Profile and Key Challenges of the Canadian Economy

Industry Canada

September 2003

Outline

A. Current Economic Conditions and Prospects

B. Structural Features of the Economy

- Macro-Economic Policy
- Regional Economic Performance
- Industrial Trends
- Trade and Investment

C. Key Challenges

- Productivity and Innovation
- Labour Market Trends

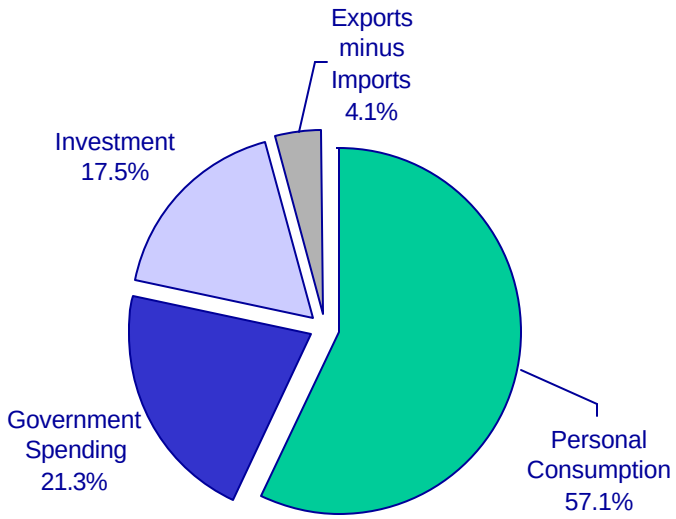
Section A:

Current Economic Conditions and Prospects

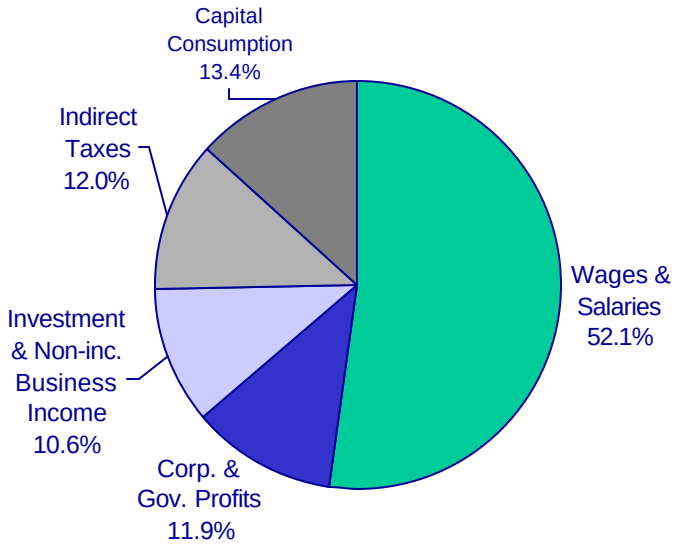
Overview of National Accounts

- The National Accounts encompass two ways of computing Gross Domestic Product (GDP), a measure of the level of economic activity in a country:
  - The **expenditure** approach adds the total value of all final goods and services produced. These include personal consumption expenditures, government spending, investment (housing as well as plant and equipment) and net exports.
  - The **income** approach adds up all payments made to the owners of the factors of production. These include wages & salaries paid to workers, corporate and government profits, investment and non-incorporated business income, indirect taxes less subsidies and capital consumption allowances (reflecting depreciation of capital stock).
- Canada's GDP was $1.142 trillion in 2002.

Share of Canadian GDP, 2002
Expenditure Based Approach



Share of Canadian GDP, 2002
Income Based Approach

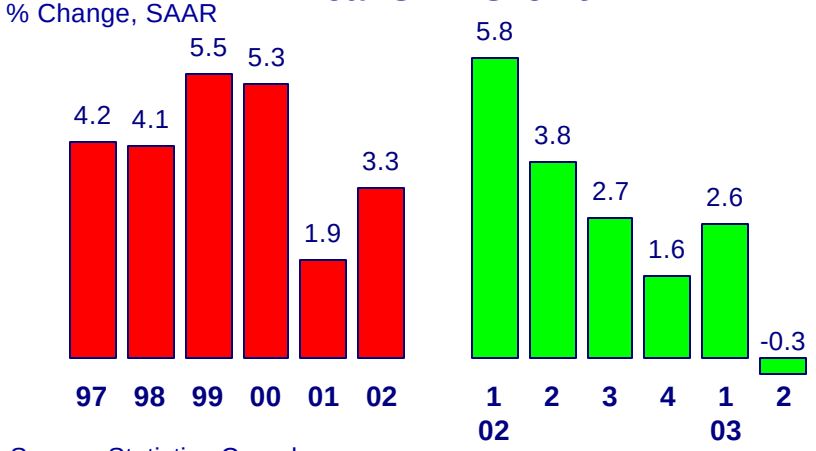


Canada was ahead of the pack in 2002 but growth has moderated

- Real GDP growth was 3.3 percent in 2002, the highest in the G-7.
- In the second quarter of 2003 the economy contracted 0.3 percent (annualized), down from 2.6 percent in the previous quarter.
  - A reduction in inventory investment and net exports led to the contraction, while consumer spending provided some support.
- The most recent Consensus forecast calls for growth of 2.0 percent in Canada this year, down sharply from 3.2 percent growth expected in January. It has been revised downward due to the negative impact of Severe Acute Respiratory Syndrome (SARS), mad cow disease, the rising dollar and economic weakness in the U.S. in the first half of this year.

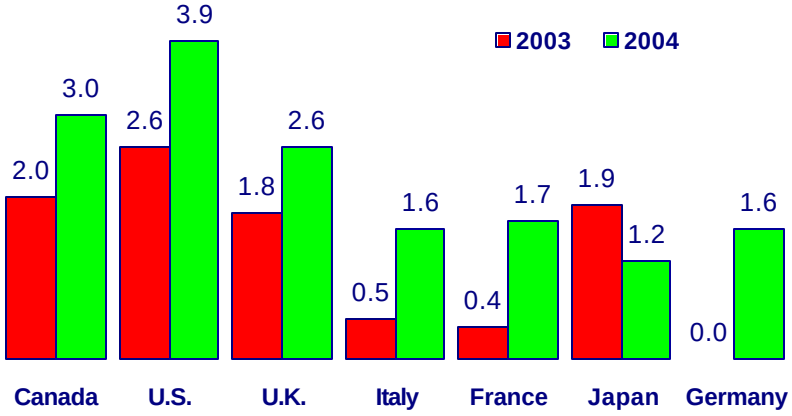
U.S. real GDP grew 3.1 percent in the second quarter, up from 1.4 percent growth in the first. Annual growth in the U.S. was 2.4 percent in 2002.

Real GDP Growth



Source: Statistics Canada

G-7 Comparisons of Consensus GDP Growth Forecasts

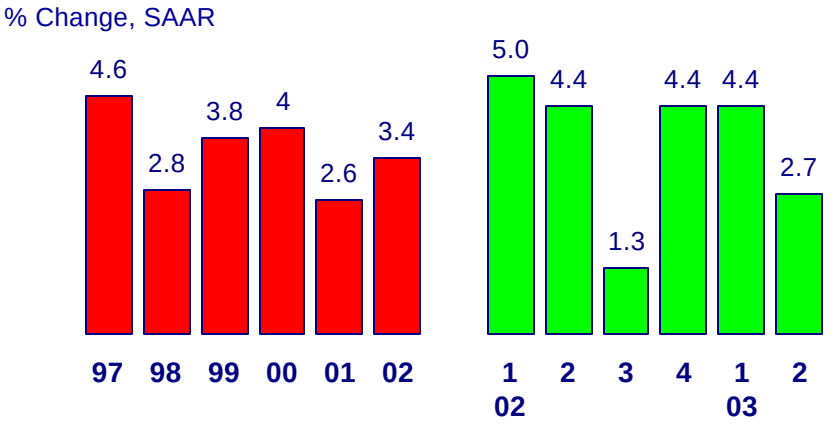


Source: Consensus Forecasts, September 2003

Consumer spending has been strong…

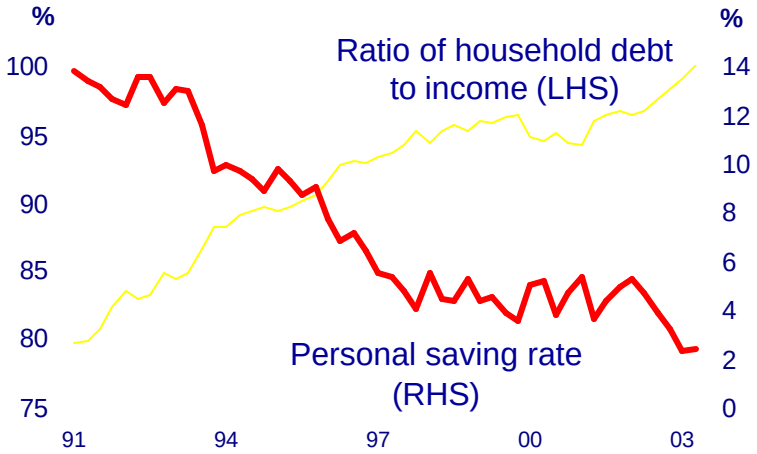
- Consumer spending slowed in the second quarter, growing 2.7 percent.
  - Consumer spending rose in all major goods and service categories. Recent increases in spending reflect solid personal income growth, low interest rates and a strong housing market.
- Declining interest rates since the early 1990s have significantly reduced the cost of carrying debt.
  - With consumer expenditure growing at about the same rate as personal disposable income, the personal savings rate rose slightly from 2.3 percent in the first quarter to 2.4 percent in the second quarter of this year. The savings rate averaged 4.2 percent in 2002, compared to 4.5 percent in 2001.
  - Higher consumer and mortgage debt levels raised the household debt-to-income ratio to 96.7 percent in 2002.

Real Consumer Expenditure Growth



Source: Statistics Canada

Personal Debt and Savings Rate



Source: Statistics Canada

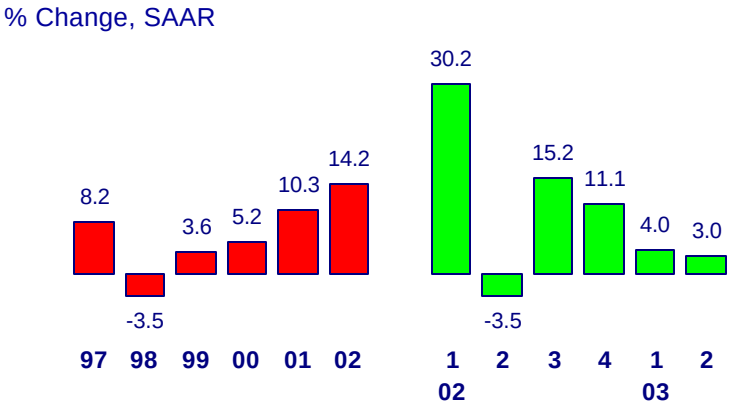
…and so has residential construction…

- Investment in residential construction grew 3.0 percent in the second quarter of 2003 following increases of 4.0 percent in the first quarter and 11.1 percent in the fourth quarter of 2002. Investment in residential construction was up 14.2 percent in 2002 compared to 10.3 percent in 2001.

- Decreasing mortgage rates combined with a healthy labour market and some pent up demand, resulting from a slow market in the nineties, have kept the housing market buoyant.

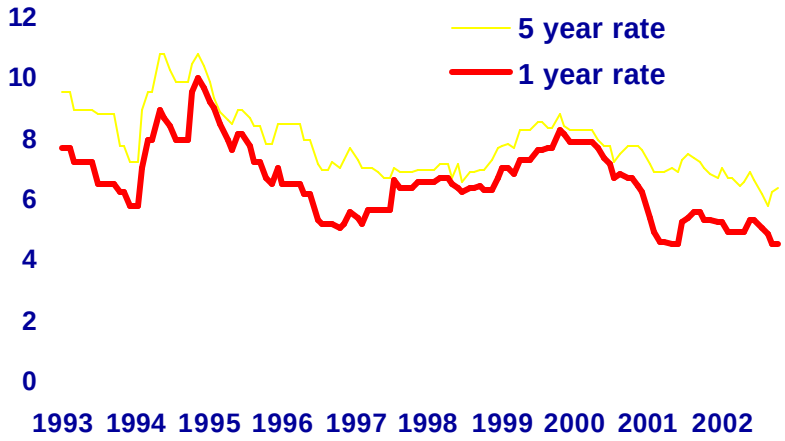
  - Mortgage rates have fallen substantially in 2001 and 2002. In August 2003, the five year rate was 6.35 percent and the one year rate was 4.55 percent.

Real Residential Construction



Source: Statistics Canada

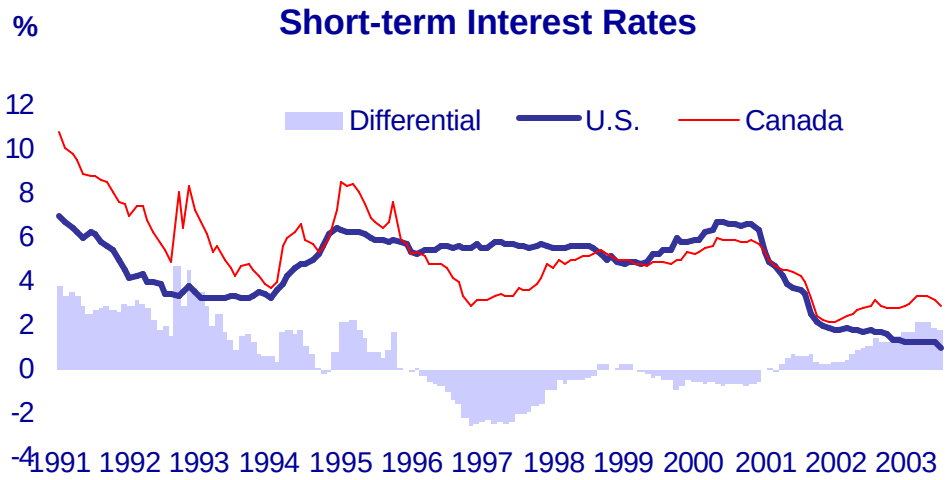
Mortgage Rates



Source: Statistics Canada

…helped by historically low interest rates

- Canadian short-term interest rates have fallen over most of the 1990s, reflecting a corresponding decline in inflation.
- Currently above comparable U.S. rates, Canadian rates were actually below U.S. rates over much of the last half of the 1990s.

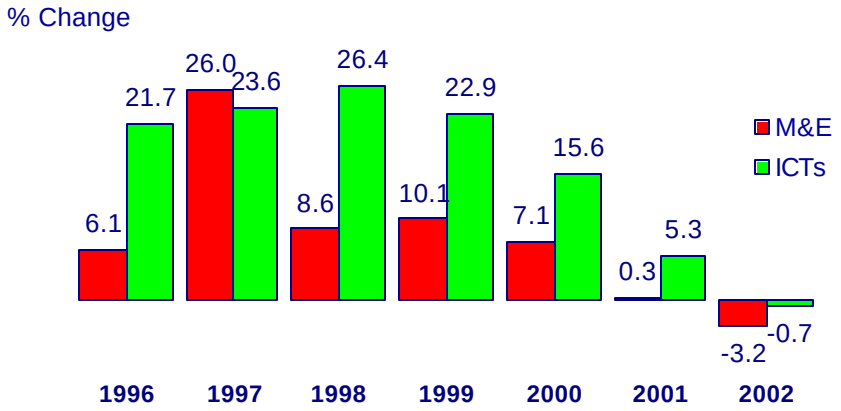


Source: Bank of Canada, 90-day Commercial Paper, monthly rates

Investment is recovering amid rising corporate profits

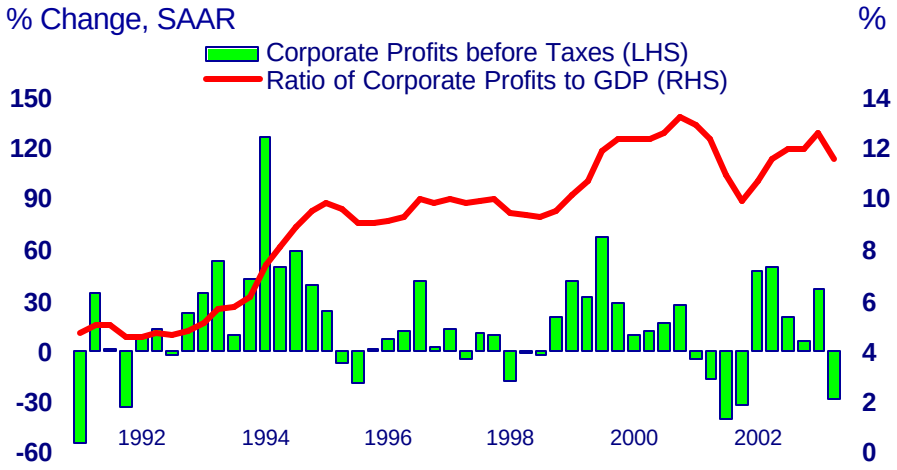
- Business investment in Machinery & Equipment (M&E) declined 3.2 percent in 2002, following a 0.3 percent rise in 2001. M&E investment rose 2.4 percent (annual rate) in the second quarter of 2003, following a rise of 8.6 percent in the first.
  - A key engine of growth in the second half of the 1990s, investment in Information and Communication Technologies (ICTs) plummeted in 2001. Still, in real terms, ICTs accounted for 43 percent of the total M&E investment in 2002. In the second quarter of 2003, investment in ICTs advanced 7.6 percent.
- After declining in 2001, corporate profits recovered in 2002. Following five consecutive quarterly increases, however, they decreased 28.9 percent in the second quarter of 2003.
  - For 2002 as a whole, both manufacturers and retailers reported sharp increases in operating profits compared to 2001.

Real Investment in Machinery & Equipment ICTs* (Business sector)



*Computers, communications equipment & software

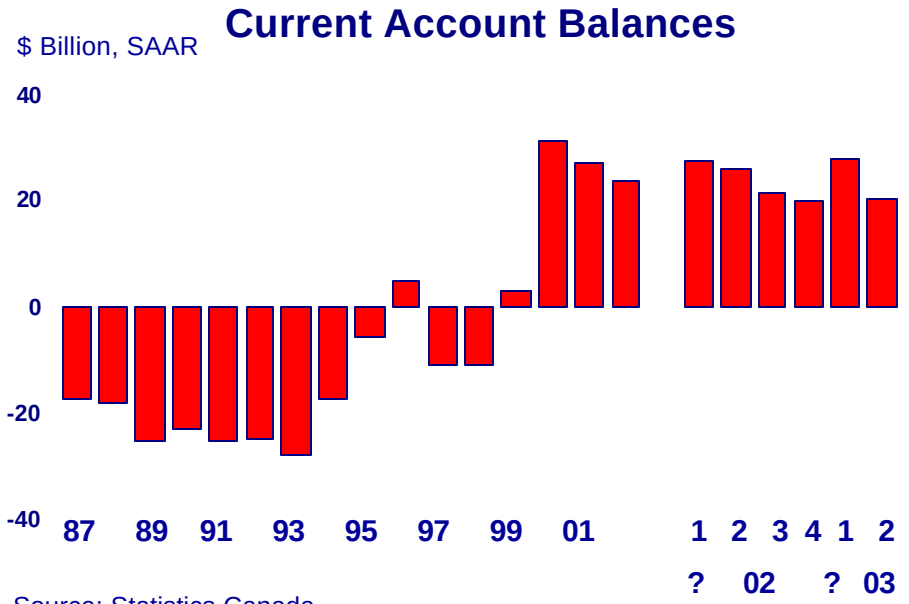
Corporate Profits



Source: Statistics Canada

Exports growth has slowed down

- Real exports increased 2.2 percent in the second quarter of 2003, after falling 6.7 percent in the previous quarter.
  - Weak economic activity in the U.S. (particularly slower demand for motor vehicles and parts) and the appreciation of the Canadian dollar contributed to the decline.
- Imports increased 5.6 percent in the second quarter of 2003 following a 3.8 percent rise in the first quarter, leading to a lower trade surplus.
  - Imports of consumer goods and of machinery and equipment all increased.
- Canada's current account balance, which represents the difference between international receipts and payments on goods and services (travel, transportation, other), as well as investment income and current transfers, fell to $23.4 billion in 2002 following a surplus of $26.9 billion in 2001.

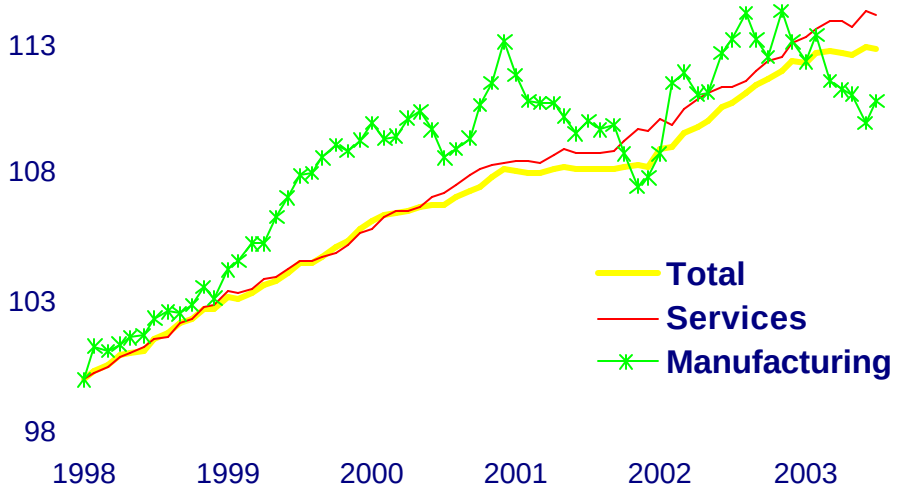


Source: Statistics Canada

Employment growth was strong in 2002 but job creation has slowed so far in 2003

- Job growth was sustained and widespread during the latter part of the 1990s.
- In 2002 Canada had strong employment gains as 564,000 jobs were created.
  - Most of the gains were realized in the services sector. Manufacturing had a very good year.
- The SARS outbreak, mad cow disease, the slowdown of the U.S. economy and the rising dollar have slowed the pace of job creation in 2003. Some 52,000 jobs have been created.
  - Full-time employment has risen by 63,000 since the beginning of the year.
  - Employment in the goods-producing industries has fallen with manufacturing losing 62,000 jobs.

Employment Index
1998=100

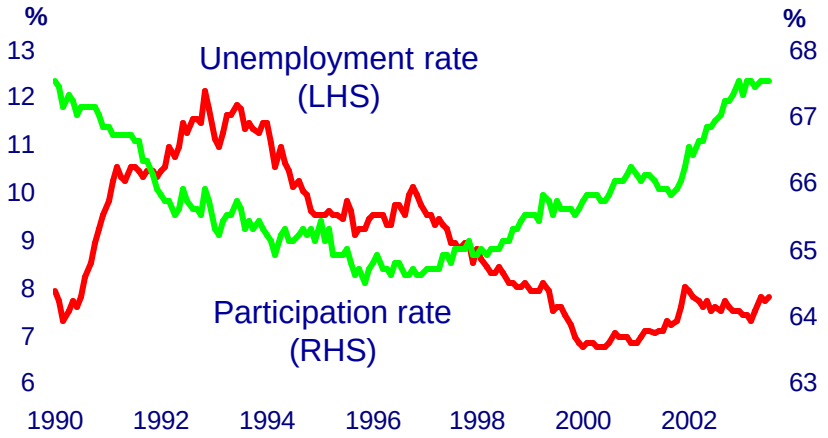


Source: Statistics Canada

Canada's unemployment rate has fallen since the mid-nineties

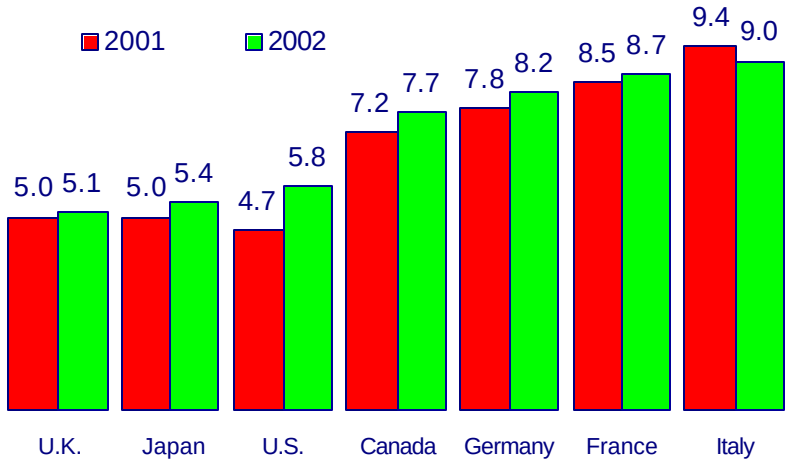
- The recession of the early nineties led to unemployment rates of well over 10 percent (it reached 12.1 percent in November 1992). Helped by strong job creation in the second half of the decade, Canada's unemployment rate fell from 11.4 percent in January 1994 to 6.7 percent in January 2002.
- Canada's unemployment rate increased from 7.2 percent in 2001 to 7.7 percent in 2002.
  - In August 2003, the unemployment rate reached 8.0 percent.
  - Despite the slower pace of job creation, Canada's participation rate stood at 67.5 percent in August, close to its historical high.
- The Canadian unemployment rate is higher than that of the U.S. and the U.K., but below those in major European economies.

Unemployment Rate



Source: Statistics Canada

Unemployment Rates in G-7 Countries



Source: OECD standardized unemployment rates, 2001 and 2002

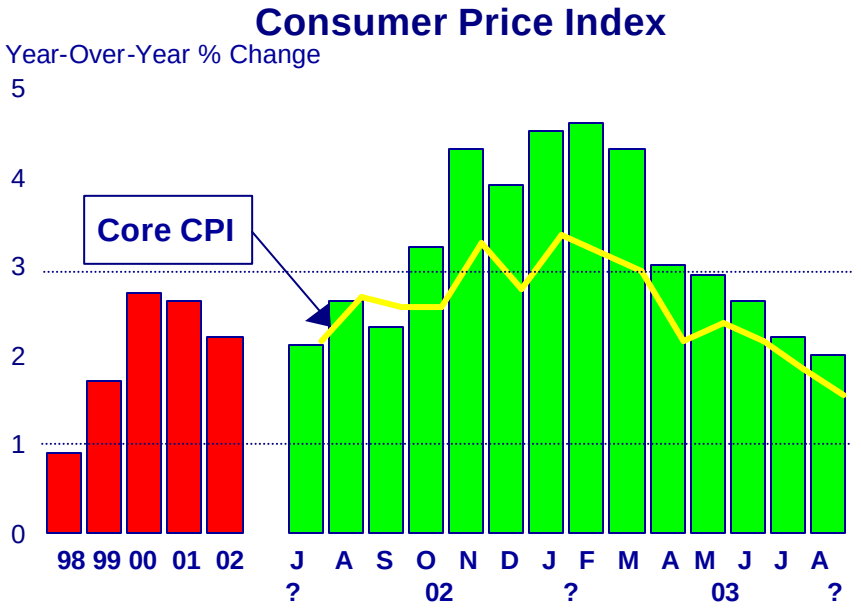
Section B:

Structural Features of the Economy

Macro-Economic Policy

Inflation is under control

- The federal government and the Bank of Canada have adopted an explicit inflation-control target, which is currently in the range of 1 to 3 percent.
  - Monetary policy is directed toward maintaining inflation at the mid-point of the target range (i.e. 2 percent).
- The inflation target is expressed in terms of "core" inflation, which excludes the eight most volatile components of the Consumer Price Index (CPI). "Core" inflation thus provides a better measure of the underlying inflation trend.
- "Core" inflation was above the upper bound in January and February 2003 but fell back within range in April. In August 2003, core inflation fell further to 1.5 percent, below the mid-point of the target range.
- In contrast, total CPI inflation was more volatile, creeping to 4.6 percent in February 2003 and falling to 2.0 percent in August.



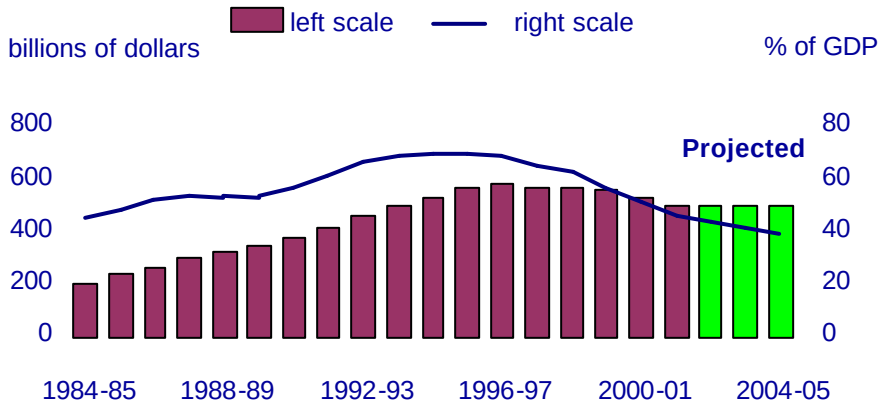
Source: Statistics Canada & Bank of Canada

"Core" CPI excludes prices for fruit, vegetables, gasoline, fuel oil, natural gas, mortgage interest, inter-city transportation and tobacco products as well as indirect taxes.

A dramatic turnaround in Canada's fiscal situation!

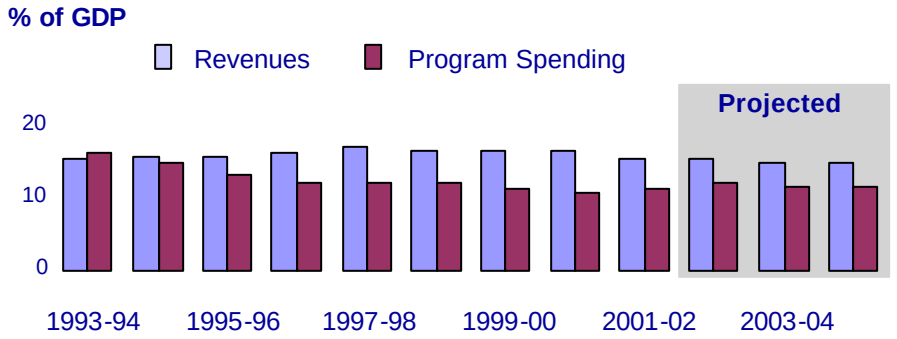
- Canada made the greatest fiscal improvement of the G-7 countries from 1992 (when it had the second highest deficit of the G-7 countries in relation to GDP) to 2002. The federal government net debt-to-GDP ratio fell from a high of 67.5 percent in 1995-96 to 46.2 percent at the end of fiscal year 2001-02.
- A balanced budget or better is foreseen for 2002-03 and the following two years.
- Revenues are projected to be $184.7 billion (or 15.4 percent of GDP) in 2003-04.
- Program spending is expected to rise to $143 billion (or 11.9 percent of GDP) in 2003-04.

Net Federal Debt
Public Accounts Basis*



*On an accrual accounting basis starting in 2001-02
Source: Department of Finance

Federal Revenues and Program Spending
Public Accounts Basis



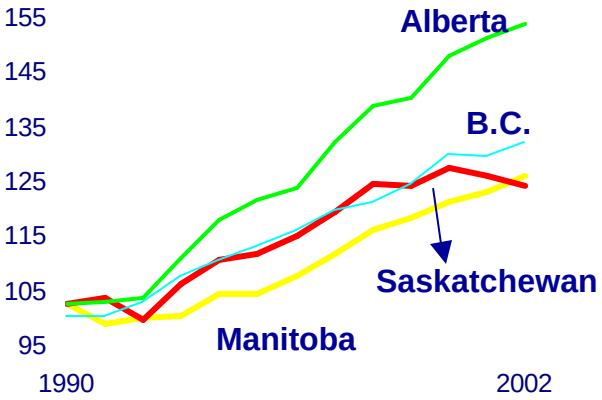
*On an accrual accounting basis starting in 2001-02
Source: Department of Finance

Regional Economic Performance

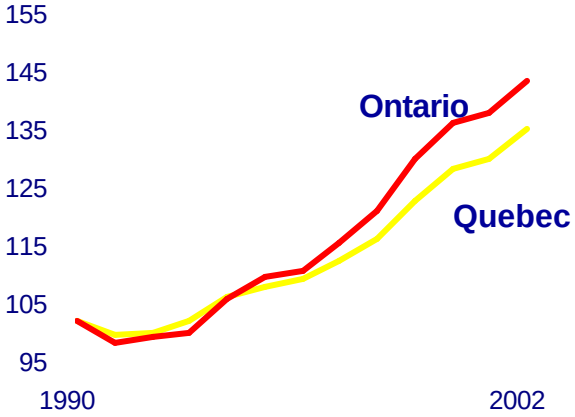
Alberta has been the growth leader in the last decade

- Output expanded in all parts of Canada over the 1990s, particularly in the second half of the decade.
- Alberta outperformed other regional economies helped by its energy sector and an economy which has become more diversified. Higher energy prices have also benefited Newfoundland in the past couple of years.
- Central Canada performed well in the late nineties.
- British Columbia's growth performance has suffered from the Asian crisis.

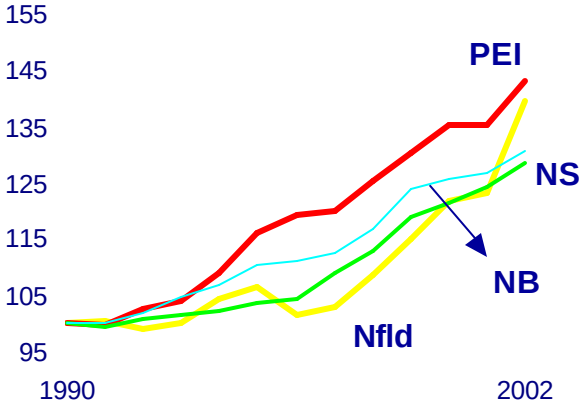
GDP, Western Provinces, 1990-2002



GDP, Central Provinces, 1990-2002



GDP, Atlantic Provinces, 1990-2002

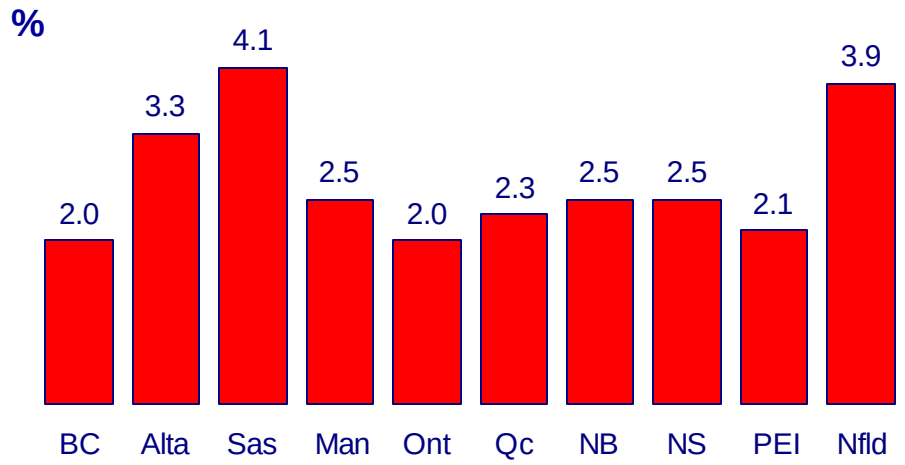


Source: Statistics Canada

… and will continue to be among the leaders in 2003

- The consensus view of private sector forecasters is that Alberta and Newfoundland will lead all provinces in output growth in 2003.

Forecast GDP Growth by Province, 2003*



CAGR**	BC	Alta	Sas	Man	Ont	Qc	NB	NS	PEI	Nfld
1990-95	2.5	3.6	1.8	0.4	1.4	1.1	2.0	0.7	3.0	1.3
1995-2002	2.2	3.5	1.6	2.7	4.0	3.3	2.5	3.1	3.1	3.9
2003(e)	2.0	3.3	4.1	2.5	2.0	2.3	2.5	2.5	2.1	3.9

*This outlook is based on a survey of a number of private forecasters, including the Bank of Montreal, BMO Nesbitt Burns Economics, CIBC, Desjardins, National Bank, Royal Bank, Scotiabank Group, DRI-WEFA, TD Bank and The Conference Board of Canada. It is based on the data available as of September 12, 2003.

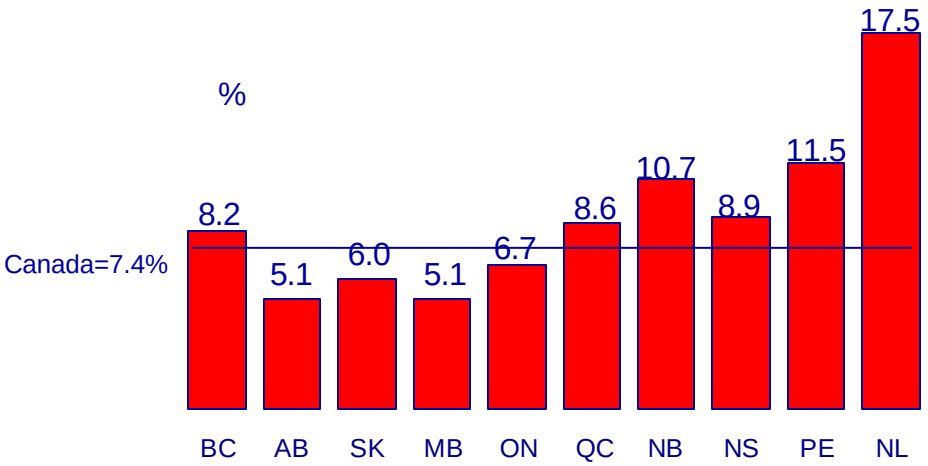
**Compound annual growth rate

Source: Industry Canada calculations based on data from Statistics Canada

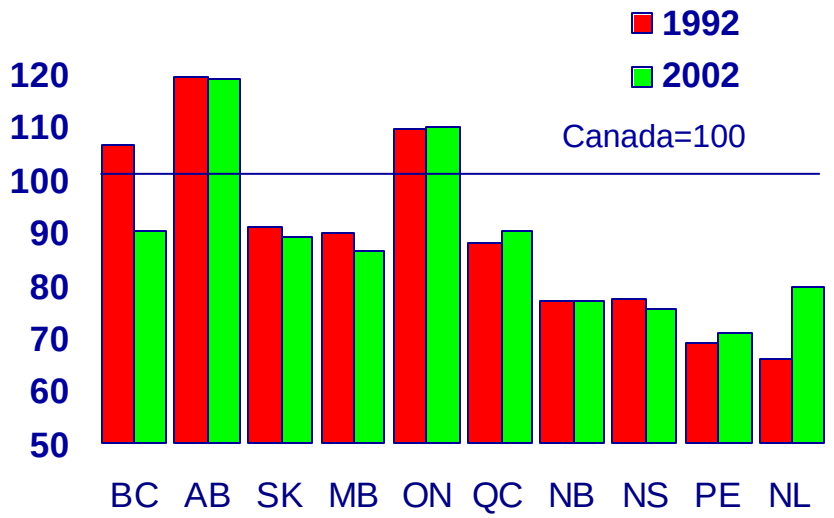
Regional disparities remain

- Significant differences in labour market conditions exist among provinces.
  - Provincial unemployment rates tend to be highest in Atlantic Canada.
  - In many parts of the country, rural unemployment rates are significantly higher than in urban areas. For instance, St. John's unemployment rate was 8.8 percent in August 2003, compared to an average of 15.6 percent in Newfoundland and Labrador.
- GDP (or income) per capita, a measure of standard of living, also varies significantly.
  - Alberta and Ontario enjoy higher standards of living than other provinces. Per capita incomes are lowest in Atlantic Canada.
  - Newfoundland and Labrador recorded the largest increases in standard of living over the 1990s.

Unemployment Rate, 2002



GDP per Capita, 1992 and 2002

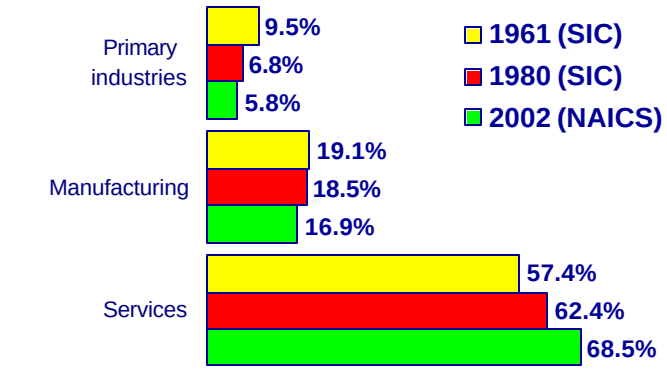


Industrial Trends

The relative size of the service sector has been increasing over time

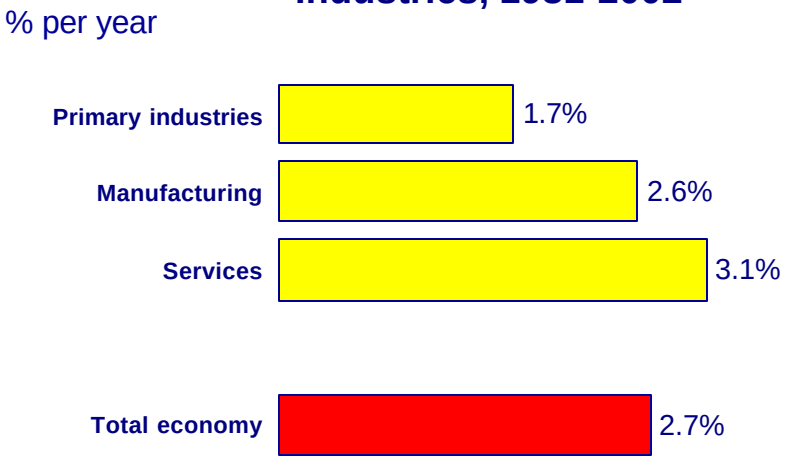
- The relative size of Canada's service sector has been increasing over time.
  - Its share of real GDP increased to 68.5 percent in 2002, up from 57.4 percent in 1961.
  - Business sector services accounted for more than half (54.1 percent) of real GDP in 2002.
- Over the past two decades, real GDP grew at an annual rate of 3.1 percent in services, compared to 1.7 percent in primary industries and 2.6 percent in the manufacturing sector.

Real GDP Share in Selected Industries, 1961-2002



Source: Statistics Canada

Change in Real GDP in Selected Industries, 1981-2002

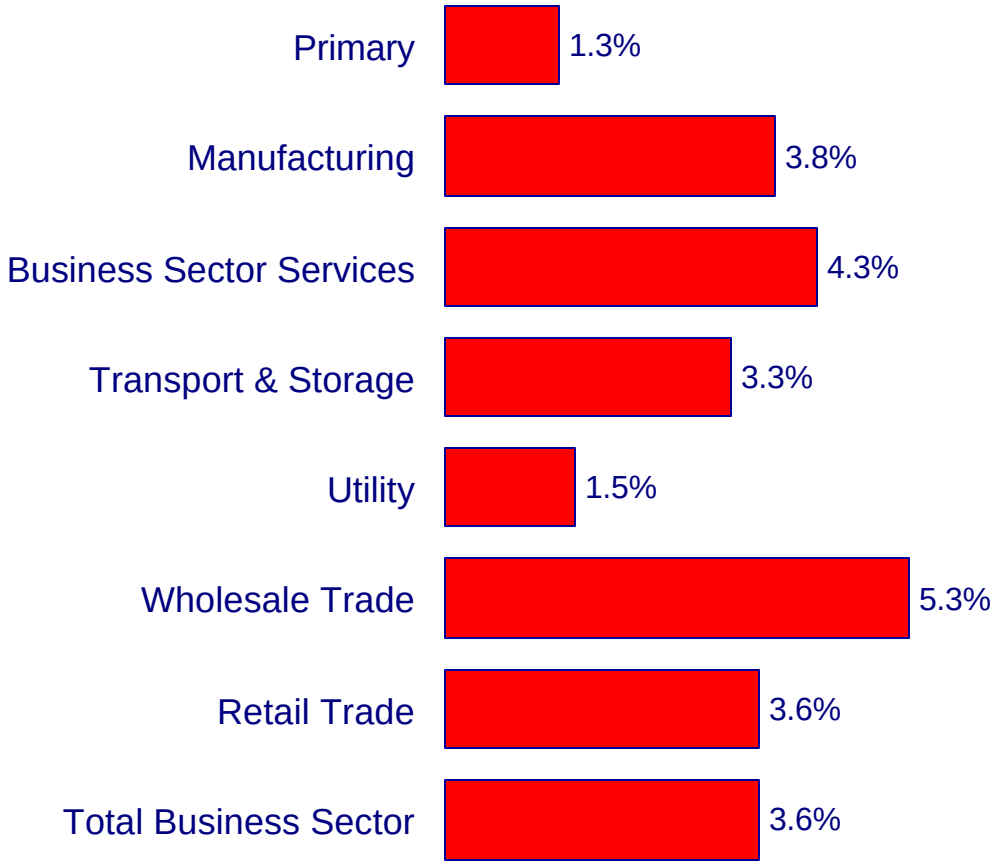


Source: Statistics Canada

…due to rapid growth in many key industries

- Many services industries experienced above average growth in the last decade. That was especially true for wholesale trade and business sectors.
- Driven by export growth, the manufacturing sector fared better than other goods-producing industries during that same period.

Real GDP in Canadian Industries, 1991-2002

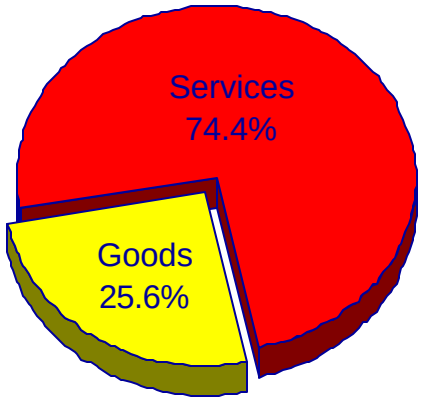


Source: Statistics Canada

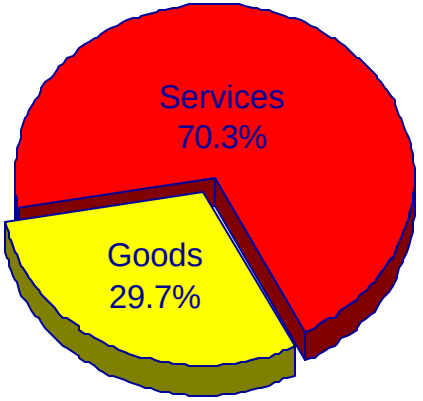
Almost three out of four jobs are now in the services sector

- More than 11 million Canadians are employed in the services sector, nearly three-quarters of total employment.
  - In the last 15 years, goods-producing industries saw their share of employment fall from 29.7 percent to 25.6 percent.
  - The services sector has out-performed the goods sector in terms of employment growth. From 1987 to 2002 its annual growth rate was 1.8 percent compared to 0.5 percent for the goods sector and 1.5 percent for the whole labour market.
  - During that period, management services (5.4 percent) and professional, scientific and technical services (4.9 percent) experienced the fastest employment growth.

Share of Services in Employment, 2002



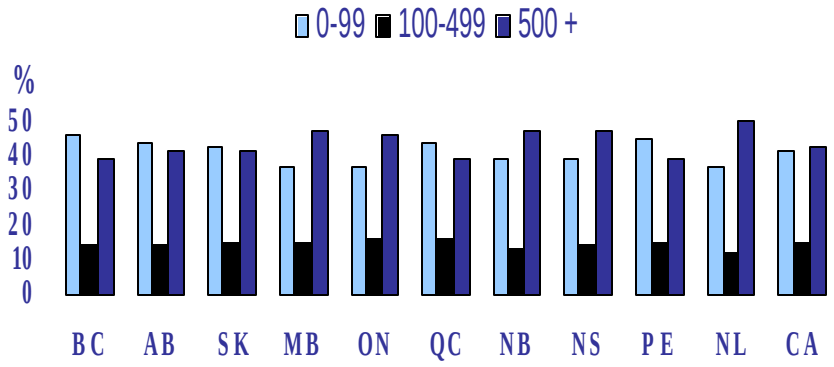
Share of Services in Employment, 1987



Small and medium-sized businesses account for a majority of jobs

- Small-sized firms (less than 100 employees) accounted for 41.3 percent and the medium-sized businesses accounted for 15.5 percent of all jobs in 2002. Together, they were responsible for 56.8 percent of the employment, while large firms accounted for the remaining 43.2 per cent.
  - On the other hand, Newfoundland and Labrador had more employees working for large firms (more than 500 employees) than small and medium-sized firms combined.
  - Small businesses (less than 100 employees) tend to contribute more to total employment in the west, Prince Edward Island, and Quebec.

Distribution of employment by size of business
(number of paid employees), 2002 (% of total employment)

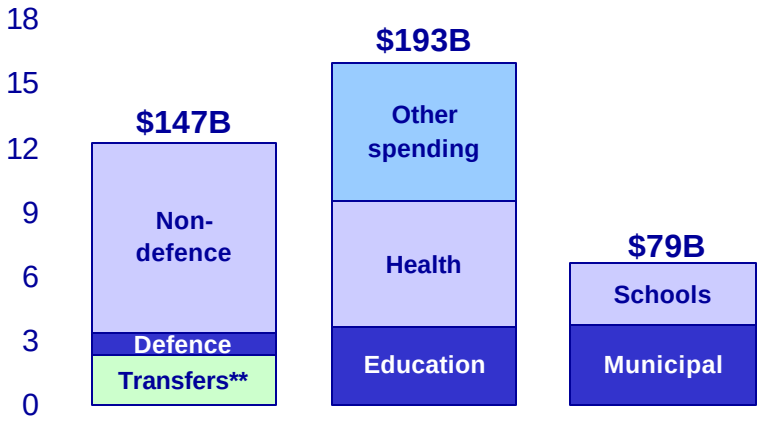


Source: Calculations based on Statistics Canada and Industry Canada's Small Business Policy Branch

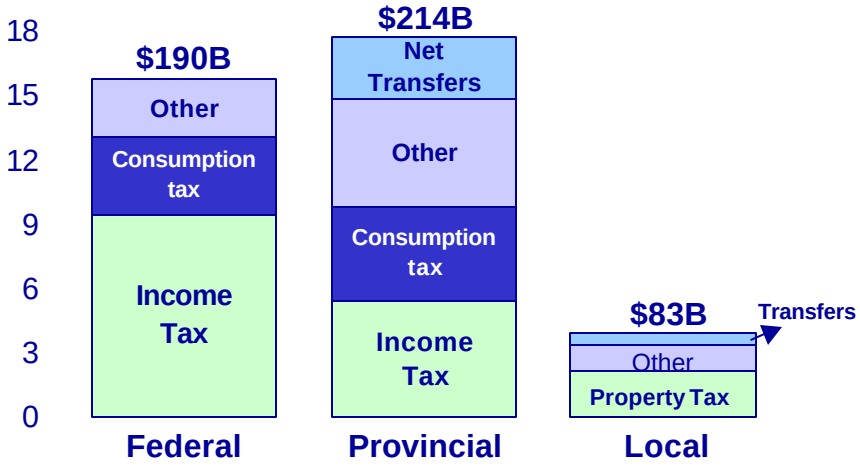
The government is an important player in the Canadian economy

- Total government spending (excluding interest payments) amounted to $419 billion in 2002/03, or 35 percent of the GDP.
  - Provincial spending on health represented almost 5.9 percent of GDP. Public spending on education represented 5.4 percent.
- Transfers from the federal government accounted for 16.2 percent of provincial revenue. Transfers from federal and provincial governments accounted for 14.6 percent of local government revenue in 2002/03.
- Government revenues (national accounts basis) in Canada amounted to 40.8 percent of GDP in 1992. It fell to 38.1 percent of GDP in 2002 compared to 28.9 percent in the U.S.

Government Expenditures*, Canada
As a Percent of GDP, 2002/03



Government Revenues, Canada
As a Percent of GDP, 2002/03

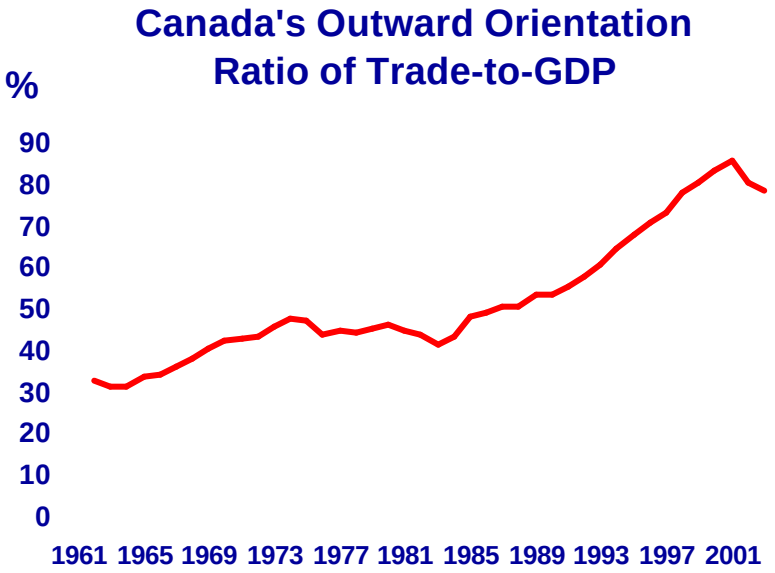


*Excluding interest payments on debt
** Transfers to other levels of government
Source: Statistics Canada, "Public Sector Statistics 2002-2003."

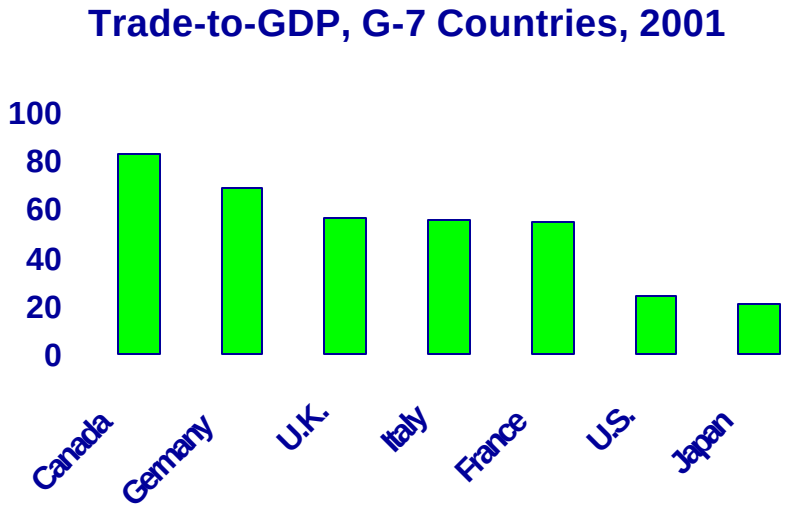
Trade and Investment

International trade plays a fundamental role

- Canada's outward orientation increased from 32 percent in 1961 to 49 percent in 1987.
  - From 1987 to 2000, Canada's outward orientation increased more than twice as much as it had in the previous 26 years – rising some 36 percentage points. The global economic slowdown reduced the trade-to-GDP ratio in 2001 and 2002.
- Canada is by far the most outward oriented member of the G-7. Its trade-to-GDP ratio was 82 percent in 2001.
  - Germany had the next highest ratio at 68 percent. The U.S. and Japan, both with large domestic markets, lagged behind at 24 percent and 20 percent respectively.



Source: Compilations based on Statistics Canada data

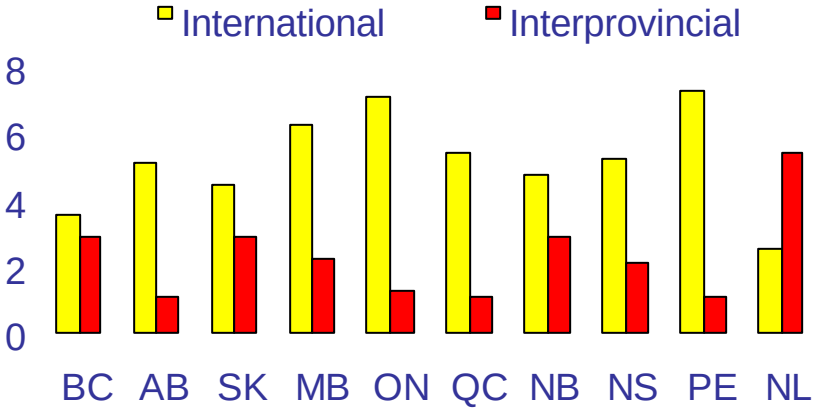


Source: Compilations based on OECD data

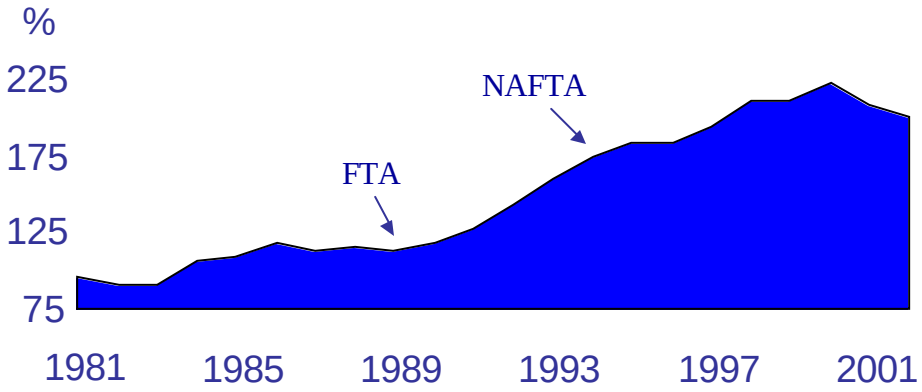
International trade increased at a faster pace than Interprovincial trade

- International exports grew faster than interprovincial exports in all provinces except Newfoundland and Labrador between 1981 and 2002.
- The relative importance of international trade steadily increased after the Free Trade Agreement in 1989.
  - The ratio of international to interprovincial trade doubled from 1989 to 2002.

Export Growth
(% per year, 1981-2002)



Ratio of International Trade to Interprovincial Trade, Canada, 1981-2002

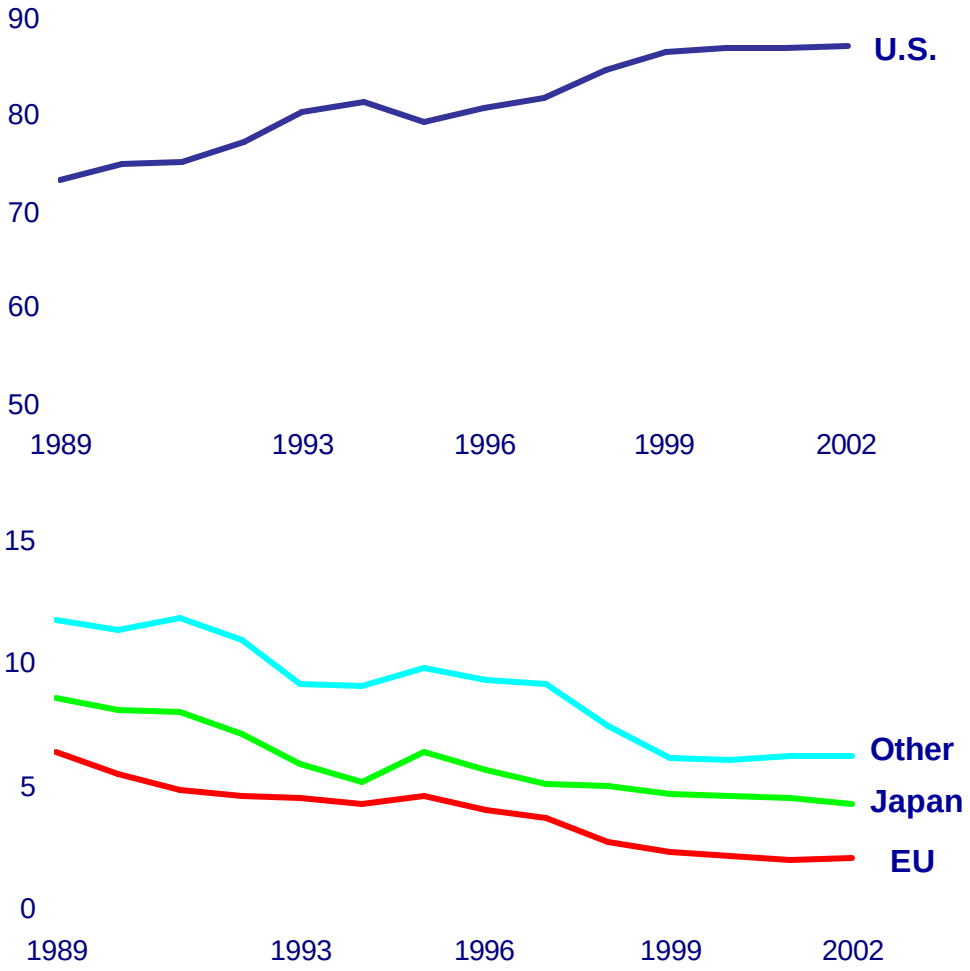


Source: Compilations based on Statistics Canada data

Canada has increased its dependency on exports to the U.S.

- Since the implementation of the North American Free Trade Agreement (NAFTA), the U.S. share of Canadian merchandise exports has increased by more than 14 percentage points, rising from 73 percent in 1989 to 87 percent in 2002.
  - The implementation of the Free Trade Agreement (FTA) and NAFTA, strong growth in the U.S., and the weak dollar all contributed to the robust rise in exports to the U.S.
  - Intra-industry trade has been a main driver of increased trade linkages between the two countries.
- The share of all other destinations fell over the same period, especially Japan, which has yet to fully recover from its economic weakness.

Geographic Distribution of Canada's Merchandise Exports

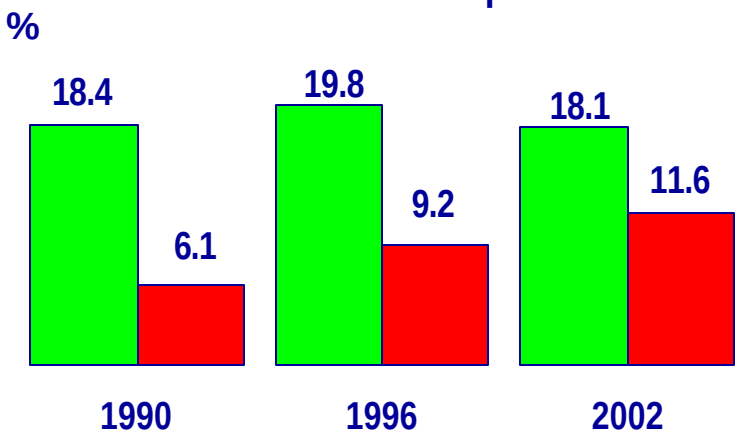


Source: Compilations based on Statistics Canada data

Mexico is becoming a stronger competitor

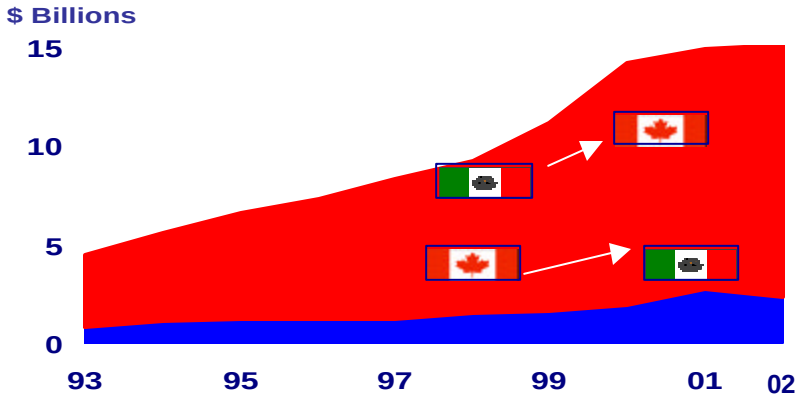
- Mexico's share of U.S. merchandise imports almost doubled during the past decade while Canada's share more or less remained constant.
  - Canada's share of U.S. imports remained close to 18 percent while Mexico's share increased from 6.1 percent in 1990 to 11.6 percent in 2002.
- Canada's trade with Mexico has increased considerably since 1993.
  - The value of trade between the two countries tripled (from $5 billion to $15 billion) during that period.

Share of U.S. Imports



Source: Industry Canada compilations based on data from the U.S. International Trade Commission

Canada-Mexico Trade*

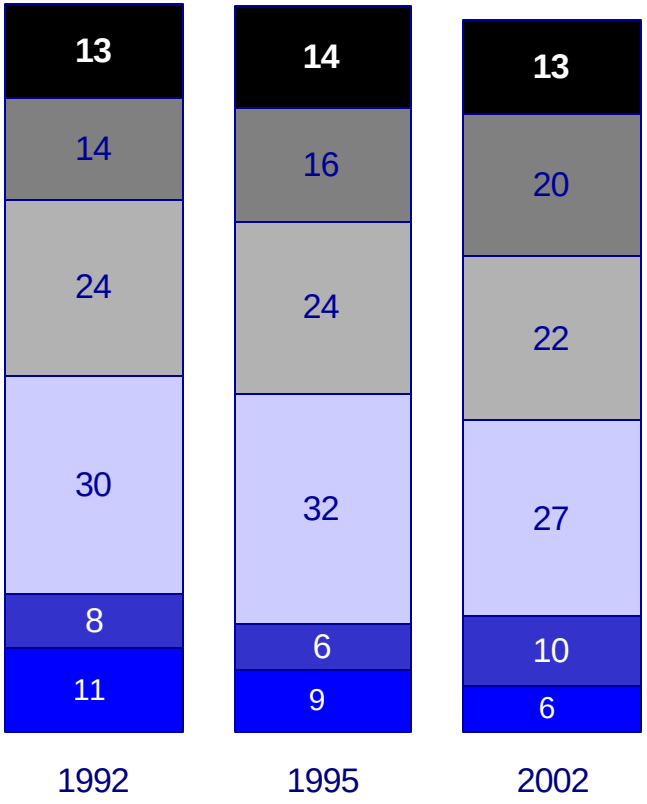


*Merchandise trade
Source: Industry Canada compilations based on Statistics Canada Data

Resource-based exports are still important but non-resource based exports have grown faster

- Resource-based industries still account for a large part of Canada's exports, but their importance is declining.
  - Over the 1990s, the share of primary products declined by half to 6 percent. Resource-based manufactured products fell by 3 percentage points.
  - Oil and gas exports have increased significantly since 1995, largely due to higher oil prices.
- The share of non-resource based products (including Autos and Machinery & Electronics) has increased by 4 percentage points since 1992, and now stands at 55 percent of total merchandise exports.

Distribution of Canada's Merchandise Exports by Industry (Percent)



	CAGR* (%) 1992-2002
Machinery & Electronics	9.3
Non-resource based Manufactured Products	13.0
Automotives	8.4
Resource-based Manufactured Products	8.0
Oil & Gas	12.0
Primary Products	3.0

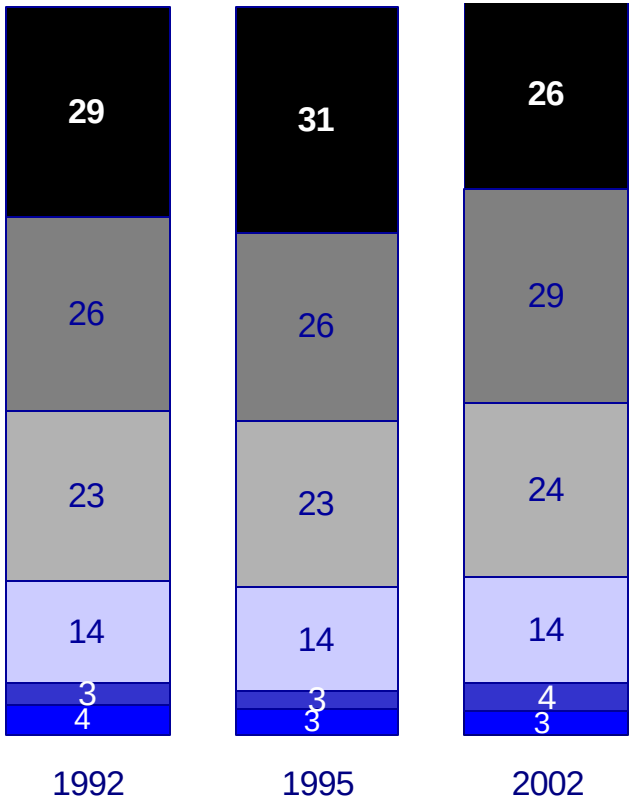
*Compound annual growth rate

Source: Compilations based on Statistics Canada data

Non-resource based goods are the most important source of imports in Canada

- Non-resource based industries (including Machinery and Electronics and Automotives) accounted for close to 80 percent of our imports in 2002.
- Machinery and Electronics, investment goods that are key to improving productivity in the knowledge-based economy, accounted for 26 percent of Canada's merchandise imports in 2002.

Distribution of Canada's Merchandise Imports by Industry (Percent)



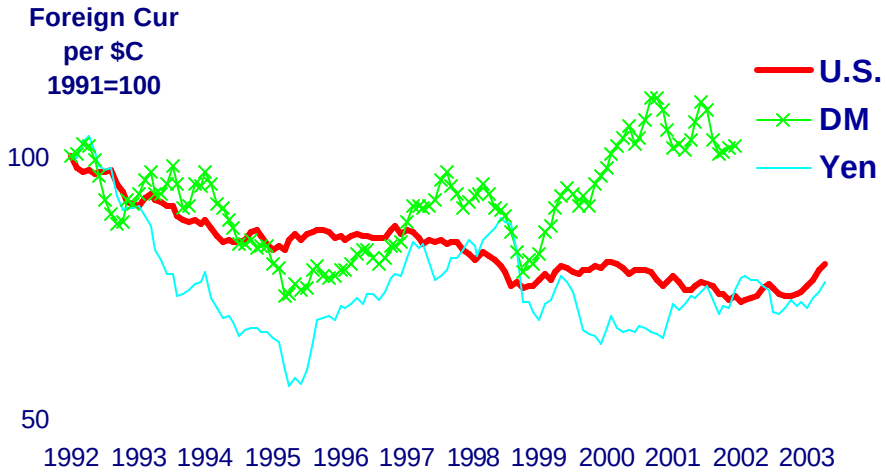
	CAGR* (%) 1992-2002
Machinery & Electronics	8.0
Non-resource based Manufactured Products	10.0
Automotives	9.3
Resource-based Manufactured Products	9.1
Oil & Gas	11.6
Primary Products	6.9

Source: Compilations based on Statistics Canada data

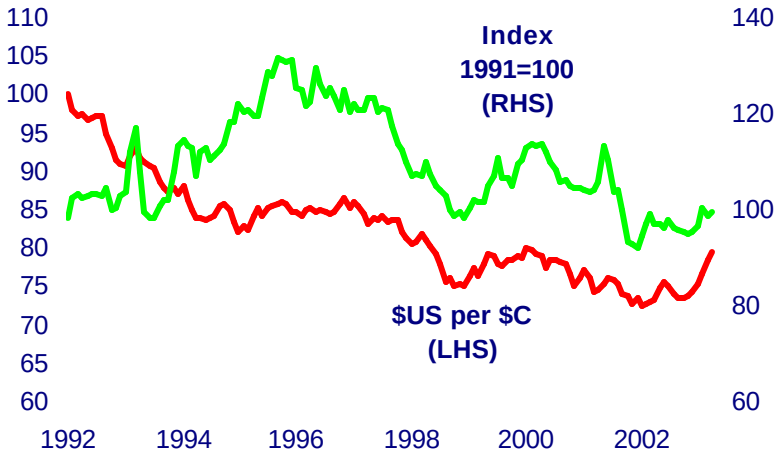
After years of decline, the loonie has been on the rise

- The Canadian dollar trended down steadily from US¢86 in October 1992 to US¢62 in January 2002. It moved in a fairly narrow range in 2002. However, Since January 2003, the Canadian dollar has appreciated by 16 percent vis-à-vis the U.S. dollar.
- Early in the 1990s, the decline in the dollar took place alongside a shrinking Canada-U.S. short-term interest rate gap. In the last half of the decade, a more important factor was declining commodity prices.
- The recent appreciation reflects a wider interest rate spread favouring Canadian assets, as well as stronger economic fundamentals including Canada's twin surpluses - current account and government budget - versus twin deficits in the U.S.

Selected Canadian Exchange Rates



Commodity Price Index Ex-energy



Source: Statistics Canada

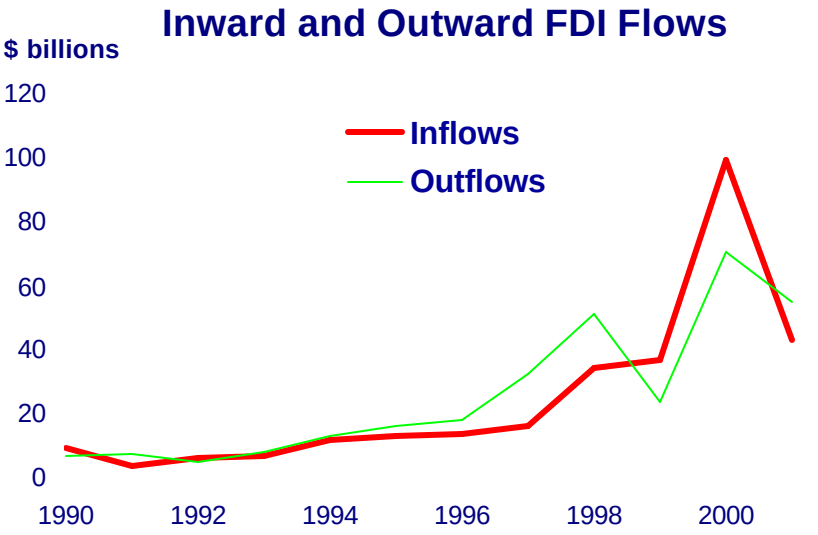
Outward and inward investment flows have increased substantially

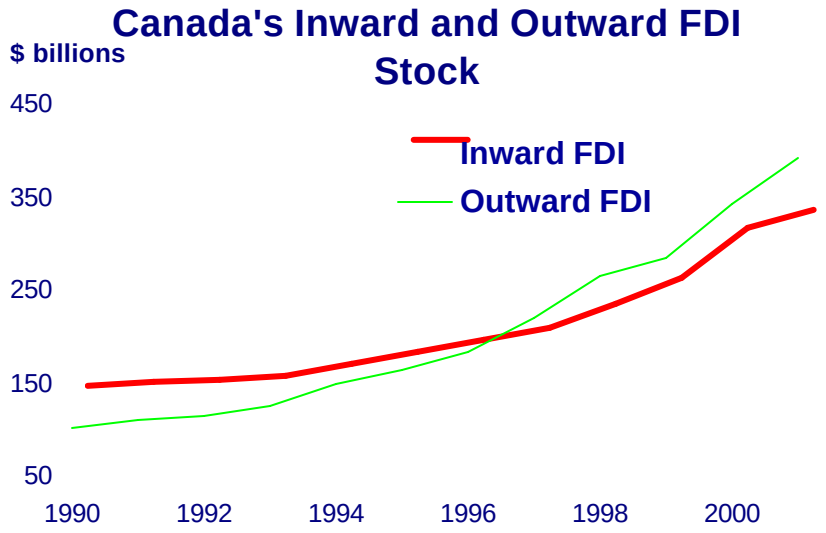
- In 1996, Canada's outward foreign direct investment (FDI) surpassed inward FDI, making Canada a net exporter of investment for the first time in its history. Most other developed nations are also net exporters of FDI.

  - FDI involves a say in how a company is run, whereas portfolio investment such as stocks and bonds is more passive.
    - Inward FDI is investment by foreigners into Canada while outward FDI is Canadians investing abroad.
  - A "flow" represents the amount of FDI recorded over a given period. The FDI "stock" is the sum of flows over time adjusted for capital depreciation, exchange rate changes and other factors.
  - FDI includes new (or "greenfield") investments as well as mergers and acquisitions (M&As). The recent dramatic increases in both inward and outward FDI has largely been a result of a boom in M&A activity.

- The dramatic fall in FDI inflows in 2001, resulted in a significant widening of the gap between Canada's inward and outward FDI stocks.

- The stock of Canadian outward FDI reached $389.4 billion in 2001, exceeding the stock of inward FDI by a record $68.5 billion.



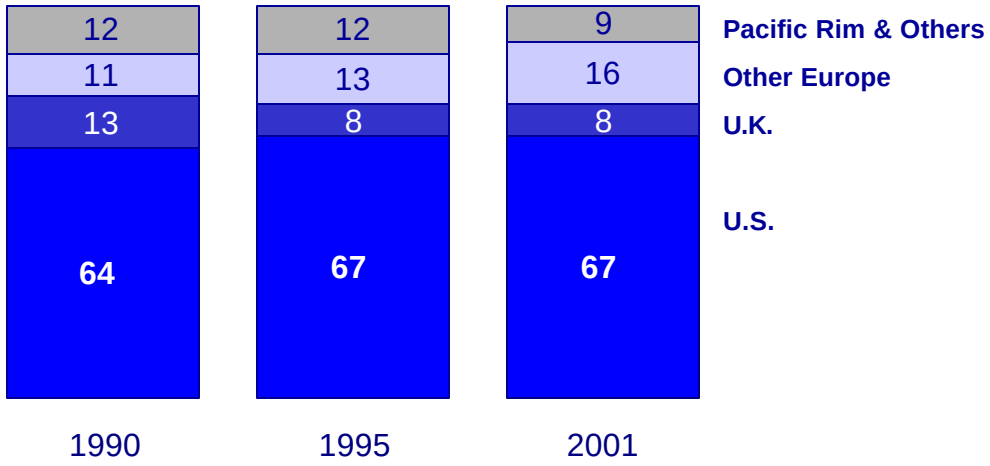


Source: Statistics Canada

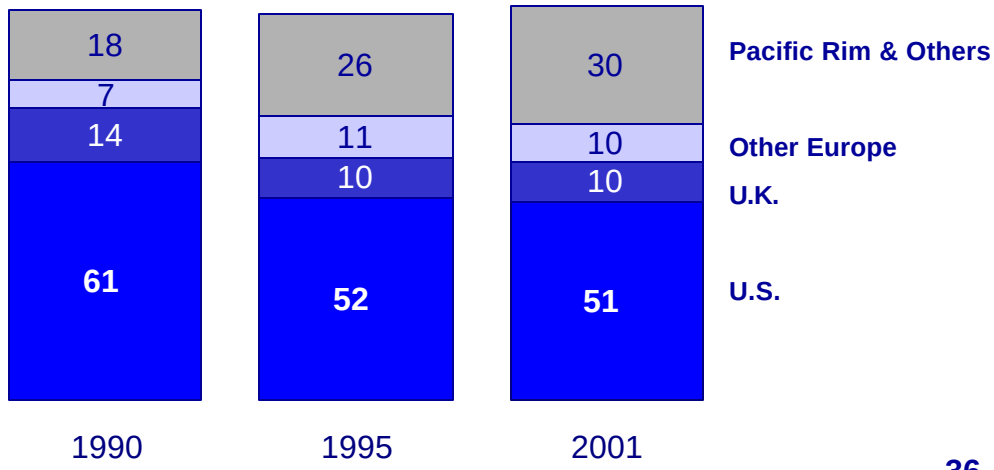
Our investment links with the U.S. have remained strong

- The U.S. accounts for the majority of investment in Canada, although investment from Europe (excluding the U.K.) has increased in recent years.
- About half of Canada's outward investment is in the U.S.
  - The financial sector has been the fastest growing source of Canada's outward investment.
- Inward and outward FDI are both more geographically diversified than trade.

Geographic Distribution of the Inward FDI Stock in Canada



Geographic Distribution of the Outward FDI Stock in Canada



Source: Compilations based on Statistics Canada data

Section C:

Key Challenges

Productivity and Innovation

A primer on productivity: The basics

A country's level of productivity is a fundamental determinant of its standard of living. Canada's level of productivity is significantly below that of the U.S., the key determinant of the large standard of living gap between Canada and the U.S.

- Productivity measures how much output is produced relative to the inputs of labour, capital (plant and equipment), and technology.
  - Increased productivity implies that more output can be produced with the same input (or perhaps less).
- There are two main types of productivity measures:
  - Labour productivity
  - Total factor productivity (or Multifactor productivity)

Sources of Growth

Increases in standard of living		Increased amount of work being done			Multiplied by increased productivity
or		or			or
$\frac{\text{GDP}}{\text{Population}}$	=	$\frac{\text{Hours Worked}}{\text{Worker}}$	X	$\frac{\text{Workers}}{\text{Population}}$	X $\frac{\text{GDP}}{\text{Hours Worked}}$

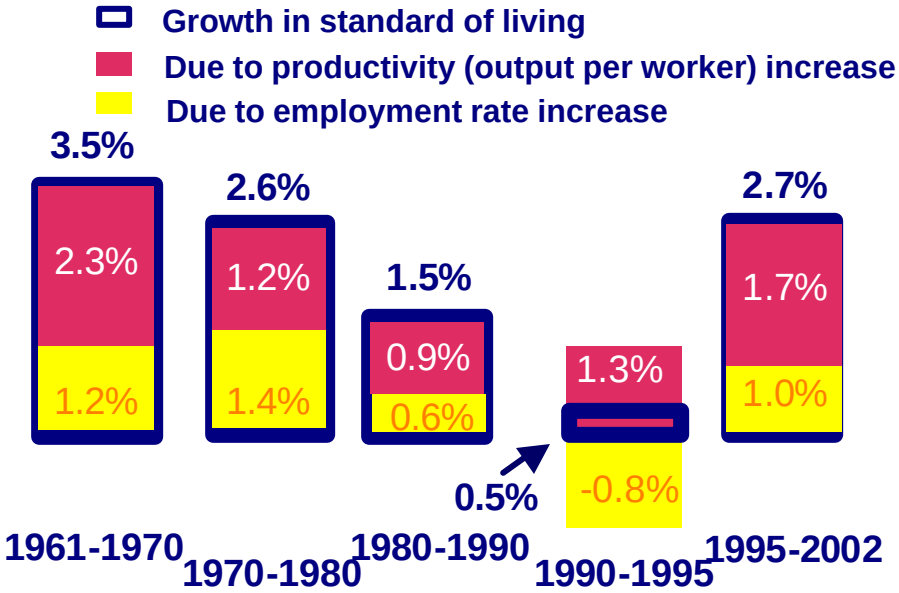
A primer on productivity: The basics

- Labour Productivity is typically expressed as "output per hour" or "output per worker". It is derived by dividing output by some measure of labour input.
  - Labour input is best measured by total hours worked, which controls changes over time in the part-time/full-time split of the workforce. Data limitations – particularly for international comparisons – often force researchers to use the total number of employees as a proxy for labour input.
  - More capital per worker leads to higher labour productivity. Therefore, labour productivity can be higher in one country than another not because labour is somehow "better", but only because it has more capital to work with.
- Total factor productivity (TFP) evaluates the contribution of not only labour, but all other inputs to production (e.g. the capital stock).
  - TFP growth is calculated as the difference between growth in output produced and the growth of all inputs, i.e. output gains that cannot be explained by increased inputs. TFP growth is a weighted average of labour productivity growth and "capital" productivity growth.
- Although TFP is a superior concept from a theoretical standpoint, in practice it is the most difficult to measure. There are serious difficulties associated with the measurement of the capital stock including the treatment of depreciation.

There remains an important income gap between Canada and the U.S. …

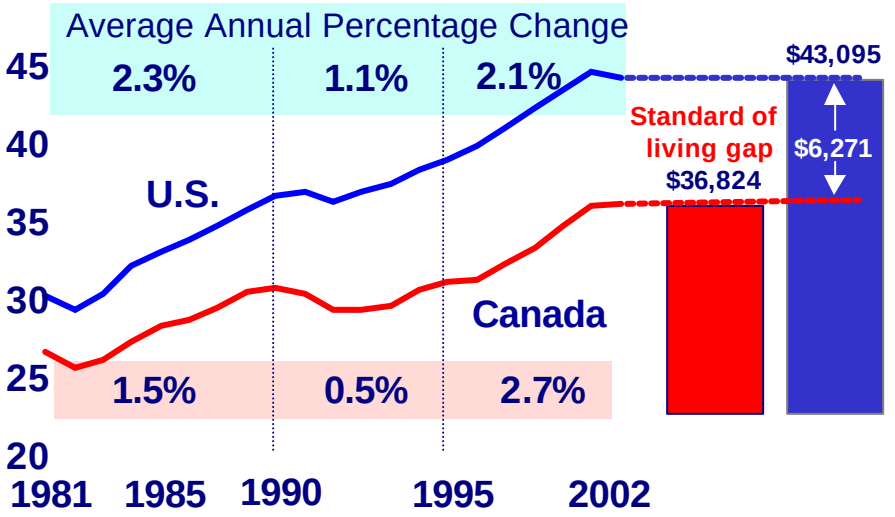
- During the 1970s, our standard of living was buttressed by a rising employment rate. This dampened the impact of slower productivity growth.
- However, in the 1980s and the first half of the 1990s, slower productivity growth and lower employment rate combined to curb the growth in Canada's standard of living. And the gap with the U.S. grew markedly.
- Only in the second half of the 1990s did Canada outperform the U.S. in terms of living standards growth, largely reflecting a better job creation record.

Canada's Growth in Standard of Living
(average annual percentage change in real GDP per capita)



Employment rate is percent of population that is employed
Source: Industry Canada compilations based on data from Statistics Canada

Canada versus U.S. Standard of Living*
(real GDP per capita)
($000 in 2001)

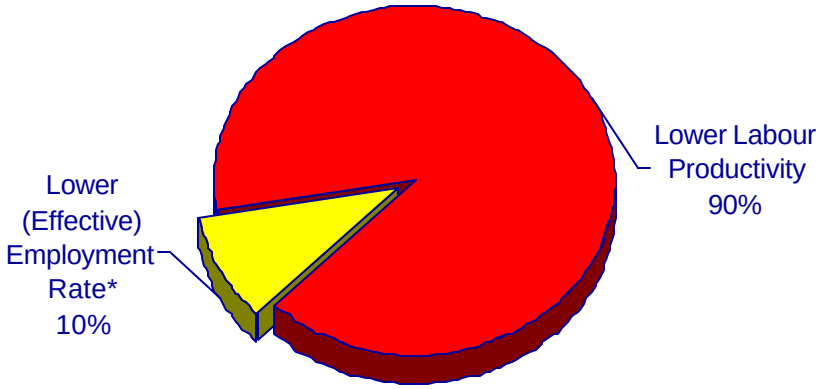


*Based on Statistics Canada Purchasing Power Parity updated to 2002 (US¢83 per one Canadian dollar) using GDP implicit price deflators
Source: Statistics Canada and U.S. Bureau of Economic Analysis

…which is explained mainly by a large productivity gap

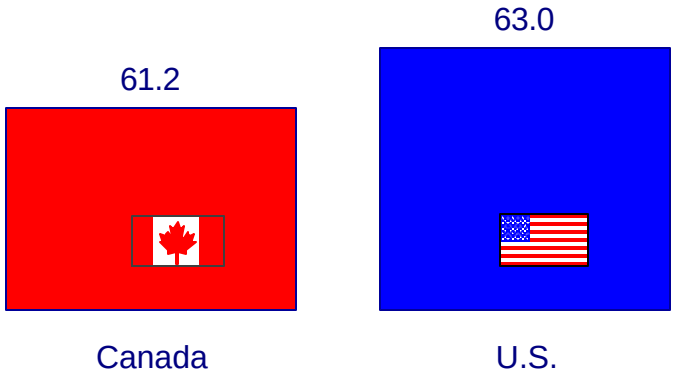
- There are essentially two ways for a country to raise its standard of living:
  - More effort: get more people to work or to work more hours (employment rate); and
  - More output for same effort: increase the amount that each hour of work produces (productivity level).
- Lower productivity explains 90 percent of the Canada-U.S. income gap. The remainder is due to fewer people working and fewer hours worked per person employed.

Sources of the Income Gap
1990-2002 Average



*Total hours worked per capita, based PPP=0.82
Source: Statistics Canada, U.S. Bureau of Economic Analysis and U.S. Bureau of Labor Statistics

Employed Population Rate (%)*,
1990-2002 Average

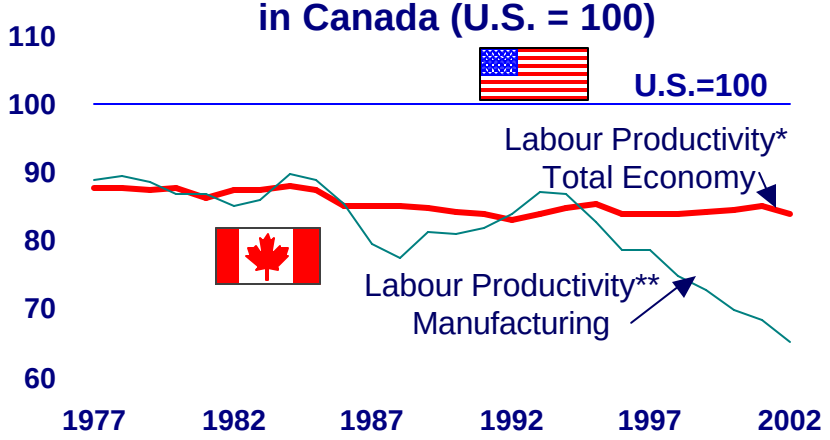


*Total employment as a percentage of population of age 15+ for Canada and 16+ for the U.S.
Source: Statistics Canada, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis

Over the last 20 years, our productivity position has slipped…

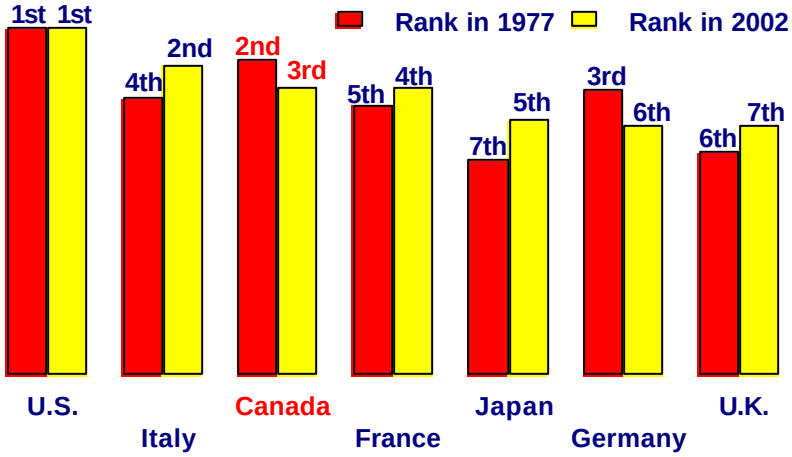
- The Canada-U.S. aggregate labour productivity level gap increased from 15 percent in 1995 to 16 percent in 2002.
- In manufacturing, the Canada-U.S. productivity gap was 35 percent in 2002, compared to 20 percent in 1990.
- Canada's rank among G-7 countries in terms of labour productivity slipped from 2nd place in 1977 to 3rd in 2002.

Relative Labour Productivity Levels in Canada (U.S. = 100)



*Real GDP per hour worked, PPP based
**Real GDP per hour worked, derived by extending a benchmark estimate (79.4) in 1987 using real GDP per hour worked indexes from U.S. Bureau of Labor Statistics.
Source: Statistics Canada, U.S. Bureau of Labor Statistics and U.S. Bureau of Economic Analysis

Rank of G-7 Countries by Productivity Levels 2002 and 1977

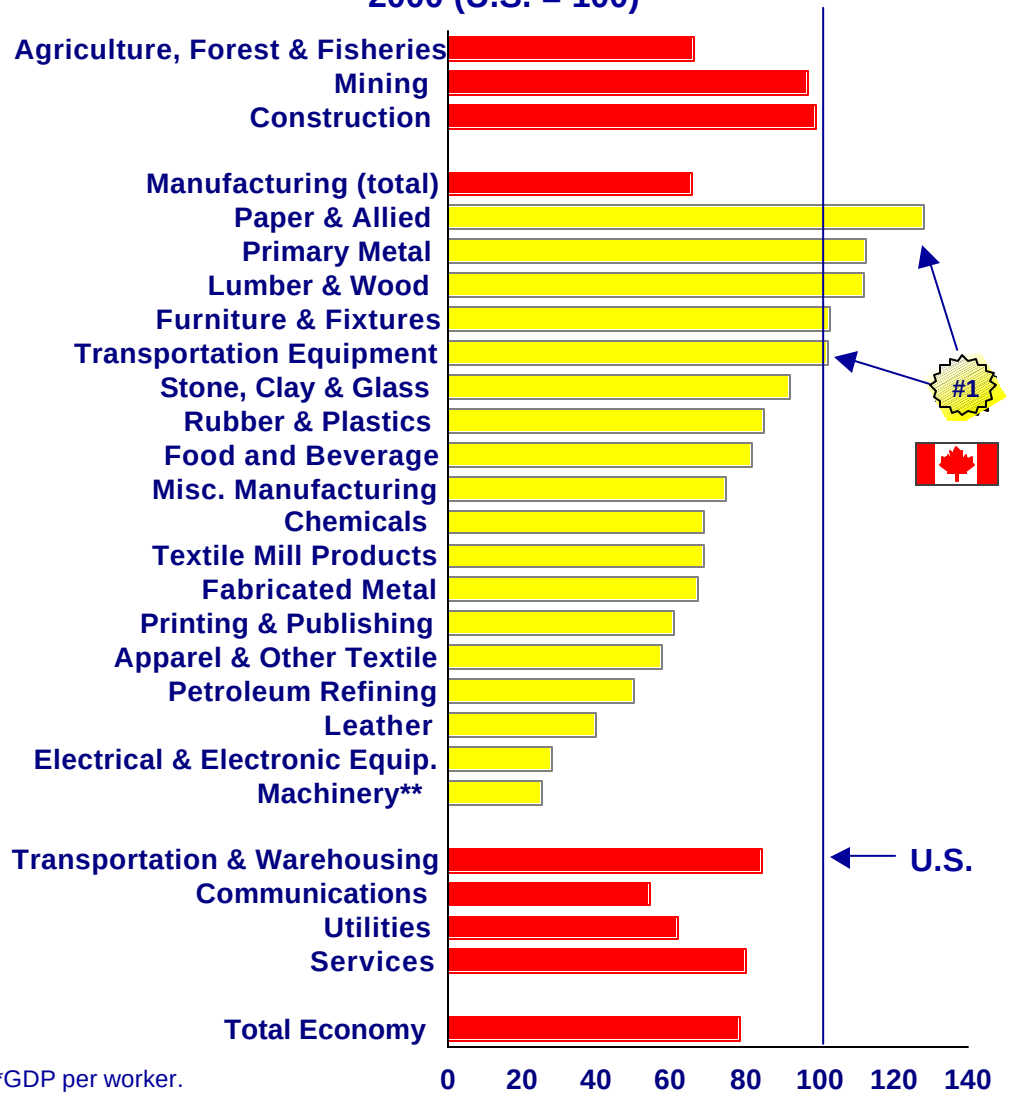


* Output per worker and OECD PPP
Source: OECD Economic Outlook

…and the problem is pervasive across most industries…

- There are few sectors with productivity levels above their U.S. counterparts.
  - Key exceptions are the Transportation Equipment industry and some resource-based manufacturing industries: Paper & Allied, Primary Metal, Lumber & Wood, and Furniture & Fixtures.
- Productivity levels in "New Economy" industries such as Electrical & Electronic Equipment and Machinery are significantly lower in Canada than in the U.S.

Relative Labour Productivity* of Canadian Industries, 2000 (U.S. = 100)

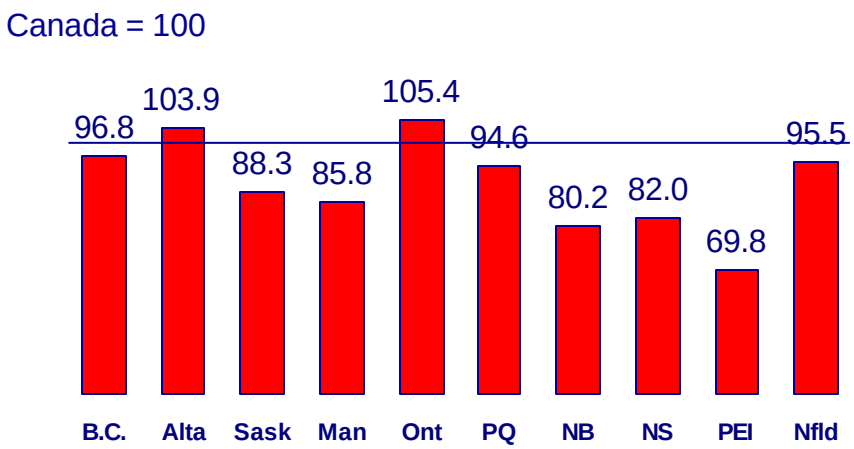


*GDP per worker.
**Machinery includes computer and office equipment industry.
Source: Industry Canada computations based on data from Statistics Canada, U.S. Bureau of Economic Analysis, and OECD STAN.

…and all provinces

- Labour productivity, a major determinant of standard of living, varies across provinces.
- Productivity is highest in Ontario and Alberta, and lowest in Atlantic Canada.

Relative Labour Productivity in 2002

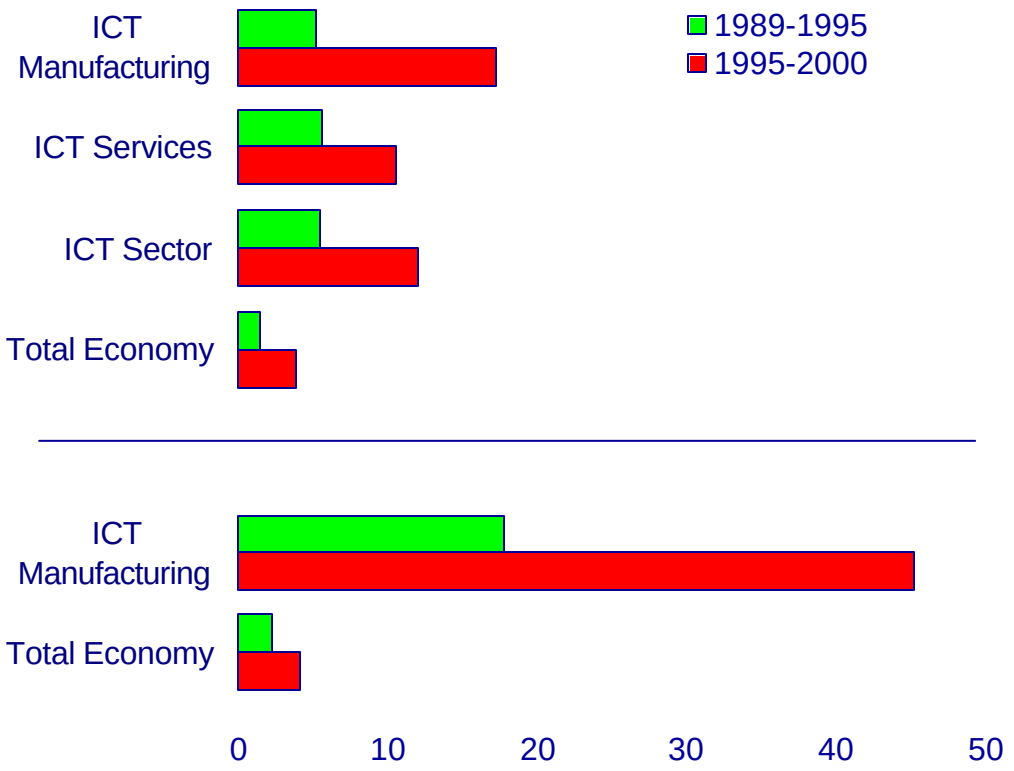


Source: Industry Canada compilations based on Statistics Canada and Centre for the Study of Living Standards.

ICT was an important contributor to GDP growth in the late nineties…

- Between 1995 and 2000, real output in the Canadian ICT manufacturing sector increased at an average annual rate of 17 percent, compared to 11 percent in the ICT services. This was significantly higher than the average rate of 4 percent for the Canadian economy.
  - Almost 14 percent of overall economic growth was directly attributable to the ICT sector during this period.
- Over this same period, real GDP for the ICT manufacturing sector in the U.S. grew at a remarkable 45 percent per year, which was significantly higher than the rate of 4.1 percent for the U.S. economy.
  - About one-third of U.S. economic growth came from ICT manufacturing in the second half of the 1990s.

Real GDP Growth in the ICT-Producing Sector (CAGR %)

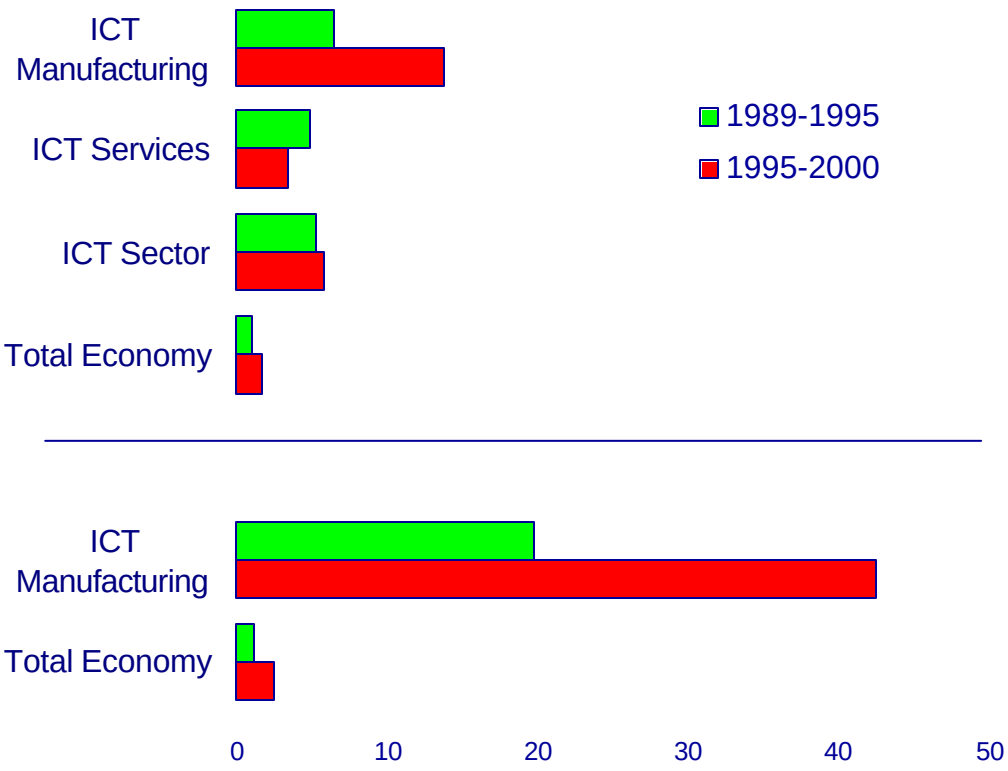


Source: Industry Canada compilations based on data from Statistics Canada, U.S. Bureau of Labor Statistics, and U.S. Federal Reserve
Note: The introduction of the North American Classification System (NAICS) affected the collection of ICT data. ICT data under NAICS are available from 1997 onwards, and are not directly comparable to data classified according to the previous classification system.

…and to productivity growth

- During the 1995-2000 period, labour productivity increased at an average annual rate of 5.8 percent in the Canadian ICT sector, compared to 1.7 percent per year for the Canadian economy.
  - ICT sector accounted for about 25 percent of the Canadian aggregate labour productivity growth during this period.
- In the U.S., labour productivity in ICT manufacturing increased by 43 percent per year during the second half of the 1990s, compared to a growth rate of 2.5 percent for the U.S. economy.
  - ICT manufacturing accounted for more than 50 percent of the U.S. aggregate labour productivity growth.

Labour Productivity* Growth in the ICT-Producing Sector (CAGR %)

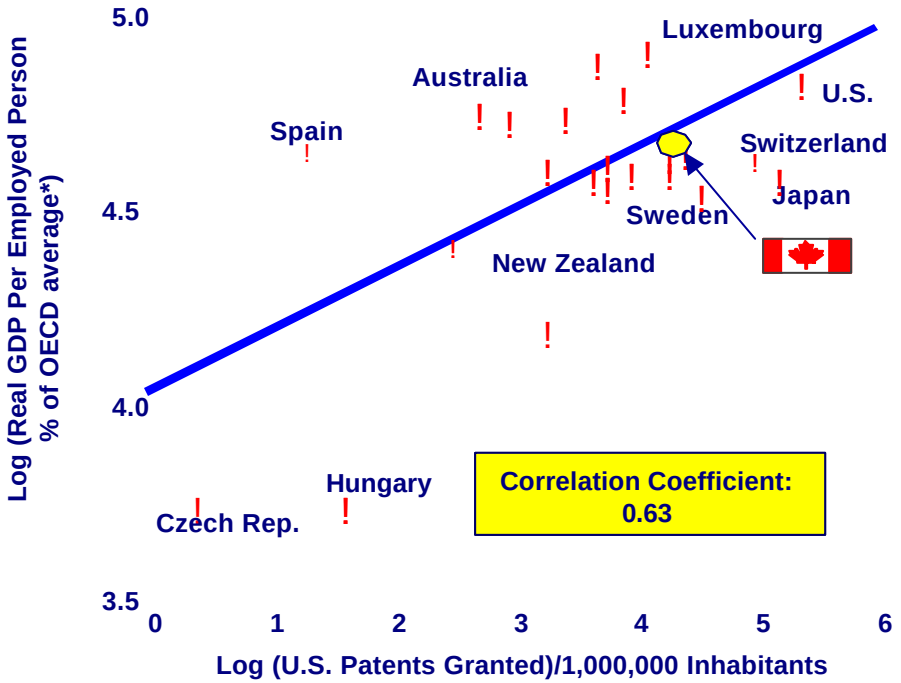


Source: Industry Canada compilations based on data from Statistics Canada, U.S. Bureau of Labor Statistics, and U.S. Federal Reserve

Innovation is the key driver of productivity…

- There is clearly a link (as shown by the line in the graph) between innovative performance and standard of living.

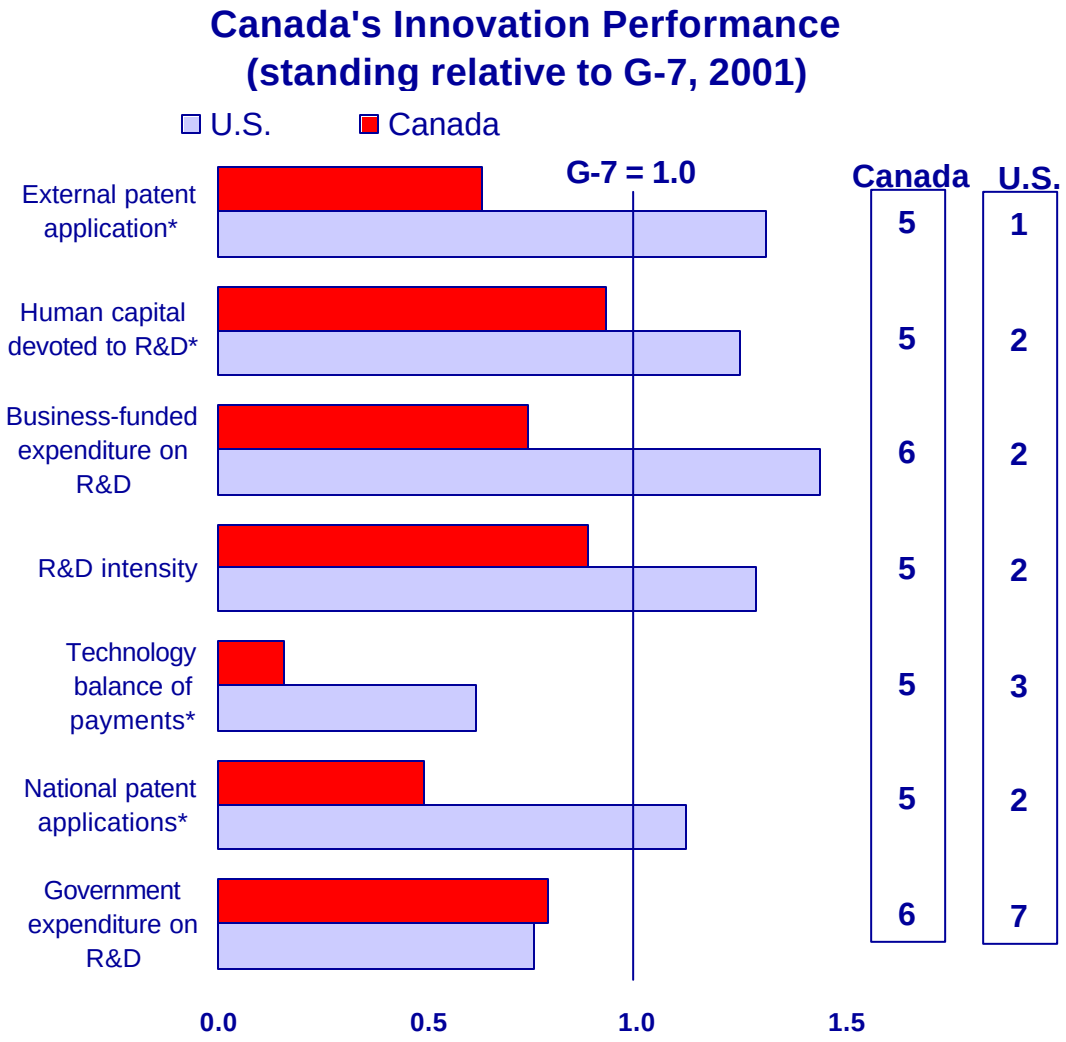
Real GDP Per Employed Person and Patents Per Capita Granted in the U.S. for OECD Countries, 1995



*OECD average is a weighted average based on 1996 PPPs
Source: "The Importance of Innovation for Productivity", *International Productivity Monitor* 2, 2001

…and Canada has a significant innovation gap

- Canada's overall level of innovation capacity is near the bottom in the G-7. In contrast, the performance in the U.S. is near the top.
  - We are outperformed by other G-7 countries, especially in Research and Development (R&D) related innovation indicators.

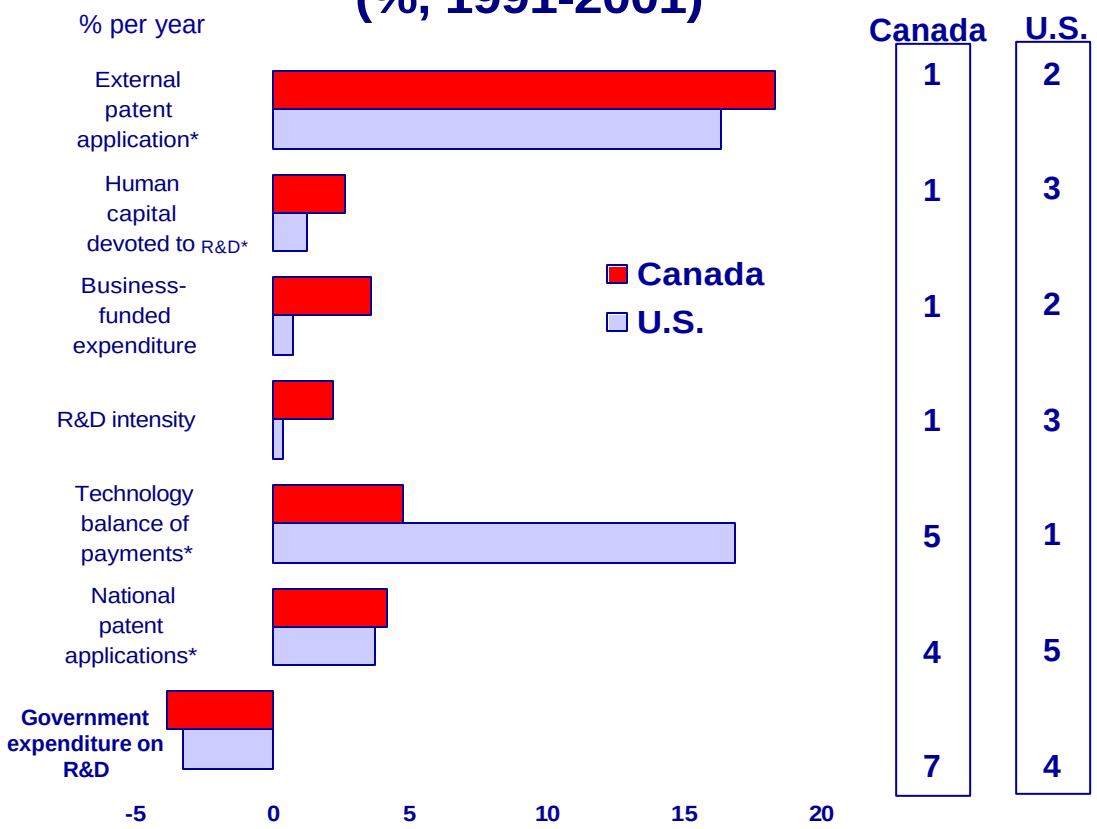


* 1999, Adjusted by size of labour force
Source: OECD, Main Science and Technology Indicators, 2002:1

Progress has been made in reducing this gap…

- Canada has improved its innovation performance over the last few years across a range of key indicators.
  - We have achieved the fastest rate of growth in the number of workers devoted to R&D, in external patent applications, and in business expenditures on R&D among G-7 countries.
  - Our R&D expenditures (as a percent of GDP) have also increased at the fastest pace in the G-7.

Canada's Innovation Performance (%, 1991-2001)**



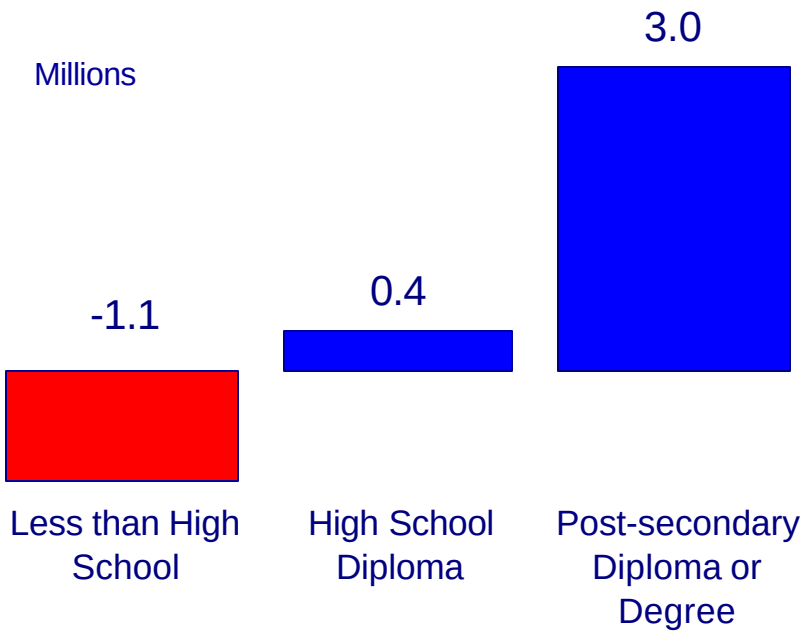
* 1999, Adjusted by size of labour force
** Compound Average Growth Rate
Source: OECD, Main Science and Technology Indicators, 2002:1

Labour Market Trends

Worldwide demand for skilled workers is increasing, and Canada is no exception

- The emergence of the knowledge-based economy has greatly increased the demand for skilled workers throughout the world, particularly in the U.S.
- Since 1990, almost all employment growth in Canada was for workers with a post-secondary diploma or degree.
  - This trend holds true across all sectors of the economy, not just the so-called high-tech industries.

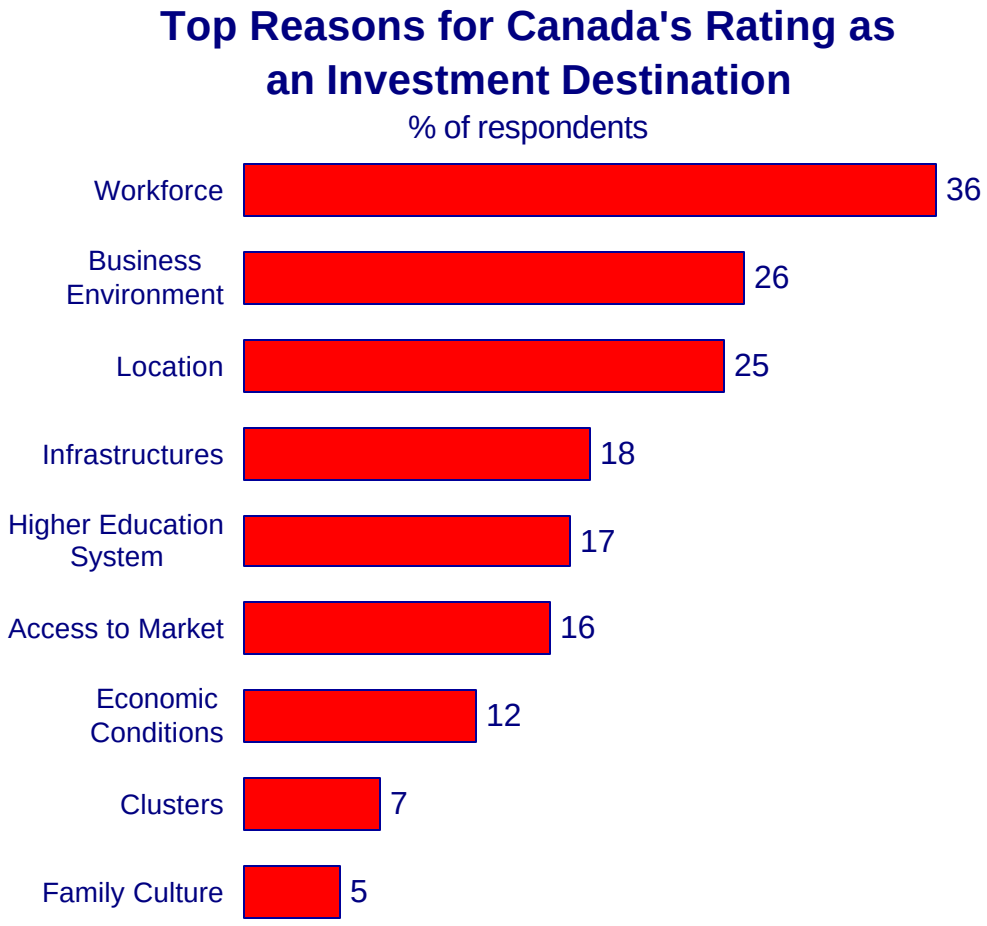
Employment Growth by Highest Level of Education Attained, 1990-2002



Source: Industry Canada calculations based on Statistics Canada data.

A qualified work force attracts investment…

- In a recent survey, American executives directly involved in foreign investment decisions were asked what factors make Canada an attractive investment location.
- The first among all top reasons was the quality of the Canadian workforce. The quality of the Canadian higher education system was also cited frequently by the executives.

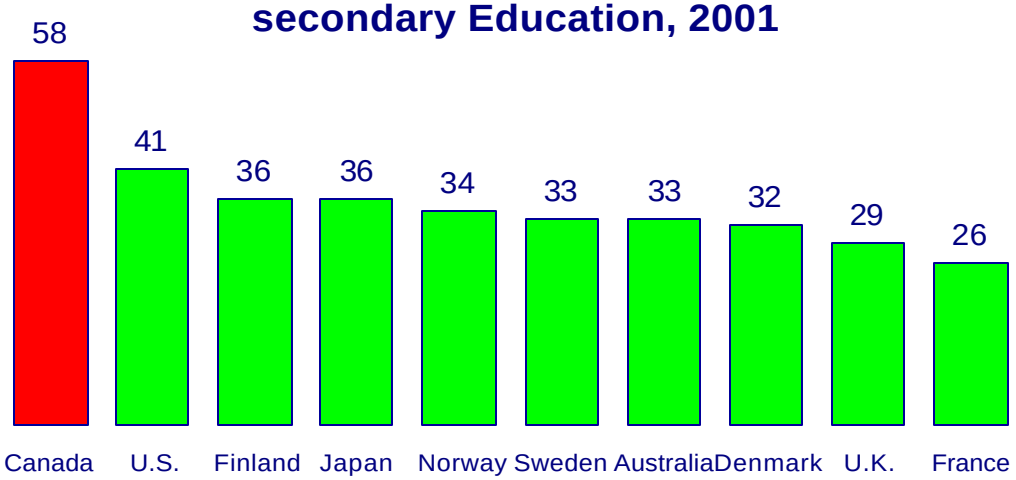


Source: Wirthlin Worldwide & Earnscliffe Research Communications, 2001

… and Canada has a strong record in producing highly qualified people

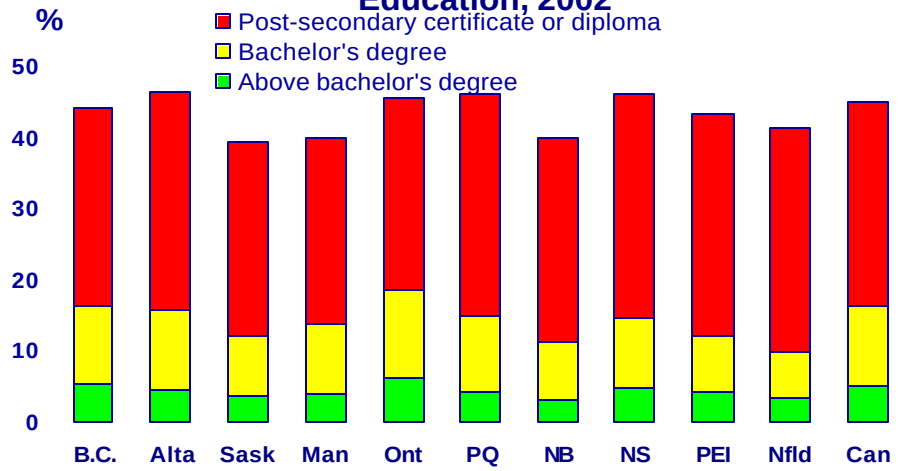
- Human capital has a crucial role in the knowledge economy – highly-skilled and educated workers are needed to maximize the benefits of new technologies.
- Canada still has the most highly educated labour force in the world, when measured by the proportion of people with post-secondary attainment.
  - In this regard, all regions are well endowed in knowledge workers.
  - The proportion of the labour force with at least a post-secondary certificate or diploma ranges between 39 percent in Saskatchewan to 46 percent in Nova Scotia.

Percentage of Labour Force with Post-secondary Education, 2001



Source: OECD, Education at a Glance, 2002

Share of Labour Force with Post-Secondary Education, 2002

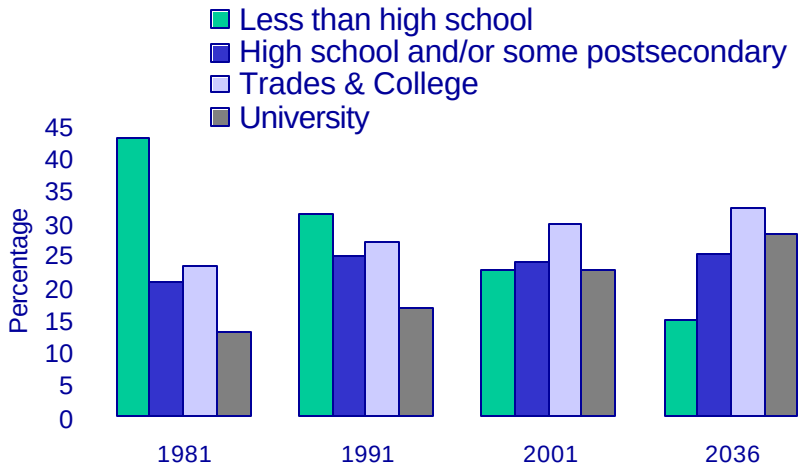


Source: Industry Canada calculation based on Statistics Canada data

The education level of the Canadian population should continue to rise…

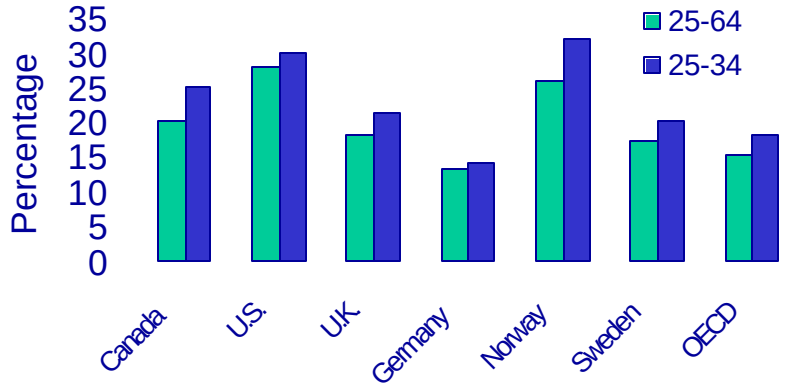
- Strong growth in the skill level of the Canadian workforce through the formal education system has made an important contribution to the growth of labour productivity.
- Skill levels will continue to rise as younger workers enter the labour market and older workers leave.
  - The rise in educational levels will continue even if the educational distribution of 25-29 year olds does not change through 2036.
  - Rising skill levels through initial education will continue, but this contribution may not be greater than in the past.
  - Room to move up — expected years of schooling for five year olds are still lower in Canada than in some other countries, as is the percentage of the population with a university degree.

Skill level of Canadian workforce, 1986-2036



Source: Statistics Canada, Census of Population 2001, 1986 and compilations for 2036 by Industry Canada.

Population with a University or Advanced Research Program Degree, 2001

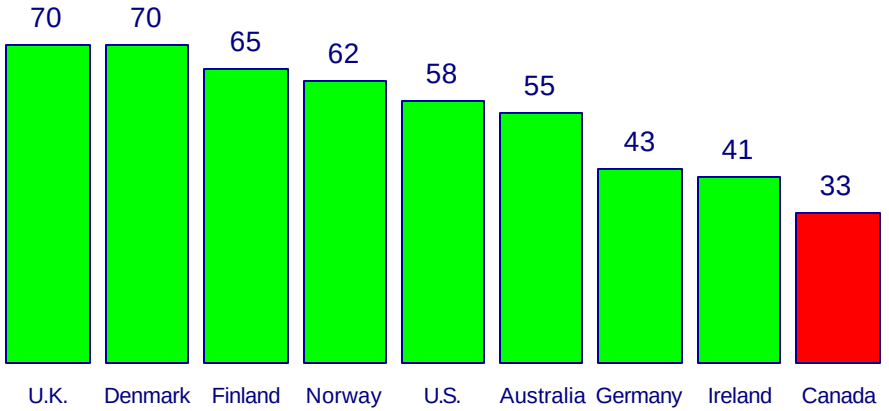


Source: OECD, Education at a Glance, 2002. Table A2.3

…but our record in adult education and workplace training is weak…

- Our performance in job-related education and training is mediocre, even with respect to well-educated employees.
- Training is not among the top priorities of many employers and few offer formal training, particularly among small and medium entreprises.

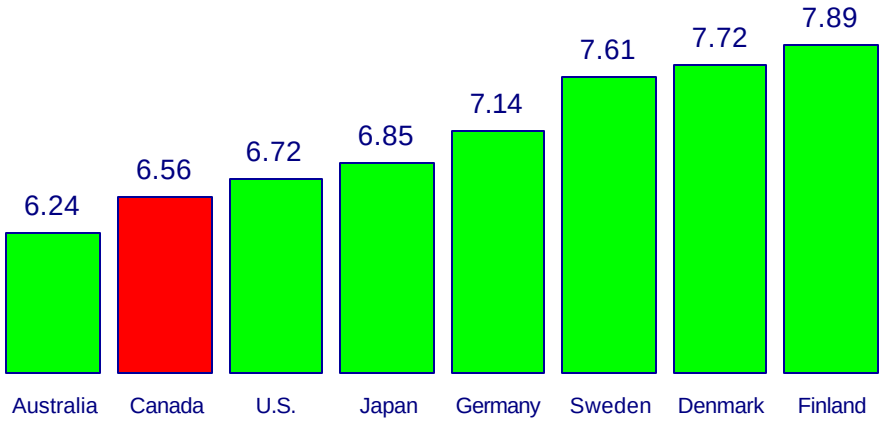
Participation Rate in Job-related Education and Training, Labour Force Participants with PSE Education, 1999 or more recent



Source: OECD, Education at a Glance, 2002

Employee Training as a Business Priority

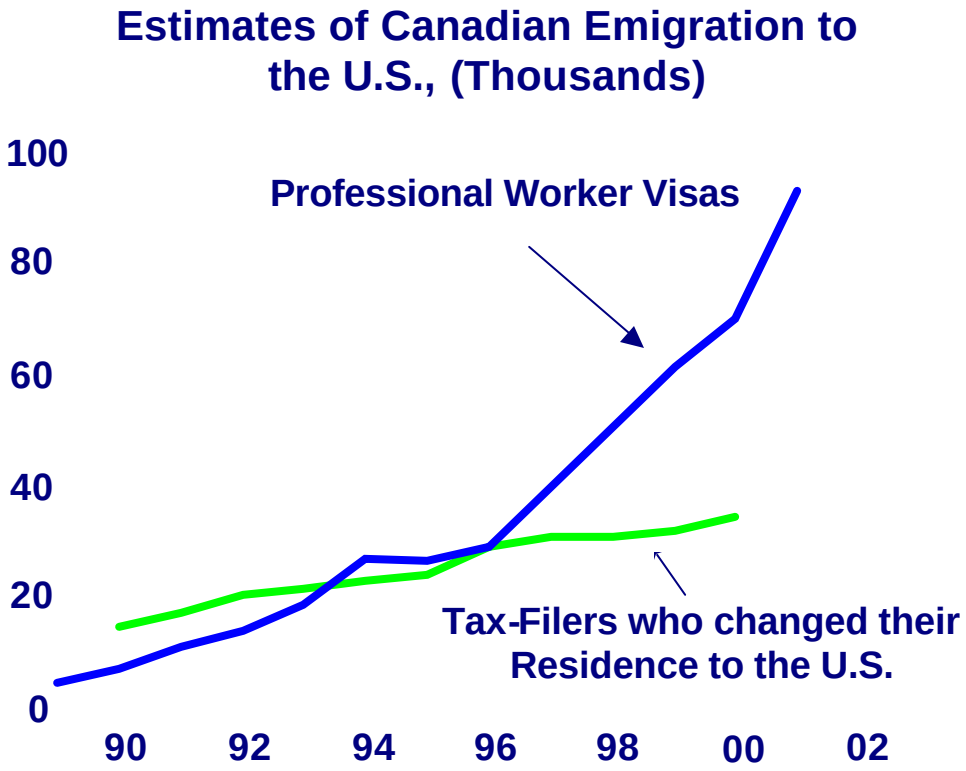
1=Not a priority 10=High Priority



Source: IMD, "The World Competitiveness Yearbook," 2002

…and Canadian Highly Qualified People are in demand elsewhere

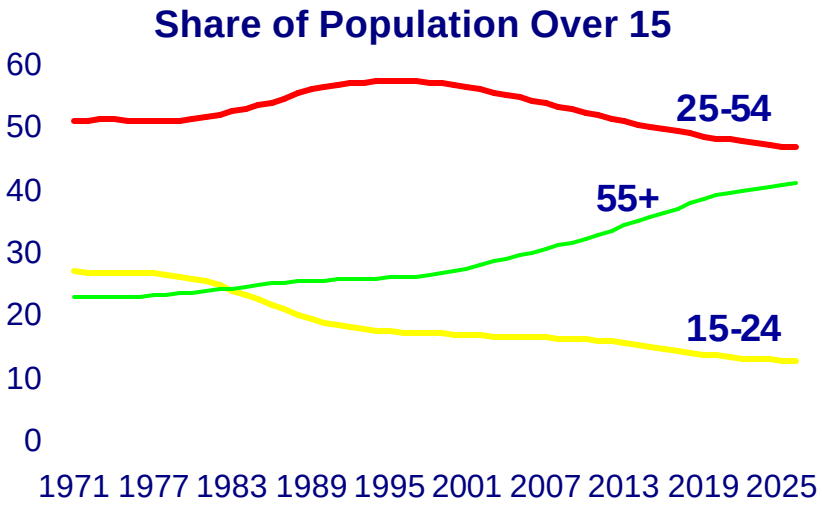
- Evidence from tax records and permanent immigration data show that the number of tax-filers who changed their residence from Canada to the U.S. has increased over the last 13 years.
- Workers likely to leave for the U.S. are highly qualified and in high demand. Over the same time period the number of professional worker visas issued to Canadians to work in the U.S. increased about 30-fold.



Source: Statistics Canada, U.S. Census Bureau; current population survey

Canada is getting older…

- For each person aged over 55, there are currently 2 people still in their prime working age. By 2026, this ratio will drop to 1.1, putting pressure on labour markets.
  - The share of population aged 55 and over is expected to reach 41 percent by 2026, almost double its 1971 level.
  - At the same time the share of prime working age population (25-54) is expected to fall to 46 percent by 2026, after peaking in 1997 at 57 percent.
  - The share of youth population is expected to continue its downward trend.
  - Due to Canada's aging population and low birth rates, immigrants are expected to account for all net labour force growth by 2011 and for all net population growth by 2031.
- European countries and Japan experienced weaker baby booms and had higher elderly dependency ratios (population aged 65+/population aged 15-64) in 2000 than the U.S. and Canada.
- The elderly dependency ratio will rise in all G-7 countries but Canada and the U.S. will continue to have the lowest ratios.



Source: Statistics Canada

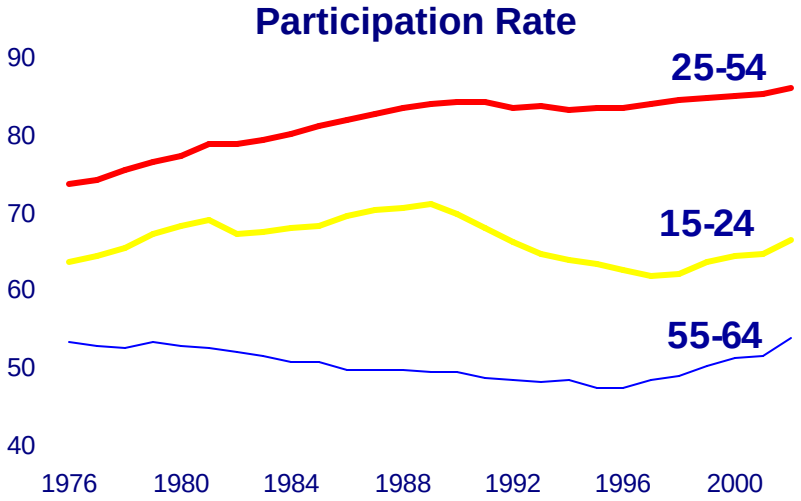
Dependency Ratio

	1950	1970	2000	2025	2050
Canada	**12.0**	**13.0**	**18.0**	**33.0**	**41.0**
U.S.	**13.0**	**16.0**	**19.0**	**29.0**	**35.0**
Japan	8.0	10.0	25.0	49.0	71.0
Germany	14.0	22.0	24.0	39.0	55.0
France	17.0	21.0	24.0	36.0	47.0
Italy	13.0	17.0	27.0	41.0	68.0
U.K.	16.0	21.0	24.0	35.0	47.0

Source: United Nations, Population Division

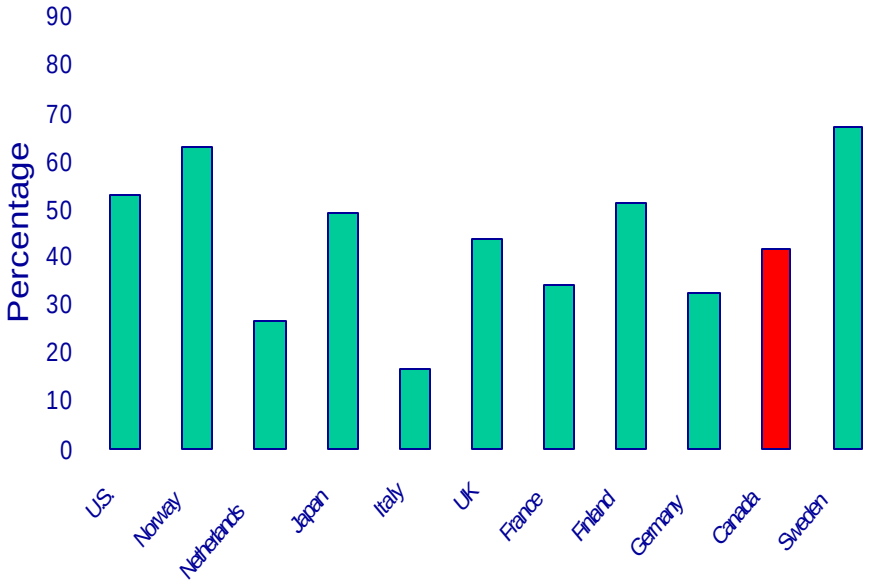
…and participation rates of older workers are relatively low

- The level of participation of older people in the labour force might be adjusting to the aging reality.
  - Participation rates of age 55-64 workers rebounded over the past five years, after falling steadily since 1976. Canada's participation rates for men and women 55-64 are considerably lower than in many other countries, including the U.S.
  - Higher participation rates for these age groups would contribute to output growth.

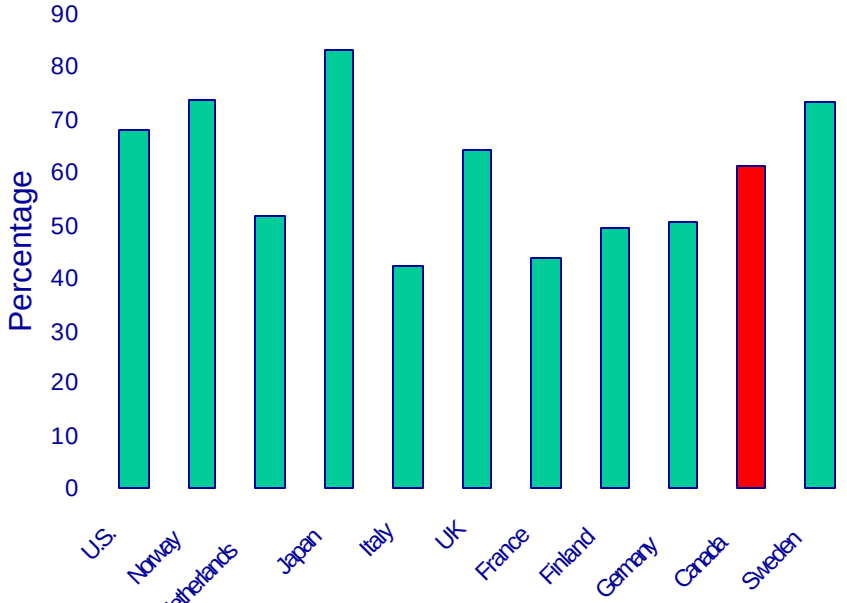


Source: Statistics Canada

Participation Rates, Women Aged 55-64, 2001



Participation Rates, Men Aged 55-64, 2001



Source: Industry Calculations from OECD Corporate Data Environment