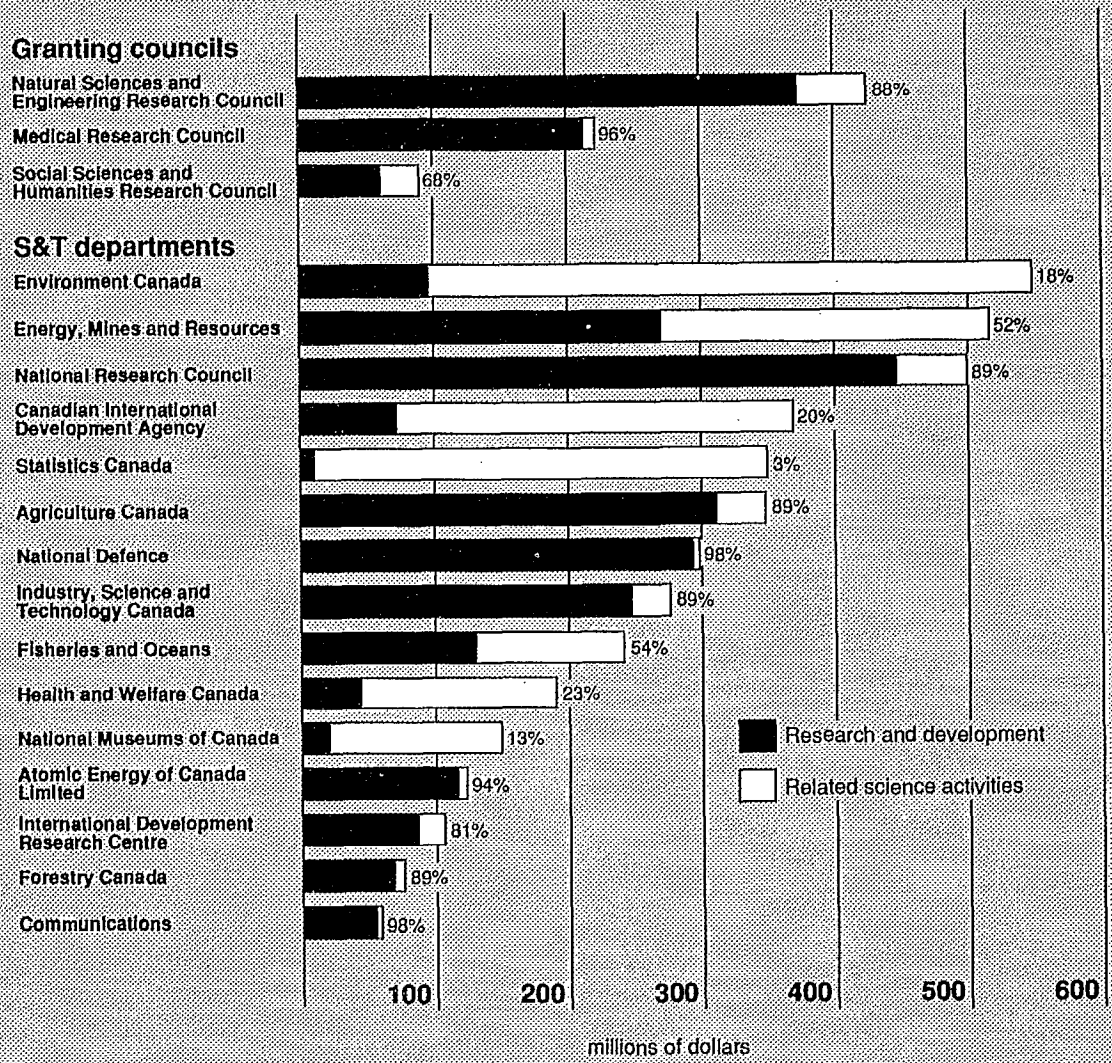
The public sector supports R&D through direct expenditures and tax assistance. In 1990, an estimated $9.1 billion was spent on R&D in Canada. Of this, some $2.7 billion (30 per cent) was federal expenditure, $621 million (7 per cent) was provincial, and $795 million (9 per cent) came from the higher education sector. Most of the higher education funding originates in the federal and provincial governments, with the federal government contributing indirectly through its Established Programs Financing (EPF).

Through tax assistance, firms earned some $764 million in federal investment tax credits for experimental research and development in 1988. A recent study by the Conference Board found that Canadian governments, federal and provincial, have one of the most generous systems of tax incentives for R&D among industrialized countries.

In 1990, in-house federal research and development of some $1.4 billion accounted for 16 per cent of all research and development in Canada. In many fields federal laboratories are the country's major performers of research. Federal laboratories are working to increase the transfer of their technologies to potential receptors in the private sector.

The provincial governments also play an important role. During the 1980s, their direct support for R&D more than doubled. After the federal government, they are the major source of funds for sponsored university research, providing about 22 per cent of the total. Moreover, most provinces have provincial research organizations whose activities relate to the economic base of the province and to other areas of provincial concern.

Chart 9.4
Estimated federal S&T expenditures by department, 1990-91



Note: The numbers indicate R&D as a per cent of total expenditures.

Source: Statistics Canada.

In addition to R&D, governments also support related science activities (RSA) such as scientific data collection, testing, and information services. In 1990-91, the federal government spent an estimated $5.4 billion on R&D and RSA, which together account for total federal spending on science and technology (S&T). Chart 9.4 shows this broken out by departments and agencies.

In science and technology, benefits can be delayed and indirect. Important as it is to ensure that S&T dollars are well spent, effectiveness may be difficult to gauge.

Some 58 per cent of federal S&T activity is performed in-house, much of it to serve government activities such as regulation. In Canada, the growth of national research institutions such as the NRC occurred because of the inexperience of the private sector and the universities. Now that these sectors have grown in sophistication, it is questionable whether more than half of federal S&T spending should remain in-house.

The National Advisory Board on Science and Technology recently reviewed the management of federal in-house performance. Its report, *Revitalizing Science and Technology in the Government of Canada*, concluded that the organization and design of these activities are not keeping pace with the best practices of the leading science organizations. It recommended establishing arm's-length institutes for federal research.

Given the substantial amounts the federal government invests in S&T, particularly in its own operations, the direction of these expenditures and their relevance to the social needs of Canada as we move toward the next century must remain under examination.

TECHNOLOGY ACQUISITION AND DIFFUSION

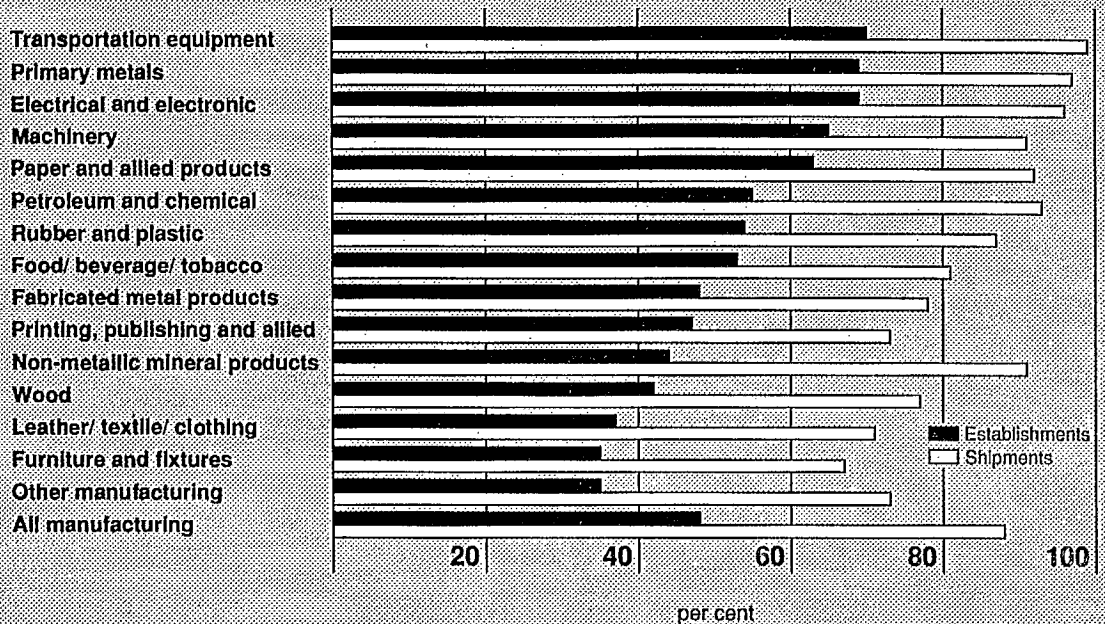
For all economies, technology acquisition and diffusion, as distinct from technology creation, are a key mechanism for creating technological capability. This does not mean R&D is unimportant – in fact, a research and development capability can enable firms to acquire and use new information and technology more effectively.

Many companies, however, especially those of small- and medium-size, find that the size of the firm, and the cost and risks associated with R&D make it advantageous to acquire technology rather than try to develop it. They tend to rely on the knowledge and expertise of outside advisors when undertaking technology applications.

Canada's record in technology acquisition

From limited information, Canadian firms appear generally to be slower than their foreign competitors in applying new technologies in the workplace. In part, this may reflect measurement problems; for example, transfers of technology within multinational enterprises may not be fully reported. But this does not account for the whole problem.

Chart 9.5
Use of at least one advanced manufacturing technology, 1989



Source: Statistics Canada.

Poor productivity growth over the last decade suggests that Canadian firms have been less successful in harnessing the potential of new technologies than some of their competitors. Chart 9.5 presents data from a 1989 survey by Statistics Canada showing that fewer than half of the manufacturing establishments surveyed had implemented one or more of 22 leading manufacturing technologies.

Recent research for the Economic Council of Canada, comparing the use of advanced manufacturing technologies in Canada and the United States, found that observed differences between the two countries were partially attributable to differences in establishment size. This suggests that framework policies – the FTA, the new *Competition Act* – that promote industrial rationalization and a more competitive environment, can result in enhanced technology diffusion.

The same study also found that even after correcting for the scale effect, a gap remains between companies in the two countries, and is particularly apparent within the smallest establishments (under 100 employees). This suggests that upgrading Canada's technological capability will depend, to some extent, on providing supporting infrastructure, services and institutional mechanisms that encourage smaller firms to invest in new technologies.

Promoting new technologies in the workplace

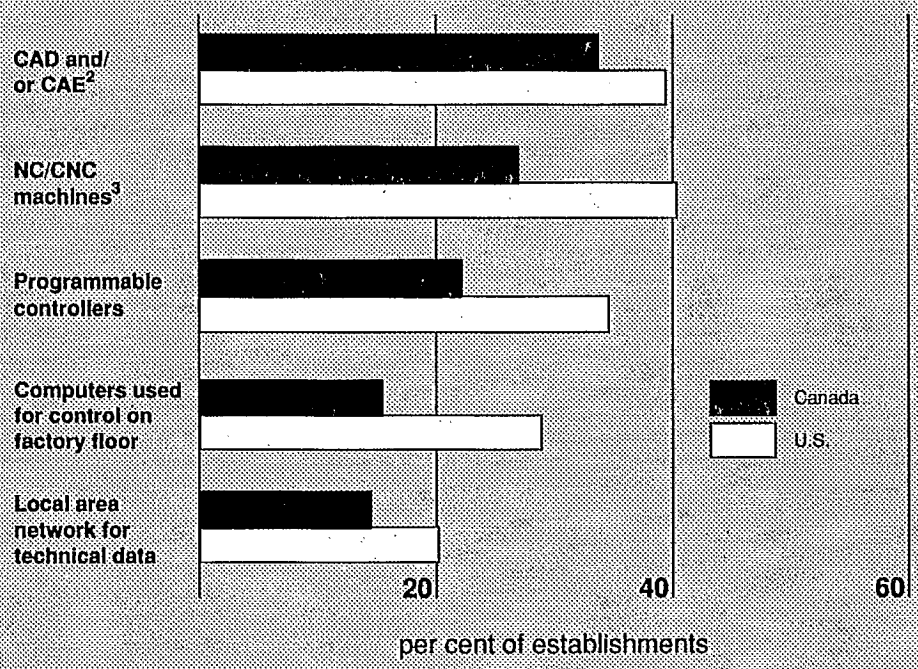
Canadian business leaders tend to stress managerial ability, technical skills, the business climate, and supportive infrastructure – in that order – as the factors essential to successful acquisition and use of new technologies. These views emerged from a series of interviews with executives of 80 Canadian firms in 10 industries. Moreover, other studies published in recent years support these findings.

The executives noted the following kinds of services as being needed through a system-wide infrastructure, or network:

- help in tracking trends in technologies, markets and related matters;
- help in securing licences and joint venture partners;

Chart 9.6

Percentage of manufacturing establishments in five industries[1] using selected technologies, 1988



[1] Fabricated metal products, industrial machinery and equipment, electronic and other electric equipment, transportation equipment, and instruments and related products.

[2] Computer-aided design and/or computer-aided engineering.

[3] Numerically controlled/computer numerically controlled.

Source: Statistics Canada.

- equipment-evaluation facilities;
- training;
- tax support; and
- financing.

National support networks and institutions specializing in technology diffusion have been established in many industrialized countries. In Germany, for example, the Steinbeis Foundation assists innovation in small- and medium-sized companies by providing technological consulting specialists in Technical Colleges and Centres. The German Fraunhofer-Gesellschaft, through its network of laboratories and technological institutions, engages in R&D on behalf of German corporations. In Australia, the recently established National Industry Extension Service, a joint federal-state network, is intended to boost the performance of small- and medium-sized manufacturing companies by providing information and advisory services on business and technology.

Enhancing technology diffusion

The chairman of the international experts group on the OECD's Technology/Economy Program (TEP), former Swedish Finance Minister Kjell-Olof Feldt, summed up the TEP activities in February 1991 in Montreal with these comments on technology diffusion:

> A system that can produce highly advanced technology may nevertheless fail to deliver economic and social benefits to society if there are constraints on the diffusion of new technology. We favour a broader view of the diffusion process than has been traditionally adopted, and we think that governments should attribute more importance to the diffusion process.
>
> The broader approach means that in focusing on firms, their total environment should be taken into account. It also suggests the need to co-ordinate policies – currently often dealt with by different ministerial departments – over the whole range of factors affecting technology diffusion. Special attention may need to be paid to the needs of small- and medium-sized firms, which often have problems of not being able to acquire and assimilate new technologies. They can benefit from specific assistance in such areas as monitoring new technological developments, networking, information provision, etc. A concept worth exploring also is the creation of a technology extension service for small and medium enterprises similar to what exists in most member countries for agricultural enterprises.

Studies also underline the importance of new forms of corporate structure and inter-firm links. In Japan, for example, large producers work with small suppliers to help them improve products using new technological applications. In Canada, both industry and government have recently been bringing suppliers and customers together, but they could be doing this a great deal more.

A systemic capability to disseminate technology, knowledge, information and advice from expert sources can enable even companies without an in-house R&D base to draw on knowledge and expertise. The success of organizations such as the National Research Council's Industrial Research Assistance Program (IRAP) network, and the provincial research organizations lies in their assisting small companies in this way. The interdependence of R&D and technology acquisition activities can be realized at the level of the nation, as it is at the level of the firm.

Accordingly, the importance of technology acquisition to the large majority of Canadian companies, which do no R&D, indicates a need for governments, the private sector and the academic community to do more to ensure that companies can acquire the technology they need to be competitive. This must complement continued efforts to boost R&D investment.

Governments can only facilitate technology diffusion. The private sector needs to develop supporting frameworks of its own through industry associations and technical support groups. This can do much to fill the gaps in information and technological expertise, especially among smaller firms.

FORGING NEW LINKS

A market economy such as Canada's relies on private companies and investors, in the first instance, to channel resources into R&D activities that support industrial performance. The public sector also has a well recognized role, as we have outlined above.

For many years, the prevailing concern of Canadian science and technology policy was an R&D expenditure target, and the public sector was asked to somehow ensure that this target was met. But R&D spending is only an indicator of input into economic performance, and is not by itself an appropriate performance objective. R&D needs to be seen in relation to industrial structure, ownership patterns and other factors, such as defence expenditures. R&D is one – but only one – element of business strategy. OECD nations are increasingly of the view that the ability to create technology is outstripping the ability to use it, and that enhanced use of technology is a relatively low-cost way to enhance technological capability.

System-wide approach

The system-wide approach to promoting science and technology in the Canadian economy emphasizes first the linkages and infrastructure that will enable the parts of the system to be most mutually supportive. Economies that have experienced the greatest degree of success in building technological capability and using it for commercial advantage – Japan and Germany, for example – have matched judicious investments in technology creation with strong system infrastructures that facilitate the transfer and utilization of technology throughout the economy. A growing body

of expert opinion emphasizes that the system may fail to perform satisfactorily if obstacles are encountered in key linkages, despite the strengths of component parts.

Public sector infrastructure ranges from the state of equipment and facilities at universities and government laboratories to the quality of information and data gathering, and to communications networks. Prominent institutional features of the Canadian infrastructure include federal government laboratories such as the National Research Council's facilities, its IRAP network, provincial research organizations, the Canada Institute for Scientific and Technical Information (CISTI), the Standards Council of Canada, Statistics Canada, the Canada Patent Office, the high speed communications networks, industry associations, and research institutions.

Public and private institutions, and the services, communications systems and other formal and informal mechanisms that link them and, more important, connect them with companies are thus all part of the infrastructure supporting the system. Regional networks and clusters of activity are integrated into national and international networks.

System capability helps firms keep pace with change and obtain state-of-the-art and best-practice technology and supporting services. It also enables the whole economy to achieve a balanced portfolio of investments in technological capability, and to adapt to change through structural and other measures. The system is underpinned by attitudes at all levels and in all sectors of the economy that put a high premium on science and technology. Ultimately system capability is a function of the skills and orientation of the people involved.

Linkages and alliances

Linkages and alliances may be particularly important in Canada, where geographic diversity, small company size, and other structural factors may mitigate against the achievement of the critical mass required to finance and conduct R&D. The emergence of generic technologies that apply across many industries is increasingly giving rise to new forms of research organization based on alliances, networking and pre-competitive research collaboration within industry and between industry and universities.

A technology strategy based on partnerships – among research funders, performers, suppliers, and users – can help capture the advantages of scale, spread the risks associated with uncertain research outcomes, and facilitate the diffusion of technology within and between sectors. Japan, the United States and Western European countries have major programs to promote alliances and other forms of research and development partnership. The Canadian government has also taken a number of modest steps in this direction. The government may have a role in fostering these linkages, but joint research initiatives involving the private sector, universities, government laboratories and provincial research organizations require strong industry leadership to be sharply focused on competitiveness.

In Canada, the federal government's Strategic Technologies Program supports the formation of alliances for R&D and applications development in information

technologies, biotechnology, and advanced industrial materials. Its main objective is not to "target" strategic technologies but rather to assist in forming alliances where technology development and applications cut across sectors. Industry-university-government research alliances are also promoted through the Networks of Centres of Excellence, the Medical Research Council's Research Partnership Program, and the Natural Science and Engineering Research Council's University-Industry Program.

Federal laboratories are increasingly moving toward collaborative research with industry; they report that such projects are the most effective means for the transfer of technology. Other policies of the federal government, such as establishing private sector advisory boards to science-based departments and agencies, give industry an opportunity to contribute to setting the research priorities of government laboratories.

The governments of Ontario and Quebec have also established technology funds to facilitate research alliances. Ontario has two programs designed to encourage the formation of alliances. Under the Industry Research Program, alliances are made among companies, suppliers and distributors, and research is usually contracted to universities. The Centres of Excellence program supports research networks among universities and companies in several fields.

The government of Quebec's Technology Fund covers a range of activities including technology awareness and dissemination, technology brokering and diffusion, pre-competitive research in strategic sectors, and developing international R&D alliances and joint ventures.

Support from other provinces includes the provincial research organizations that provide technical advice and assistance to firms and support specific university-industry alliances.

Clusters

Some theories of competitive advantage emphasize the importance of clusters of sophisticated buyers, suppliers, and supporting industries to generate a dynamic interaction in a particular industry. While these clusters typically emerge and grow naturally, public expenditures can enhance or reinforce them through funding specialized activities, such as a particular university program. Often clustering has a regional element, and local efforts to enhance the base can be as important as centrally established policies. We need to understand this aspect of our technological performance much better.

SUPPLY OF HIGHLY QUALIFIED PERSONNEL

An adequate supply of scientists, technicians and engineers is essential to competitiveness. They are the bearers of new knowledge; they facilitate the adoption and diffusion of new technologies in the workplace.

Already, as chart 9.7 shows, the number of research scientists and engineers in Canada, at about 4.5 per 1,000 members of the workforce, is in the middle of the

Chart 9.7
Total research scientists and engineers (RSE) (University graduates) per 1,000 labour force, selected countries, 1988

[1] 1987 data.

Source: OECD.

range of the other industrialized countries. It remains well below that of Japan (7.0), the United States (7.7), and Germany (5.6).

Nor can Canadians be optimistic about the future availability of highly qualified people, owing to recent trends in university and college enrolments. At the undergraduate level, although overall enrolments have increased over the last five years, the number of students in agricultural and biological sciences and in engineering and applied sciences have been essentially flat, while the number in mathematics and the physical sciences has been decreasing. As a result, enrolment in science and engineering is a decreasing proportion of overall university enrolments.

Women, who now comprise over 50 per cent of total university enrolment, are seriously under-represented in many fields of science and engineering. They account for only 32 per cent of all natural science and engineering undergraduates. Their

representation in the technology and technician courses offered at community colleges is even lower – some 21 per cent.

The low level of enrolment in engineering and the sciences is not due to an inadequate supply of places in Canadian educational institutions. Rather, it seems to result from declining demand from students for a scientific and technical education. This, in turn, may reflect students' perception of career prospects. Although governments can assist in increasing public awareness of science, industry is the key to reversing this trend. Industry must examine whether it values technical education adequately and whether it structures attractive careers and adequately remunerates technically qualified employees. Universities are the most important source of external research and development for Canadian firms, but both partners could do more to develop mutually profitable links that would demonstrate the value of technology to students.

Universities may compound the problem by giving the impression that an education in science, mathematics and engineering leads only to research laboratories and has little relevance to careers in other areas. The demands of a technology-driven marketplace increasingly require managers who are technically competent as well as scientists who understand how business is conducted, but this fact is not adequately reflected in many current attitudes and practices.

Maintaining a pool of highly skilled people requires government, industry, and educational institutions to work together. The federal government has already undertaken some initiatives. It provides support through the granting councils for the training of highly qualified people. The Canada Scholarships Program is designed to enhance overall representation by top students in science and engineering, in particular by women.

Educators and industry leaders can usefully explore how interdisciplinary links between science and managerial education could be built into university and college programs. Canadian industry does not yet have the strong links to university scientific, professional and business programs that exist in the United States and a number of other countries. The forging of links between business and educational institutions could help translate industry's demand for highly skilled people into increased university registrations in science and engineering.

Finally, aggregate statistics on the supply of highly skilled people tend to mask qualitative distinctions that are important to companies, such as the lack of skilled people in highly specialized fields, or the flexibility of graduates to adapt to changing markets and technologies. For example, in the materials field an integrated education in the use of a variety of materials is becoming more important. We need to improve our ability to measure and respond to such trends in demand.

INTERNATIONAL SCIENCE AND TECHNOLOGY STRATEGIES

Most OECD countries recognize that government science and technology policies can help them take advantage of international opportunities. Science and technology, as has been said, are inherently international. Canada has always

relied heavily on international collaboration in its S&T endeavours. Whether through direct research collaboration based on professional networks, or meeting challenges more formally, as in our space program, or solving joint problems, as in environmental issues, the international dimension of S&T for Canada is increasingly important.

Foreign-developed technology has been a major contributor to productivity in Canadian manufacturing, resource industries, and services, although domestic sources of technology are important to many companies. The federal Technology Inflow Program uses professional support at Canadian posts abroad and in the NRC's IRAP network to assist Canadian small- and medium-size firms to acquire foreign technology. Strategies to facilitate access for Canadian firms to technologies developed abroad through the purchase or leasing of machinery and equipment, international partnerships, investment alliances, information and data networks, joint ventures, licences and high-technology trade will be essential to our future prosperity.

Canada's Going Global initiative is designed to accelerate and diversify our international science and technology linkages. The success of Going Global in promoting new business and research alliances has led to regional fine-tuning. Our Canada-Japan strategy, for example, is working to reinforce Canadian strengths by plugging in to the best opportunities in Japan. Similarly, the government in consultation with major Canadian players in Europe is developing a strategy towards that continent, not only to gain entry to European Community science and technology projects after 1992, but also to promote strategic alliances between Canadian and European industry, venture capitalists, government laboratories, universities, and private research institutes.

The federal government is also reviewing scientific and technological opportunities in connection with projected negotiations with the United States and Mexico on NAFTA. The United States is not only our largest trading partner, but also constitutes our largest S&T relationship. Until now it has been a relationship that just happened, based on geography, common problems and interests. Owing to American preoccupation with its "technological leadership", however, Canada needs to examine closely the science and technology components of this relationship to determine whether any concerted governmental initiative is necessary to promote linkages to reinforce our domestic S&T goals.

ISSUES FOR DISCUSSION

It is clear that Canada's future well-being requires us to be effective both in our research and development efforts and in identifying and using new technologies developed in Canada and elsewhere. The following are some key questions for discussion.

Building capability in science and technology

- Staying competitive with other industrialized nations will require that Canada increase its investments in creating, managing, and using technology. Special emphasis is needed on industrial research and development spending and

on the acquisition of best-practice technology, especially by small- and medium-sized firms.

What specific actions might boost the performance of Canadian firms of all sizes in R&D, and in the acquisition, adoption and implementation of best-practice technology?

How might business, educational institutions, technical support groups, labour and governments work together to strengthen the system for the commercialization and diffusion of technology in Canada?

Improving public sector effectiveness

- The federal government spent $5.4 billion on science and technology in 1990-91. Some 58 per cent of this was performed by the federal science departments and agencies. Business groups continue to emphasize the need to make the activities of government more relevant to their needs.

What more could governments do to make their own S&T activities more effective in building Canada's technological capabilities?

What government-controlled constraints on private sector R&D investments and the diffusion of technology remain?

Building on traditional strengths

- Canada's traditional sources of strength – the resource industries being the prime example – can increase their contribution to the economy in their role as both market for, and producers of, advanced products and services.

What specific actions and mechanisms would promote an enhanced role for traditional industries in the knowledge-based economy of the future?

Highly qualified people

- Canada needs more scientists, engineers, technologists and technicians and better employment-opportunities for these skilled people in Canadian firms if we are to be competitive and maintain our high standard of living.

What additional actions might be taken to encourage students to enrol in the sciences, engineering and technology and to encourage firms to create attractive opportunities for these skilled people?

International strategies

- Canada will continue to rely on foreign sources for much of its technology. International strategies and partnerships can help Canadian firms and research organizations participate in research and development and get access to foreign technology.

What international S&T partnerships or other activities based on domestic priorities would help us stay current with worldwide developments, participate in international industrial technology development projects and gain access to technology from other countries?

CHAPTER 10: INVESTMENT IN HUMAN RESOURCES

A COUNTRY'S GREATEST ASSET

Ultimately, technology is knowledge, and it is developed and used by people. People define the limits of the technological capacity of a nation. They are the most important factor of production and they are decisive in determining competitive advantage. To be competitive, Canada requires a highly skilled, technically competent pool of people whose abilities are steadily being upgraded. The development of human resources must be seen as an investment.

The demand for educated, skilled and flexible personnel is increasing in all sectors worldwide as national economies upgrade their technological base. More and more, countries will be competing with each other to attract and retain skilled people. Simultaneously in Canada, changing demographics, shifting educational profiles of immigrants, and the pattern of undergraduate enrolments in the physical, natural and mathematical sciences indicate future shortages of highly skilled persons.

Our changing economy illustrates the pressures for new skills. From manufacturing to distribution, from resource industries to service industries and professions, the rapid transformation of the international economic environment is putting increasing pressure on the Canadian economy to adopt technological advances. The spread of communications technologies, for example, has not only changed the way we communicate but also the way we do business and with whom. The rapid growth in information, which is estimated to double every few years, has increased the importance of knowledge to economic development.

Globalization of manufacturing has tended to steer the mass production of standard technology goods to low-wage countries, making it difficult for Canadian companies to compete in these products. At the same time, the profileration of new technologies and shortened product life cycles have given producers the flexibility and capability to develop customized, high quality, knowledge-intensive products and services to meet specific customer requirements worldwide.

If Canadian industry is to compete in these sophisticated markets, it must develop the capacity to respond rapidly to shifting customer preferences while providing high quality, specialized products and services. This is true not only of leading edge, high-technology industries, but also of more mature industries such as automobiles and machinery and of service industries.

Investments in education and training are therefore required if Canadian industries are to use up-to-date technologies well and to shift their activities toward the production of high value, knowledge-intensive goods and services as well as increase the productivity of our resource sectors. The ability to use knowledge and information in new and creative ways is becoming the key determinant of success in the international marketplace. In a world where capital is highly mobile and technology potentially available to every competitor, a trained, flexible and motivated workforce can be the biggest drawing card for such investment dollars and, consequently, a country's greatest asset.

Canada ranked fifth among 23 OECD countries on the basis of the availability and qualifications of human resources, according to the 1991 edition of the World Competitiveness Report. Although this indicates that we have a relatively well-educated population and an efficient labour market, we should be concerned with our overall falling trend – from second place in 1989 to third in 1990 to fifth this year. Within the human resources factor, we did poorly in areas such as in-company training to promote competitiveness (20th), worker motivation (16th) and availability of skilled labour (15th), areas that are now more than ever, vital to competitiveness.

Although Canada's educational system has served us relatively well, it will need reform if Canadians are to enjoy the best jobs offered by the new global economy. Our historic practice of front-end education must be matched by lifelong learning.

This chapter looks over the challenges in human-resource investment and considers what Canada has done – and has yet to do – to meet them.

A TRIAD OF CHALLENGES

Changes in Canada's technology base, economic makeup, and demographic composition are all bringing an end to the days when the private sector could regard human resources as a relatively free good produced by the public sector. Increasing demand for skilled labour faces the prospect of dwindling supply. Technological, structural, and demographic factors are shaping new challenges.

The technological imperative

The proliferation of new technologies in all sectors of the economy has led to changes in the nature and level of skills required in the labour market. Making the most effective use of the new technologies often requires changes in the way work is organized – "soft" innovations such as team work – that depend for success on qualified, flexible, and motivated workers.

Chapter 9, which deals with science and technology issues, examines the indispensable role highly qualified people play in building a country's technological capability, in developing and spreading it. The scope of the human dimension of competitiveness is, however, much broader and more complex than having highly qualified personnel. Although technology is now, more than ever, essential to international competitiveness, our future prosperity will not be guaranteed by technology alone. The potential for gains in productivity, flexibility and responsiveness offered by the new technologies can only be realized through the skill and innovativeness that workers and managers bring to their adoption and use. Intelligent machines work best when paired in innovative ways with knowledgeable, motivated and skilled workers.

Many firms have learned through expensive and painful experiences that new technologies cannot simply be adopted in isolation as a quick fix or add-on to improve productivity. The potential gains are only captured with a high quality

workforce, and workplace innovations to team up people and technology. A comparative analysis of U.S. and Japanese approaches to Flexible Manufacturing Systems (FMS), for example, has demonstrated that the Japanese have been more successful in capturing the flexibility of FMS, and hence accompanying gains in quality and productivity, because they have relied more heavily on skilled workers to achieve continuous process improvement through learning and experimentation.

In this environment of change, training increasingly means serial learning experiences that constantly update a person's knowledge and sometimes transform it. The challenge for educators, employers, workers and unions alike is to create approaches that combine lifelong learning and a measure of employment security.

Trends in occupations

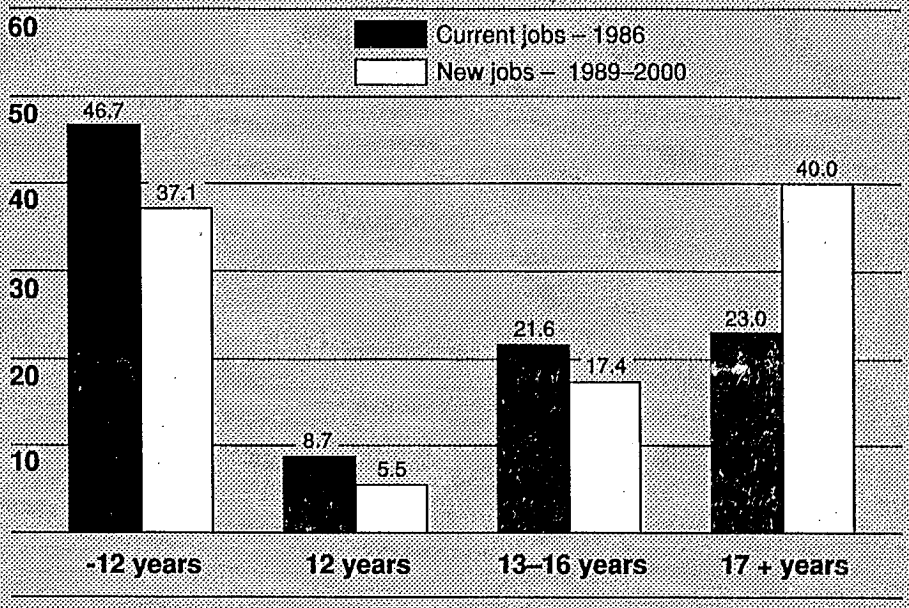
Rapid technological change, growth of information, and structural change are increasing the demand for skilled labour in the economy. As chart 10.1 illustrates, over half the jobs created between 1989 and 2000 will require education and training beyond the completion of high school.

Most of these jobs will be in the service sector. Today, 71 per cent of workers are employed in services, compared with 60 per cent in 1967. The Economic Council of Canada predicts that by 1993 services will account for 73 per cent of total employment, and this figure is expected to rise over the next decade. Within the service sector, the business-services industry – such as scientific and engineering services, and management consulting – experienced the fastest growth in the period 1967-1988, followed by health and social services, and finance, insurance and real estate.

Employment growth in the service sector has led to a change in the nature of the job market in Canada. Employment is increasingly either highly skilled, well-paid, and secure, or poorly paid and insecure. With the rapid diffusion of new technologies in services, however, even lower paying jobs often require greater technical skills and ability in reading, writing, and mathematics.

In the middle- and late-1980s, unemployment remained relatively high despite an increase in job vacancies. The Canadian Labour Market and Productivity Centre estimates that the number of job vacancies as a percentage of the labour force averaged 4.7 per cent in 1988, up from 3.8 per cent in 1987, indicating a growing mismatch between the jobs available and people looking for work. A number of surveys have confirmed that businesses are having difficulty finding personnel with the qualifications they need. Computer systems analysts, engineers, institutional managers, health care workers, machinists, tool and die makers, welders and construction trade workers were among the occupations in short supply in a number of surveys in the 1980s and the demand for many of these occupations is expected to grow rapidly in the 1990s. Although almost half the jobs to be created between 1990 and 2000 will require more than five years of combined education and training beyond the completion of high school, about 60 per cent of workers today have no more than secondary school education.

Chart 10.1
Rising education and skill requirements



Source: Employment and Immigration Canada.

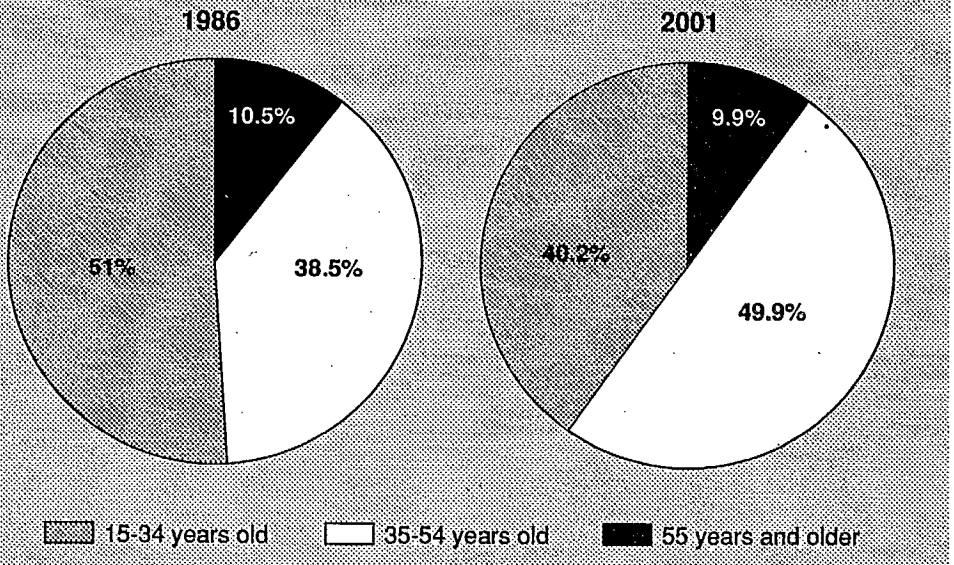
With one out of three workers each year changing jobs or being unemployed, highly educated and skilled workers will have a greater chance than the less-educated to obtain well-paid employment, and a greater ability to adjust to change. Individuals will increasingly need to invest in their own development for future prosperity and security.

Ageing of the labour force

The ageing of the labour force and a significant decline in the number of new labour force entrants will force all stakeholders – individual, business, labour and government – to reassess their view of Canada's human resources. For the rest of the 1990s, the number of new labour force entrants will be only about 180,000 a year, compared with well over 200,000 in the 1980s, and over 300,000 in the 1970s. Employers will be less able to rely on young workers, newly graduated from schools.

Older Canadians will constitute an increasing proportion of the labour force for the next two decades. In 1986, about 49 per cent of the labour force was over the age of 34. By the year 2000, almost 60 per cent will be. Chart 10.2 shows that the proportion of younger workers aged 15 to 34 will decline from 51 per cent in 1986 to 40 per cent in the year 2000. Higher levels of immigration are not expected to significantly change the effect of ageing on the labour force.

Chart 10.2
The middle ageing of the labour force



Source: Statistics Canada

The Canadian Labour Market and Productivity Centre estimates on the basis of these trends that about two-thirds of those who will be in the labour force in the year 2005 are already in it. Upgrading and renewing skills of the labour force will therefore become increasingly important. So will ensuring that those leaving the formal education system have acquired the skills that will allow them to continue learning throughout their working lives.

PERFORMANCE OF OUR EDUCATION SYSTEM

The convergence of these technological, structural and demographic trends raises important questions about how well equipped we are to maintain or improve our high standard of living. The recent reform of the unemployment insurance system and the associated launch of the Labour Force Development Strategy recognized the urgent need to invest in raising the skills of individuals facing unemployment and long-term labour market problems. The Prime Minister sought fuller answers to these questions by raising education and training issues as a matter of national concern at the 1989 First Ministers' Conference on the Economy. The recent federal proposals on Canada's constitution would recognize exclusive provincial jurisdiction over labour market training as is already the case for education. Nevertheless, the constitutional package envisages that, given the importance of training to Canada's international competitiveness and future prosperity, leadership in the area of skills standards would be exercised jointly by the federal and provincial governments as part of the effort to build a stronger economic union.

Learning systems in Canada

If Canada ranks third in the world in the contribution of human resources to competitiveness, this is mainly because of high investment and high participation in learning systems, including schools, colleges, universities and apprenticeship programs.

Investment in education and training

Table 10.1 shows that Canada is near the top of the OECD countries in education spending. Other countries such as Germany and Japan, which ranked lower in education spending, invest heavily in adult training, as illustrated in table 10.4 later in this chapter, but these expenditures are not reflected in table 10.1. Our ranking would fall if full government and private expenditures on both education and training were compared, but it is difficult to obtain comparable data. Canadian governments invest some $50 billion annually in education and training systems: $45 billion in formal education, and $5 billion in adult training. The federal government plays a major role by investing about $11 billion annually in education and training, both through programs such as adult training and student aid, and through transfers to the provinces of both grants and tax points.

Using the measure "effort in education", which is the ratio of amount spent per student to average per capita wealth, only Japan puts a greater financial effort into formal education. Our expenditures on elementary and secondary education rank specially high: second after Japan in spending per student as a percentage of GDP per capita (1985). At the post-secondary level, Canadian expenditure is also high in absolute terms, but only in the middle of the pack in "effort in education", coming after Japan, Britain, the United States and Germany.

Table 10.1

Total[1] educational expenditure as a percentage of GDP in selected OECD countries, 1987

Denmark	7.57
Netherlands	7.33
Canada	7.12
France	6.59
United States	6.44
Japan	6.38
Germany	4.41

Note: The data for France and Japan are for 1986.

[1] Includes both public and private expenditures on education.

Source: *Education in OECD Countries 1987-88: A Compendium of Statistical Information.* Paris: OECD, 1990 Special Edition.

Education spending in Canada has gradually declined as a percentage of GDP since the early 1970s, falling from 8.6 per cent in 1971 to 6.8 per cent in 1989.

Amounts spent on adult training have been very low in Canada. On average, only a third of employers provide training for employees. Private industry spends only 0.3 per cent of GDP on training – half the level in the U.S., a fifth of the Japanese level, and only an eighth of the German.

Participation

Canada has made great strides in mass education, reducing the percentage of Canadians with less than a grade 9 education from 44 to 17 per cent within the course of one generation, that is, between 1961 and 1986. During the same period, the percentage of adults with at least a post-secondary diploma has increased fivefold, from 4 to 22 per cent. The percentage of students obtaining their secondary school graduation has increased over the generations, though we may now have started to slip back as the number of young people dropping out of high school is increasing.

More and more Canadians recognize the importance of education and training. Post-secondary enrolments increased significantly in the 1980s despite a drop in the population aged 18 to 24: full-time enrolments at colleges increased about 22 per cent, and at universities about 27 per cent, in the period 1981-1988, while the 18-to-24 group decreased by 12 per cent. The increase reflected both the rising proportion of young Canadians who go on to post-secondary education and the increasing number of those over 25 years old who enrol full time in post-secondary institutions. In 1988, 10.5 per cent of full-time students enrolled in post-secondary institutions were in the 30-and-over age group, compared with 8 per cent in 1982.

More than three million people registered in adult education courses in 1983. Over one million Canadians are currently registered full time in public trade schools, colleges and universities. Close to one in four Canadians intend to start an educational program within the next five years.

Canada has the second most accessible post-secondary education system in the world, with a participation rate of some 4,800 persons per 100,000 population. The United States comes first with a participation rate of 5,167. These numbers reflect only post-secondary attendance, however, not graduation. Although Japan has a much lower participation rate, 34 per cent of Japanese males in the age group 25-34 have a university degree, compared with only 16 per cent of Canadian males in that age group. In the same group, 16 per cent of Canadian females have a university degree, compared with 12 per cent of Japanese females.

Despite relatively high levels of attendance, high school retention of students is still a major challenge. Literacy problems and other education shortcomings will persist as long as the present dropout rate continues. The secondary school dropout rate remains high, at 33 per cent, although retention rates have increased dramatically since the Second World War, when about 70 per cent of Canadians did

Table 10.2
Estimated dropout rate[1] for secondary school students – Canada

	(per cent)
1979-80	38.0
1980-81	36.2
1981-82	35.7
1982-83	33.1
1983-84	28.2
1984-85	29.3
1985-86	29.8
1986-87	30.4
1987-88	33.0
1988-89	33.2

[1] Method of estimation overstates the *actual* dropout rate, as students failing to graduate within the prescribed number of years are statistically considered as "dropouts". Comparison with dropout rates in other countries, especially Japan, Germany and the U.S., should take these statistical definitions into consideration.

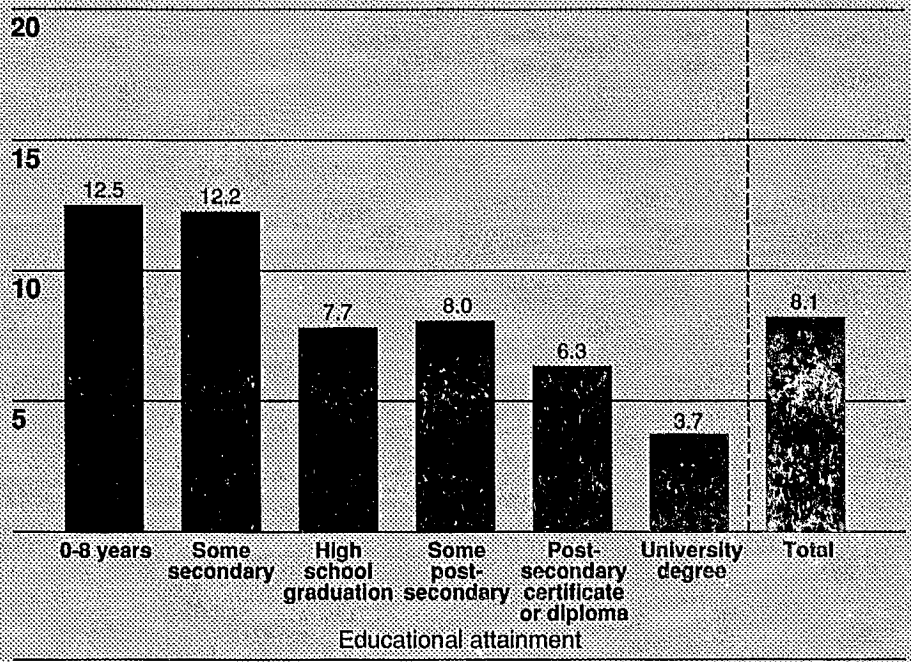
Source: Education, Culture and Tourism Division, Statistics Canada, October 1991.

not complete high school. The number of students going back to school to upgrade their education appears, however, to have been increasing in the last decade. Thus the 1990 Ontario Premier's Council report, *People and Skills in the New Global Economy*, indicates that, between 1977-78 and 1987-88, the number of school re-entrants more than tripled in Ontario, from 15,000 to about 50,000. At the same time, as table 10.2 shows, the dropout rate in Canada has also been increasing in recent years.

The Canadian high school retention rate is similar to the United States', but substantially lower than Japan's, which is 90 per cent. With fewer young people in school today, we can ill afford to lose those we have. The high dropout rate risks creating a group that is functionally illiterate, largely untrainable, and increasingly unemployable. Chart 10.3 shows how steeply the unemployment rate increases for the poorly educated. Those with less than a high school diploma face an unemployment rate one-and-a-half times the national average.

The reasons for the high level of dropouts are many and complex. Studies indicate that the main ones are socioeconomic status, family structure, high-school streaming, academic performance, dislike of school, and excessive part-time work.

Chart 10.3
Unemployment rate by educational attainment, 1990



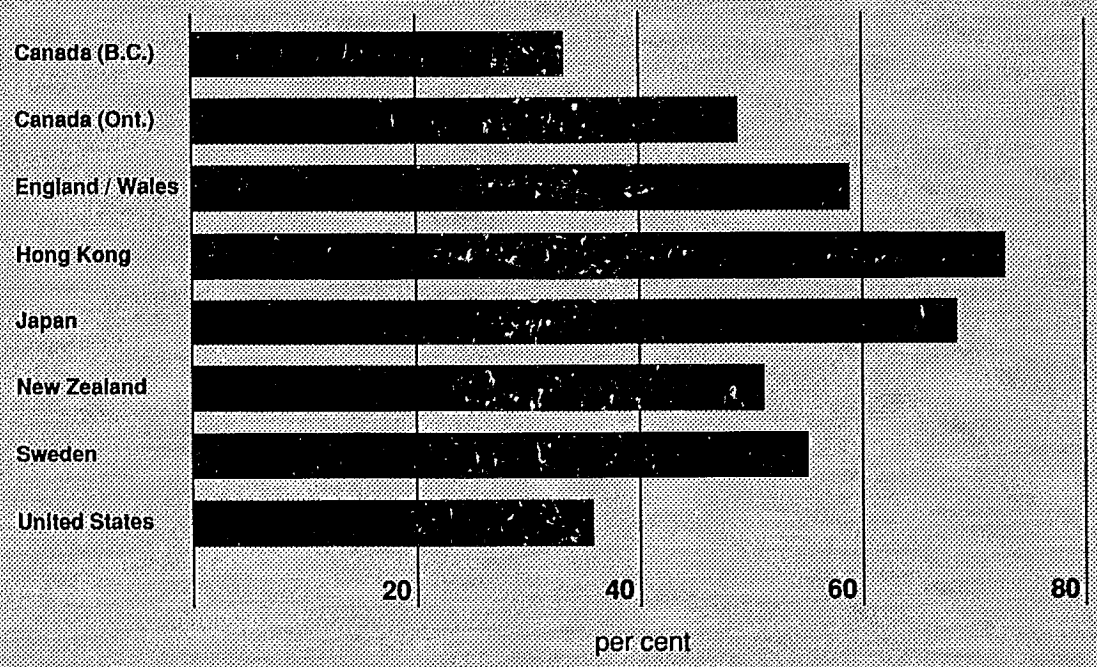
Source: Statistics Canada.

Table 10.3
Number of school days in a standard school year

Japan	243
Germany	226-240
Hong Kong	195
England/Wales	192
France	185
Canada	180-185
United States	180

Source: Atlantic Monthly, November 1989.

Chart 10.4
Results of second international mathematics study of students in final secondary year – 1982



Source: D.F. Robitaille and R.A. Garden (eds), *The IEA Study of Mathematics II: Contexts and Outcomes of School Mathematics*, Pergamon Press, 1989.

Basic skills

With fewer people entering the workforce, new entrants should have good basic skills and the ability to learn new ones after they leave school. They need a well-rounded education to enable them to adapt later to less predictable employment opportunities than used to exist. Entrants to the workforce should have an understanding of the value of high skill levels and continuous learning.

A recent Corporate-Higher Education Forum report stated, however, that the Canadian Test of Basic Skills indicated a general decline in scholastic achievement since 1966. The 1988 assessment suggested that students from the eighth grade were about one year behind their 1966 counterparts in mathematics, reading and spelling.

International comparisons of scholastic performance are difficult to formulate and results should be used with great caution. The results in chart 10.4 reflect different numbers of completed school years, different core course requirements and varied

curriculum content. In areas such as science and mathematical achievement, however, international studies tend to show Canadian students to be relatively less accomplished. Part of the reason for these poor results may be the limited time Canadians devote to learning. Table 10.3 shows that Canadian students spend significantly less time in school each year than students in countries in Europe and Asia-Pacific. In addition, schools are increasingly being asked to provide a variety of social roles that reduce the time available for the core curriculum.

A recent Statistics Canada survey found that 30 per cent of high school graduates – 1.2 million – cannot meet most everyday reading demands. Although the problem is more acute among the older age group, some 29 per cent – 1 million – of Canadians aged 16 to 24 experience various degrees of reading difficulty. Similarly, 36 per cent of high school graduates – 1.5 million – have varying degrees of difficulty working with numbers. Several Canadian universities have had to impose literacy tests and offer remedial courses for first-year students. Employers have expressed mounting concern about the quality of basic skills among new labour-force entrants.

Quality of post-secondary education

While enrolments in post-secondary education increased significantly in the 1980s, expenditure per student decreased. Some argue that this caused the quality of education to deteriorate because of outdated laboratories and support facilities, increased class sizes, increased use of graduate students and part-time instructors for teaching, and deteriorating physical plants. There is also a question whether funding formulas for universities were providing incentives to draw some students to universities who would have been better in other programs.

Industry has expressed concern that newly graduated engineers and scientists lack general management, communications, and international business skills. The Corporate-Higher Education Forum has called for more multidisciplinary curricula to ensure that technological innovation, and technical business and entrepreneurial skills are understood in all disciplines. The demands of a technology-driven economy will increasingly require managers who are technically competent and have a good understanding of the management of technological innovation, and scientists and engineers who have a good understanding of how business is conducted.

School-to-work transition

Compared with many countries, Canada does not have a well-developed system to teach skills during the school-to-work transition period. Declining enrolments in trade and vocational programs have worsened the problem. In Canada, school and work are divorced; even with government programs to assist the transition from school to work, students generally must have left school to be eligible, implying a sense of failure on their part. The recent Corporate-Higher Education Forum report notes that "there is little focus in Canada on exactly what the two-thirds of students who are not going to post-secondary education are supposed to be achieving in school".

Germany, in contrast, strongly emphasizes integrated work-study programs and has an elaborate apprenticeship system. German employers, through their Industry and Craft Chambers, lead in organizing and operating the system, which normally has 1.8 million trainees and graduates 600,000 apprentices each year. In Canada, only about 24,000 apprentices graduate each year. Our high rates of youth unemployment and growing skill shortages indicate the inefficiency of the school-to-work transition in this country.

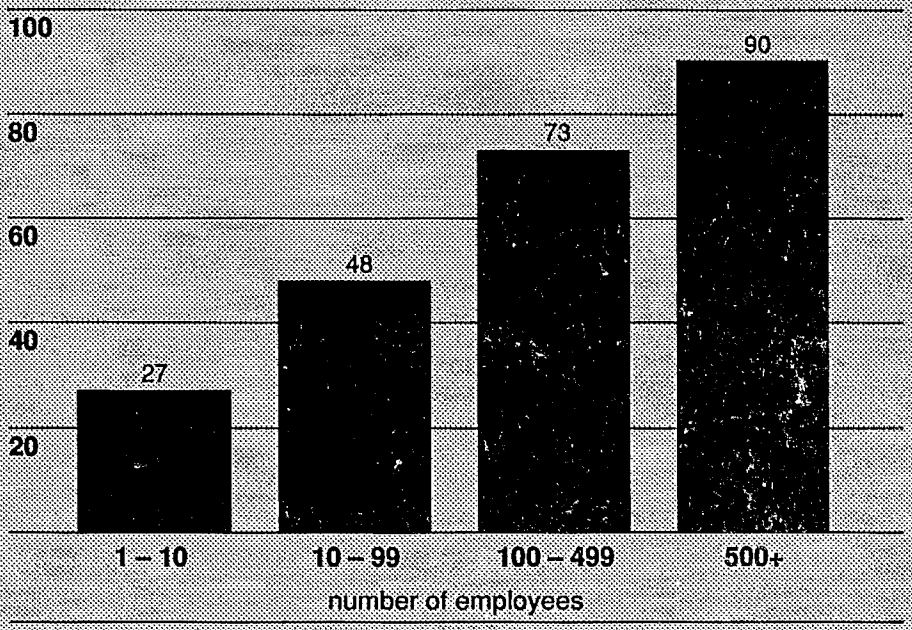
Critics say apprenticeship programs in Canada are not responding to employers' changing training needs. Course curricula are often out of date; they have not kept pace with modern technologies that are becoming commonplace tools in traditional trades. Incentives to attract young people to trades are inadequate. Lengthy training periods and low wages in our apprenticeship systems aggravate the dropout problem. Only 2 per cent of the workforce enters apprenticeship programs; of these workers, only 30 per cent complete their apprenticeships.

A weak training culture

Canada's resource wealth – material and human – has led to complacency about the availability of skilled and innovative workers. Strong growth of the labour force in recent decades and high rates of mobility between firms have encouraged employers to view human resources as a factor of production to which their only contribution is the wage-and-benefits package. Despite some improvements in business's training effort, most firms still view investment in human resources largely as a public responsibility. The low level of training taking place among adult workers is a serious concern. Canada lacks a training culture. We fail to recognize that investment in human resource development is just as important as investment in plant and equipment. For example:

- A survey by Ernst and Young of advanced technology firms in Canada found that although 47 per cent reported some formal training, most of the programs were no more than sporadic seminars and workshops. None of the firms provided training programs designed to assist employees in acquiring more advanced scientific or technical skills.
- A recent Statistics Canada survey found that only 31 per cent of firms in Canada provide formal training for their employees. Chart 10.5 shows that large employers are more likely than small ones to train their employees.
- Table 10.4 shows that private-sector spending in Canada on education and training as a proportion of GDP falls well behind that of our major competitors.
- The Conference Board of Canada reported in a recent study that almost three-quarters of companies surveyed believed that they had a significant problem with functional illiteracy in some part of their organization. The study found that illiteracy slowed the introduction of new technologies, impeded training and the acquisition of new skills, and restricted product quality. Only 24 per cent of the responding firms had developed a systematic human resource policy to deal with their illiteracy problems.

Chart 10.5
Canadian employers who train by size of establishment, 1986–87



Source: Statistics Canada.

Table 10.4
Private sector expenditures on training and education as a proportion of GDP – Selected countries and dates, 1982-87

Canada	0.25
United Kingdom	2.17
West Germany	1.96
Japan	1.40
United States	0.66
France	0.48

Source: Economic Council of Canada, *Employment in the Service Economy*, 1991.

Strong labour force growth, reliance on immigration to make up shortages of skills, and the large number of small businesses in Canada have all contributed to the low level of formal training. Current immigration policy, while still attempting to meet requirements for skilled workers, is based in large part on family reunification and humanitarianism. In future, Canada may have more difficulty attracting and retaining professional and scientific immigrants because their skills are increasingly in demand worldwide. Also, Canada is not as attractive as it once was, owing to the rapid industrial growth of our major trading partners.

Some 98 per cent of the businesses registered in Canada in 1988 were small: they had fewer than 100 employees. They accounted for 43 per cent of total employment. Many small businesses do not have the flexibility and financial resources to provide training to their employees, other than through "following Joe around".

NEW ORIENTATIONS

The key to improving the quality of our labour force will be found in striking effective partnerships among concerned groups and interests. A substantial part of the education and training effort falls within provincial jurisdiction. Indeed, the government's recent constitutional proposals include a constitutional amendment to recognize explicitly that labour market training is an area of exclusive provincial jurisdiction but with leadership in the area of skills standards to be jointly exercised by the federal and provincial governments.

All provinces are aware of the dimension of the challenge facing their education systems and many have moved to meet it. They are also working together through the Council of Ministers of Education to develop educational achievement measures that would help them reach consensus on educational goals and how to achieve them.

Much of the impetus for change, however, will have to come from the users of the system: parents, students and employers. The attitudes and expectations of users are crucial to educational reform. A partnership approach by all the stakeholders is required at each level: school, school-to-work transition, post-secondary, and adult education.

Post-secondary education

Post-secondary institutions face the major challenge of trying to expand private sources of revenue for university teaching and research, since public expenditures are under constraint and subject to rising demands from other groups in society. They also face the challenge of adapting curricula to the changes discussed in this paper.

With high numbers of dropouts from post-secondary programs – university, college and apprenticeship – the questions of what is being offered to whom, and for what benefit, must be answered. Institutions must determine if there is a better way of directing programs to maximize value for our education spending.

Challenge for universities

The need for universities to rethink their role was dramatically summed up by George Pedersen in "The Challenge for Universities", which appeared in the C.D. Howe Institute publication, *Canada at Risk? Canadian Public Policy in the 1990s* (January 1991):

> The astounding explosion of knowledge, the globalization of many economic, social, and political activities, new multidisciplinary approaches to deal with complex problems, recognition of the arts and social sciences as essential aspects for solving present social problems, the increasingly complex nature of a multicultural Canada, and the legitimate demands for greater social equity – all speak to the need to re-examine university program offerings.

In a world characterized by rapid change and obsolescence of skills, post-secondary institutions will have to shift from providing general skills and knowledge to full-time students to providing specialized programs meeting the particular requirements of a wide variety of students. They will have to innovate in delivering programs to students with the help of the new information technologies, which make it easier to train individuals, rather than groups, and to combine centralized teaching with decentralized learning.

The National Technological University (NTU) in the United States, which could be a model for the global university, demonstrates how a training venture uses new technologies and collaborative efforts of many parties. The NTU is a joint project of corporate and university concerns that uses major advanced communications and information technology to broadcast live and videotaped courses in science and engineering to students in their workplaces. It may contain lessons for Canada as interest in distance education increases.

Industry and the school-to-work transition

Many businesses have developed links to educational institutions so that both can work together more effectively. Successful initiatives such as adopt-a-school programs and co-operative education encourage further business involvement in education.

Employers can help all levels of education understand the skill spectrum required by industrial change. They can help students understand the skills they will need by becoming more involved in career days and counselling. They can support education through scholarships and assisting in the development of curriculum materials that use real industrial situations. Education-business partnerships can keep teachers up to date with new technological applications.

Educational institutions and industry can also work together to reduce dropouts. The *Ontario Study of the Relevance of Education and the Issue of Dropouts*, urges education-industry co-operation on programs of part-time work that would complement studies and school activities, rather than compete with them. The federal government is also contributing through its national Stay-in-School initiative.

Adult training

This has been an area of shared responsibility and the federal government has, in this context, long worked on its own and co-operatively with provinces on overall direction and standards for adult training. The private sector has recently begun to work more closely with governments in this generic training effort as reflected in the creation of the Canadian Labour Force Development Board. It is, however, increasingly recognized that industry itself bears the major responsibility for the training and development of its own employees.

Employers, with some notable exceptions, have failed to carry out their primary responsibility for training their employees. The economy would benefit from a substantial increase of their effort in the workplace. The federal government has concentrated its training efforts on people who are on the margins of the workforce. The provinces play an important role in providing public institutions and regulating standards and certification.

Labour market policy in Canada has been criticized for heavy emphasis on short-term income maintenance and entry-level employment training. Some observers have bluntly stated that government training programs are designed as much for welfare purposes as for economic development and that they flood the labour market with under-trained, under-subsidized trainees. There have been calls for governments to provide longer-term upgrading of skills, more advanced skill development and a coherent framework for shaping training objectives in response to the needs of both the economy and workers.

The federal government has responded with the Canadian Jobs Strategy and the more recent Labour Force Development Strategy (LFDS), to re-orient federal efforts in human resource development. With the LFDS, in particular, the government has started a shift away from passive income maintenance toward active employment measures for the unemployed. In 1991 alone, $1.2 billion will be spent on human resource development initiatives within the unemployment insurance program. This is consistent with the efforts of other OECD countries to build retraining initiatives into unemployment assistance programs.

As previously noted, the Government of Canada has proposed a constitutional amendment to recognize explicitly that labour market training is an area of exclusive provincial jurisdiction, given that skills training for the labour market is intimately related to the educational system, which is an area of exclusive provincial jurisdiction, and is a program area that can be delivered

on a local basis. However, in light of the importance of training to Canada's international competitiveness and future prosperity, it is proposed that leadership in the area of skills standards should be exercised jointly as setting standards and objectives will be essential to develop an internationally competitive labour force. Involvement of the private sector, however, will be of fundamental importance.

ISSUES FOR DISCUSSION

Plainly, Canada faces an immense challenge in making up for lost opportunities and developing its human resources to produce, compete, and prosper. A number of pressing questions arise for discussion from the brief survey of the issues we have undertaken in this chapter.

Developing a learning culture

- Canada's private sector needs to develop a commitment to training excellence to provide individuals with the learning and retraining opportunities they will need in a world characterized by accelerating technological and economic change.

Why does Canada's private sector training effort lag behind that displayed by the private sector in our major trading partners? What actions can the private sector take to overcome this problem?

How can we ensure that the skills and knowledge of workers remain relevant to new and changing needs?

CHAPTER 11: PARTNERSHIPS AND CO-OPERATION

STRESSING THE HUMAN FACTOR

The way we work together can make or break our other efforts to improve productivity and competitiveness. The challenge for Canadian investors, firms, unions, workers, educators and governments is to get all the pieces of the prosperity puzzle together at the level of the firm, the industrial sector, the community, the region, and the nation.

The prosperity-related goals of a stable macroeconomic environment, a fair and effective tax system, an economically and socially productive framework of law and regulation for business conduct, and creative investment give us common cause to overcome Canadian differences based on culture, language, regionalism, or occupational interests. We also have a common interest in organizing our work and our workforces so that we can pursue the most productive economic priorities and strategies; we can only do this by overcoming differences between labour, management, the self-employed, professional groups, and other stakeholders in the economy.

The geographic, political, and social makeup of our country does, however, raise difficulties in realizing common goals and interests. Policy co-ordination and co-operative approaches are more complicated than in many other countries owing to our federal structure, physical distances, regional diversity, two official languages, and multicultural makeup. To this is added a tradition of adversarial management-labour relations and too little co-operation among business, labour, and government to deal with national economic issues that demand their joint attention.

This chapter discusses problems and possible solutions in the areas of business management, management-labour relations, business-to-business relations, government-to-government economic harmonization, and co-operation between the private and public sectors. Another essential aspect of economic interdependence – co-operation between business, labour and the education system – was discussed in the preceding chapter.

BROAD-MINDED MANAGEMENT

A growing number of successful companies in Canada and elsewhere recognize that competitiveness in the 1990s requires the firm to maximize each and every advantage available to it and integrate them. Integration means that functional units within an organization – product design, production, marketing, finance – must work together, rather than in isolation; all employees, not just management, must fully contribute to the development of the whole firm.

Epitomized in the term Total Quality Management, this approach uses production methods pioneered by the Japanese. It is based on a corporate commitment to embody the goal of satisfying customers' needs in management style, production processes, training, and employee development. The approach relies on teams to link functional areas, and on partnerships with customers and suppliers.

Northern Telecom illustrated the results of Total Quality Management in winning the "quality" gold award category of the government's 1990 Canada Awards for Business Excellence. Its Quality Means Business program emphasizes that customer satisfaction is the key to corporate competitiveness. The company involves customers in product definition and the development of performance expectations. It holds all levels of management accountable for quality performance and satisfying clients.

Production methods pioneered by the Japanese use similar techniques of integration and team building to maximize returns from investment in machinery and equipment and new technologies. Results from the International Motor Vehicle Program conducted by the Massachusetts Institute of Technology demonstrate that harnessing the full potential of new technologies depends as much on work organization and employee training as on investments in hardware. Use of techniques such as integration of product and process design with production and marketing, combined with flexible work organization and training, not only generates higher productivity gains, but also yields high quality, a key to competitiveness in the new global economy. The MIT study found that major automobile assembly plants that combine even moderate levels of automation with new management practices, involvement of employees, and acquisition of new skills achieved significantly higher productivity and quality levels than plants with either high or low levels of automation combined with traditional production principles.

Many Canadian firms in the manufacturing, resource, and service sectors, big and small, have adopted leading-edge practices. Some examples are:

Canadian General Electric The company has de-layered management, empowered employees to participate in deciding management practices, committed itself to extensive, individual employee training, and involved suppliers and customers in quality and product improvement.

Canadian Tire Corporation The company has introduced automated distribution centres and sophisticated communication links with suppliers and with its network of stores and distribution centres to improve customer services and overall competitiveness.

Milliken Industries This carpet tiles manufacturer has set quality as its driving corporate goal, and has implemented a comprehensive quality improvement plan involving everyone in the company, from production to administration, and from management to customer service. Teamwork and participative management have helped bring sizable improvements in on-time delivery, plant throughput, and reduction of down time.

Zepf Technologies This producer of advanced production packaging machinery and systems has made innovation in the workplace the key to competitiveness. The company's heavy emphasis on R&D and employee training continues to pay dividends, including the development of state-of-the-art cutting lathe technologies and computer-aided-manufacturing (CAM) software.

Inco Limited The world's leading nickel producer has substantially improved mining productivity by the development and introduction of automated and bulk mining methods at its Sudbury operations. It has also been instrumental in the development and manufacturing of drilling and continuous-ore-loading equipment.

Unfortunately, these promising examples are not typical of Canadian industry. Some Canadian firms are at the forefront of expertise and productivity in their field of activity, in manufacturing and services, as well as the primary resource sectors, but too many lag behind the practices of their international competitors, whether in adopting technologies, introducing new approaches to workplace organization and management, or going after global opportunities.

CREATIVE LABOUR PARTICIPATION

Only with highly qualified technical personnel and creative, motivated and skilled workers can firms introduce the new management techniques and advanced technology. New management and labour attitudes and improved working relationships are becoming indispensable to achieving productivity gains. Labour-management partnership is essential to making the whole system work.

Contrast between new and traditional systems

Increasingly, innovative firms recognize that workers must have an opportunity to contribute ideas, knowledge, and experience, not just physical labour, and to participate more fully in building company success. Management becomes less a process of control, and more a process of involving workers, through new techniques such as team management, quality circles, innovative work rules, and flexible compensation. Workers have much to gain from this approach: increased job satisfaction, control over their work, increased self-esteem, and opportunities for personal development. The increased competitiveness of their employer brings them greater job security and higher wages.

In these circumstances, both labour and business, confronted by the evolving realities of the marketplace, are continuously expressing concerns with the ability of the traditional collective bargaining system to meet their requirements. Unions tend to focus on perceived threats to the right of workers to organize, bargain collectively, and withdraw their labour when the need arises. Business, on the other hand, is preoccupied with what are seen as the inflexibilities of the current system, particularly the inability to adapt to changes in markets and technologies that can quickly affect the viability of commercial enterprises.

Increasing market pressures are therefore leading to a new style of labour-management relations internationally, characterized by:

- more open communication on strategic issues, and worker participation in key business decisions, such as introduction of new technologies;
- decentralization of contract negotiation from the industry level to the firm level, and from the firm level to the plant or economic unit (already a long-time characteristic of collective bargaining in Canada);

- improved training, employment security, and profit sharing;
- continuous bargaining on matters like work rules; greater co-operation in the introduction of innovative production practices like work teams and pay-for-knowledge; and flexibility in rules and use of new technology.

In contrast, traditional bargaining practices, designed for mass production technologies, are based on a sharp distinction between planning and execution, specialization of work, inflexible work organization, and a strong emphasis on centralized control of production. Workers are asked to complete specific, well-defined and routine tasks and activities. Labour-management relations are confined primarily to negotiating a comprehensive agreement every one, two or three years. Detailed rules in such agreements govern the assignment of jobs and workers, usually on the principle of seniority; workers are generally excluded from strategic decision-making and management processes.

Canadian labour relations

Canada's labour-management relations system lies somewhere between the traditional and today's more flexible systems. In Canada, about 36 per cent of wage and salary earners are unionized, compared with 16 per cent in the United States, 40 per cent in West Germany and 47 per cent in Britain. Negotiations here have tended to focus primarily on wages and benefits and have been largely adversarial in nature – a tendency which can contribute to strikes and work stoppages (although 95 per cent of all agreements in Canada are reached without such work stoppages), and can hamper the adoption of innovative, productivity-enhancing production practices and less rigid compensation schemes. In West Germany, by contrast, organizational and strategic issues affecting the workplace tend to be discussed more openly by labour and management before implementation.

Collective bargaining in Canada is evolving and increasingly providing the forum where new forms of co-operation between labour and management can be worked out. It is clear that unions and employers are aware of the need to consider new process and production technologies, including the fundamental issues of retraining and adjustment. Labour-management co-operation is not predicated simply on the notion that labour must co-operate to be competitive, accepting a management agenda without considering its own needs. Rather, joint labour-management initiatives are based on the common goal of ensuring the company's survival. The company gains by increased productivity and profitability; labour gains through safeguarding employment, improved wages and working conditions, and greater job satisfaction.

A number of sectoral labour-management associations have been established, such as the Sectoral Skills Council of the Canadian electrical and electronics industry. In the late 1970s and early 1980s, this sector experienced massive change. Japanese producers had penetrated many of its markets and the outlook was bleak. In the mid-1980s, a joint human resources study conducted by employer and employee organizations resulted in the creation of a sectoral training organization. The organization is not intended to deal with collective bargaining issues, but

focuses exclusively on training needs. A joint fund has been created to respond to the common training needs of the industry – the first of its kind in a manufacturing sector.

Numerous examples of co-operation between management and labour also exist at the firm or plant level. Again, many of these ventures emerge from a mutual interest in survival. At Suncor in the Alberta tarsands, management and union representatives concluded after a long strike that new means of co-operation were required, resulting in improved communications. At Edwards, a unit of General Signal, management and labour co-operated in a complete restructuring of the company's operations. Failure to do so would have meant the loss of the firm's customers to international competitors.

THE CO-OPERATIVE SIDE OF COMPETITIVENESS

A competitive market instilling rivalry between firms is the most effective way of improving productivity and economic performance; but sometimes firms can overcome their individual limitations by co-operating with other firms in strategic alliances, joint ventures, and research consortia.

A strategic alliance means co-operating with a competitor, supplier or customer, to develop a new product, enter a new market, or achieve some other specific goal. Joint ventures have similar characteristics but result in the formation of a legally separate entity. Alliances and joint ventures are among the fastest growing forms of business activity, particularly in globalized industries. Canadian business is not a leader, but is becoming aware of their potential. For example, Woodbridge Group, an automotive parts manufacturer based in southern Ontario, is expanding in the European and Mexican markets through alliances and joint ventures with automotive assemblers.

Pre-competitive research consortia, on the other hand, allow companies to get more out of their R&D budgets by pooling resources with other companies and with universities to investigate generic problems – that is, problems not specific to any product or process. The United States, Europe and Japan are using this approach to finance megaprojects such as the Sematech consortium to improve U.S. capacity in the production of dynamic random access memory (DRAM) integrated circuits. Two important consortia in Canada are Precarn, in artificial intelligence, and Westaim, in advanced industrial materials, both of which are supported under ISTC's Strategic Technologies Program.

DIFFICULTIES IN HARMONIZING PRIVATE AND PUBLIC SECTORS

Japan, Sweden, Norway and Austria are among the many countries that have set up forums to promote dialogue and seek consensus among labour, business and governments on key aspects of economic policy. Such approaches develop commitment to shared objectives, and agreement on how to reach them. Arrangements that suit one country may not be workable in others whose history, culture and traditions differ significantly, but they can be adapted.

Although Canada lacks the cultural homogeneity that may abet consensus-building in some countries, the Economic Council of Canada has noted that labour-business-government systems in quite different countries have some features in common. One is a shared national commitment to a common economic policy objective, such as full employment. Another is the centralization of political and economic authority in the national representatives of each group, so that they can truly speak for it and bind it to mutually agreed action.

Canada's cultural and regional diversity, as well as a highly fragmented structure of employer and labour organizations, limit the application of some of the foreign models. The Council noted in its Twenty-seventh Annual Review that in the early 1980s there were about 480 national associations in Canada authorized to speak on behalf of business. In 1989, the Canadian labour movement had eight central union organizations, federations, or congresses, and 291 national or international unions, and 809,000 members of unaffiliated unions.

Recent experience

Since 1984, the federal government has launched several efforts at consultation between the public and private sectors on major issues. They included national conferences on the economy (1985), post-secondary education (1987), and innovation and technology (1988). The government has attempted to open up and regularize the pre-budget consultation process. For the Canada-U.S. free trade negotiations and the GATT Uruguay Round, it instituted a wide-ranging consultation process. The International Trade Advisory Committee was drawn from business, labour, consumer, cultural, research, and academic communities across Canada. There were also 13 Sector Advisory Groups on International Trade comprising representatives of employers and employees from industrial sectors. A number of ongoing sectoral advisory groups contribute to the development and implementation of specific industry policies, including the Forest Sector Advisory Council and the Automotive Advisory Council. More recently, a major federal review of agricultural policy and prospects has been under way, involving 11 task forces of representatives of the agricultural community, consumers, and the federal and provincial governments.

The federal government has also employed advisory councils more broadly, drawing on business, labour, academia and other interests. Since 1984, new federal institutions – the National Advisory Board on Science and Technology and the National Round Table on the Environment and Economy – have joined older bodies, such as the Economic Council of Canada and the Science Council. Local and regional advisory bodies have also been established in connection with federal programs, including the Atlantic Canada Opportunities Agency and the Fund for Economic Development in Northern Ontario. More traditional, issue-oriented approaches have also continued, including royal commissions such as the one on surface transportation.

Federal political institutions have undertaken more open policy development and provided greater opportunities for consultation and dialogue between legislators and the public. The enhanced roles and responsibilities of Parliamentary committees are the prime example.

New provincial consultative bodies include the Ontario Premier's Council (1986), the British Columbia Task Force on Employment and Training (1984), the Manitoba Skills Training Advisory Committee, and older, more established bodies such as Quebec's Conseil consultatif du travail et de la main d'oeuvre.

The private sector itself could promote a broader consensus on economic priorities. In "Private Sector Challenge", a 1989 report presented to the Prime Minister, the National Advisory Board on Science and Technology set out some important initiatives that Canadian industry, in partnership with governments, educational institutions and the general public, could undertake to strengthen Canada's international competitiveness. In response, several key industry leaders, under the chairmanship of Dr. Angus Bruneau, President, Newfoundland Light and Power, are currently promoting and assisting in the establishment of grass roots Industry/Education linkages in communities across the country.

Some joint business-labour advisory and consultative processes, at arm's length from government, have helped shape policy. Chief among them is the Canadian Labour Market and Productivity Centre, a joint business-labour body. In addition to undertaking its own program of research on labour-market and productivity issues, the centre represented the federal government in organizing and conducting consultations on training options under the Labour Force Development Strategy. This led to the recent announcement of creation of the Canadian Labour Force Development Board, through which the private sector will contribute directly to decision-making on the implementation and delivery of federal labour force development programs.

Particular industrial sectors offer examples on a more limited scale of successful co-operative approaches by key stakeholders. The Canadian Steel Trade and Employment Congress is perhaps unique as an example of business and labour coming together, initially under government auspices. They discuss sectoral problems and prospects, reach consensus on problems and objectives, and administer jointly, with considerable autonomy, federal assistance for worker adjustment to dislocations resulting from technological or economic change.

Le Centre d'adaptation de la main-d'oeuvre aérospatiale au Québec is another example of sectoral co-operation. The centre's role is to coordinate the activities of trade unions, employers, educational institutions, and government organizations involved in the training of skilled labour for Quebec's aerospace industry. Employment and Immigration Canada contributes 40 per cent of the centre's budget, the Quebec Minister of Manpower and Income Security 40 per cent, and employer members 20 per cent. Its nine-member board of directors consists of representatives of the Canadian Aerospace Industry Association, unions with members in the aerospace industry, and the federal and provincial governments.

INTERGOVERNMENTAL CO-OPERATION

Governmental partnerships are essential because, under Canada's federal system, economic roles, responsibilities and powers are shared between the federal government and the provinces, territories and local governments. Some areas are

of federal exclusivity or primacy, others exclusively provincial, and still others of essentially shared jurisdiction. Regardless of the precise constitutional sharing of powers and responsibilities, Canada's integrated economy and the many shared tax and expenditure fields result in a high degree of federal, provincial, territorial and local government interdependence. Spending and taxing decisions by one level of government often have significant impacts on the others, or transmit mixed messages to the private sector and the international investment community. This interdependence has required, at the least, timely intergovernmental consultation and co-ordination.

A fundamental objective of the government's recent constitutional proposals is to provide a framework and an environment within which all Canadians and Canadian governments can co-operate more effectively. A principal specific thrust is to strengthen and enhance intergovernmental co-ordination and collaboration through, for example, the entrenchment of a Council of the Federation, composed of federal, provincial and territorial governments. Areas of primarily private responsibility, such as training and technological innovation, clearly require co-ordinated action by governments as well. Federal-provincial co-operation is plainly essential in such key areas as macroeconomic stability, reduced public sector burdens on the economy, enhanced regulatory harmonization, tax system complementarity, and reduced barriers to the interprovincial movement of goods, services and resources. More fundamentally, public sector co-operation is important to demonstrate economic leadership to business, labour and other players in the economy, and to secure their participation in broader co-operation between the public and private sectors. This is essential to maintain investor confidence in the economy, ensure firms' ability to plan for the future and face changing market demands, and to secure jobs for Canadians despite increasing foreign competition.

ISSUES FOR DISCUSSION

Trying to work out ways to encourage often-clashing interests to get together for the common good requires a discussion of how Canadian interest groups and governments relate to each other. Some key questions that could be raised are suggested below.

Private sector partnerships

- Co-operation among Canadian business people, workers, and educators is needed to improve management, upgrade employee skills and stimulate greater innovation in the workplace.

  What measures might be taken to encourage greater co-operation between management and labour and between industry and educational institutions?

Private-public sector partnerships

- There is a need to develop wider understanding and consensus among Canadians on economic challenges, priorities and strategies.

How can we improve stakeholders' understanding of each other's concerns and perspectives on economic challenges, priorities and strategies? Are there institutional improvements to be made?

CHAPTER 12: A DIALOGUE ON PROSPERITY

PROSPERITY AND PRODUCTIVITY

Canadians want a society in which there are good jobs for those who can work, a high standard of living, a healthy environment and social justice. Canadians today sense the need in a challenging world for significant changes in how we order our affairs and what we do. The current environment provides an exceptional opportunity for national renewal and setting the foundation for our future prosperity.

This paper has shown that the Canadian economy has serious weaknesses that must be remedied if we are to secure the prosperous society we aspire to. The central economic problem is that productivity growth has slowed markedly since the mid-1970s and is lagging behind that of our major international competitors.

Productivity is the underpinning of prosperity: it determines the sustainable level of earnings, our ability to pay for government services and, in many ways, the quality of our jobs and environment. Productivity is an issue for Canadians in all sectors – resources, manufacturing, tradeable and non-tradeable services and government. High productivity in one sector helps and supports that in another. Higher productivity should be a universal concern.

The sources of our weak productivity performance are complex and often deeply rooted. There is no quick, magic formula for improvement. Setting things right will take time, attention to a host of issues, and the co-operation and commitment of Canadians in all walks of life. Success calls for a new attitude among Canadians – a determination to raise our productivity growth. The very breadth of the issue requires active participation by governments, business, labour, educators – all sectors and all occupations.

Because of this, the Government of Canada has decided on the need for a national dialogue on ways to secure and enhance our prosperity. This paper has been prepared to assist that dialogue by providing an integrated analysis of the whole range of factors that bear on economic performance. It suggests the broad directions that discussion should follow and raises questions about key issues that must be resolved.

TOWARD A RESPONSE

New global environment

Our response to the issues that face us must recognize the competitive challenges of the new global economy. Goods and capital markets are highly integrated across borders. International direct investment is increasing dramatically as large corporations move toward global strategies of development, production and distribution. The link between investment and technology has become stronger. Canada must be attractive to investors who have a global strategy; our businesses and workers must look outward.

Our domestic policies, too, must recognize the constraints placed on us by the global economy, including the rules of international trade. We must continue to push to improve the access of Canadian products to foreign markets. That means working through the GATT and regional trade arrangements like the Canada-U.S. FTA and the proposed agreement between Canada, Mexico and the United States. As the boundary between domestic and international policy blurs, new understandings on international conduct will be required to avoid harmful international disputes.

Global trade in manufacturing and services is growing much faster than trade in commodities; real commodity prices are not rising. For Canada, this means we must become even more productive in our resource sectors and look increasingly to higher-value products and services for export growth.

We must come to terms with the challenge of sustainable development, both at home and internationally. This will require integration of economic and environmental objectives.

A new domestic environment

Canada has been caught in a squeeze of slow productivity growth, stable or slowly declining resource prices, mounting government debt and, until recently, rising inflation pressures.

In human terms, this has meant real wages stop growing; more of our taxes go to service the debt and less come back in real services. Employment in some key sectors, notably manufacturing, has been falling. Some groups, such as young families, have been particularly affected.

The problem is both "micro" and "macro". High government debt has created uncertainty and led to increased reliance on foreign saving. Cost pressures in the economy have risen and fuelled inflation. Monetary policy has remained firm. In the recent past, this led to rising interest rates, a higher dollar and further pressure on our competitiveness. But the alternative of failing to deal with inflation and our fiscal problems would be self-defeating. Interest rates have eased as inflationary pressures have subsided. Now there are clear signs that we are moving into an economic recovery.

Continued progress will require governments to control deficits, which divert scarce savings from productive uses and reduce the attractiveness of Canada to investors. Both governments and the private sector have an important role to play in limiting spending and keeping cost pressures under control.

Investing in people, technology and capital

Investment is the key to unlocking new opportunities and preventing obsolescence. We need a climate that will encourage private investment. As well, our governments need to focus on their own investments to ensure taxpayers are getting

a good return. Canada's total investment compares quite well with most industrialized countries and has strengthened in recent years. But, we do not appear to be getting full value from it.

Canadians' knowledge and skills are central to our long-term productivity and quality of life. Increasingly jobs require both better formal education and continuous training after graduation. Our systems of learning have weaknesses, although we invest a good deal in education: too many workers with poor basic skills, too many drop-outs, too little technical education. As well, we have a weak system of vocational training, both in the public sector and, notably, in the private sector, which invests too little in training.

High productivity relies on modern technology. Canada invests too little in research and development; our diffusion of technology appears too slow. The linkages within our scientific and industrial communities are weak. We have too few regional "clusters" of technical and business experts, which can be important poles of innovation. Our government investment on civilian science is comparable to other countries' investment but the effectiveness of our spending, particularly on government laboratories, needs review. Canada's private sector spends too little on science and technology. Ways must be found to improve performance.

Canada's investment in physical capital compares to that of most advanced economies and improved dramatically in the late 1980s. Questions have been raised, however, about the adequacy of our physical infrastructure. As well, we have not yet achieved productivity improvements commensurate with the increased investments in machinery and equipment.

The right framework

Much has been done to create a framework that will promote investment and encourage Canada to be more productive. A more open trading regime, notably the FTA, will foster a more efficient economy. Deregulation of key sectors, tax reform, privatization, the labour force development strategy, a welcoming policy for foreign direct investment, and fiscal restraint all belong to a broad strategy of renewal.

We will need to continue to pay attention to the basics. Competition encourages productivity. Our regulatory regimes, Crown corporations, and government services can all promote better use of resources. Our governments should explore new means of doing so.

Our internal market needs special attention: the over 500 barriers to interprovincial trade in goods and services should be eliminated by 1995.

The federal tax regime has been substantially reformed to encourage more efficient investment and to increase competitiveness with foreign goods and services. Problems remain in the lack of harmonization between federal and provincial regimes. As well, specific tax issues need consideration, especially in relation to innovative investments.

Important measures to further strengthen our financial institutions have also been undertaken. Concerns remain about the availability of capital for innovative investments and deserve attention.

Change and adjustment

Prosperity comes through change. The huge increase in prosperity after 1945 was accompanied by phenomenal changes in Canada – new industries and firms arose while others contracted or died. Such change can be difficult, especially for those lacking skills or living in regions with few job-openings. We must try to ease such adjustment for individuals, through income support and training, rather than by shoring up low-productivity employment. All regions and industries can become more productive.

The need for partnership

We will only succeed in developing the broad response necessary if we work together. This means a new approach to partnerships between:

- employers and employees,
- educators and the private sector,
- the private sector and governments, and
- federal, provincial and municipal governments.

Often, answers will be found in being more creative rather than in doing more. New methods of work can often bring even greater results than new technology or more investment. We must learn from our successes and those in other countries. We should not be afraid to experiment; this will require new partnerships and attitudes in the workplace.

SEIZING THE OPPORTUNITY

Canadians have demonstrated a new awareness of the issues discussed in this paper – a recognition that we need to make fundamental changes to some of our institutions and practices. This climate creates a rare opportunity for us to work together on an agenda for prosperity.

ANNEX: ISSUES FOR DISCUSSION

TRADING SMARTER

1. Meeting international challenges

a) How can we best use the GATT, OECD and other institutions to further liberalize trade and to address the importance of the international dimension of domestic policies? Should additional initiatives, beyond the FTA and NAFTA, be taken to build stronger ties with Europe, Asia-Pacific and Latin America?

b) How can we ensure Canada's domestic policies, including our import regime of tariffs, anti-dumping and countervail policies, other import barriers, as well as competition and other policies, adapt quickly to international best practices and reinforce our economic performance?

c) Are we properly organized and do we have the right policies to benefit from the increases in global investment flows, both inward and outward, in a manner that advances our private and public interests?

2. Trade, investment and technology

a) How can we better encourage closer partnerships among business, labour, educators and governments at all levels to ensure that our trade, investment and technology programs are best directed to the needs and objectives of Canadians?

b) Do existing trade promotion mechanisms need revising to ensure closer private sector-government co-operation?

c) Can we make our existing technology and investment programs more supportive of our longer term trading interests?

A COMPETITIVE DOMESTIC MARKET

3. Internal trade barriers

What additional approaches are needed to promote intergovernmental co-operation to create a single integrated market by 1995?

4. Framework policies

What further changes should be made to our framework policies to address the competitive challenges facing industry as a result of rapidly evolving technology, globalization and the opening of new markets?

5. Regulation

How might the design of our regulatory mechanisms be improved to achieve the policy goals which are important to the quality, safety and fairness of Canadian society in ways which are consistent with the competitiveness of our economy?

6. Adjustment programs

a) How can management and labour work together to facilitate workforce adjustment through better training and skills upgrading in firms and longer term approaches to the use and development of their workforces?

b) How can governments work together and their policies be improved in the areas of regional development, restructuring, and training to foster industrial competitiveness and facilitate adjustment?

7. Government services

What measures would encourage greater efficiency in the demand for, and supply of, the goods and services provided by governments, including Crown corporations?

FINANCING GROWTH

8. Cost of funds

What measures should be considered to lower the cost of funds in Canada in a sustainable way?

9. Availability of funds

a) What changes to the Canadian financial sector would enhance the supply of capital, while ensuring that scarce financial resources are efficiently allocated?

b) What steps should be taken in order to reduce the apparent knowledge gap between financial institutions and their business customers?

10. Regulatory framework

How can the cost of regulatory overlap best be minimized?

11. Taxation

a) How can we ensure that the Canadian tax system does not contain impediments to competitiveness?

b) How can better tax harmony be achieved among federal and provincial tax structures?

12. Investment

Given the importance of public infrastructure to our productivity potential, how might infrastructure priorities be set and how should they be financed, given the areas of responsibility and the fiscal constraints faced by all levels of government?

INNOVATING AND ADAPTING: SCIENCE AND TECHNOLOGY

13. Building capability in science and technology

a) What specific actions might boost the performance of Canadian firms of all sizes in R&D, and in the acquisition, adoption and implementation of best practice technology?

b) How might business, educational institutions, technical support groups, labour and governments work together to strengthen the system for the commercialization and diffusion of technology in Canada?

14. Improving public sector effectiveness

a) What more could governments do to make their own S&T activities more effective in building Canada's technological capabilities?

b) What government-controlled constraints on private sector R&D investments and the diffusion of technology remain?

15. Building on traditional strengths

What specific actions and mechanisms would promote an enhanced role for traditional industries in the knowledge-based economy of the future?

16. Highly qualified people

What additional actions might be taken to encourage students to enrol in the sciences, engineering and technology and to encourage firms to create attractive opportunities for these skilled people?

17. International strategies

What international S&T partnerships or other activities based on domestic priorities would help us stay current with worldwide developments, participate in international industrial technology development projects and gain access to technology from other countries?

LEARNING FOR THE FUTURE

18. Developing a training culture

a) Why does Canada's private sector training effort lag behind that displayed by the private sectors of our major trading partners? What actions can the private sector take to overcome this problem?

b) How can we ensure that the skills and knowledge of workers remain relevant to new and changing needs?

BUILDING PARTNERSHIPS: AN INTEGRATED STRATEGY FOR CHANGE

19. Private sector partnerships

What measures might be taken to encourage greater co-operation between management and labour and between industry and educational institutions?

20. Private-public sector partnerships

How can we improve stakeholders' understanding of each other's concerns and perspectives on economic challenges, priorities and strategies? Are there institutional improvements to be made?