



*Centre for the
Study of Living Standards
Centre d'étude des
niveaux de vie*

111 Sparks Street, Suite 500
Ottawa, Ontario K1P 5B5
613-233-8891, Fax 613-233-8250
csls@csls.ca

Raising Canadian Living Standards: A Framework for Discussion

Background paper prepared by the Centre for the Study of Living Standards for the
TD Forum on Canada's Living Standards, October 7-8, 2002, Ottawa, Ontario

October 31, 2002

Raising Canadian Living Standards: A Framework for Discussion¹

Executive Summary

Canada's living standards have been falling relative to those in the United States in recent years. The Chairman and CEO of the TD Bank Financial Group, Charles Baillie (2001) has suggested that Canadians adopt as a societal goal not only the reversal of this downward trend, but that Canadian living standards exceed US living standards within 15 years. Policies that the public and private sectors might adopt to attain this very ambitious objective were the focus at the multi-stakeholder roundtable organized for October 7-8, 2002.

The objective of this background paper is to provide a framework for discussion of the issue of raising Canadian living standards. The paper first discusses definitions of living standards and related concepts. It then examines trends of living standards historically in Canada and the United States and in OECD countries. The third section looks at the relative importance of the determinants of living standards – productivity, working time, demographic structures, labour force participation, and the unemployment rate – in the growth of living standards in Canada and in accounting for the income gap with the United States and other countries. The fourth section discusses what strategies need to be pursued in terms of the five determinants of living standards growth for Canada to exceed US living standards by 2016.

The key conclusions of the paper are twofold. First, a focus on improving Canada's productivity growth performance, and in particular, eliminating the Canada-US productivity gap, is by far the most important and effective way to attain the objective of Canadian living standards exceeding US living standards by 2016. Second, an objective for Canada of matching or exceeding the US productivity level is probably a better societal objective than equaling or exceeding US living standards, as measured by GDP per capita. Attaining this objective would certainly give Canadians the opportunity to have the same level of per capita income as Americans, but it would also give Canadians the option of choosing more leisure time, a component of economic well-being that is currently not incorporated into GDP.

The key findings of this study are:

- Productivity has been by far the main driver of increased living standards in Canada, accounting for over 100 per cent of real GDP growth over the 1946-2001 period, 76 per cent over the 1973-2001 period, and again, over 100 per cent over the 1989 -2001 period. Increased labour force participation and a relatively larger working age population have also contributed to living standards growth in the postwar period,

while declining working time and higher unemployment have reduced living standards.

- Canada's GDP per capita in 2001 was 84.7 per cent of the US level. Of this 15.3 percentage point income gap, 18.0 points was due to Canada's lower productivity level, 2.2 points to higher unemployment, and 1.1 points to the lower participation rate. The higher proportion of the population of working age in Canada reduced the income gap by 5.1 points, while longer hours worked in Canada further reduced the gap by 0.5 points.
- Canada has suffered a relative deterioration in its living standards in the postwar period. In 1950, Canada's GDP per capita ranked fourth in the OECD area, after Switzerland, the United States, and New Zealand. By 2001, Canada had dropped to sixth, being overtaken by Denmark, Norway and Ireland and still behind Switzerland and the United States.
- There is only limited potential for Canada to decrease the income gap with the United States by reducing unemployment, and increasing labour force participation and working time. If Canada were to achieve US levels in these variables, the overall Canada-US GDP per capita gap would be reduced by only 3.3 points or 21 per cent.
- The most politically acceptable and effective policy to eliminate the Canada-US income gap by 2016 is to reduce the Canada-US productivity gap of 18.0 percentage points. This would require output per hour growth in Canada of 1.2 percentage points faster per year than in the United States for a 15-year period. While an extremely ambitious objective, such a productivity growth differential is not unprecedented in Canada, as it was an even greater 1.6 points per year over the 1949-64 period.
- While public policies and private sector initiatives can contribute to faster productivity growth in Canada, the key factor that will determine whether Canada could achieve fast enough productivity growth to overtake US productivity levels by 2016 will be the evolution of productivity in the United States. If the current wave of productivity-augmenting technological innovation in the United States comes to an end, decreasing US productivity growth, and if Canada can use these innovations to play technological catch up, there may be the possibility of attaining US productivity levels, a feat never achieved in Canada's economic history.

Raising Canadian Living Standards: A Framework for Discussion

Canada's living standards have been falling relative to those in the United States in recent years. The Chairman and CEO of the TD Bank Financial Group, Charles Baillie (2001) has suggested that Canadians adopt as a societal goal not only the reversal of this downward trend, but that Canadian living standards exceed US living standards within 15 years. Policies that the public and private sectors might adopt to attain this very ambitious objective were the focus at the multi-stakeholder roundtable organized for October 7-8, 2002.

The objective of this background paper is to provide a framework for discussion of the issue of raising Canadian living standards. The paper first discusses definitions of living standards and related concepts. It then examines trends of living standards historically in Canada and the United States and in OECD countries. The third section looks at the relative importance of the determinants of living standards – productivity, working time, demographic structures, labour force participation, and the unemployment rate – in the growth of living standards in Canada and in accounting for the income gap with the United States and other countries. The fourth section discusses what strategies need to be pursued in terms of the five determinants of living standard growth for Canada to exceed US living standards by 2016.

The key conclusions of the paper are twofold. First, a focus on improving Canada's productivity growth performance, and in particular, eliminating the Canada-US productivity gap, is by far the most important and effective way to attain the objective of Canadian living standards exceeding US living standards by 2016. Second, an objective for Canada of matching or exceeding the US productivity level is probably a better societal objective than equaling or exceeding US living standards, as measured by GDP per capita. Attaining this objective would certainly give Canadians the opportunity to have the same level of per capita income as Americans, but it would also give Canadians the option of choosing more leisure time, a component of economic well-being that is currently not incorporated into GDP.

Definition of Living Standards

The general definition of living standards is the material basis of everyday life. While complex measures of living standards have been developed,² real income has become the standard proxy used to quantify levels and trends in living standards. However, economists recognize that income measures do not capture a number of variables affecting economic well-being, most importantly leisure time, but also the state of the environment, equality, and security.

The Centre for the Study of Living Standards (CSLS) has developed the Index of Economic Well-being to provide a much broader measure of trends in economic well-being than income measures provide. The Index is based on trends in consumption, broadly defined: stocks of wealth, including human capital and the degradation of the environment; inequality and poverty; and economic insecurity, including the income risks facing the unemployed, persons with health problems, single parents, and the elderly.³

This paper, however, will not focus on economic well-being. Rather it will focus on the narrower concept of living standards, as proxied by income, with one important exception. Differences in the amount of non-working time or leisure will be discussed in the context of living standards comparisons across countries. This is because there is wide agreement that the quantity of leisure time can be considered a component of a broad definition of living standards.

Three definitions of aggregate income can be used in the analysis of trends in living standards: GDP per capita, personal income (PI) per capita, and personal disposable income (PDI) per capita. GDP per capita is the most widely used income measure of living standards, particularly for international comparisons. It includes factor incomes from all sources as well as depreciation or capital consumption allowances. This measure of living standards will be the main measure used in the paper.

Personal income is defined as that income that accrues to individuals or households, including labour income, investment income (excluding capital gains), and government transfer payments to persons. It excludes undistributed corporate profits and depreciation. Personal disposable income or after-tax personal income is defined as personal income minus direct taxes (income and payroll taxes).

Some argue that trends in per capita personal disposable income provide a better indicator of trends in living standards than trends in per capita personal income because disposable income represents the individual's direct command over resources. Others argue that the benefits provided to society financed by tax revenues must also be factored into measures of living standards and from this perspective trends in disposable income are not necessarily superior to trends in personal income as a measure of the true trends in living standards.

Trends in Canadian Living Standards

Discussion of Canada's living standards focuses on both the level of living standards relative to other countries, with particular emphasis on the United States, and trends in living standards within Canada, and relative to other countries.

Canada-US Comparisons of Living Standards Levels in 2001

In 2001, GDP per capita in Canada, expressed in current dollars⁴ at a purchasing power parity (PPP) exchange rate of \$0.85 as estimated by Statistics Canada (2002a), was

\$29,870 US. GDP per capita in the United States was \$35,264 US. Thus Canadian GDP per capita in 2001 was 84.7 per cent of that in the United States, an income gap of 15.3 percentage points.⁵

Personal income (PI) per capita in Canada in 2001 was \$23,865 in current US dollars, compared to \$30,378 in the United States, giving a Canada-US ratio of 78.6 per cent or an income gap of 21.4 percentage points. The larger gap relative to GDP per capita reflects the lower ratio of personal income to GDP in Canada than in the United States.⁶

Personal disposable income (PDI) per capita in Canada was \$18,211 in 2001 in current US dollars, compared to \$25,859 in the United States. Canada PDI per capita was thus 70.4 per cent of that of the United States, an income gap of 29.6 percentage points. The higher share of direct taxes in personal income in Canada relative to the United States (23.7 per cent of PI versus 14.9 per cent) accounts for this greater Canada-US income gap for PDI than for PI. It is important to note that the nearly 30 points income gap between Canadian and US living standards implied by the PDI data is misleading. It assumes that Canadians do not receive any additional benefits from the additional 8.8 percentage points of PI they turn over to the government as taxes relative to their American counterparts. To the degree that higher taxes in Canada reflect the public's trade-off, as mediated through the political process, regarding the provision of public goods and services relative to private goods and services, PI represents a much better indicator of living standards than PDI.

Which of the three aggregate income measures outlined above represents the most appropriate measure for the debate on Canadian living standards? I would argue GDP per capita is the most appropriate because it provides the best proxy of the potential present and future consumption possibilities of the population. This is because it includes corporate profits, which can be distributed to individuals as dividends or reinvested to increase future consumption.⁷

Trends in Canada-US Levels of GDP Per Capita

There have been two major trends in Canada's GDP per capita relative to that in the United States in the postwar period from 1946 to 2001, namely, an improvement from 1946 to 1981, followed by a deterioration from 1981 to the late 1990s (Table 1 and Chart 1).⁸

In 1946, Canada's GDP per capita, expressed in current US dollars at PPP exchange rates, was 71.6 per cent of the US level. Over the next three and one half decades the ratio increased, reaching a peak of 90.7 in 1975, declining slightly, but rebounding and nearly achieving its peak level again in 1981 at 90.6 per cent.⁹ The rise was particularly rapid in the first half of the 1970s (from 80.9 per cent in 1969 to 90.7 in 1975). After 1981, the ratio began to fall, bottoming out at 81.1 per cent in 1997, with the lion's share of the decline concentrated in the 1988-92 period (from 87.4 per cent in 1988

to 81.2 per cent in 1992).¹⁰ Since 1997, there has been an upward trend in Canada's relative GDP per capita, reaching 84.7 per cent of the US level by 2001.¹¹

Two periods were thus crucial for the evolution of Canada's GDP per capita relative to that in the United States in the postwar period. During the boom of the first half of the 1970s (1969-1974), our relative income position improved remarkably, by 10 percentage points. During the recession of the late 1980s and early 1990s (1988-92), our relative position fell significantly, by 6 percentage points, a deterioration that has since not been reversed.

Trends in Canada-US Rates of Growth of GDP Per Capita

Trends in Canada's level of GDP per capita relative to that in the United States are determined by the relative growth rates of GDP per capita in the two countries. Tables 2 for Canada and 3 for the United States and Chart 1 show these growth rates, in real terms, for a number of cyclically neutral periods.

Both Canada and the United States experienced a fall-off in the growth in living standards, as proxied by real GDP per capita after 1973 (Table 2). In the 1946-73 period in Canada, real GDP per capita increased at a 2.68 per cent average annual rate. This rate of advance fell almost one percentage point to an average annual 1.76 per cent in the 1973-2001 period. After 1973, the rate of growth progressively fell in successive cyclically neutral peak-to-peak periods, from 2.22 per cent per year in 1973-81 to 1.85 per cent in 1981-89 to 1.40 per cent in 1989-2001. However, the average growth rate for the 1990s is misleading as it masks extremely low GDP per capita growth in the first half of the decade (0.24 per cent per year from 1989 to 1995) and the very robust growth of the second half of the 1990s and early 2000s (2.57 per cent from 1995 to 2001).

In the 1946-73 period in the United States, real GDP per capita rose at a 2.24 per cent average annual rate, falling only 0.42 percentage points to 1.82 per cent in the 1973-2001 period. Real GDP per capita growth was particularly weak in the 1973-81 period at 1.45 per cent per year (Table 3). It picked up to a strong 2.52 per cent in the 1981-89 period, and then fell off to 1.60 per cent in the 1989-2001 period. As in Canada, real GDP per capita growth was much weaker in the first half of the 1990s (1.02 per cent from 1989 to 1995) than in the second half (2.18 per cent from 1995 to 2001).

Over the 1946-2001 period, real GDP per capita growth in Canada exceeded by 0.18 percentage points per year (2.21 per cent versus 2.03 per cent) that in the United States. This led to a 13.1 percentage point increase in Canada's GDP per capita, as a proportion (expressed in current dollars) of that in the United States from 71.6 per cent in 1946 to 84.7 per cent in 2001 (Table 1).¹²

In the 1946-73 period, Canada's real GDP per capita growth outpaced that in the United States by 0.44 percentage points (2.68 per cent versus 2.24 per cent), raising the relative income ratio to 85.2 per cent. After 1973, real GDP per capita growth in Canada lagged that in the United States (1.76 per cent versus 1.82 per cent), decreasing Canada's

GDP per capita relative to the US level and increasing the Canada-US income gap. Canada's growth in real GDP per capita compared to that in the United States was particularly poor in the 1980s (1.85 per cent per year in 1981-89 versus 2.52 per cent). It was also somewhat lower in the 1990s (1.40 per cent per year in 1989-2001 versus 1.60 per cent in the United States). The gap between Canadian and American performance was particularly stark in the first half of the 1990s, with real GDP per capita advancing only 0.24 per cent per year in Canada versus 1.02 per cent in the United States from 1989 to 1995. In contrast, in the second half of the 1990s and early 2000s, real GDP per capita growth in Canada slightly exceeded that in the United States (2.57 per cent versus 2.18 per cent from 1995 to 2001).

Trends in Canada GDP Per Capita Relative to OECD Countries

Data compiled by the Groningen Growth and Development Centre at the University of Groningen in the Netherlands for 22 OECD countries show that in 2001 Canada ranked sixth in terms of GDP per capita in the OECD area with 77.9 per cent of the US level (Table 4). Norway (84.0 per cent of the US level), Ireland (82.1 per cent), Switzerland (81.9 per cent), and Denmark (80.7 per cent), and, of course, the United States had higher levels of GDP per capita than Canada.¹³

Canada has suffered a relative deterioration in its living standards in the postwar period. In 1950, Canada's relative GDP per capita at 81.9 per cent of the US level ranked fourth in the OECD area, after Switzerland, the United States, and New Zealand. By 1973, Canada's GDP per capita at 87.3 per cent again ranked fourth, with West Germany replacing New Zealand. By 1989, Canada, with GDP per capita 87.5 per cent of the US level still ranked fourth. By 1995, Canada had dropped to sixth at 81.6 per cent, being overtaken by Denmark and Norway. By 2001, Canada was overtaken by Ireland at 77.9 per cent.

These trends in relative GDP per capita of course reflect the relative growth rates of GDP per capita in the different OECD countries (Table 5). Over the 1950-2001 period Canada had the third lowest rate of growth in real GDP per capita in OECD countries. Only New Zealand and Switzerland fared worse.

Determinants of Living Standards

GDP per capita is determined by five factors, namely:

- the amount of output, expressed in constant prices, produced by each worker per hour;
- the average annual number of hours the worker works;
- the proportion of the total population who are of working age as only persons of working age contribute directly to GDP;¹⁴

- the labour force participation rate, that is, the labour force divided by the working age population, as only persons in the labour force directly produce output; and
- the unemployment rate, defined as the unemployed divided by the labour force, as only employed persons contribute directly to GDP.¹⁵

The Decomposition of GDP Per Capita Growth in Canada

The levels and rates of growth of the five determinants of living standards in Canada over the 1946-2001 period are provided in Table 6.¹⁶ Table 7 provides a decomposition of real GDP per capita in Canada over the 1946-2001 period and selected sub-periods into the five determinants.

The most important finding that emerges from these two tables is the importance of productivity growth, defined as total economy output per hour growth, for the growth of living standards in Canada. Over the 1946-2001 period, productivity growth accounted for 117.2 per cent of real GDP per capita growth in Canada.¹⁷ The other four components of real GDP per capita growth were much less important. Declining average hours reduced real GDP per capita growth by 35.7 per cent over the period, while rising unemployment decreased it 3.4 per cent. In contrast, a more favourable demographic structure, defined as a higher proportion of persons of working age in the total population, contributed 8.1 per cent to overall per capita GDP growth, while increased labour force participation contributed 14.5 per cent.

The relative contribution of the five determinants of growth in living standards varied greatly in the different sub-periods within the 1946-2001 period. In the 1946-73 period, output per hour growth fueled living standards growth, accounting for 146.0 per cent of real GDP per capita growth. Falling average hours offset much of this productivity growth, making a contribution of -50.2 per cent to real GDP growth.

After 1973, productivity growth became less important, in both absolute terms and relative terms (75.6 per cent versus 146.0 per cent), as a driver of living standards growth for three main reasons. First, productivity growth was considerably slower in the post-1973 period, falling from an average annual rate of advance of 3.9 per cent in 1946-73 to 1.3 per cent in 1973-2001 (Chart 2 and Table 14). Second, the pace of the decline in average hours in the pre-1973 period (1.4 per cent per year) was not sustainable so this component made a much smaller negative contribution to real GDP per capita growth (-14.2 per cent). Third, with the entry of the baby boom cohorts into the labour force in the 1970s, the size of the working age population relative to the total population rose and contributed significantly to growth in living standards, particularly in the 1973-81 period (39.7 per cent). A final less important reason is that labour force participation rate growth picked up slightly after 1973, particularly in the 1973-81 period, and made a larger contribution to real GDP growth (43.5 per cent).

Because of the very low real GDP per capita growth in the first half of the 1990s, the percentage or relative contributions of the different determinants of GDP become problematic for the 1990s. An examination of the absolute contributions of the five components is more useful. Output per hour growth contributed 1.56 points to real GDP per capita growth of 1.40 per cent over the 1989-2001 period. This contribution was nearly the same in the first half of the decade (1.54 points in 1989-95) as in the second half (1.58 points in 1995-2001), even though average annual real GDP per capita picked up from 0.24 per cent in 1989-95 to 2.57 per cent in 1995-2001.

Unlike productivity trends, the absolute contributions of the other four determinants of GDP differed considerably between the first and second half of the decades, reflecting macroeconomic conditions. In the first half of the 1990s, average hours fell 0.51 per cent per year, the participation rate declined 0.58 per cent, and the unemployment rate variable, defined as one minus the unemployment rate, fell 0.34 per cent, and the relative size of the working population only increased 0.18 per cent. The first three of these developments reduced real GDP per capita growth and account for the gap between productivity and living standards growth.

In the second half of the 1990s, despite the constancy of productivity growth, real GDP per capita growth accelerated 2.3 points from 0.24 per cent in 1989-95 to 2.57 per cent because of favourable developments in all four other determinants of living standards. The developments were conditioned by the turnaround in the macroeconomic environment. Average hours fell only 0.10 per cent per year, down from 0.51 per cent in the first half of the decade. The growth in the relative size of the working age population picked up to 0.38 per cent per year. The aggregate participation rate increased 0.28 per cent per year, a turnaround of 0.86 points from the first half of the 1990s. The decline in the unemployment rate added 0.41 per cent per year to real GDP growth, also a major turnaround (0.75 points) from the first half of the decade.

Decomposition of the Canada-US Income Gap in 2001

In 2001, GDP per capita, expressed in current US dollars, in Canada was 84.7 per cent of that in the United States, making an income gap of 15.3 percentage points. Table 8 decomposes this gap into the five determinants outlined above. It is important to note that the labour market variables in the table have been adjusted to be consistent with the US definition of the working age population as 16 and over, not 15 and over. Consequently, the estimates for the labour market variables for Canada for 2001 in this table differ somewhat from those in Table 6.

Of the five variables that determine GDP per capita, in 2001 three had higher values in the United States and two in Canada. By far the most important was productivity, expressed as total economy output per hour, which in Canada was only 82.1 per cent of the US level, a 17.9 percentage point gap.¹⁸ This variable alone more than explained all the income gap (117.3 per cent).

The unemployment rate was higher in Canada than in the United States in 2001 (6.9 per cent versus 4.7 per cent) and this 2.2 percentage point unemployment rate gap accounted for 14.5 per cent of the aggregate income gap. Canada's lower aggregate participation rate of 0.7 percentage points (66.2 per cent versus 66.9 per cent in the United States) also accounted for 6.9 per cent of the aggregate income gap. Finally, the slightly higher average number of hours worked per week by Canadians (34.39 versus 34.20 in the United States) offsets 0.54 points or 3.5 per cent of the 15.3 point aggregate income gap.

Canada has a demographic structure that favours a higher level of GDP per capita relative to the US level because of the larger relative size of the working age population in this country. In 2001, the working age population accounted for 77.9 per cent of the total population in Canada compared to 74.1 per cent in the United States, due to the lower fertility rate in Canada.¹⁹ This difference offset 5.1 points or 33.3 per cent of the Canada-US income gap, a very large contribution.

Table 9, from van Ark (2002), provides a reconciliation of labour productivity with living standards (GDP per capita) for OECD countries in 2001, including Canada and the United States. This reconciliation is similar to the decomposition undertaken in Table 8. The table provides much insight into the relationship between productivity and living standards across OECD countries relative to the United States.

According to the van Ark data, in 2001, Canada had 77.3 per cent of the US level of real GDP per capita, but its level of output per hour was 82.6 per cent of the US level.²⁰ This 5.3 percentage point difference was accounted for by the factors discussed above, namely differences in average hours worked, demographic structures, labour force participation, and the unemployment rate. Average hours worked were 3.5 per cent lower in Canada than in the United States, thus lowering relative GDP per capita compared to output per worker. The higher unemployment rate in Canada reduced GDP per capita 2.1 points, while the lower labour force participation rate accounted for a further 1.2 points of the difference. On the other side of the ledger, the larger size of the working age population, defined as 15 to 64, in Canada relative to the United States raised relative GDP per capita in Canada 1.5 points compared to relative output per hour.²¹

Decomposition of GDP Per Capita into its Components in OECD Countries in 2001

The difference between the level of living standards and productivity in Canada relative to the United States is small compared to that in many other OECD countries. Indeed, in a number of countries fewer annual hours worked and lower labour force participation rates mean that productivity, relative to the United States, is much higher than GDP per capita (Table 9). Indeed, four countries in 2001 had higher levels of output per hour worked than the United States – Belgium (112.4 per cent of the US level), Norway (109.7 per cent), France (101.8 per cent), and the Netherlands (100.9 per cent). Yet the United States had by far the highest level of GDP per capita, with Norway a distant second at 83.3 per cent of the US level.

Why do countries with higher labour productivity levels than the United States have lower levels of living standards as measured by levels of real GDP per capita? In the case of the Netherlands, Norway, and France, it is largely explained by the lower level of average annual hours worked. Workers in these countries, and in most other European countries, enjoy much more leisure time than American workers. In the case of Belgium, lower labour force participation is also an important factor.

The much greater leisure time enjoyed by Europeans is of course not incorporated into GDP per capita figures. Yet a strong case could be made that this leisure contributes to a broad definition of living standards. Indeed, it is unclear whether Europeans are worse off in terms of economic well-being than Americans despite their lower GDP per capita, particularly to the extent that Europeans have made a conscious choice to work fewer hours. Instead of using their very high productivity levels to achieve levels of material standards of living comparable to those in the United States, citizens in Belgium, Norway, France and the Netherlands appear to have adopted more moderate standards of living, measured in terms of per capita GDP, and taken part of the productivity gains in terms of fewer annual hours of work. This situation has great relevance to the objectives Canadians set for themselves.

Targets for Canadian Living Standards

What is Needed to Exceed US Living Standards

As noted in the introduction, Charles Baillie in 2001 proposed that Canadians adopt the objective of exceeding US living standards in 15 years, that is by 2016. This is an extremely ambitious but by no means impossible objective. With Canada's GDP per capita at 84.7 per cent of the US level in 2001, real GDP per capita growth would have to be 1.0 percentage points faster per year in Canada than in the United States to eliminate this 15.3 percentage point income gap by 2016. There has been no period in postwar Canadian economic history when real GDP per capita growth has exceeded that of the United States by such a magnitude for such a long period.

But other countries have achieved such a catch-up. The best recent example is Ireland. As Table 4 shows, Ireland's GDP per capita rose from 49.9 per cent of the US level in 1989 to 82.1 per cent in 2001, an increase of 32.2 percentage points in 12 short years or 2.7 per cent per year.²² The small size of the Irish economy may mean the relevance of the Irish experience to Canada is limited.²³

The actual growth rate in real GDP per capita that Canada would have to achieve to exceed US GDP per capita growth by 1.0 percentage points for 15 years depends of course on the rate of growth that the United States achieves over this period. The United States registered average annual real GDP per capita growth of 1.82 per cent over the 1973-2001 period, 1.60 per cent over the 1989-2001 period, and 2.18 per cent in the 1995-2001 period when productivity growth accelerated. Barring a major recession, it is likely that GDP per capita growth in the United States over the next 15 years will average

a least 2 per cent per year. This means that real GDP growth in Canada must average at least 3.0 per cent per year to achieve parity in living standards with the United States.

As noted earlier, nothing is impossible. Indeed, over the 1946-2001 period there were 25 years (out of 55) when real GDP per capita growth in Canada equaled or exceeded 3.0 per cent (Table 10). Many of these years were years of recovery and hence the robust GDP per capita growth was not sustainable. The 15 year period that experienced the strongest real GDP per capita growth in the postwar period was from 1961 to 1976. The 3.6 per cent average annual rate of growth during this period exceeds the 3.0 per cent annual growth rate in real GDP per capita needed for Canada to overtake US living standards by 2016, assuming US GDP per capita annual growth of 2.0 per cent.

Given the uncertainty about US real GDP per capita growth, it is more appropriate to frame scenarios for the attainment of US living standards in terms of the differential annual income growth rate needed (1.0 percentage points) rather than in terms of an absolute growth rate. Very strong real GDP per capita growth in Canada will not lead to the overtaking of US living standards if the United States also experiences strong growth, as is likely.

Over the 1946-2001 period, there were 17 years (out of 55) when the difference between Canadian and US real GDP per capita growth rates equaled or exceeded 1.0 per cent (Table 10). Many of these years were years of stronger recovery in Canada and hence the large differential was not sustainable. The 15 year period that experienced the largest Canada-US differential in real GDP per capita growth in the postwar period was from 1966 to 1981. However, the differential was only 0.9 percentage points, less than the 1.0 points needed for Canada to overtake US living standards by 2016.

Strategies for Overtaking US Living Standards

What would be needed to achieve a 1.0 per cent faster average annual growth rate in real GDP per capita in Canada than in the United States over the 2001-2016 period to eliminate the 15.3 percentage point gap in GDP per capita? Let us examine the determinants of living standards growth one by one.

The first way to close the income gap is to lower the unemployment rate. The official Canadian unemployment rate in 2001 averaged 6.9 per cent compared to the US official rate of 4.7 per cent (Table 8).²⁴ About 0.8 percentage points of the gap was accounted for by definitional differences,²⁵ leaving a true gap of 1.4 points. The elimination of this gap would thus reduce the GDP per capita gap by only 1.4 points, about 9 per cent of the overall gap. While this is certainly a worthwhile objective, it is no solution to the closing of the income gap.

In theory, Canada could attempt to achieve an unemployment rate below that of the United States, as it did for several years in the 1960s. Such an achievement would certainly contribute more to the closing of the income gap than the attainment of

unemployment rate parity with the United States. But with the more generous social safety in this country, the non-accelerating inflation unemployment rate (NAIRU) in Canada may be above that in the United States, making the achievement of a lower unemployment rate problematic.

A second way to close the income gap is to raise the labour force participation rate in this country to the US level. In 2001, the aggregate labour force participation rate in Canada was 66.2 per cent compared to 66.9 per cent in the United States.²⁶ The elimination of this 0.7 percentage point gap would thus reduce the GDP per capita gap by only 1.1 points, about 6 per cent of the overall gap. While this may be again a worthwhile objective if the economic well-being of those who join the labour force is increased by this decision to participate, it is no solution to the closing of the income gap.²⁷

In theory, Canada could target a labour force participation rate above that of the United States, although Canada has never had higher labour force participation (countries such as Sweden have). Such a development would contribute more to the closing of the income gap than the mere attainment of parity with the United States. This again may be a worthy objective, but it is very difficult to achieve as the impact of policy on labour force participation is problematic. The aggregate participation rate is expected to fall in the next 15 years through a composition effect in both countries as the baby boom generation reaches retirement age. One way for the Canadian participation rate to exceed the US participation rate would be to develop policies to entice a larger proportion of the baby boom generation to voluntarily remain in the labour force, even if on a part-time basis.²⁸

A third way for Canada to close the income gap with the United States is for Canadians to work longer hours and thereby produce more output. However, the data sources used in this paper suggest that Canadians already work longer hours than their American counterparts, although other sources such as the US Current Population Survey do not show this. According to the Labour Force Survey, persons employed in Canada in 2001, including the part-time workers, toiled an average of 1788 hours (34.39 times 52 weeks), compared to 1778 hours (34.20 times 52 weeks) for American workers based on the establishment-based Current Employment Statistics survey.²⁹ Nonetheless, it would still be possible for Canadians to work longer hours if they so choose and thereby close part of the income gap.

The main problem with this strategy is that most Canadians do not want to work longer hours. While their income would rise, they would consider themselves worse off if forced to work more. From this perspective, longer working time does not represent a solution to the income gap, except in the case of part-time workers seeking full-time work or more hours and full-time workers desiring to work additional overtime hours or longer uncompensated hours on a sustained basis.

A fourth possible mechanism to reduce the income gap is to increase the size of the working age population in the total population relative to that in the United States. In Canada in 2001, the population 16 and over represented 77.9 per cent of the total population, the highest proportion in Canada's history and 3.8 points higher than the US

proportion of 74.1 per cent. Canada's lower fertility rate accounts for this difference in demographic structure with the United States. This situation in 2001 reduced the Canada-US income gap 5.1 points or 33.3 per cent. With the expected continuation of lower fertility in Canada, the gap between the relative size of the working age populations in the two countries will likely increase in the future, contributing to the closing of the income gap.

The fifth and final way to reduce the Canada-US income gap is by reducing the productivity gap. This is by far the most important strategy to pursue. In 2001, total economy output per hour in Canada was 82.1 per cent of the US level, down from 84.8 per cent in 1995 and a peak of 90.8 per cent in 1977 (Table 11).³⁰ Indeed, the growth of the Canada-US GDP per capita gap in the 1980s and 1990s was largely accounted for by the rising productivity gap (see Chart 3).

The elimination of the 17.9 percentage point productivity gap registered in 2001 by 2016 would be more than sufficient to close the income gap. Such a closing would imply that total economy real output per hour would have to grow 1.2 per cent faster in Canada than in the United States over the 2001-2016 period. There have in fact been 15 year periods in postwar Canadian economic history when output per hour growth has exceeded that of the United States by such a magnitude.

Other countries have achieved even more impressive catch-ups. The best recent example is Ireland. As Table 12 shows, Ireland's GDP per hour rose from 44.3 per cent of the US level in 1973 to 71.7 per cent in 1989, an increase of 27.4 percentage points in 16 years. This productivity growth rate at 4.4 per cent per year was 3.1 per cent per year faster than experienced in the United States (Table 13).

The actual output per hour growth rate that Canada would have to achieve to exceed US GDP per hour growth by 1.2 percentage points for 15 years depends on the rate of productivity growth that the United States achieves over this period. The United States registered total economy output per hour growth of 1.50 per cent over the 1973-2001 period, 1.73 per cent over the 1989-2001 period, and 2.20 per cent in the 1995-2001 period when productivity growth accelerated (Chart 2 and Table 14).

Barring a major recession, it is likely that productivity growth in the United States over the next 15 years will average at least 2 per cent per year. Indeed, many economists are forecasting much stronger productivity growth. For example, Martin Baily (2002), former Chair of the US Council of Economic Advisors, is projecting annual productivity growth in the range of 2.2-2.7 per cent for the remaining years of this decade because of the continuing impact on productivity from information technologies.³¹

This means that productivity growth in Canada must average at least 3.2 per cent per year, and likely more, for Canada to achieve parity in productivity levels and living standards with the United States by 2016. Over the 1946-2001 period, there were in fact 20 years (out of 55) when total economy real output per hour growth in Canada equaled or exceeded 3.2 per cent, although only one of them was after 1976. The strongest average annual growth rate in output per hour over any 15-year period in the postwar era

was an amazing 4.6 per cent per year recorded from 1949 to 1964 (Table 10). This suggests that achieving a 3.2 per cent productivity growth over the next 15 years might not be mission impossible. But the past may not always be an accurate guide to future potential.

Again, given the uncertainty about US productivity growth, it is more appropriate to frame scenarios for the elimination of the Canada-US productivity gap in terms of the differential annual productivity growth rate needed (1.2 percentage points) rather than in terms of any absolute growth rate. Very strong productivity growth in Canada will not lead to the overtaking of US productivity levels if the United States also experiences strong growth, as is likely.

Over the 1946-2001 period there were 17 years (out of 55) when the difference between Canadian and US real output per hour growth rates equaled or exceeded 1.2 per cent, but with only one year since 1976 (Table 10). Many of these years were years of a strong cyclical productivity recovery in Canada and hence the large differential was not sustainable. The 15 year period that experienced the largest Canada-US differential in real GDP per hour worked in the postwar period was from 1946 to 1961. The differential was a very impressive 1.9 percentage points, based on 4.3 per cent average annual output per hour growth in Canada and 2.4 per cent in the United States. Of course, Canada's relative productivity level in 1946 was lower than in 2001 (55.9 per cent of the US level versus 82.1 per cent), suggesting that catch-up possibilities were greater then.

To the degree that the Canada-US productivity gap reflects lags in the introduction of US best practice technologies into Canadian industry, there may be potential to close a significant part, if not all, of the productivity gap in the long run. This is particularly so if the pace of technological progress in the United States falls off in the future.

One school of thought on technological change suggests that technological innovation comes in spurts or waves and that the United States is currently experiencing such a wave. When this phase of technical progress comes to an end, according to this view, productivity growth will decelerate in the United States. Other countries will then have an opportunity to catch-up to US productivity levels. This convergence phenomenon was experienced by many countries in the postwar period. But as we do not know when the productivity impacts of the IT revolution in the United States will fall off, we can say little about the possible implications of this phenomenon for the evolution of the Canada-US productivity gap, at least for the next 15 years.

From a long-term perspective, the widening of the Canada-US productivity and income gaps may not be as unfavourable a development as it is commonly portrayed, particularly in certain media. To the degree that this growing gap is driven by an acceleration in productivity growth in the United States and to the degree that Canada is able to eventually adopt these US best practice technologies, Canadians will be materially better off in the long run from this faster pace of technical progress.

Thus the only politically acceptable and effective strategy that can significantly contribute to the closing of the Canada-US income gap is to greatly reduce or eliminate the productivity gap. There are many specific public policies and private sector actions that can contribute to the attainment of this objective.³² These will be discussed in the other papers prepared for the TD Forum on Living Standards.

Indeed, a case can be made that closing the productivity gap should in fact be a more important national objective than closing the income gap. This is because closing the productivity gap would give Canadians the possibility of trading off income for more leisure, an option many European countries have already chosen. The elimination of the 17.9 percentage point productivity gap with the United States would allow Canadians to choose between a 17.9 per cent increase in real income relative to the United States, or to work 17.9 per cent less, or some combination of these outcomes. If Canadians chose more leisure time and consequently did not close the narrowly defined gap with the United States in living standards, it would be incorrect to conclude that Canadians were worse off in terms of economic well-being or living standards, broadly defined than Americans. Productivity allows choices.

Conclusion

The key conclusions of the paper are twofold. First, a focus on improving Canada's productivity growth performance, and in particular eliminating the Canada-US productivity gap, is by far the most important and effective way to attain the objective of Canadian living standards exceeding US living standards by 2016. Second, an objective for Canada of matching or exceeding the US productivity level is probably a better societal objective than equaling or exceeding US living standards, as measured by GDP per capita. Attaining this objective would certainly give Canadians the opportunity to have the same level of income as Americans, but it would also give them the option of choosing more leisure time, a component of economic well-being that is currently not incorporated into GDP.

References

- Baillie, Charles (2001) "Speech to the Canadian Club," Toronto, Ontario, February 26.
- Baily, Martin Neil (2002) "The New Economy: Post Mortem or Second Wind?" *Journal of Economic Perspectives*, Spring, Volume 16, Number 2, pp. 3-22.
- Brown, Claire (1994) *American Standards of Living, 1918-1988* (Cambridge, Mass.: Blackwell).
- Eldridge, Lucy, Marilyn Manser, Phyllis Otto, and Brooks Robinson (2001) "Hours Data in Productivity Measures," paper prepared for the FESAC meeting, June 7-8.

Fortin, Pierre (2001) "The Irish Economic Boom: What Can We Learn?" *International Productivity Monitor*, Number 3, Fall, pp. 19-31, posted at www.csls.ca.

Maddison, Angus (2001) *The World Economy: A Millennial Perspective* Paris: OECD Development Centre).

OECD (1998) "Annual Hours of Work: Definitional and Comparability Issues," paper prepared for the 16th Meeting of the Working Party on Employment and Unemployment Statistics, March 23-24, Paris.

OECD (2001) "Activities of the Working Party on Employment and Unemployment Statistics – Estimates of Annual Hours Actually Worked in OECD Countries," DSTI/EAS/IND/SWP(2001)16.

Osberg, Lars (1985) "The Measurement of Economic Well-Being" in David Laidler (ed.) *Approaches to Economic Well-Being*, Research Volume 1, MacDonald Royal Commission (Toronto: University of Toronto Press).

Osberg, Lars and Andrew Sharpe (1998) "An Index of Economic Well-Being for Canada," Research Report 99-1, Applied Research Branch, Strategic Policy, Human Resources Development Canada, December.

Osberg, Lars and Andrew Sharpe (2002a) "The Index of Economic Well-being," *Indicators: The Journal of Social Health*, Spring, pp. 24-62.

Osberg, Lars and Andrew Sharpe (2002b) "An Index of Economic Well-being for Selected OECD Countries," *Review of Income and Wealth*, September.

Rao, Someshwar and Andrew Sharpe, editors (2002) *Productivity Issues in Canada*, (Calgary: University of Calgary Press).

Sharpe, Andrew (2002a) "Recent Productivity Developments in the United States and Canada: Implications for the Canada-U.S. Productivity and Income Gaps," *International Productivity Monitor*, Number Four, Spring, pp. 3-14. (posted at www.csls.ca).

Sharpe, Andrew (2002b) "Productivity Concepts, Trends and Prospects: An Overview," in Andrew Sharpe, France St-Hilaire and Keith Banting *Review of Economic Performance and Social Progress: Linkages between Productivity and Social Progress* (Ottawa: Centre for the Study of Living Standards and Montreal: Institute for Research on Public Policy).

Sharpe, Andrew and Leila Gharani (2002) "Trend Productivity and the New Economy," in Someshwar Rao and Andrew Sharpe (eds.) *Productivity Issues in Canada* (Calgary: University of Calgary Press).

Statistics Canada (2002a) "Purchasing Power Parities and Real Expenditures, United

States and Canada, 1992-2001”, Cat. 13-604-MIB no. 39, June.

Statistics Canada (2002b) “Trends in Canadian and American Fertility,” *The Daily*, July 3.

Sunter, Deborah (1998) “The UR Gap– Small Differences in Measurement May Matter,” *Labour Force Update*, Vol. 2, Number 4, Autumn, Statistics Canada.

Van Ark, Bart (1998) “Annual Working Hours in the United States: Which Measure Should be Used for International Comparisons?” Groningen Growth and Development Centre, unpublished paper, July.

Van Ark, Bart (2002) “Understanding Productivity and Income Differentials in the OECD Area: A Survey,” in Andrew Sharpe, France St-Hilaire and Keith Banting *Review of Economic Performance and Social Progress: Linkages between Productivity and Social Progress* (Ottawa: Centre for the Study of Living Standards and Montreal: Institute for Research on Public Policy).

Endnotes

¹ An abridged version of this paper was published in the Fall 2002 issue of the *International Productivity Monitor* and is posted at www.csls.ca under the Monitor.

² For example, Claire Brown (1994) in *American Standards of Living* develops an index of living standards based on three functional categories of expenditures: basic, variety, and status, with each category representing the use of expenditures to accomplish a different goal.

³ Estimates of the Index of Economic Well-being (IEWB) have been developed for Canada and the provinces, the United States, and OECD countries and are posted at www.csls.ca. In general, this Index has grown at a slower rate than per capita income. For discussion of the IEWB, see Osberg (1985) and Osberg and Sharpe (1998, 2002a, 2002b).

⁴ Statistics Canada recommends that current price income estimates be used for international comparisons of income levels over constant price estimates because the former take account of shifts in the components of GDP, unlike constant price GDP estimates. This means that PPPs for each year are applied to the domestic currency (Canadian dollar) current price series to convert the series into a common currency series. The PPP of a base year is not used, as is the case for converting a domestic currency constant price series into a common currency. This paper follows this recommendation for comparisons of Canada-US income levels. There is little difference between estimates of Canada/US relative income levels based on current and constant prices (Table 3A and Charts 4-6). Growth rate comparisons across countries are of course based on trends in constant price GDP estimates expressed in domestic currency and do not require conversion into a common currency by purchasing power parities.

⁵ The revision of the US national accounts on July 31, 2002 lowered US GDP estimates for the 1999-2001 period and hence reduced Canada-US income gap. In the original July 16 version of this paper, Canada’s GDP per capita in 2001 was 83.7 per cent of that in the United States. The revisions increased it 1.0 percentage points to 84.7 per cent, lowering that gap from 16.3 points to 15.3 points. Appendix Table 10 provides details on the revisions.

⁶ In 2001, PI was equal to 79.9 per cent of GDP in Canada, compared to 85.1 per cent in the United States. The PI/GDP ratio moves inversely to the proportion of corporate profits in GDP since corporate profits are a component of GDP but not of PI (see Appendix Chart 1). Corporate profits have shrunk in relation to GDP in the United States since the mid 1990s while the opposite has been true in Canada, with the result that the gap in the PI/GDP ratios of Canada and the United States has grown rapidly since then, from 0.9 percentage points in 1995 to 5.2 points in 2001. Corporate profits have been a major determinant of the gap between the Canada and US PI/GDP ratios since at least the mid 1970s; the historically greater

importance in Canada of natural resources-based economic rents, which are included in GDP but not in PI, may account for the lower PI/GDP ratio in Canada in earlier decades.

⁷ A country that consumes a higher proportion of output and hence has higher PI per capita may have a higher living standard, as proxied by PI per capita, in the short run than a country with higher GDP per capita, but lower PI per capita because it reinvests a larger proportion of GDP. In the long run, the country with the higher GDP per capita will be better able to sustain high levels of living standards.

⁸ Maddison (2001) provides estimates of real GDP and population estimates for Canada and the United States that allow calculation of Canada's GDP per capita as a proportion of the US level in 1820 (71.0 per cent), 1870 (69.3 per cent), 1913 (83.9 per cent), and for all years from 1950 (77.8 per cent) to 1998 (75.2 per cent). These estimates are not comparable with the estimates for the 1946-2001 period in this paper because of the use of different data sources.

⁹ PI per capita and PDI per capita also peaked as a proportion of that in the United States in 1981, at 93.5 per cent and 88.7 per cent respectively.

¹⁰ In contrast to GDP per capita, relative PI per capita and PDI per capita continued to decline over the 1992-97 period, the former from 85.4 per cent to 79.7 per cent of the US level and the latter from 75.4 per cent to 70.8 per cent.

¹¹ Again, in contrast to the improvement in GDP per capita relative to the United States, PI and PDI per capita have declined slightly over the 1997-2001 period (from 79.7 per cent of the US level in 1997 to 78.6 per cent in 2001 for PI and from 70.8 per cent in 1997 to 70.4 per cent in 2001 for PDI).

¹² The increase was 14.5 percentage points for PI per capita (from 64.1 per cent of the US level in 1946 to 78.6 per cent in 2001), but only 5.4 points for PDI from 65.0 per cent to 70.4 per cent.

¹³ West Germany was replaced by Unified Germany in the sample after 1995. If West Germany had still been included as a separate country, Canada would likely have ranked seventh

¹⁴ The working age population is defined as the population 15 and over in Canada and 16 and over in the United States. In OECD statistics, the working age population is generally defined as those aged 15 to 64.

¹⁵ The labour force participation rate and the unemployment rate can be combined to form the employment rate (employed persons divided by the working age population).

¹⁶ The data upon which Table 6 is based are found in Appendix Table 1.

¹⁷ Appendix Tables 2-4 show that the same conclusion regarding the importance of productivity growth also applies to the United States.

¹⁸ The US output per hour level estimated is based on average weekly hours data from the establishment-based Current Employment Statistics (CES) survey. In 2001, this estimate was 34.2 hours per week (Table 14). The CES survey excludes employees on farms, proprietors (unincorporated self-employed workers), and unpaid family workers. Hours data are not collected by the CES for non-production workers in the goods-producing industries and for supervisory workers in service-producing industries. For non-manufacturing industries, it is assumed that the hours of non-production and supervisory workers move at the same rate and have the same level as production and nonsupervisory workers.

An alternative source of US data on hours is the Current Population Survey (CPS), a household survey which covers all civilian workers. This survey collects data from all workers on actual hours worked so does not require adjustments for incomplete coverage and hours assumptions for non-production and supervisory workers. According to the CPS, average weekly hours in 2001 were 39.2, 5.0 hours or 14.6 per cent greater than the CES estimate (Appendix Table 8). The productivity implications of the alternative hours series are very significant, with the level of output per hour in the United States in 2001 14.6 per cent lower with the CPS estimate. This means that Canada's output per hour in 2001 would be 94.1 per cent of that of the United States (Appendix Table 7), instead of the 82.1 per cent reported in Table 11. As the rate of growth in the two hours series was very close over the 1995-2001 period, the increase in the Canada-US productivity gap between 1995 and 2001 is not affected. However, there is a decrease in the Canada-US productivity gap over the 1981-95 when the CPS hours series is used, in contrast to a large increase when the CES hours series is used.

The BLS and the OECD (1998 and 2001) use the CES hours series because it is believed that the CPS series overestimates hours worked and that in general establishment-based hours data are superior to household-based data for productivity estimates. For a detailed discussion of these issues, see Van Ark (1998) and Eldridge, Manser, Otto, and Robinson (2001). More work is badly needed in this area.

¹⁹ Statistics Canada (2002b) reports that in 1999 Canada's fertility rate hit a record low of 1.58 children per woman, compared to the American rate of 2.08 per cent, a difference of more than one half a child per woman. Only 20 years ago the gap was less than one-third of that size.

²⁰ One notes that van Ark's estimate of Canada's output per hour worked relative to the US level of 82.6 per cent in 2001 is virtually identical to the CSLS estimate in Table 8, but that van Ark's estimate of real GDP per capita of 77.3 per cent is well below the CSLS estimate of 84.7 per cent. This latter discrepancy reflects the use of different data sources and definitions, including the use by the CSLS of more recent (and higher) population estimates for the United States, different sources for hours data, and different definitions of the working age population.

²¹ It is intriguing in Table 9 to note that GDP per capita and output per hour were virtually the same in Australia as in Canada, as were the effects of working time, demographic structures, labour force participation, and unemployment on GDP per capita.

²² Just as certain countries have enjoyed periods of rapid catch-up, other countries have experienced periods of significant deterioration in their relative standard of living. For example, New Zealand's relative GDP per capita plummeted 27.6 percentage points from 88.8 per cent of the US level in 1950 to 61.2 per cent in 1989 while that of Switzerland fell 33.8 points from 115.7 per cent in 1973 to 81.9 per cent in 2001 (see Table 4).

²³ For discussion of the Irish economic miracle and lessons for Canada, see Fortin (2001).

²⁴ Appendix Table 5 provides data on the official unemployment rate in Canada and the United States in 2001 by detailed age and sex groups. All groups have higher unemployment rates in Canada than the United States.

²⁵ The major difference in the compilation of the unemployment rates in Canada and the United States lies in the treatment of passive job searchers, defined as those whose only job search method is reading newspaper want ads. These passive job searchers are included in the labour force in Canada, but are excluded in the United States. According to Sunter (1998), this difference in 1998 accounted for 0.7 points of the gap.

²⁶ The Canadian rate is defined in relation to the 15 and over population, the US rate in relation to the 16 and over population. As the participation rate of 15 year olds is low, the Canadian participation rate has a slight downward bias compared to the US rate.

²⁷ Appendix Table 6 provides data on the labour force participation rates by detailed age/sex groups for Canada and the United States in 2001. The lion's share of the differential is accounted for by the higher participation rate of men and persons 55 and over in the United States.

²⁸ The gradual raising of the retirement age for entitlement to full social security benefits in the United States from 65 to 67 and the absence of such a policy for the Canada/Quebec Pension Plans in Canada means that the participation rate for the 65 and over age group will likely be increasingly higher in the United States.

²⁹ As noted in note 17, there are different hours estimates for the United States. Appendix Table 9 shows that annual hours estimates made by the OECD, the Groningen Growth and Development Centre/Conference Board, and ILO's *Key Indicators of the Labour Market (KILM)* are somewhat higher than the CES estimates. The CPS estimates are of course much higher.

³⁰ From 1946 to 1977, Canada's aggregate level of output per hour had converged toward the higher US level, rising from 55.3 per cent to 90.8 per cent of the US level.

³¹ For discussion of factors influencing future productivity growth in Canada, see Sharpe and Gharani (2002). See Sharpe (2002a) for a discussion of recent productivity developments in Canada and the United States.

³² See Rao and Sharpe (2002) for a recent collection of papers that discuss many policies to improve Canada's productivity performance. See Sharpe (2002b) for an overview of productivity concepts, trends and issues in Canada.

List of Tables, Appendix Tables, and Charts

Tables

- Table 1: Nominal Aggregate Per Capita Income Levels in Canada and the United States, 1946-2001
- Table 2: Real Aggregate Per Capita Income Levels and Growth Rates in Canada, 1946-2001
- Table 3: Real Aggregate Per Capita Income Levels and Growth Rates in the United States, 1946-2001
- Table 3A: Real Aggregate per Capita Income Levels in Canada as a Percentage of the United States, 1946-2001
- Table 4: Relative Real Per Capita GDP in OECD Countries, 1950-2001, selected years
- Table 5: Growth Rates for Real GDP Per Capita, 1950-2001, selected periods
- Table 6: Real Per Capita GDP and its Determinants in Canada, 1946-2001
- Table 7: Contributions to Real Per Capita GDP Growth in Canada, 1946-2001
- Table 8: Nominal Per Capita GDP and its Determinants in Canada and the United States, 2001
- Table 9: Reconciliation of GDP per Capita and Labour Productivity, 2001 (preliminary estimates)
- Table 10: Annual Growth of Real GDP Per Capita and Per Hour Worked in Canada and the United States, 1947-2001, % change from previous year
- Table 11: Nominal Aggregate Labour Productivity Levels in Canada and the United States, 1946-2001
- Table 12: Relative Real GDP Per Hour Worked in OECD Countries, 1950-2001, selected years
- Table 13: Growth Rates for GDP Per Hour Worked, 1950-2001, selected periods
- Table 14: Real Aggregate Labour Productivity Levels and Growth Rates in Canada and the United States, 1946-2001

Appendix Tables

- Appendix Table 1: Output, Population, and Labour Market Variables in Canada, 1946-2001
- Appendix Table 2: Real Per Capita GDP and its Determinants in the United States, 1946-2001
- Appendix Table 3: Contributions to Real Per Capita GDP Growth in the United States, 1946-2001
- Appendix Table 4: Output, Population, and Labour Market Variables in the United States, 1946-2001
- Appendix Table 5: Unemployment Rates in Canada and the United States by Detailed Age and Sex Groups, 2001
- Appendix Table 6: Labour Force Participation Rates in Canada and the United States by Detailed Age and Sex Groups, 2001
- Appendix Table 7: Nominal Aggregate Labour Productivity Levels in Canada and the United States, 1946-2001, with Alternative US Hours Data
- Appendix Table 8: Real Aggregate Labour Productivity Levels and Growth Rates in Canada and the United States, 1946-2001, with Alternative US Hours Data
- Appendix Table 9: Comparison of Estimates of Average Annual Hours Worked in the United States, 1990-2001
- Appendix Table 10: Statistical Revisions to the US National Accounts, July 31 2002

Charts and Appendix Chart

- Chart 1: Real GDP per Capita in Canada and the United States (average annual rates of change)
- Chart 2: Real GDP per Hour Worked in Canada and the United States (average annual rates of change)
- Chart 3: Trends in the Canada-US GDP Per Capita and GDP Per Hour Worked Gaps, 1946-2001
- Chart 4: GDP per Capita Levels, Canada as a Percentage of the United States, 1946-2001
- Chart 5: Personal Income per Capital Levels, Canada as a Percentage of the United States, 1946-2001
- Chart 6: Personal Disposable Income per Capita Levels, Canada as a Percentage of the United States, 1946-2001
- Appendix Chart 1: Personal Income and Corporate Profits as Percentages of GDP, Canada and the United States, 1961-2001

Table 1: Nominal Aggregate Per Capita Income Levels in Canada and the United States, 1946-2001

	Canada						United States						Canada as a % of the United States		
	GDP per capita, current dollars	Personal Income per capita, current dollars	Personal Disposable Income per capita, current dollars	GDP PPP	Individual Expenditure PPP	GDP per capita, current US dollars	Personal Income per capita, current US dollars	Personal Disposable Income per capita, current US dollars	GDP per capita, current US dollars	Personal Income per capita, current US dollars	Personal Disposable Income per capita, current US dollars	GDP per capita	Personal Income per capita	Personal Disposable Income per capita	
1946	988	802	735	1.143	1.018	1,130	816	748	1,578	1,275	1,150	71.57	64.05	65.03	
1947	1,097	868	802	1.197	1.060	1,312	920	849	1,702	1,338	1,199	77.09	68.75	70.85	
1948	1,236	979	910	1.141	1.006	1,410	985	916	1,846	1,445	1,312	76.37	68.17	69.80	
1949	1,277	994	930	1.088	0.959	1,390	953	892	1,801	1,401	1,286	77.13	68.03	69.36	
1950	1,378	1,037	978	1.084	0.945	1,494	981	925	1,940	1,516	1,389	76.98	64.69	66.60	
1951	1,578	1,195	1,112	1.020	0.927	1,611	1,108	1,031	2,201	1,677	1,499	73.20	66.05	68.78	
1952	1,738	1,282	1,182	0.992	0.916	1,724	1,175	1,083	2,285	1,759	1,552	75.43	66.80	69.76	
1953	1,778	1,313	1,205	1.010	0.934	1,795	1,227	1,126	2,381	1,834	1,622	75.39	66.92	69.42	
1954	1,732	1,286	1,180	1.010	0.936	1,749	1,204	1,104	2,347	1,818	1,629	74.54	66.22	67.80	
1955	1,857	1,351	1,243	1.036	0.932	1,924	1,260	1,159	2,512	1,917	1,715	76.58	65.72	67.60	
1956	2,037	1,459	1,338	1.033	0.930	2,104	1,357	1,244	2,603	2,021	1,800	80.81	67.13	69.10	
1957	2,062	1,511	1,381	1.048	0.933	2,161	1,410	1,288	2,694	2,097	1,866	80.21	67.24	69.04	
1958	2,081	1,556	1,437	1.054	0.938	2,194	1,460	1,349	2,686	2,124	1,899	81.68	68.75	71.02	
1959	2,154	1,603	1,469	1.060	0.929	2,283	1,490	1,365	2,865	2,224	1,983	79.69	67.00	68.87	
1960	2,193	1,652	1,501	1.062	0.935	2,329	1,545	1,404	2,918	2,283	2,026	79.81	67.65	69.29	
1961	2,221	1,646	1,489	1.069	0.935	2,375	1,538	1,392	2,970	2,342	2,081	79.96	65.69	66.88	
1962	2,365	1,757	1,590	1.066	0.934	2,522	1,640	1,485	3,143	2,454	2,174	80.24	66.85	68.32	
1963	2,493	1,840	1,666	1.056	0.931	2,633	1,714	1,552	3,268	2,541	2,249	80.56	67.47	69.01	
1964	2,680	1,942	1,743	1.044	0.924	2,797	1,795	1,612	3,462	2,687	2,412	80.81	66.80	66.81	
1965	2,902	2,095	1,874	1.025	0.921	2,973	1,928	1,725	3,705	2,868	2,567	80.24	67.24	67.21	
1966	3,186	2,311	2,028	1.004	0.910	3,199	2,104	1,847	4,015	3,084	2,742	79.68	68.21	67.34	
1967	3,365	2,478	2,143	0.992	0.908	3,337	2,249	1,945	4,197	3,272	2,899	79.51	68.74	67.11	
1968	3,619	2,669	2,277	0.998	0.908	3,611	2,423	2,068	4,541	3,559	3,119	79.53	68.08	66.28	
1969	3,928	2,930	2,451	1.001	0.917	3,932	2,685	2,247	4,860	3,851	3,329	80.90	69.73	67.49	
1970	4,167	3,133	2,584	1.005	0.937	4,188	2,935	2,422	5,070	4,101	3,591	82.61	71.57	67.43	
1971	4,491	3,399	2,790	1.022	0.951	4,589	3,231	2,652	5,434	4,358	3,860	84.45	74.15	68.71	
1972	4,956	3,804	3,138	1.005	0.936	4,980	3,561	2,937	5,909	4,736	4,138	84.28	75.18	70.99	
1973	5,744	4,388	3,620	0.970	0.923	5,571	4,052	3,343	6,537	5,253	4,619	85.21	77.13	72.38	
1974	6,765	5,180	4,240	0.922	0.926	6,235	4,799	3,929	7,017	5,730	5,013	88.85	83.75	78.37	
1975	7,514	5,930	4,882	0.913	0.911	6,863	5,405	4,450	7,571	6,166	5,470	90.65	87.66	81.35	
1976	8,541	6,683	5,462	0.884	0.896	7,551	5,990	4,896	8,363	6,765	5,960	90.29	88.54	82.15	
1977	9,330	7,320	5,988	0.881	0.885	8,219	6,481	5,302	9,222	7,432	6,519	89.13	87.22	81.34	
1978	10,246	8,093	6,699	0.885	0.874	9,069	7,074	5,855	10,313	8,302	7,253	87.94	85.20	80.72	
1979	11,582	9,024	7,488	0.875	0.891	10,139	8,044	6,675	11,401	9,247	8,033	88.94	86.99	83.10	
1980	12,859	10,147	8,413	0.861	0.919	11,075	9,326	7,733	12,276	10,205	8,869	90.22	91.39	87.18	
1981	14,523	11,716	9,613	0.849	0.902	12,327	10,568	8,671	13,614	11,301	9,773	90.55	93.51	88.72	
1982	15,123	12,810	10,489	0.831	0.864	12,571	11,064	9,059	14,035	11,922	10,364	89.57	92.81	87.41	
1983	16,217	13,364	10,862	0.820	0.842	13,291	11,259	9,150	15,085	12,576	11,036	88.11	89.53	82.92	
1984	17,557	14,345	11,683	0.823	0.842	14,450	12,082	9,840	16,636	13,853	12,215	86.86	87.21	80.55	
1985	18,795	15,395	12,498	0.823	0.839	15,477	12,909	10,480	17,664	14,738	12,941	87.62	87.59	80.98	
1986	19,637	16,312	13,042	0.817	0.820	16,041	13,379	10,697	18,501	15,425	13,555	86.70	86.74	78.91	
1987	21,132	17,304	13,693	0.804	0.815	16,997	14,097	11,155	19,529	16,317	14,246	87.04	86.40	78.31	
1988	22,878	18,753	14,748	0.796	0.815	18,210	15,290	12,025	20,845	17,433	15,312	87.36	87.71	78.53	
1989	24,105	20,022	15,860	0.790	0.814	19,052	16,304	12,915	22,188	18,594	16,235	85.87	87.69	79.55	
1990	24,545	21,175	16,512	0.796	0.819	19,535	17,337	13,519	23,215	19,614	17,176	84.15	88.39	78.71	
1991	24,450	21,595	16,857	0.801	0.808	19,589	17,452	13,623	23,629	20,074	17,663	82.90	86.94	77.12	
1992	24,685	21,872	17,034	0.81	0.82	19,995	17,935	13,968	24,618	21,001	18,524	81.22	85.40	75.41	
1993	25,335	22,055	17,244	0.82	0.83	20,774	18,306	14,312	25,544	21,574	18,979	81.33	84.85	75.41	
1994	26,549	22,260	17,278	0.83	0.83	22,036	18,476	14,341	26,799	22,369	19,623	82.22	82.60	73.08	
1995	27,609	22,897	17,701	0.83	0.84	22,915	19,233	14,869	27,783	23,280	20,358	82.48	82.62	73.04	
1996	28,204	23,160	17,787	0.84	0.85	23,691	19,686	15,119	28,993	24,296	21,069	81.71	81.03	71.76	
1997	29,437	23,860	18,213	0.84	0.85	24,727	20,281	15,481	30,498	25,433	21,881	81.08	79.74	70.75	
1998	30,249	24,739	18,803	0.86	0.85	26,014	21,028	15,983	31,822	26,910	23,031	81.75	78.14	69.40	
1999	32,149	25,692	19,563	0.85	0.85	27,327	21,838	16,629	33,224	27,894	23,742	82.25	78.29	70.04	
2000	34,612	27,263	20,724	0.84	0.85	29,074	23,174	17,615	34,779	29,759	25,205	83.60	77.87	69.89	
2001	35,141	28,076	21,425	0.85	0.85	29,870	23,865	18,211	35,264	30,378	25,859	84.70	78.56	70.43	

The GDP PPPs for 1946-1991 were calculated by multiplying the 1992 PPP estimate by the index value (1992=1.00) of the US GDP deflator as a percentage of the Canadian GDP deflator in each year. A similar process was followed for the individual expenditure PPPs using the CPI. PPPs for 1992-2001 are from Purchasing Power Parities and Real Expenditures, United States and Canada, 1992-2001, Statistics Canada publication 13-604-MIB no. 39, June 2002. Income and population data for Canada from Table 2 and Appendix Table 1, and for the United States from Table 3 and Appendix Table 4.

Table 2: Real Aggregate Per Capita Income Levels and Growth Rates in Canada, 1946-2001

	Population (on July 1st of each year)	Personal Income (millions of current dollars)	Personal Disposable Income (millions of current dollars)	CPI	Real GDP (millions of chained 1997 dollars)	Personal Income (millions of 1997 dollars)	Personal Disposable Income (millions of 1997 dollars)	GDP per capita (chained 1997 dollars)	PI per capita (1997 dollars)	PDI per capita (dollars)
1946	12,516,595	10,041	9,201	10.41	124,268	96,462	88,400	9,928	7,707	7,063
1947	12,780,327	11,096	10,244	11.43	129,467	97,066	89,614	10,130	7,595	7,012
1948	13,057,297	12,788	11,884	13.01	132,763	98,283	91,336	10,168	7,527	6,995
1949	13,692,698	13,604	12,731	13.48	137,900	100,953	94,473	10,071	7,373	6,899
1950	13,962,540	14,484	13,658	13.85	148,180	104,594	98,633	10,613	7,491	7,064
1951	14,264,967	17,052	15,869	15.24	155,789	111,878	104,114	10,921	7,843	7,299
1952	14,723,189	18,881	17,398	15.71	169,509	120,213	110,768	11,513	8,165	7,523
1953	15,116,242	19,854	18,216	15.52	178,372	127,921	117,367	11,800	8,462	7,764
1954	15,566,318	20,024	18,370	15.61	176,189	128,246	117,656	11,319	8,239	7,558
1955	15,984,828	21,596	19,874	15.61	192,738	138,315	127,290	12,058	8,653	7,963
1956	16,374,826	23,897	21,906	15.89	208,875	150,368	137,840	12,756	9,183	8,418
1957	16,913,491	25,561	23,352	16.36	213,912	156,272	142,767	12,647	9,240	8,441
1958	17,392,079	27,065	24,996	16.73	218,800	161,790	149,422	12,580	9,303	8,591
1959	17,802,442	28,545	26,155	17.01	227,259	167,838	153,785	12,766	9,428	8,638
1960	18,196,514	30,055	27,314	17.19	233,637	174,807	158,861	12,840	9,607	8,730
1961	18,571,238	30,572	27,660	17.38	240,475	175,912	159,156	12,949	9,472	8,570
1962	18,922,541	33,238	30,093	17.57	256,765	189,228	171,323	13,569	10,000	9,054
1963	19,276,900	35,476	32,122	17.84	270,028	198,813	180,017	14,008	10,314	9,338
1964	19,643,478	38,146	34,248	18.22	288,035	209,414	188,015	14,663	10,661	9,571
1965	20,002,927	41,904	37,490	18.59	306,026	225,444	201,696	15,299	11,271	10,083
1966	20,380,706	47,098	41,339	19.33	326,174	243,642	213,850	16,004	11,955	10,493
1967	20,750,339	51,409	44,462	19.98	336,011	257,284	222,517	16,193	12,399	10,724
1968	21,079,241	56,253	48,001	20.82	354,138	270,215	230,576	16,800	12,819	10,939
1969	21,384,722	62,650	52,419	21.75	372,887	288,083	241,038	17,437	13,471	11,271
1970	21,686,130	67,932	56,042	22.49	382,411	302,045	249,178	17,634	13,928	11,490
1971	21,962,082	74,650	61,276	23.14	404,028	322,584	264,791	18,397	14,688	12,057
1972	22,219,560	84,533	69,728	24.26	425,494	348,496	287,461	19,150	15,684	12,937
1973	22,493,842	98,699	81,434	26.12	456,270	377,936	311,826	20,284	16,802	13,863
1974	22,808,446	118,139	96,717	28.90	475,143	408,738	334,622	20,832	17,920	14,671
1975	23,142,275	137,240	112,984	32.06	485,393	428,030	352,379	20,974	18,496	15,227
1976	23,449,793	156,705	128,093	34.48	512,145	454,487	371,504	21,840	19,381	15,843
1977	23,726,345	173,675	142,080	37.17	529,905	467,186	382,195	22,334	19,691	16,108
1978	23,963,967	193,951	160,524	40.52	551,386	478,650	396,156	23,009	19,974	16,531
1979	24,202,205	218,391	181,233	44.24	574,670	493,674	409,678	23,745	20,398	16,927
1980	24,516,278	248,761	206,266	48.70	582,404	510,815	423,554	23,756	20,836	17,276
1981	24,820,382	290,789	238,606	54.74	600,253	531,221	435,891	24,184	21,403	17,562
1982	25,117,424	321,752	263,452	60.69	583,089	530,176	434,111	23,215	21,108	17,283
1983	25,366,965	339,013	275,529	64.22	598,941	527,899	429,044	23,611	20,810	16,913
1984	25,607,555	367,333	299,169	67.01	633,756	548,197	446,471	24,749	21,408	17,435
1985	25,842,590	397,858	322,989	69.70	664,059	570,794	463,382	25,696	22,087	17,931
1986	26,100,587	425,757	340,403	72.58	680,144	586,574	468,980	26,059	22,474	17,968
1987	26,449,888	457,702	362,185	75.74	709,058	604,279	478,173	26,808	22,846	18,078
1988	26,798,303	502,542	395,217	78.81	744,333	637,659	501,478	27,775	23,795	18,713
1989	27,286,239	546,324	432,772	82.71	763,837	660,500	523,216	27,993	24,206	19,175
1990	27,700,856	586,566	457,400	86.71	765,311	676,468	527,505	27,628	24,420	19,043
1991	28,030,864	605,322	472,509	91.54	749,294	661,245	516,162	26,731	23,590	18,414
1992	28,376,550	620,653	483,370	92.94	755,848	667,823	520,106	26,636	23,534	18,329
1993	28,703,142	633,059	494,944	94.61	773,528	669,127	523,143	26,949	23,312	18,226
1994	29,035,981	646,348	501,678	94.80	810,695	681,834	529,221	27,920	23,482	18,226
1995	29,353,854	672,111	519,588	96.84	833,456	694,042	536,542	28,393	23,644	18,278
1996	29,671,892	687,203	527,783	98.42	846,952	698,235	536,255	28,544	23,532	18,073
1997	29,987,214	715,495	546,166	100.00	882,733	715,495	546,166	29,437	23,860	18,213
1998	30,248,210	748,321	568,766	100.93	918,910	741,430	563,529	30,379	24,512	18,630
1999	30,499,219	783,596	596,657	102.70	968,451	763,031	580,998	31,753	25,018	19,050
2000	30,769,669	838,880	637,673	105.48	1,012,334	795,273	604,525	32,900	25,846	19,647
2001	31,081,887	872,657	665,924	108.18	1,027,522	806,683	615,579	33,059	25,953	19,805
46-01	1.67	8.46	8.10	4.35	3.92	3.94	3.59	2.21	2.23	1.89
46-73	2.19	8.83	8.41	3.47	4.94	5.19	4.78	2.68	2.93	2.53
73-01	1.16	8.09	7.79	5.21	2.94	2.74	2.46	1.76	1.57	1.28
73-81	1.24	14.46	14.38	9.69	3.49	4.35	4.28	2.22	3.07	3.00
81-89	1.19	8.20	7.73	5.30	3.06	2.76	2.31	1.85	1.55	1.10
89-01	1.09	3.98	3.66	2.26	2.50	1.68	1.36	1.40	0.58	0.27
89-95	1.22	3.51	3.09	2.66	1.46	0.83	0.42	0.24	-0.39	-0.80
95-01	0.96	4.45	4.22	1.86	3.55	2.54	2.32	2.57	1.57	1.35

PI and PDI from CANSIM II v647016, v647037 as of June 3 2002, linked to series from the Historical Statistics of Canada CPI from series v737344, July 9 2002. See Appendix Table 1 for other data sources.

Note: real PI and PDI are nominal PI and PDI deflated by the CPI. It is also possible to use the personal consumption deflator this does not greatly affect the numbers. Between 1961 and 2001 CPI grew at an average annual rate of 4.68 per cent per year compared to 4.56 per cent per year for the personal consumption deflator. Real PDI as deflated by the personal consumption \$20,116 in 2001 compared to the present \$19,805.

Table 3: Real Aggregate Per Capita Income Levels and Growth Rates in the United States, 1946-2001

	Population (annual average of mid-month estimates)	Nominal GDP at market prices (billions of current dollars)	Personal Income (billions of current dollars)	Personal Disposable Income (billions of current dollars)	CPI	GDP Deflator	Real GDP (billions of 1996 chained dollars)	Personal Income (billions of 1996 dollars)	Personal Disposable Income (billions of 1996 dollars)	GDP per capita (1996 chained dollars)	Personal Income per capita (1996 dollars)	Personal Disposable Income per capita (1996 dollars)
1946	140,832	222	180	162	12.43	14.77	1,506	1,444	1,303	10,690	10,255	9,256
1947	143,559	244	192	172	14.21	16.35	1,495	1,352	1,211	10,415	9,415	8,435
1948	146,054	270	211	192	15.36	17.28	1,560	1,374	1,247	10,681	9,410	8,541
1949	148,601	268	208	191	15.17	17.26	1,551	1,373	1,260	10,437	9,236	8,478
1950	151,672	294	230	211	15.36	17.45	1,687	1,497	1,371	11,120	9,868	9,040
1951	154,268	340	259	231	16.57	18.70	1,815	1,561	1,395	11,766	10,120	9,044
1952	156,933	359	276	244	16.89	19.00	1,887	1,635	1,442	12,026	10,417	9,191
1953	159,553	380	293	259	17.02	19.25	1,974	1,719	1,521	12,371	10,777	9,532
1954	162,384	381	295	265	17.14	19.44	1,961	1,722	1,543	12,073	10,603	9,501
1955	165,278	415	317	283	17.08	19.78	2,100	1,855	1,659	12,703	11,222	10,039
1956	168,238	438	340	303	17.34	20.46	2,141	1,961	1,747	12,727	11,658	10,382
1957	171,307	462	359	320	17.91	21.13	2,184	2,006	1,785	12,748	11,711	10,420
1958	174,194	468	370	331	18.42	21.63	2,163	2,009	1,796	12,416	11,532	10,310
1959	177,130	507	394	351	18.55	21.88	2,319	2,124	1,894	13,092	11,993	10,690
1960	180,760	527	413	366	18.87	22.19	2,377	2,188	1,941	13,148	12,102	10,739
1961	183,742	546	430	382	19.06	22.44	2,432	2,258	2,007	13,236	12,289	10,921
1962	186,590	587	458	406	19.25	22.74	2,579	2,379	2,107	13,821	12,750	11,293
1963	189,300	619	481	426	19.50	23.00	2,690	2,466	2,183	14,212	13,029	11,533
1964	191,927	664	516	463	19.76	23.34	2,847	2,611	2,343	14,831	13,602	12,210
1965	194,347	720	557	499	20.08	23.78	3,029	2,776	2,485	15,583	14,286	12,786
1966	196,599	789	606	539	20.65	24.46	3,228	2,937	2,611	16,417	14,937	13,279
1967	198,752	834	650	576	21.29	25.21	3,308	3,055	2,707	16,645	15,373	13,619
1968	200,745	912	715	626	22.18	26.30	3,466	3,221	2,823	17,266	16,047	14,064
1969	202,736	985	781	675	23.39	27.59	3,571	3,338	2,886	17,616	16,465	14,234
1970	205,089	1,040	841	737	24.73	29.06	3,578	3,401	2,978	17,446	16,584	14,522
1971	207,692	1,129	905	802	25.81	30.52	3,698	3,506	3,106	17,804	16,883	14,954
1972	209,924	1,240	994	869	26.64	31.82	3,898	3,732	3,260	18,571	17,779	15,531
1973	211,939	1,386	1,113	979	28.30	33.60	4,123	3,935	3,460	19,456	18,564	16,323
1974	213,898	1,501	1,226	1,072	31.42	36.62	4,099	3,901	3,413	19,163	18,236	15,955
1975	215,981	1,635	1,332	1,181	34.29	40.04	4,084	3,884	3,445	18,911	17,982	15,952
1976	218,086	1,824	1,475	1,300	36.27	42.30	4,312	4,068	3,584	19,771	18,655	16,436
1977	220,289	2,031	1,637	1,436	38.62	45.02	4,512	4,239	3,718	20,481	19,241	16,878
1978	222,629	2,296	1,848	1,615	41.56	48.23	4,761	4,448	3,886	21,384	19,979	17,455
1979	225,106	2,566	2,082	1,808	46.27	52.25	4,912	4,498	3,908	21,821	19,984	17,360
1980	227,726	2,796	2,324	2,020	52.52	57.04	4,901	4,425	3,846	21,521	19,431	16,889
1981	230,008	3,131	2,599	2,248	57.93	62.36	5,021	4,487	3,880	21,830	19,507	16,869
1982	232,218	3,259	2,768	2,407	61.50	66.25	4,919	4,501	3,913	21,184	19,383	16,852
1983	234,332	3,535	2,947	2,586	63.48	68.88	5,132	4,642	4,074	21,902	19,811	17,384
1984	236,394	3,933	3,275	2,888	66.22	71.44	5,505	4,945	4,361	23,288	20,920	18,446
1985	238,506	4,213	3,515	3,087	68.58	73.69	5,717	5,125	4,501	23,970	21,490	18,870
1986	240,682	4,453	3,712	3,263	69.85	75.31	5,912	5,315	4,670	24,565	22,081	19,405
1987	242,842	4,743	3,963	3,460	72.40	77.58	6,113	5,473	4,778	25,174	22,537	19,676
1988	245,061	5,108	4,272	3,752	75.40	80.21	6,368	5,666	4,977	25,987	23,121	20,308
1989	247,387	5,489	4,600	4,016	79.03	83.27	6,592	5,820	5,082	26,646	23,527	20,542
1990	249,981	5,803	4,903	4,294	83.30	86.51	6,708	5,886	5,154	26,834	23,546	20,619
1991	253,336	5,986	5,085	4,475	86.81	89.66	6,676	5,858	5,155	26,354	23,125	20,348
1992	256,677	6,319	5,390	4,755	89.42	91.84	6,880	6,028	5,317	26,804	23,485	20,715
1993	260,037	6,642	5,610	4,935	92.10	94.05	7,063	6,091	5,359	27,160	23,425	20,608
1994	263,226	7,054	5,888	5,165	94.46	96.01	7,348	6,234	5,469	27,914	23,682	20,775
1995	266,364	7,401	6,201	5,423	97.13	98.10	7,544	6,384	5,583	28,321	23,967	20,959
1996	269,485	7,813	6,547	5,678	100.00	100.00	7,813	6,547	5,678	28,993	24,296	21,069
1997	272,756	8,318	6,937	5,968	102.29	101.95	8,160	6,781	5,834	29,915	24,863	21,390
1998	275,955	8,782	7,426	6,356	103.89	103.20	8,509	7,148	6,118	30,834	25,903	22,169
1999	279,144	9,274	7,787	6,627	106.18	104.69	8,859	7,333	6,242	31,736	26,270	22,360
2000	282,489	9,825	8,407	7,120	109.75	106.89	9,191	7,660	6,488	32,537	27,115	22,966
2001	285,908	10,082	8,685	7,393	112.87	109.42	9,215	7,695	6,550	32,229	26,913	22,909
46-01	1.30	7.18	7.31	7.19	4.09	3.71	3.35	3.09	2.98	2.03	1.77	1.66
46-73	1.53	7.01	6.99	6.89	3.09	3.09	3.80	3.78	3.68	2.24	2.22	2.12
73-01	1.07	7.35	7.61	7.49	5.07	4.31	2.91	2.42	2.31	1.82	1.34	1.22
73-81	1.03	10.73	11.18	10.95	9.37	8.04	2.49	1.66	1.44	1.45	0.62	0.41
81-89	0.91	7.27	7.39	7.52	3.96	3.68	3.46	3.31	3.43	2.52	2.37	2.49
89-01	1.21	5.20	5.44	5.22	3.01	2.30	2.83	2.35	2.14	1.60	1.13	0.91
89-95	1.24	5.11	5.10	5.13	3.50	2.77	2.27	1.55	1.58	1.02	0.31	0.34
95-01	1.19	5.29	5.78	5.30	2.54	1.84	3.39	3.16	2.70	2.18	1.95	1.49

Nominal GDP, PI and PDI from the BEA NIPA tables, August 7 2002. CPI has been re-based. GDP deflator i
See Appendix Table 4 for other data sources.

Table 3A: Real Aggregate per Capita Income Levels in Canada as a Percentage of the United States, 19

	Canada					Canada in US dollars			Canada as a % of the United States		
	GDP per capita (chained 1997 dollars)	PI per capita (1997 dollars)	PDI per capita (1997 dollars)	Individual GDP PPP in 1997	Individual Expenditure PPP 1997	GDP per capita	Personal Income per capita	Personal Disposable Income per capita	GDP per capita	Personal Income per capita	Personal Disposable Income per capita
1946	9,928	7,707	7,063	0.84	0.85	8,340	6,551	6,003	76.5	62.4	63.4
1947	10,130	7,595	7,012	0.84	0.85	8,509	6,456	5,960	80.1	67.0	69.1
1948	10,168	7,527	6,995	0.84	0.85	8,541	6,398	5,946	78.4	66.5	68.1
1949	10,071	7,373	6,899	0.84	0.85	8,460	6,267	5,865	79.5	66.3	67.6
1950	10,613	7,491	7,064	0.84	0.85	8,915	6,367	6,005	78.6	63.1	64.9
1951	10,921	7,843	7,299	0.84	0.85	9,174	6,666	6,204	76.5	64.4	67.1
1952	11,513	8,165	7,523	0.84	0.85	9,671	6,940	6,395	78.9	65.1	68.0
1953	11,800	8,462	7,764	0.84	0.85	9,912	7,193	6,600	78.6	65.3	67.7
1954	11,319	8,239	7,558	0.84	0.85	9,508	7,003	6,425	77.2	64.6	66.1
1955	12,058	8,653	7,963	0.84	0.85	10,128	7,355	6,769	78.2	64.1	65.9
1956	12,756	9,183	8,418	0.84	0.85	10,715	7,805	7,155	82.6	65.5	67.4
1957	12,647	9,240	8,441	0.84	0.85	10,624	7,854	7,175	81.7	65.6	67.3
1958	12,580	9,303	8,591	0.84	0.85	10,568	7,907	7,303	83.5	67.0	69.2
1959	12,766	9,428	8,638	0.84	0.85	10,723	8,014	7,343	80.3	65.3	67.1
1960	12,840	9,607	8,730	0.84	0.85	10,785	8,166	7,421	80.5	66.0	67.6
1961	12,949	9,472	8,570	0.84	0.85	10,877	8,051	7,285	80.6	64.0	65.2
1962	13,569	10,000	9,054	0.84	0.85	11,398	8,500	7,696	80.9	65.2	66.6
1963	14,008	10,314	9,338	0.84	0.85	11,767	8,767	7,938	81.2	65.8	67.3
1964	14,663	10,661	9,571	0.84	0.85	12,317	9,062	8,136	81.5	65.1	65.1
1965	15,299	11,271	10,083	0.84	0.85	12,851	9,580	8,571	80.9	65.6	65.5
1966	16,004	11,955	10,493	0.84	0.85	13,443	10,161	8,919	80.3	66.5	65.7
1967	16,193	12,399	10,724	0.84	0.85	13,602	10,539	9,115	80.2	67.0	65.4
1968	16,800	12,819	10,939	0.84	0.85	14,112	10,896	9,298	80.2	66.4	64.6
1969	17,437	13,471	11,271	0.84	0.85	14,647	11,451	9,581	81.6	68.0	65.8
1970	17,634	13,928	11,490	0.84	0.85	14,812	11,839	9,767	83.3	69.8	65.7
1971	18,397	14,688	12,057	0.84	0.85	15,453	12,485	10,248	85.1	72.3	67.0
1972	19,150	15,684	12,937	0.84	0.85	16,086	13,332	10,997	85.0	73.3	69.2
1973	20,284	16,802	13,863	0.84	0.85	17,039	14,282	11,783	85.9	75.2	70.6
1974	20,832	17,920	14,671	0.84	0.85	17,499	15,232	12,470	89.6	81.7	76.4
1975	20,974	18,496	15,227	0.84	0.85	17,618	15,721	12,943	91.4	85.5	79.3
1976	21,840	19,381	15,843	0.84	0.85	18,346	16,474	13,466	91.0	86.3	80.1
1977	22,334	19,691	16,108	0.84	0.85	18,761	16,737	13,692	89.8	85.0	79.3
1978	23,009	19,974	16,531	0.84	0.85	19,328	16,978	14,052	88.7	83.1	78.7
1979	23,745	20,398	16,927	0.84	0.85	19,945	17,338	14,388	89.7	84.8	81.0
1980	23,756	20,836	17,276	0.84	0.85	19,955	17,710	14,685	91.0	89.1	85.0
1981	24,184	21,403	17,562	0.84	0.85	20,314	18,192	14,928	91.3	91.2	86.5
1982	23,215	21,108	17,283	0.84	0.85	19,500	17,942	14,691	90.3	90.5	85.2
1983	23,611	20,810	16,913	0.84	0.85	19,833	17,689	14,376	88.8	87.3	80.8
1984	24,749	21,408	17,435	0.84	0.85	20,789	18,196	14,820	87.6	85.0	78.5
1985	25,696	22,087	17,931	0.84	0.85	21,585	18,774	15,241	88.3	85.4	79.0
1986	26,059	22,474	17,968	0.84	0.85	21,889	19,103	15,273	87.4	84.6	76.9
1987	26,808	22,846	18,078	0.84	0.85	22,518	19,419	15,367	87.7	84.2	76.3
1988	27,775	23,795	18,713	0.84	0.85	23,331	20,226	15,906	88.1	85.5	76.6
1989	27,993	24,206	19,175	0.84	0.85	23,515	20,575	16,299	86.6	85.5	77.6
1990	27,628	24,420	19,043	0.84	0.85	23,207	20,757	16,186	84.8	86.2	76.7
1991	26,731	23,590	18,414	0.84	0.85	22,454	20,051	15,652	83.6	84.8	75.2
1992	26,636	23,534	18,329	0.84	0.85	22,375	20,004	15,579	81.9	83.3	73.5
1993	26,949	23,312	18,226	0.84	0.85	22,637	19,815	15,492	81.8	82.7	73.5
1994	27,920	23,482	18,226	0.84	0.85	23,453	19,960	15,492	82.4	82.4	72.9
1995	28,393	23,644	18,278	0.84	0.85	23,850	20,097	15,537	82.6	82.0	72.5
1996	28,544	23,532	18,073	0.84	0.85	23,977	20,002	15,362	81.1	80.5	71.3
1997	29,437	23,860	18,213	0.84	0.85	24,727	20,281	15,481	81.1	79.7	70.8
1998	30,379	24,512	18,630	0.84	0.85	25,518	20,835	15,836	81.2	78.6	69.8
1999	31,753	25,018	19,050	0.84	0.85	26,673	21,265	16,192	82.4	79.1	70.8
2000	32,900	25,846	19,647	0.84	0.85	27,636	21,969	16,700	83.3	79.2	71.1
2001	33,059	25,953	19,805	0.84	0.85	27,769	22,060	16,834	84.5	80.1	71.8

Source: Tables 2 and 3

Table 4: Relative Real Per Capita GDP in OECD Countries, 1950-2001, selected years

U S = 100 in all years

	1950	1973	1989	1995	2001
Australia	78.5	76.6	74.0	76.9	77.6
Austria	41.4	71.9	75.4	77.2	74.6
Belgium	60.4	77.1	76.8	77.6	75.9
Canada	81.9	87.3	87.5	81.6	77.9
Denmark	75.3	86.6	82.1	83.6	80.7
Finland	45.7	68.2	75.4	65.8	71.5
France	53.2	75.9	74.2	72.4	69.7
Unified Germany	na	na	81.4	75.5	69.7
West Germany	54.5	89.6	89.2	81.9	na
Greece	22.1	50.7	48.2	46.0	47.2
Ireland	38.1	43.5	49.9	61.5	82.1
Italy	38.5	67.1	73.0	72.9	69.1
Japan	20.2	68.8	78.2	80.3	72.9
Netherlands	62.9	78.9	72.9	75.1	75.1
New Zealand	88.8	75.3	61.2	59.8	55.8
Norway	56.5	66.7	78.0	85.8	84.0
Portugal	22.2	45.1	46.0	48.8	49.8
Spain	26.2	54.8	53.5	54.5	56.4
Sweden	70.9	81.3	76.7	71.5	71.0
Switzerland	100.6	115.7	96.9	88.3	81.9
Turkey	16.3	19.3	18.9	20.1	17.8
U.K.	71.0	70.8	70.0	69.1	68.2
USA	100.0	100.0	100.0	100.0	100.0
Unweighted Average					
Excluding USA	51.7	68.8	68.8	68.9	68.6

Source: Groningen Growth and Development Centre & The Conference Board
www.eco.rug.nl/GGDC/index-dseries.html

Note: the unweighted average includes only countries for which data are available all five years (ie. Unified Germany and West Germany are not included). New Zealand is also discluded for consistency with Tables 12 and 13.

**Table 5: Growth Rates for Real GDP Per Capita, 1950-2001,
selected periods**

average annual growth rates, %

	1950-1973	1973-1989	1989-1995	1995-2001	1950-2001
Australia	2.34	1.82	1.90	2.79	2.18
Austria	4.94	2.35	1.62	2.08	3.39
Belgium	3.55	2.01	1.42	2.28	2.66
Canada	2.74	2.06	0.06	1.87	2.10
Denmark	3.08	1.70	1.55	2.04	2.34
Finland	4.25	2.69	-1.03	4.08	3.11
France	4.05	1.90	0.82	1.99	2.74
Unified Germany	na	na	-0.02	1.29	na
West Germany	4.69	2.02	-0.20	na	na
Greece	6.21	1.72	0.45	3.09	3.73
Ireland	3.04	2.92	4.83	7.72	3.75
Italy	4.95	2.58	1.23	1.73	3.38
Japan	8.05	2.85	1.71	1.01	4.80
Netherlands	3.47	1.54	1.75	2.65	2.56
New Zealand	1.72	0.72	0.86	1.46	1.27
Norway	3.19	3.05	2.87	2.28	3.00
Portugal	5.66	2.17	2.22	3.01	3.84
Spain	5.79	1.89	1.56	3.22	3.75
Sweden	3.07	1.67	0.06	2.54	2.21
Switzerland	3.08	0.92	-0.31	1.36	1.79
Turkey	3.20	1.91	2.31	0.62	2.38
U.K.	2.44	1.96	1.04	2.43	2.12
USA	2.45	2.04	1.24	2.65	2.20
Unweighted Average					
Excluding USA	3.73	2.05	1.26	2.57	2.77

Source: Groningen Growth and Development Centre & The Conference Board, June 13 2002.

www.eco.rug.nl/GGDC/index-dseries.html

Note: the unweighted average includes only countries for which data are available for all five years (ie. Unified Germany and West Germany are not included). New Zealand is also discluded for consistency with Tables 12 and 13.

Table 6: Real Per Capita GDP and its Determinants in Canada

	GDP per Hour (1997 chained dollars)	Average Hours	Working age Population to Total Population, %	Labour Force Partici- pation Rate, %	1-Unemp- loyment Rate, %	GDP per Capita (1997 chained dollars)
1946	9.42	52.69	71.80	55.38	96.67	9,928
1947	9.62	51.90	72.14	55.24	97.80	10,130
1948	9.71	52.29	71.66	54.93	97.74	10,168
1949	10.02	52.22	69.29	54.91	97.25	10,071
1950	11.02	50.40	70.49	54.06	96.45	10,613
1951	11.38	50.09	69.84	54.03	97.62	10,921
1952	12.34	49.55	69.22	53.83	97.13	11,513
1953	12.94	49.09	68.83	53.46	97.04	11,800
1954	12.93	48.46	68.33	53.22	95.51	11,319
1955	14.07	47.60	67.86	53.30	95.69	12,058
1956	14.73	47.34	67.56	53.86	96.64	12,756
1957	15.01	46.35	67.32	54.38	95.43	12,647
1958	15.95	44.82	67.03	54.25	93.05	12,580
1959	16.33	44.20	66.73	54.15	94.12	12,766
1960	16.98	43.01	66.55	54.55	93.14	12,840
1961	17.62	42.03	66.44	54.47	92.95	12,949
1962	18.30	42.01	66.43	54.23	94.18	13,569
1963	18.98	41.60	66.57	54.19	94.53	14,008
1964	19.67	41.32	66.79	54.46	95.39	14,663
1965	20.25	41.05	67.18	54.76	96.13	15,299
1966	20.62	40.72	65.71	57.66	96.69	16,004
1967	20.98	40.08	66.32	58.01	96.23	16,193
1968	22.29	39.00	67.04	57.98	95.56	16,800
1969	23.12	38.39	67.79	58.25	95.64	17,437
1970	24.01	37.50	68.58	58.17	94.41	17,634
1971	25.05	37.10	69.32	58.48	93.89	18,397
1972	25.95	36.63	69.96	58.98	93.87	19,150
1973	26.57	36.53	70.65	60.15	94.52	20,284
1974	26.78	36.25	71.47	60.94	94.74	20,832
1975	27.46	35.50	72.20	61.51	93.17	20,974
1976	28.79	34.99	72.90	61.50	92.98	21,840
1977	29.41	34.95	73.49	61.80	92.02	22,334
1978	29.42	35.29	74.19	62.65	91.68	23,009
1979	29.42	35.25	74.87	63.58	92.51	23,745
1980	29.45	34.67	75.39	64.17	92.50	23,756

Table 6: Real Per Capita GDP and its Determinants in Canada,
1946-2001 (cont.)

	GDP per Hour (1997 chained dollars)	Average Hours	Working age Population to Total Population, %	Labour Force Partici- pation Rate, %	1-Unemp- loyment Rate, %	GDP per Capita (1997 chained dollars)
1981	29.96	34.11	75.80	64.96	92.43	24,184
1982	30.13	34.00	76.06	64.37	89.03	23,215
1983	30.70	34.02	76.30	64.70	88.06	23,611
1984	31.65	34.08	76.53	65.00	88.70	24,749
1985	32.06	34.29	76.78	65.53	89.35	25,696
1986	31.88	34.25	76.98	65.98	90.36	26,059
1987	32.46	34.10	76.93	66.40	91.19	26,808
1988	32.52	34.63	76.93	66.84	92.25	27,775
1989	32.24	35.08	76.60	67.20	92.45	27,993
1990	32.55	34.55	76.59	67.12	91.88	27,628
1991	33.10	33.87	76.85	66.53	89.68	26,731
1992	34.18	33.33	77.06	65.68	88.84	26,636
1993	34.25	33.78	77.27	65.40	88.64	26,949
1994	34.76	34.21	77.28	65.18	89.64	27,920
1995	35.34	33.96	77.42	64.90	90.56	28,393
1996	35.41	34.17	77.62	64.69	90.36	28,544
1997	36.04	34.20	77.90	64.87	90.90	29,437
1998	36.86	33.90	78.26	65.13	91.72	30,379
1999	37.47	34.20	78.59	65.59	92.43	31,753
2000	37.90	34.46	78.92	65.88	93.19	32,900
2001	38.81	33.77	79.20	65.99	92.80	33,059
Average Annual Growth						
1946-2001	2.61	-0.81	0.18	0.32	-0.07	2.21
1946-1973	3.91	-1.35	-0.06	0.31	-0.08	2.68
1973-2001	1.36	-0.28	0.41	0.33	-0.07	1.76
1973-1981	1.51	-0.85	0.88	0.97	-0.28	2.22
1981-1989	0.92	0.35	0.13	0.42	0.00	1.85
1989-2001	1.56	-0.32	0.28	-0.15	0.03	1.40
1989-1995	1.54	-0.54	0.18	-0.58	-0.34	0.24
1995-2001	1.58	-0.09	0.38	0.28	0.41	2.57

See Appendix Table 1 for data sources.

Table 7: Contributions to Real Per Capita GDP Growth in Canada, 1946-2001

	GDP per Hour	Average Hours	Working age Population to Total Population	Labour Force Partici- pation	1-Unemp- loyment Rate	GDP per Capita
1946-2001						
total growth, %	311.82	-35.90	10.32	19.17	-4.00	232.97
average annual growth rate	2.61	-0.81	0.18	0.32	-0.07	2.21
contribution to GDP per capit:	117.90	-36.42	8.08	14.45	-3.36	100.00
1946-1973						
total growth, %	182.00	-30.66	-1.59	8.61	-2.22	104.31
average annual growth rate	3.91	-1.35	-0.06	0.31	-0.08	2.68
contribution to GDP per capit:	145.98	-50.22	-2.21	11.43	-3.10	100.00
1973-2001						
total growth, %	46.04	-7.56	12.10	9.72	-1.82	62.98
average annual growth rate	1.36	-0.28	0.41	0.33	-0.07	1.76
contribution to GDP per capit:	77.38	-15.93	23.23	18.86	-3.73	100.00
1973-1981						
total growth, %	12.72	-6.63	7.28	8.01	-2.22	19.23
average annual growth rate	1.51	-0.85	0.88	0.97	-0.28	2.22
contribution to GDP per capit:	67.85	-38.42	39.72	43.54	-12.58	100.00
1981-1989						
total growth, %	7.64	2.84	1.06	3.45	0.03	15.75
average annual growth rate	0.92	0.35	0.13	0.42	0.00	1.85
contribution to GDP per capit:	50.11	18.99	7.12	23.00	0.18	100.00
1989-2001						
total growth, %	20.36	-3.73	3.40	-1.80	0.38	18.09
average annual growth rate	1.56	-0.32	0.28	-0.15	0.03	1.40
contribution to GDP per capit:	111.51	-22.66	19.96	-10.83	2.25	100.00
1989-1995						
total growth, %	9.59	-3.19	1.07	-3.42	-2.05	1.43
average annual growth rate	1.54	-0.54	0.18	-0.58	-0.34	0.24
contribution to GDP per capit:	649.53	-227.86	75.06	-244.48	-145.73	100.00
1995-2001						
total growth, %	9.83	-0.56	2.30	1.68	2.48	16.43
average annual growth rate	1.58	-0.09	0.38	0.28	0.41	2.57
contribution to GDP per capit:	61.34	-3.61	14.79	10.84	15.93	100.00

See Appendix Table 1 for data sources.

Table 8: Nominal Per Capita GDP and its Determinants in Canada and the United States, 2001

	GDP per Hour (current US dollars) (1)	Average Weekly Hours (2)	Working age Population to Total Population, % (3)	Labour Force Partici- pation Rate, % (4)	1-Unemp- loyment Rate, % (5)	GDP per Capita (current US dollars) (6)
United States	41.97	34.20	74.10	66.94	95.25	35,264
Canada	35.07	33.77	77.87	66.23	93.13	29,870
Canada as a % of US	83.55	98.75	105.09	98.94	97.78	84.70
US-Canada (% points)	-16.45	-1.25	5.09	-1.06	-2.22	-15.30
Contribution to Canada/US GDP Per Capita:	107.57	8.19	-33.26	6.92	14.51	100.00

Data from Table 2 and Appendix Table 1 for Canada and Table 3 and Appendix Table 4 for the United States. Note: the data above cannot be obtained directly from the referenced tables because the data for Canada in this table have been adjusted to account for the differing definitions of working age (15 years and over in Canada and 16 years and over in the United States). This was accomplished by subtracting the number of 15 year olds in Canada (413,834) from the working age population; multiplying the labour force participation rate of 15-19 year olds (52.3%) by the labour force and subtracting the result from the labour force; and multiplying the unemployment rate for 15-19 year olds (16.6%) by the labour force and subtracting the result from unemployment. These adjusted estimates were then used to calculate the working age to total population ratio, labour force participation rate and unemployment rate shown here.

GDP Per Capita can be calculated as $(6) = [(1) * (2) * (3) / 100 * (4) / 100 * (5) / 100]$.

Table 9: Reconciliation of GDP per Capita and Labour Productivity, 2001 (preliminary esti

	GDP per Hour Worked (a)		Effect of Working Hours (a) in % points	Effect of Employment share in Total Population (in % points)			Total (c)	GDP per Head of Population	
	in 1996 US\$	as % of US		Unemploy- ment (b)	Labour Force to Population (15-64 yrs)	Populatio n (15-64 yrs) to Total Populatio		in 1996 US\$	as % of US
United States	37.0	100.0	0.0	0.0	0.0	0.0	0.0	33,538	100.0
Norway	40.6	109.7	-28.9	1.0	3.1	-1.6	2.5	27,940	83.3
Ireland	36.4	98.4	-8.8	0.6	-9.7	1.0	-8.1	27,318	81.5
Switzerland	31.7	85.8	-12.8	2.1	5.5	0.6	8.2	27,236	81.2
Denmark	34.6	93.5	-16.4	0.1	2.4	0.4	2.9	26,857	80.1
Canada	30.5	82.6	-3.5	-2.1	-1.2	1.5	-1.8	25,923	77.3
Australia	30.3	82.0	-3.1	-1.7	-1.7	1.5	-1.9	25,818	77.0
Belgium	41.5	112.4	-18.9	-2.1	-15.4	-0.7	-18.2	25,252	75.3
Netherlands	37.3	100.9	-28.1	1.5	-1.1	1.3	1.7	24,989	74.5
Austria	35.5	95.9	-17.9	0.8	-6.3	1.5	-4.0	24,828	74.0
Japan	26.6	72.1	-2.7	-0.1	1.4	1.7	3.0	24,267	72.4
Finland	31.9	86.3	-10.7	-3.4	-2.2	0.9	-4.7	23,795	71.0
Sweden	30.2	81.7	-10.7	-0.3	1.7	-2.0	-0.5	23,636	70.5
Germany	34.2	92.5	-16.6	-2.5	-5.1	1.0	-6.6	23,247	69.3
France	37.6	101.8	-17.8	-3.6	-9.6	-1.6	-14.8	23,176	69.1
Italy	32.5	88.0	-11.0	-4.1	-5.2	0.9	-8.4	22,991	68.6
United Kingdom	29.4	79.5	-9.2	-0.2	-1.8	-0.6	-2.7	22,696	67.7
Spain	27.9	75.6	-1.8	-6.6	-12.2	0.9	-18.0	18,723	55.8
New Zealand	22.5	60.8	-3.6	-0.3	-0.7	-0.8	-1.9	18,560	55.3
Korea	15.2	41.1	13.6	0.4	-8.4	3.3	-4.7	16,747	49.9
Portugal	19.3	52.1	-3.1	0.3	-1.1	1.2	0.4	16,548	49.3
Greece	21.6	58.5	2.4	-3.9	-10.9	0.7	-14.1	15,696	46.8
Czech Rep.	14.4	39.0	3.2	-1.5	-3.0	2.0	-2.5	13,346	39.8
Hungary	17.4	47.2	-1.8	-0.5	-10.8	1.0	-10.4	11,730	35.0
Poland	11.9	32.2	2.7	-4.8	-4.2	1.1	-7.9	9,021	26.9
Mexico	12.1	32.8	3.0	0.9	-9.6	-2.7	-11.5	8,156	24.3
Turkey	10.2	27.5	1.1	-0.9	-10.2	0.2	-10.9	5,933	17.7
European Union	32.3	87.4	-12.1	-2.4	-6.0	0.2	-8.2	22,511	67.1
OECD excl. US	24.9	67.3	-2.8	-1.5	-7.0	0.1	-8.4	18,818	56.1

(a) Calculated on basis of actual hours worked per person per year; (b) calculated on basis of standardized unemployment rates from OECD; (c) sum of previous columns plus rounding differences; (d) European Union is weighted average for 14 EU member countries, excluding Luxembourg.

Source: Groningen Growth & Development Center & The Conference Board. See Van Ark (2002). Based on *OECD National Accounts, Economic Outlook, Employment Outlook* and *Labour Force Statistics*, with GDP converted to US\$ at 1996 EKS PPPs.

Table 10: Annual Growth of Real GDP Per Capita and Per Hour Worked in Canada and the United States, 1947-2001, % change from previous year

	Real GDP Per Capita			Real GDP Per Hour Worked						
	Canada	US	Can-US	Canada	US	Can-US				
1947	2.03	-2.58	4.61	2.13	-3.80	5.93				
1948	0.37	2.56	-2.19	0.89	2.77	-1.89				
1949	-0.95	-2.29	1.34	3.20	2.14	1.06				
1950	5.38	6.55	-1.17	9.93	5.34	4.59				
1951	2.91	5.81	-2.90	3.27	5.48	-2.22				
1952	5.42	2.21	3.21	8.46	3.48	4.98				Average Annual Growth
1953	2.49	2.87	-0.38	4.89	3.78	1.11				
1954	-4.08	-2.41	-1.67	-0.10	2.38	-2.48				Real GDP Per Capita
1955	6.53	5.22	1.31	8.86	2.23	6.63	1946-2001	2.21	2.03	0.18
1956	5.79	0.19	5.60	4.65	0.14	4.52	1946-1973	2.68	2.24	0.44
1957	-0.85	0.17	-1.02	1.93	2.87	-0.94				
1958	-0.53	-2.61	2.08	6.24	1.44	4.80	1973-2001	1.76	1.82	-0.06
1959	1.47	5.44	-3.97	2.38	3.24	-0.86	1973-1981	2.22	1.45	0.77
1960	0.58	0.43	0.15	3.96	1.74	2.22	1981-1989	1.85	2.52	-0.68
1961	0.85	0.67	0.18	3.76	2.38	1.38	1989-2001	1.40	1.60	-0.20
1962	4.79	4.42	0.37	3.91	4.25	-0.34				
1963	3.23	2.83	0.40	3.69	2.43	1.27	1989-1995	0.24	1.02	-0.78
1964	4.68	4.35	0.32	3.61	3.71	-0.11	1995-2001	2.57	2.18	0.39
1965	4.34	5.07	-0.73	2.98	3.46	-0.48				
1966	4.61	5.35	-0.74	1.81	4.47	-2.65	1961-1976	3.55	2.71	0.84
1967	1.18	1.39	-0.21	1.74	2.05	-0.32	1949-1964	2.54	2.37	0.17
1968	3.75	3.73	0.02	6.28	3.18	3.10				
1969	3.79	2.03	1.76	3.71	0.68	3.02				
1970	1.13	-0.96	2.09	3.84	0.80	3.04				Real GDP Per Hour
1971	4.33	2.05	2.28	4.35	3.00	1.34				Canada
1972	4.09	4.31	-0.21	3.61	1.58	2.03	1946-2001	2.61	1.99	0.62
1973	5.93	4.77	1.16	2.40	2.43	-0.03	1946-1973	3.91	2.49	1.42
1974	2.70	-1.50	4.20	0.76	-1.51	2.27				
1975	0.68	-1.32	2.00	2.54	1.86	0.68	1973-2001	1.36	1.50	-0.14
1976	4.13	4.55	-0.42	4.86	2.11	2.75	1973-1981	1.51	0.98	0.52
1977	2.26	3.59	-1.33	2.16	1.21	0.95	1981-1989	0.92	1.68	-0.76
1978	3.02	4.41	-1.38	0.03	1.65	-1.62	1989-2001	1.56	1.73	-0.17
1979	3.20	2.05	1.15	-0.01	0.56	-0.58				
1980	0.05	-1.38	1.42	0.09	0.42	-0.32	1989-1995	1.54	1.26	0.27
1981	1.80	1.43	0.37	1.73	1.62	0.11	1995-2001	1.58	2.20	-0.62
1982	-4.01	-2.96	-1.05	0.57	-0.03	0.61				
1983	1.71	3.39	-1.68	1.91	2.39	-0.48	1961-1976	3.33	2.29	1.04
1984	4.82	6.33	-1.51	3.07	2.42	0.65	1949-1964	4.60	2.98	1.61
1985	3.83	2.93	0.90	1.31	2.64	-1.34				
1986	1.41	2.48	-1.07	-0.55	1.40	-1.95				
1987	2.87	2.48	0.40	1.81	0.78	1.03				
1988	3.61	3.23	0.38	0.18	2.18	-2.00				
1989	0.79	2.53	-1.75	-0.84	1.71	-2.54				
1990	-1.31	0.71	-2.01	0.96	0.81	0.15				
1991	-3.25	-1.79	-1.46	1.69	1.02	0.66				
1992	-0.35	1.71	-2.06	3.24	2.08	1.16				
1993	1.17	1.33	-0.15	0.23	0.85	-0.63				
1994	3.60	2.78	0.83	1.47	1.08	0.39				
1995	1.69	1.46	0.23	1.66	1.74	-0.08				
1996	0.53	2.37	-1.84	0.20	2.39	-2.19				
1997	3.13	3.18	-0.05	1.79	1.54	0.25				
1998	3.20	3.07	0.13	2.28	2.77	-0.49				
1999	4.52	2.93	1.60	1.66	2.83	-1.18				
2000	3.61	2.52	1.09	1.13	2.43	-1.31				
2001	0.48	-0.95	1.43	2.41	1.23	1.18				

Calculated from Tables 2, 3 and 14.

Values in bold represent years in which: GDP per capita growth in Canada was at least 3.0 per cent; Canada's growth in GDP per exceeded that of the United States by at least 1.0 percentage points; Canada's growth in GDP per hour worked was at least 3.1 per cent; or Canada's growth in GDP per hour worked exceeded that of the United States by at least 1.1 percentage points. 1961-1976 is the 15-year period over which Canada's GDP per capita grew most rapidly at an average annual rate. 1949-1964 is the 15-year period over which Canada's GDP per hour grew most rapidly at an annual average rate.

Table 11: Nominal Aggregate Labour Productivity Levels in Canada and the United States

	Canada				United States				Canada/US, %	
	GDP per Person Employed, current dollars	GDP per Hour, current dollars	GDP PPP	GDP per Person Employed, current US	GDP per Hour, current US dollars	GDP per Person Employed, current US	GDP per Hour, current US dollars	GDP per Person Employed	GDP per Hour	
1946	2,569	0.94	1.143	2,938	1.07	4,024	1.92	73.01	55.85	
1947	2,813	1.04	1.197	3,365	1.25	4,285	2.04	78.54	60.98	
1948	3,209	1.18	1.141	3,660	1.35	4,621	2.22	79.21	60.60	
1949	3,449	1.27	1.088	3,754	1.38	4,643	2.27	80.85	61.00	
1950	3,748	1.43	1.084	4,063	1.55	4,995	2.41	81.34	64.23	
1951	4,283	1.64	1.020	4,370	1.68	5,662	2.73	77.19	61.48	
1952	4,798	1.86	0.992	4,759	1.85	5,952	2.87	79.96	64.39	
1953	4,978	1.95	1.010	5,025	1.97	6,210	3.02	80.92	65.28	
1954	4,986	1.98	1.010	5,035	2.00	6,340	3.12	79.41	64.07	
1955	5,365	2.17	1.036	5,557	2.25	6,678	3.24	83.21	69.23	
1956	5,790	2.35	1.033	5,979	2.43	6,865	3.36	87.10	72.30	
1957	5,898	2.45	1.048	6,182	2.56	7,203	3.57	85.83	71.85	
1958	6,148	2.64	1.054	6,482	2.78	7,423	3.71	87.33	75.02	
1959	6,332	2.75	1.060	6,712	2.92	7,851	3.87	85.49	75.44	
1960	6,487	2.90	1.062	6,886	3.08	8,018	3.99	85.89	77.08	
1961	6,605	3.02	1.069	7,061	3.23	8,300	4.14	85.07	78.12	
1962	6,970	3.19	1.066	7,432	3.40	8,793	4.37	84.53	77.87	
1963	7,308	3.38	1.056	7,718	3.57	9,130	4.53	84.53	78.83	
1964	7,723	3.59	1.044	8,060	3.75	9,587	4.76	84.07	78.75	
1965	8,201	3.84	1.025	8,402	3.94	10,130	5.02	82.94	78.39	
1966	8,693	4.11	1.004	8,727	4.12	10,828	5.39	80.60	76.40	
1967	9,086	4.36	0.992	9,008	4.32	11,215	5.68	80.32	76.16	
1968	9,739	4.80	0.998	9,718	4.79	12,006	6.11	80.94	78.44	
1969	10,398	5.21	1.001	10,407	5.21	12,648	6.45	82.28	80.80	
1970	11,062	5.67	1.005	11,118	5.70	13,215	6.85	84.13	83.23	
1971	11,798	6.11	1.022	12,056	6.25	14,220	7.41	84.78	84.32	
1972	12,794	6.72	1.005	12,855	6.75	15,099	7.85	85.14	86.00	
1973	14,295	7.52	0.970	13,865	7.30	16,288	8.49	85.12	85.98	
1974	16,391	8.70	0.922	15,107	8.01	17,294	9.11	87.36	87.96	
1975	18,157	9.84	0.913	16,584	8.98	19,048	10.15	87.07	88.54	
1976	20,488	11.26	0.884	18,112	9.95	20,551	10.95	88.13	90.92	
1977	22,326	12.29	0.881	19,668	10.82	22,076	11.79	89.09	91.78	
1978	24,042	13.10	0.885	21,282	11.60	23,904	12.84	89.03	90.31	
1979	26,301	14.35	0.875	23,025	12.56	25,969	13.99	88.66	89.80	
1980	28,737	15.94	0.861	24,752	13.73	28,152	15.34	87.92	89.51	
1981	31,909	17.99	0.849	27,084	15.27	31,189	17.04	86.84	89.61	
1982	34,700	19.63	0.831	28,843	16.31	32,747	18.10	88.08	90.15	
1983	37,307	21.09	0.820	30,576	17.28	35,057	19.26	87.22	89.73	
1984	39,786	22.45	0.823	32,746	18.48	37,453	20.46	87.43	90.30	
1985	41,810	23.45	0.823	34,428	19.31	39,319	21.67	87.56	89.12	
1986	42,787	24.03	0.817	34,950	19.63	40,630	22.45	86.02	87.41	
1987	45,367	25.59	0.804	36,490	20.58	42,178	23.31	86.51	88.30	
1988	48,236	26.78	0.796	38,393	21.32	44,432	24.62	86.41	86.57	
1989	50,647	27.76	0.790	40,032	21.95	46,779	26.00	85.58	84.41	
1990	51,966	28.92	0.796	41,359	23.02	48,851	27.23	84.66	84.53	
1991	53,333	30.28	0.801	42,729	24.26	50,852	28.51	84.03	85.09	
1992	54,897	31.67	0.81	44,466	25.65	53,328	29.81	83.38	86.05	
1993	56,557	32.20	0.82	46,377	26.40	55,233	30.79	83.97	85.76	
1994	58,793	33.05	0.83	48,798	27.43	57,324	31.77	85.13	86.35	
1995	60,675	34.36	0.83	50,360	28.52	59,251	33.03	84.99	86.35	
1996	62,162	34.98	0.84	52,216	29.39	61,663	34.47	84.68	85.25	
1997	64,085	36.04	0.84	53,831	30.27	64,206	35.69	83.84	84.83	
1998	64,706	36.70	0.86	55,647	31.57	66,798	37.13	83.31	85.02	
1999	67,477	37.94	0.85	57,356	32.25	69,477	38.73	82.55	83.27	
2000	71,430	39.87	0.84	60,001	33.49	72,663	40.50	82.57	82.68	
2001	72,445	41.25	0.85	61,579	35.07	74,643	41.97	82.50	83.55	

See Table 2 and Appendix Table 1 for data sources for Canada and Table 3 and Appendix Table 4 for data sources for the United States. GDP PPPs from Table 1.

Table 12: Relative Real GDP Per Hour Worked in OECD Countries 1950-2001, selected years

U S = 100 in all years

	1950	1973	1989	1995	2001
Australia	81.5	73.6	77.4	81.4	82.7
Austria	37.3	70.4	89.0	93.2	96.7
Belgium	57.0	78.3	106.9	112.6	113.3
Canada	94.7	91.2	88.2	89.0	83.3
Denmark	68.9	87.5	92.9	99.1	94.3
Finland	40.3	65.5	77.0	84.6	87.0
France	50.0	79.2	106.3	109.1	102.6
Unified Germany	na	na	91.4	96.3	93.3
West Germany	48.6	85.3	106.0	108.2	na
Greece	24.6	51.8	60.1	57.1	59.0
Ireland	33.3	44.3	71.7	82.9	99.2
Italy	44.1	70.4	87.6	95.7	88.7
Japan	21.5	54.4	68.6	73.5	72.6
Netherlands	77.4	104.0	109.0	108.7	101.8
New Zealand	na	na	68.2	66.4	61.3
Norway	55.6	72.7	98.6	112.9	110.6
Portugal	20.2	42.9	48.5	52.7	52.6
Spain	26.8	56.3	80.7	85.5	76.3
Sweden	62.6	80.2	81.4	84.3	82.4
Switzerland	88.5	93.2	91.1	90.0	86.5
Turkey	11.0	18.8	25.9	28.2	27.7
U.K.	67.6	65.0	76.6	81.6	80.2
U S A	100.0	100.0	100.0	100.0	100.0
Unweighted Average					
Excluding U S A	50.7	68.4	80.9	85.4	84.1

Source: Groningen Growth and Development Centre & The Conference Board
www.eco.rug.nl/GGDC/index-dseries.html

Note: the unweighted average includes only countries for which data are available in all five years (ie. Unified Germany, West Germany and New Zealand are not included).

**Table 13: Growth Rates for GDP Per Hour Worked, 1950-2001,
selected periods**

average annual growth rates, %

	1950-1973	1973-1989	1989-1995	1995-2001	1950-2001
Australia	2.57	1.61	1.98	2.27	2.16
Austria	5.91	2.78	1.92	2.63	4.06
Belgium	4.46	3.28	2.01	2.10	3.52
Canada	2.86	1.07	1.29	0.88	1.88
Denmark	4.11	1.67	2.21	1.17	2.77
Finland	5.23	2.32	2.72	2.48	3.69
France	5.11	3.17	1.56	0.97	3.59
Unified Germany	na	na	2.01	1.45	na
West Germany	5.58	2.68	1.47	na	na
Greece	6.41	2.23	0.28	2.56	3.90
Ireland	4.31	4.38	3.60	5.10	4.34
Italy	5.14	2.69	2.62	0.73	3.54
Japan	7.27	2.76	2.30	1.82	4.60
Netherlands	4.36	1.59	1.09	0.89	2.69
New Zealand	na	na	0.69	0.65	na
Norway	4.24	3.24	3.44	1.65	3.52
Portugal	6.46	2.07	2.54	1.97	4.07
Spain	6.41	3.59	2.11	0.10	4.25
Sweden	4.14	1.38	1.71	1.62	2.69
Switzerland	3.26	1.15	0.93	1.34	2.09
Turkey	5.45	3.33	2.60	1.69	4.00
U.K.	2.85	2.33	2.21	1.70	2.48
USA	3.03	1.29	1.13	2.00	2.14
Unweighted Average					
Excluding USA	4.38	2.36	2.04	1.75	3.15

Source: Groningen Growth and Development Centre & The Conference Board, June 13 2002.

www.eco.rug.nl/GGDC/index-dseries.html

Note: the unweighted average includes only countries for which data are available for all five years (ie. Unified Germany, West Germany and New Zealand are not included).

Table 14: Real Aggregate Labour Productivity Levels and Growth Rates in Canada and the U

	Canada					United States				
	Real GDP (millions of chained 1997 dollars)	Employment (thousands)	Total Hours Worked per week (thousands)	GDP per Person Employed (chained 1997 dollars)	GDP per Hour Worked (chained 1997 dollars)	Real GDP of 1996 chained dollars)	Employment (thousands)	Average Weekly Hours	GDP per Person Employed (chained 1996 dollars)	GDP per Hour Worked (chained 1996 dollars)
1946	124,268	4,813	253,590	25,818	9.42	1,506	55,250	40.3	27,249	13.00
1947	129,467	4,985	258,696	25,974	9.62	1,495	57,038	40.3	26,212	12.51
1948	132,763	5,029	262,950	26,400	9.71	1,560	58,343	40.0	26,738	12.86
1949	137,900	5,068	264,652	27,209	10.02	1,551	57,651	39.4	26,902	13.13
1950	148,180	5,133	258,696	28,868	11.02	1,687	58,918	39.8	28,626	13.83
1951	155,789	5,258	263,376	29,629	11.38	1,815	59,961	39.9	30,271	14.59
1952	169,509	5,332	264,227	31,790	12.34	1,887	60,250	39.9	31,324	15.10
1953	178,372	5,400	265,078	33,030	12.94	1,974	61,179	39.6	32,264	15.67
1954	176,189	5,409	262,099	32,576	12.93	1,961	60,109	39.1	32,616	16.04
1955	192,738	5,533	263,376	34,832	14.07	2,100	62,170	39.6	33,770	16.40
1956	208,875	5,761	272,737	36,255	14.73	2,141	63,799	39.3	33,560	16.42
1957	213,912	5,912	274,013	36,183	15.01	2,184	64,071	38.8	34,086	16.89
1958	218,800	5,886	263,801	37,172	15.95	2,163	63,036	38.5	34,311	17.14
1959	227,259	6,055	267,631	37,530	16.33	2,319	64,630	39.0	35,881	17.69
1960	233,637	6,153	264,652	37,969	16.98	2,377	65,778	38.6	36,132	18.00
1961	240,475	6,246	262,525	38,500	17.62	2,432	65,746	38.6	36,991	18.43
1962	256,765	6,422	269,758	39,985	18.30	2,579	66,702	38.7	38,663	19.21
1963	270,028	6,576	273,588	41,061	18.98	2,690	67,762	38.8	39,704	19.68
1964	288,035	6,818	281,672	42,248	19.67	2,847	69,305	38.7	41,072	20.41
1965	306,026	7,079	290,607	43,232	20.25	3,029	71,088	38.8	42,602	21.12
1966	326,174	7,471	304,223	43,661	20.62	3,228	72,895	38.6	44,276	22.06
1967	336,011	7,686	308,052	43,716	20.98	3,308	74,372	38.0	44,483	22.51
1968	354,138	7,833	305,499	45,213	22.29	3,466	75,920	37.8	45,655	23.23
1969	372,887	8,079	310,179	46,154	23.12	3,571	77,902	37.7	45,845	23.39
1970	382,411	8,169	306,350	46,812	24.01	3,578	78,678	37.1	45,476	23.57
1971	404,028	8,360	310,179	48,330	25.05	3,698	79,367	36.9	46,590	24.28
1972	425,494	8,607	315,285	49,433	25.95	3,898	82,153	37.0	47,453	24.66
1973	456,270	9,038	330,177	50,486	26.57	4,123	85,064	36.9	48,474	25.26
1974	475,143	9,413	341,240	50,477	26.78	4,099	86,794	36.5	47,227	24.88
1975	485,393	9,577	339,963	50,683	27.46	4,084	85,846	36.1	47,578	25.35
1976	512,145	9,776	342,091	52,387	28.79	4,312	88,752	36.1	48,581	25.88
1977	529,905	9,915	346,471	53,446	29.41	4,512	92,017	36.0	49,032	26.19
1978	551,386	10,212	360,412	53,993	29.42	4,761	96,048	35.8	49,565	26.62
1979	574,670	10,658	375,672	53,921	29.42	4,912	98,824	35.7	49,706	26.78
1980	582,404	10,970	380,368	53,090	29.45	4,901	99,303	35.3	49,353	26.89
1981	600,253	11,297	385,354	53,135	29.96	5,021	100,397	35.2	50,011	27.32
1982	583,089	10,947	372,202	53,265	30.13	4,919	99,526	34.8	49,427	27.31
1983	598,941	11,027	375,154	54,316	30.70	5,132	100,834	35.0	50,899	27.97
1984	633,756	11,300	385,125	56,085	31.65	5,505	105,005	35.2	52,428	28.64
1985	664,059	11,617	398,339	57,161	32.06	5,717	107,150	34.9	53,356	29.40
1986	680,144	11,979	410,260	56,778	31.88	5,912	109,597	34.8	53,947	29.81
1987	709,058	12,321	420,097	57,550	32.46	6,113	112,440	34.8	54,369	30.05
1988	744,333	12,710	440,212	58,561	32.52	6,368	114,968	34.7	55,393	30.70
1989	763,837	12,986	455,560	58,818	32.24	6,592	117,342	34.6	56,176	31.22
1990	765,311	13,084	452,102	58,492	32.55	6,708	118,793	34.5	56,467	31.48
1991	749,294	12,851	435,292	58,308	33.10	6,676	117,718	34.3	56,715	31.80
1992	755,848	12,760	425,316	59,236	34.18	6,880	118,492	34.4	58,063	32.46
1993	773,528	12,858	434,286	60,162	34.25	7,063	120,259	34.5	58,728	32.74
1994	810,695	13,112	448,549	61,830	34.76	7,348	123,060	34.7	59,708	33.09
1995	833,456	13,357	453,598	62,399	35.34	7,544	124,900	34.5	60,399	33.67
1996	846,952	13,463	460,031	62,911	35.41	7,813	126,708	34.4	61,663	34.47
1997	882,733	13,774	471,023	64,085	36.04	8,160	129,558	34.6	62,980	35.00
1998	918,910	14,140	479,388	64,985	36.86	8,509	131,463	34.6	64,725	35.97
1999	968,451	14,531	497,000	66,646	37.47	8,859	133,488	34.5	66,366	36.99
2000	#####	14,910	513,732	67,898	37.90	9,191	135,208	34.5	67,980	37.89
2001	#####	15,077	509,164	68,153	38.81	9,215	135,073	34.2	68,219	38.36
46-01	3.92	2.10	1.28	1.78	2.61	3.35	1.64	-0.30	1.68	1.99
46-73	4.94	2.36	0.98	2.51	3.91	3.80	1.61	-0.33	2.16	2.49
73-01	2.94	1.84	1.56	1.08	1.36	2.91	1.67	-0.27	1.23	1.50
73-81	3.49	2.83	1.95	0.64	1.51	2.49	2.09	-0.59	0.39	0.98
81-89	3.06	1.76	2.11	1.28	0.92	3.46	1.97	-0.21	1.46	1.68
89-01	2.50	1.25	0.93	1.24	1.56	2.83	1.18	-0.10	1.63	1.73
89-95	1.46	0.47	-0.07	0.99	1.54	2.27	1.05	-0.05	1.22	1.26

See Appendix Table 1 for Canadian data sources and Appendix Table 4 for

Appendix Table 1: Output, Population, and Labour Market Variables in Canada, 1946-2001

	Population (on July 1st of each year)	Nominal GDP at market prices (millions of dollars)	GDP Deflator	Real GDP (millions of chained dollars) 1997	Total Hours Worked per week (thousands)	Employ- ment (thousands)	Working Age Population (age 15+, thousands)	Labour Force (thousands)	Unemploy- ment (thousands)
1946	12,516,595	12,367	9.95	124,268	253,590	4,813	8,987	4,976	166
1947	12,780,327	14,019	10.83	129,467	258,696	4,985	9,220	5,093	112
1948	13,057,297	16,138	12.16	132,763	262,950	5,029	9,357	5,140	116
1949	13,692,698	17,481	12.68	137,900	264,652	5,068	9,487	5,209	143
1950	13,962,540	19,241	12.98	148,180	258,696	5,133	9,842	5,321	189
1951	14,264,967	22,517	14.45	155,789	263,376	5,258	9,962	5,382	128
1952	14,723,189	25,585	15.09	169,509	264,227	5,332	10,191	5,486	158
1953	15,116,242	26,880	15.07	178,372	265,078	5,400	10,404	5,562	165
1954	15,566,318	26,969	15.31	176,189	262,099	5,409	10,637	5,661	254
1955	15,984,828	29,684	15.40	192,738	263,376	5,533	10,848	5,781	249
1956	16,374,826	33,357	15.97	208,875	272,737	5,761	11,062	5,958	200
1957	16,913,491	34,871	16.30	213,912	274,013	5,912	11,386	6,191	283
1958	17,392,079	36,187	16.54	218,800	263,801	5,886	11,657	6,324	439
1959	17,802,442	38,340	16.87	227,259	267,631	6,055	11,879	6,433	378
1960	18,196,514	39,914	17.08	233,637	264,652	6,153	12,111	6,607	453
1961	18,571,238	41,253	17.15	240,475	262,525	6,246	12,338	6,720	474
1962	18,922,541	44,755	17.43	256,765	269,758	6,422	12,570	6,817	397
1963	19,276,900	48,059	17.80	270,028	273,588	6,576	12,832	6,954	380
1964	19,643,478	52,653	18.28	288,035	281,672	6,818	13,120	7,145	329
1965	20,002,927	58,050	18.97	306,026	290,607	7,079	13,438	7,359	285
1966	20,380,706	64,943	19.91	326,174	304,223	7,471	13,392	7,722	255
1967	20,750,339	69,834	20.78	336,011	308,052	7,686	13,762	7,983	301
1968	21,079,241	76,285	21.54	354,138	305,499	7,833	14,131	8,194	364
1969	21,384,722	84,006	22.53	372,887	310,179	8,079	14,497	8,444	368
1970	21,686,130	90,367	23.63	382,411	306,350	8,169	14,871	8,651	484
1971	21,962,082	98,630	24.41	404,028	310,179	8,360	15,224	8,903	544
1972	22,219,560	110,124	25.88	425,494	315,285	8,607	15,545	9,169	562
1973	22,493,842	129,196	28.32	456,270	330,177	9,038	15,893	9,559	524
1974	22,808,446	154,290	32.47	475,143	341,240	9,413	16,300	9,933	523
1975	23,142,275	173,893	35.83	485,393	339,963	9,577	16,709	10,278	702
1976	23,449,793	200,296	39.11	512,145	342,091	9,776	17,096	10,514	738
1977	23,726,345	221,358	41.77	529,905	346,471	9,915	17,435	10,774	860
1978	23,963,967	245,526	44.53	551,386	360,412	10,212	17,779	11,138	926
1979	24,202,205	280,309	48.78	574,670	375,672	10,658	18,120	11,521	863
1980	24,516,278	315,245	54.13	582,404	380,368	10,970	18,484	11,860	890
1981	24,820,382	360,471	60.05	600,253	385,354	11,297	18,814	12,222	926
1982	25,117,424	379,859	65.15	583,089	372,202	10,947	19,103	12,296	1,349
1983	25,366,965	411,386	68.69	598,941	375,154	11,027	19,355	12,523	1,496
1984	25,607,555	449,582	70.94	633,756	385,125	11,300	19,598	12,739	1,439
1985	25,842,590	485,714	73.14	664,059	398,339	11,617	19,843	13,002	1,385
1986	26,100,587	512,541	75.36	680,144	410,260	11,979	20,093	13,257	1,278
1987	26,449,888	558,949	78.83	709,058	420,097	12,321	20,349	13,512	1,191
1988	26,798,303	613,094	82.37	744,333	440,212	12,710	20,615	13,779	1,068
1989	27,286,239	657,728	86.11	763,837	455,560	12,986	20,902	14,047	1,060
1990	27,700,856	679,921	88.84	765,311	452,102	13,084	21,217	14,241	1,157
1991	28,030,864	685,367	91.47	749,294	435,292	12,851	21,541	14,330	1,480
1992	28,376,550	700,480	92.67	755,848	425,316	12,760	21,867	14,362	1,602
1993	28,703,142	727,184	94.01	773,528	434,286	12,858	22,180	14,505	1,647
1994	29,035,981	770,873	95.09	810,695	448,549	13,112	22,440	14,627	1,515
1995	29,353,854	810,426	97.24	833,456	453,598	13,357	22,727	14,750	1,393
1996	29,671,892	836,864	98.81	846,952	460,031	13,463	23,031	14,900	1,437
1997	29,987,214	882,733	100.00	882,733	471,023	13,774	23,359	15,153	1,379
1998	30,248,210	914,973	99.57	918,910	479,388	14,140	23,671	15,418	1,277
1999	30,499,219	980,524	101.25	968,451	497,000	14,531	23,969	15,721	1,190
2000	30,769,669	1,064,995	105.20	1,012,334	513,732	14,910	24,285	15,999	1,090
2001	31,081,887	1,092,246	106.30	1,027,522	509,164	15,077	24,618	16,246	1,170

Population: CANSIM II series v466668 as of May 5 2002, linked to a series from the Historical Statistics of Canada in 197
Nominal GDP: v646937 as of June 3 2002, linked to a series from the Historical Statistics of Canada in 1961.

Real GDP: v3860085 as of June 3 2002 for 1981-2001, nominal/deflator*100 for 1946-1980.

GDP Deflator: nominal/real GDP for 1981-2001, linked to an old CANSIM series for 1961-1981, linked to a series from the Historical Statistics of Canada for 1946-1961.

Hours: from the Labour Force Historical Review 2001(R) CD-ROM, linked to a series from Aggregate Productivity Measu
Employment, Labour Force, Working Age Population, Unemployment: Labour Force Historical Review 2001(R) linked to series from Historical Labour Force Statistics in 1976.

Working age is defined as 15+ from 1966 onwards and 14+ before 1966.

Appendix Table 2: Real Per Capita GDP and its Determinants in 1946-2001

	GDP per Hour (1996 chained dollars)	Average Hours	Working age Population to Total Population, %	Labour Force Partici- pation Rate, %	1-Unemploy- ment Rate, %	GDP per Capita (1996 chained dollars)
1946	13.00	40.3	73.19	55.81	96.05	10,690
1947	12.51	40.3	70.93	58.29	96.11	10,415
1948	12.86	40.0	70.57	58.82	96.25	10,681
1949	13.13	39.4	69.98	58.93	94.07	10,437
1950	13.83	39.8	69.23	59.25	94.71	11,120
1951	14.59	39.9	67.82	59.28	96.69	11,766
1952	15.10	39.9	67.05	59.05	96.97	12,026
1953	15.67	39.6	67.10	58.86	97.09	12,371
1954	16.04	39.1	66.71	58.75	94.45	12,073
1955	16.40	39.6	66.36	59.28	95.61	12,703
1956	16.42	39.3	65.95	59.98	95.87	12,727
1957	16.89	38.8	65.53	59.62	95.73	12,748
1958	17.14	38.5	65.29	59.47	93.20	12,416
1959	17.69	39.0	65.11	59.28	94.53	13,092
1960	18.00	38.6	64.86	59.39	94.47	13,148
1961	18.43	38.6	64.64	59.32	93.31	13,236
1962	19.21	38.7	64.39	58.77	94.46	13,821
1963	19.68	38.8	64.67	58.68	94.33	14,212
1964	20.41	38.7	64.86	58.71	94.82	14,831
1965	21.12	38.8	65.10	58.85	95.48	15,583
1966	22.06	38.6	65.14	59.17	96.21	16,417
1967	22.51	38.0	65.34	59.56	96.15	16,645
1968	23.23	37.8	65.77	59.64	96.42	17,266
1969	23.39	37.7	66.26	60.10	96.49	17,616
1970	23.57	37.1	66.84	60.38	95.06	17,446
1971	24.28	36.9	67.51	60.18	94.06	17,804
1972	24.66	37.0	68.66	60.39	94.39	18,571
1973	25.26	36.9	69.40	60.80	95.12	19,456
1974	24.88	36.5	70.18	61.25	94.39	19,163
1975	25.35	36.1	70.91	61.23	91.54	18,911
1976	25.88	36.1	71.60	61.58	92.30	19,771
1977	26.19	36.0	72.19	62.26	92.94	20,481
1978	26.62	35.8	72.73	63.15	93.93	21,384
1979	26.78	35.7	73.24	63.67	94.15	21,821
1980	26.89	35.3	73.66	63.75	92.86	21,521

Appendix Table 2: Real Per Capita GDP and its Determinants in the U
1946-2001 (cont.)

	GDP per Hour (1996 chained dollars)	Average Hours	Working age Population to Total Population, %	Labour Force Partici- pation Rate, %	1-Unemp- loyment Rate, %	GDP per Capita (1996 chained dollars)
1981	27.32	35.2	73.97	63.87	92.39	21,830
1982	27.31	34.8	74.19	63.97	90.31	21,184
1983	27.97	35.0	74.35	64.03	90.39	21,902
1984	28.64	35.2	74.61	64.37	92.48	23,288
1985	29.40	34.9	74.72	64.79	92.80	23,970
1986	29.81	34.8	75.03	65.25	93.01	24,565
1987	30.05	34.8	75.26	65.59	93.81	25,174
1988	30.70	34.7	75.33	65.90	94.49	25,987
1989	31.22	34.6	75.34	66.46	94.73	26,646
1990	31.48	34.5	75.67	66.52	94.40	26,834
1991	31.80	34.3	75.36	66.18	93.17	26,354
1992	32.46	34.4	75.12	66.44	92.50	26,804
1993	32.74	34.5	74.93	66.31	93.08	27,160
1994	33.09	34.7	74.77	66.59	93.90	27,914
1995	33.67	34.5	74.55	66.62	94.40	28,321
1996	34.47	34.4	74.43	66.77	94.60	28,993
1997	35.00	34.6	74.47	67.10	95.06	29,915
1998	35.97	34.6	74.37	67.09	95.49	30,834
1999	36.99	34.5	74.43	67.08	95.78	31,736
2000	37.89	34.5	74.23	67.17	95.99	32,537
2001	38.36	34.2	74.10	66.94	95.25	32,229
Average Annual Growth						
1946-2001	1.99	-0.30	0.02	0.33	-0.02	2.03
1946-1973	2.49	-0.33	-0.20	0.32	-0.04	2.24
1973-2001	1.50	-0.27	0.23	0.34	0.00	1.82
1973-1981	0.98	-0.59	0.80	0.62	-0.36	1.45
1981-1989	1.68	-0.21	0.23	0.50	0.31	2.52
1989-2001	1.73	-0.10	-0.14	0.06	0.05	1.60
1989-1995	1.26	-0.05	-0.18	0.04	-0.06	1.02
1995-2001	2.20	-0.15	-0.10	0.08	0.15	2.18

See Appendix Table 4 for data sources.

Appendix Table 3: Contributions to Real Per Capita GDP Growth in the United States

	GDP per Hour	Average Hours	Working age Population to Total Population	Labour Force Partici- pation	1- Unemploy- ment Rate	GDP per Capita
1946-2001						
total growth, %	195.01	-15.14	1.25	19.94	-0.84	201.49
average annual growth rate	1.99	-0.30	0.02	0.33	-0.02	2.03
contribution to GDP per capita:	98.01	-14.70	1.12	16.34	-0.76	100.00
1946-1973						
total growth, %	94.29	-8.44	-5.17	8.94	-0.97	82.00
average annual growth rate	2.49	-0.33	-0.20	0.32	-0.04	2.24
contribution to GDP per capita:	111.04	-14.53	-8.75	14.16	-1.61	100.00
1973-2001						
total growth, %	51.84	-7.32	6.77	10.10	0.13	65.65
average annual growth rate	1.50	-0.27	0.23	0.34	0.00	1.82
contribution to GDP per capita:	82.62	-14.90	12.87	18.92	0.26	100.00
1973-1981						
total growth, %	8.15	-4.61	6.57	5.06	-2.87	12.20
average annual growth rate	0.98	-0.59	0.80	0.62	-0.36	1.45
contribution to GDP per capita:	67.93	-40.55	55.12	42.72	-25.08	100.00
1981-1989						
total growth, %	14.27	-1.70	1.86	4.04	2.54	22.06
average annual growth rate	1.68	-0.21	0.23	0.50	0.31	2.52
contribution to GDP per capita:	66.65	-8.51	9.15	19.67	12.43	100.00
1989-2001						
total growth, %	22.86	-1.16	-1.65	0.72	0.54	20.95
average annual growth rate	1.73	-0.10	-0.14	0.06	0.05	1.60
contribution to GDP per capita:	108.28	-6.06	-8.67	3.76	2.83	100.00
1989-1995						
total growth, %	7.83	-0.29	-1.05	0.25	-0.34	6.29
average annual growth rate	1.26	-0.05	-0.18	0.04	-0.06	1.02
contribution to GDP per capita:	123.73	-4.72	-17.20	4.12	-5.62	100.00
1995-2001						
total growth, %	13.94	-0.87	-0.61	0.47	0.89	13.80
average annual growth rate	2.20	-0.15	-0.10	0.08	0.15	2.18
contribution to GDP per capita:	100.97	-6.68	-4.65	3.59	6.80	100.00

See Appendix Table 4 for data sources.

Appendix Table 4: Output, Population, and Labour Market Variables in the United States

	Population (annual average of mid- month estimates)	Real GDP (billions of chained 1996 dollars)	Average Weekly Hours	Employ- ment (thousands)	Working Age Population (age 16+, thousands)	Labour Force (thousands)	Unemploy- ment (thousands)
1946	140,832	1,506	40.3	55,250	103,070	57,520	2,270
1947	143,559	1,495	40.3	57,038	101,827	59,350	2,311
1948	146,054	1,560	40.0	58,343	103,068	60,621	2,276
1949	148,601	1,551	39.4	57,651	103,994	61,286	3,637
1950	151,672	1,687	39.8	58,918	104,995	62,208	3,288
1951	154,268	1,815	39.9	59,961	104,621	62,017	2,055
1952	156,933	1,887	39.9	60,250	105,231	62,138	1,883
1953	159,553	1,974	39.6	61,179	107,056	63,015	1,834
1954	162,384	1,961	39.1	60,109	108,321	63,643	3,532
1955	165,278	2,100	39.6	62,170	109,683	65,023	2,852
1956	168,238	2,141	39.3	63,799	110,954	66,552	2,750
1957	171,307	2,184	38.8	64,071	112,265	66,929	2,859
1958	174,194	2,163	38.5	63,036	113,727	67,639	4,602
1959	177,130	2,319	39.0	64,630	115,329	68,369	3,740
1960	180,760	2,377	38.6	65,778	117,245	69,628	3,852
1961	183,742	2,432	38.6	65,746	118,771	70,459	4,714
1962	186,590	2,579	38.7	66,702	120,153	70,614	3,911
1963	189,300	2,690	38.8	67,762	122,416	71,833	4,070
1964	191,927	2,847	38.7	69,305	124,485	73,091	3,786
1965	194,347	3,029	38.8	71,088	126,513	74,455	3,366
1966	196,599	3,228	38.6	72,895	128,058	75,770	2,875
1967	198,752	3,308	38.0	74,372	129,874	77,347	2,975
1968	200,745	3,466	37.8	75,920	132,028	78,737	2,817
1969	202,736	3,571	37.7	77,902	134,335	80,734	2,832
1970	205,089	3,578	37.1	78,678	137,085	82,771	4,093
1971	207,692	3,698	36.9	79,367	140,216	84,382	5,016
1972	209,924	3,898	37.0	82,153	144,126	87,034	4,882
1973	211,939	4,123	36.9	85,064	147,096	89,429	4,365
1974	213,898	4,099	36.5	86,794	150,120	91,949	5,156
1975	215,981	4,084	36.1	85,846	153,153	93,775	7,929
1976	218,086	4,312	36.1	88,752	156,150	96,158	7,406
1977	220,289	4,512	36.0	92,017	159,033	99,009	6,991
1978	222,629	4,761	35.8	96,048	161,910	102,251	6,202
1979	225,106	4,912	35.7	98,824	164,863	104,962	6,137
1980	227,726	4,901	35.3	99,303	167,745	106,940	7,637
1981	230,008	5,021	35.2	100,397	170,130	108,670	8,273
1982	232,218	4,919	34.8	99,526	172,271	110,204	10,678
1983	234,332	5,132	35.0	100,834	174,215	111,550	10,717
1984	236,394	5,505	35.2	105,005	176,383	113,544	8,539
1985	238,506	5,717	34.9	107,150	178,206	115,461	8,312
1986	240,682	5,912	34.8	109,597	180,587	117,834	8,237
1987	242,842	6,113	34.8	112,440	182,753	119,865	7,425
1988	245,061	6,368	34.7	114,968	184,613	121,669	6,701
1989	247,387	6,592	34.6	117,342	186,393	123,869	6,528
1990	249,981	6,708	34.5	118,793	189,164	125,840	7,047
1991	253,336	6,676	34.3	117,718	190,925	126,346	8,628
1992	256,677	6,880	34.4	118,492	192,805	128,105	9,613
1993	260,037	7,063	34.5	120,259	194,838	129,200	8,940
1994	263,226	7,348	34.7	123,060	196,814	131,056	7,996
1995	266,364	7,544	34.5	124,900	198,584	132,304	7,404
1996	269,485	7,813	34.4	126,708	200,591	133,943	7,236
1997	272,756	8,160	34.6	129,558	203,133	136,297	6,739
1998	275,955	8,509	34.6	131,463	205,220	137,673	6,210
1999	279,144	8,859	34.5	133,488	207,753	139,368	5,880
2000	282,489	9,191	34.5	135,208	209,699	140,863	5,655
2001	285,908	9,215	34.2	135,073	211,864	141,815	6,742

Population: BEA NIPA Table 2.1 for 1959-2001, linked to a series from the 1988 Economic Report of the President.
 Real GDP: BEA NIPA tables, August 7 2002.

Hours: Economic Report of the President 2002 and 1988. 1946 value assumed equal to 1947 value.

Employment, Labour Force, Working Age Population, Unemployment: Economic Report of the President 2002.
 Working age is defined as 16+ from 1947 onwards and 14+ in 1946.

Appendix Table 5: Unemployment Rates in Canada and the Detailed Age and Sex Groups, 2001

		United States (%)	Canada (%)	Differential United States-Canada (percentage)
All ages	Both sexes	4.8	7.2	-2.4
15/16 years and over	Males	4.8	7.5	-2.7
15/16-24 years		11.4	14.5	-3.1
25 years and over		3.6	6.2	-2.6
45 years and over		3.2	5.5	-2.3
25-54 years		3.7	6.3	-2.6
55 years and over		3.3	5.5	-2.2
15/16-19 years		15.9	18.4	-2.5
20-24 years		8.9	11.9	-3.0
25-29 years		4.9	8.2	-3.3
30-34 years		3.9	6.4	-2.5
35-39 years		3.7	6.3	-2.6
40-44 years		3.5	6.3	-2.8
45-49 years		3.2	5.4	-2.2
50-54 years		3.2	5.4	-2.2
55-59 years		3.2	6.0	-2.8
60-64 years		3.6	5.9	-2.3
65 years and over		3.0	3.0	0.0
65-69 years		3.3	3.8	-0.5
70 years and over		2.8	0.0	2.8
15/16 years and over	Females	4.7	6.8	-2.1
15/16-24 years		9.7	11.0	-1.3
25 years and over		3.7	6.0	-2.3
45 years and over		2.9	5.4	-2.5
25-54 years		3.8	6.0	-2.2
55 years and over		2.7	5.5	-2.8
15/16-19 years		13.4	14.7	-1.3
20-24 years		7.5	8.4	-0.9
25-29 years		5.1	6.6	-1.5
30-34 years		4.9	6.1	-1.2
35-39 years		4.0	6.6	-2.6
40-44 years		3.4	6.0	-2.6
45-49 years		3.2	5.4	-2.2
50-54 years		2.6	5.4	-2.8
55-59 years		2.8	5.7	-2.9
60-64 years		2.5	5.5	-3.0
65 years and over		2.9	4.1	-1.2
65-69 years		3.0	5.6	-2.6
70 years and over		2.8	0.0	2.8

Source: Statistics Canada, Labour Force Historical Review, 2001(R), 71F000 and www.BLS.gov, on July 16, 2002.

Note: working age is defined as 15 years and above in Canada and 16 years and above in the United States.

Appendix Table 6: Labour Force Participation Rates in Canada and the United States, by Detailed Age and Sex Groups, 2001

		United States	Canada	Differential
		(%)	(%)	United States-Canada (percentage points)
All ages	Both sexes	66.9	66.0	0.9
15/16 years and over	Males	74.4	72.5	1.9
15/16-24 years		67.1	66.1	1.0
25 years and over		75.9	73.8	2.1
45 years and over		60.8	57.1	3.7
25-54 years		91.3	91.1	0.2
55 years and over		40.5	33.8	6.7
15/16-19 years		50.7	52.5	-1.8
20-24 years		81.5	79.6	1.9
25-29 years		91.6	90.8	0.8
30-34 years		93.6	92.8	0.8
35-39 years		92.9	92.5	0.4
40-44 years		92.1	92.2	-0.1
45-49 years		90.3	91.2	-0.9
50-54 years		86.5	86.6	-0.1
55-59 years		77.3	72.4	4.9
60-64 years		56.5	47.0	9.5
65 years and over		17.7	9.4	8.3
65-69 years		30.3	16.1	14.2
70 years and over		12.1	6.0	6.1
15/16 years and over	Females	60.1	59.7	0.4
15/16-24 years		62.2	63.3	-1.1
25 years and over		59.7	59.0	0.7
45 years and over		46.0	41.5	4.5
25-54 years		76.4	79.1	-2.7
55 years and over		27.1	19.4	7.7
15/16-19 years		49.4	52.0	-2.6
20-24 years		72.9	74.3	-1.4
25-29 years		76.1	80.5	-4.4
30-34 years		75.5	79.3	-3.8
35-39 years		76.1	79.9	-3.8
40-44 years		78.0	81.6	-3.6
45-49 years		78.5	79.7	-1.2
50-54 years		74.0	72.5	1.5
55-59 years		61.6	53.2	8.4
60-64 years		42.4	27.4	15.0
65 years and over		9.7	3.4	6.3
65-69 years		20.0	7.8	12.2
70 years and over		5.9	1.7	4.2

Source: Statistics Canada, *Labour Force Historical Review*, 2001(R), 71F0004XCB and www.BLS.gov, on July 15, 2002.

Note: working age is defined as 15 years and above in Canada and 16 years and above in the United States.

Appendix Table 7: Nominal Aggregate Labour Productivity Levels in Canada and the United States, 1946-2001, with Alternative US Hours Data

	Canada			United States		Canada/US, %	
	GDP per Person Employed, current dollars	GDP per Hour, current dollars	GDP PPP US	GDP per Person Employed, current US dollars	GDP per Hour, current US dollars	GDP per Person Employed	GDP per Hour
1946	2,569	0.94	1.143	2,938	1.07	73.01	59.87
1947	2,813	1.04	1.197	3,365	1.25	78.54	65.38
1948	3,209	1.18	1.141	3,660	1.35	79.21	64.96
1949	3,449	1.27	1.088	3,754	1.38	80.85	65.39
1950	3,748	1.43	1.084	4,063	1.55	81.34	68.86
1951	4,283	1.64	1.020	4,370	1.68	77.19	65.91
1952	4,798	1.86	0.992	4,759	1.85	79.96	69.02
1953	4,978	1.95	1.010	5,025	1.97	80.92	69.98
1954	4,986	1.98	1.010	5,035	2.00	79.41	68.69
1955	5,365	2.17	1.036	5,557	2.25	83.21	74.22
1956	5,790	2.35	1.033	5,979	2.43	87.10	77.51
1957	5,898	2.45	1.048	6,182	2.56	85.83	77.02
1958	6,148	2.64	1.054	6,482	2.78	87.33	80.42
1959	6,332	2.75	1.060	6,712	2.92	85.49	80.87
1960	6,487	2.90	1.062	6,886	3.08	85.89	82.63
1961	6,605	3.02	1.069	7,061	3.23	85.07	83.75
1962	6,970	3.19	1.066	7,432	3.40	84.53	83.48
1963	7,308	3.38	1.056	7,718	3.57	84.53	84.51
1964	7,723	3.59	1.044	8,060	3.75	84.07	84.42
1965	8,201	3.84	1.025	8,402	3.94	82.94	84.03
1966	8,693	4.11	1.004	8,727	4.12	80.60	81.90
1967	9,086	4.36	0.992	9,008	4.32	80.32	81.64
1968	9,739	4.80	0.998	9,718	4.79	80.94	84.09
1969	10,398	5.21	1.001	10,407	5.21	82.28	86.62
1970	11,062	5.67	1.005	11,118	5.70	84.13	89.23
1971	11,798	6.11	1.022	12,056	6.25	84.78	90.39
1972	12,794	6.72	1.005	12,855	6.75	85.14	92.20
1973	14,295	7.52	0.970	13,865	7.30	85.12	92.17
1974	16,391	8.70	0.922	15,107	8.01	87.36	94.29
1975	18,157	9.84	0.913	16,584	8.98	87.07	94.92
1976	20,488	11.26	0.884	18,112	9.95	88.13	97.47
1977	22,326	12.29	0.881	19,668	10.82	89.09	98.92
1978	24,042	13.10	0.885	21,282	11.60	89.03	98.39
1979	26,301	14.35	0.875	23,025	12.56	88.66	97.85
1980	28,737	15.94	0.861	24,752	13.73	87.92	97.62
1981	31,909	17.99	0.849	27,084	15.27	86.84	96.99
1982	34,700	19.63	0.831	28,843	16.31	88.08	98.44
1983	37,307	21.09	0.820	30,576	17.28	87.22	98.19
1984	39,786	22.45	0.823	32,746	18.48	87.43	99.54
1985	41,810	23.45	0.823	34,428	19.31	87.56	99.59
1986	42,787	24.03	0.817	34,950	19.63	86.02	98.21
1987	45,367	25.59	0.804	36,490	20.58	86.51	98.95
1988	48,236	26.78	0.796	38,393	21.32	86.41	98.30
1989	50,647	27.76	0.790	40,032	21.95	85.58	96.60
1990	51,966	28.92	0.796	41,359	23.02	84.66	96.54
1991	53,333	30.28	0.801	42,729	24.26	84.03	97.24
1992	54,897	31.67	0.81	44,466	25.65	83.38	97.31
1993	56,557	32.20	0.82	46,377	26.40	83.97	97.94
1994	58,793	33.05	0.83	48,798	27.43	85.13	97.54
1995	60,675	34.36	0.83	50,360	28.52	84.99	98.36
1996	62,162	34.98	0.84	52,216	29.39	84.68	97.39
1997	64,085	36.04	0.84	53,831	30.27	83.84	96.85
1998	64,706	36.70	0.86	55,647	31.57	83.31	96.57
1999	67,477	37.94	0.85	57,356	32.25	82.55	95.58
2000	71,430	39.87	0.84	60,001	33.49	82.57	95.14
2001	72,445	41.25	0.85	61,579	35.07	82.50	95.76

See Table 2 and Appendix Table 1 for data sources for Canada and Table 3 and Appendix Table 4 for GDP and Employment data sources for the United States. Hours for the United States from the Current Population Survey, see Appendix Tables 8 and 9. GDP PPPs from Table 1.

Appendix Table 8: Real Aggregate Labour Productivity Levels and Growth Rates in Canada : United States, 1946-2001, with Alternative US Hours Data

	Canada					United States				
	Real GDP (millions of chained 1997	Employment (thousands)	Total Hours Worked per week (thousands)	GDP per Person Employed (chained 1997	GDP per Hour Worked (chained 1997 dollars)	Real GDP (billions of 1996 chained dollars)	Employment (thousands)	Average Weekly Hours	GDP per Person Employed (chained 1996	GDP per Hour Worked (chained 1996 dollars)
1946	124,268	4,813	253,590	25,818	9.42	1,506	55,250	43.2	27,249	12.13
1947	129,467	4,985	258,696	25,974	9.62	1,495	57,038	43.2	26,212	11.67
1948	132,763	5,029	262,950	26,400	9.71	1,560	58,343	42.9	26,738	11.99
1949	137,900	5,068	264,652	27,209	10.02	1,551	57,651	42.2	26,902	12.25
1950	148,180	5,133	258,696	28,868	11.02	1,687	58,918	42.7	28,626	12.90
1951	155,789	5,258	263,376	29,629	11.38	1,815	59,961	42.8	30,271	13.61
1952	169,509	5,332	264,227	31,790	12.34	1,887	60,250	42.8	31,324	14.08
1953	178,372	5,400	265,078	33,030	12.94	1,974	61,179	42.5	32,264	14.62
1954	176,189	5,409	262,099	32,576	12.93	1,961	60,109	41.9	32,616	14.96
1955	192,738	5,533	263,376	34,832	14.07	2,100	62,170	42.5	33,770	15.30
1956	208,875	5,761	272,737	36,255	14.73	2,141	63,799	42.1	33,560	15.32
1957	213,912	5,912	274,013	36,183	15.01	2,184	64,071	41.6	34,086	15.76
1958	218,800	5,886	263,801	37,172	15.95	2,163	63,036	41.3	34,311	15.99
1959	227,259	6,055	267,631	37,530	16.33	2,319	64,630	41.8	35,881	16.50
1960	233,637	6,153	264,652	37,969	16.98	2,377	65,778	41.4	36,132	16.79
1961	240,475	6,246	262,525	38,500	17.62	2,432	65,746	41.4	36,991	17.19
1962	256,765	6,422	269,758	39,985	18.30	2,579	66,702	41.5	38,663	17.92
1963	270,028	6,576	273,588	41,061	18.98	2,690	67,762	41.6	39,704	18.36
1964	288,035	6,818	281,672	42,248	19.67	2,847	69,305	41.5	41,072	19.04
1965	306,026	7,079	290,607	43,232	20.25	3,029	71,088	41.6	42,602	19.70
1966	326,174	7,471	304,223	43,661	20.62	3,228	72,895	41.4	44,276	20.58
1967	336,011	7,686	308,052	43,716	20.98	3,308	74,372	40.7	44,483	21.00
1968	354,138	7,833	305,499	45,213	22.29	3,466	75,920	40.5	45,655	21.67
1969	372,887	8,079	310,179	46,154	23.12	3,571	77,902	40.4	45,845	21.81
1970	382,411	8,169	306,350	46,812	24.01	3,578	78,678	39.8	45,476	21.99
1971	404,028	8,360	310,179	48,330	25.05	3,698	79,367	39.6	46,590	22.65
1972	425,494	8,607	315,285	49,433	25.95	3,898	82,153	39.7	47,453	23.01
1973	456,270	9,038	330,177	50,486	26.57	4,123	85,064	39.6	48,474	23.57
1974	475,143	9,413	341,240	50,477	26.78	4,099	86,794	39.1	47,227	23.21
1975	485,393	9,577	339,963	50,683	27.46	4,084	85,846	38.7	47,578	23.64
1976	512,145	9,776	342,091	52,387	28.79	4,312	88,752	38.7	48,581	24.14
1977	529,905	9,915	346,471	53,446	29.41	4,512	92,017	38.8	49,032	24.30
1978	551,386	10,212	360,412	53,993	29.42	4,761	96,048	39.0	49,565	24.44
1979	574,670	10,658	375,672	53,921	29.42	4,912	98,824	38.9	49,706	24.57
1980	582,404	10,970	380,368	53,090	29.45	4,901	99,303	38.5	49,353	24.65
1981	600,253	11,297	385,354	53,135	29.96	5,021	100,397	38.1	50,011	25.24
1982	583,089	10,947	372,202	53,265	30.13	4,919	99,526	38.0	49,427	25.01
1983	598,941	11,027	375,154	54,316	30.70	5,132	100,834	38.3	50,899	25.56
1984	633,756	11,300	385,125	56,085	31.65	5,505	105,005	38.8	52,428	25.99
1985	664,059	11,617	398,339	57,161	32.06	5,717	107,150	39.0	53,356	26.31
1986	680,144	11,979	410,260	56,778	31.88	5,912	109,597	39.1	53,947	26.53
1987	709,058	12,321	420,097	57,550	32.46	6,113	112,440	39.0	54,369	26.81
1988	744,333	12,710	440,212	58,561	32.52	6,368	114,968	39.4	55,393	27.04
1989	763,837	12,986	455,560	58,818	32.24	6,592	117,342	39.6	56,176	27.28
1990	765,311	13,084	452,102	58,492	32.55	6,708	118,793	39.4	56,467	27.56
1991	749,294	12,851	435,292	58,308	33.10	6,676	117,718	39.2	56,715	27.82
1992	755,848	12,760	425,316	59,236	34.18	6,880	118,492	38.9	58,063	28.70
1993	773,528	12,858	434,286	60,162	34.25	7,063	120,259	39.4	58,728	28.66
1994	810,695	13,112	448,549	61,830	34.76	7,348	123,060	39.2	59,708	29.29
1995	833,456	13,357	453,598	62,399	35.34	7,544	124,900	39.3	60,399	29.56
1996	846,952	13,463	460,031	62,911	35.41	7,813	126,708	39.3	61,663	30.17
1997	882,733	13,774	471,023	64,085	36.04	8,160	129,558	39.5	62,980	30.66
1998	918,910	14,140	479,388	64,985	36.86	8,509	131,463	39.3	64,725	31.67
1999	968,451	14,531	497,000	66,646	37.47	8,859	133,488	39.6	66,366	32.23
2000	###	14,910	513,732	67,898	37.90	9,191	135,208	39.7	67,980	32.93
2001	#####	15,077	509,164	68,153	38.81	9,215	135,073	39.2	68,219	33.47
46-01	3.92	2.10	1.28	1.78	2.61	3.35	1.64	-0.18	1.68	1.86
46-73	4.94	2.36	0.98	2.51	3.91	3.80	1.61	-0.33	2.16	2.49
73-01	2.94	1.84	1.56	1.08	1.36	2.91	1.67	-0.03	1.23	1.26
73-81	3.49	2.83	1.95	0.64	1.51	2.49	2.09	-0.47	0.39	0.86
81-89	3.06	1.76	2.11	1.28	0.92	3.46	1.97	0.48	1.46	0.97
89-01	2.50	1.25	0.93	1.24	1.56	2.83	1.18	-0.08	1.63	1.72
89-95	1.46	0.47	-0.07	0.99	1.54	2.27	1.05	-0.13	1.22	1.34

Appendix Table 1 for Canadian data sources and Appendix Table 4 for US data sources.
 : BLS series LFU123000000, August 8 2002, from the Current Population Survey. Data
 y applying the annual growth rate of the series from the establishment-based Current Em
 om the Economic Report of the President, 2001 and 1988. 1946 value assumed equal to

Appendix Table 9: Comparison of Estimates of Average Annual Hours Worked in the United States, 1990-2001

Data Source	Average Annual Hours Actually				Average Annual Growth]	
	1990	1998	2000	2001	1990-1998	1990-2001
Angus Maddison	1,594	1,610			0.12	
Current Employment Survey	1,794	1,799	1,794	1,778	0.03	-0.08
OECD	1,838	1,850	1,835	1,821	0.08	-0.08
Groningen Growth and Development Centre and the Conference B	1,819	1,864	1,879	1,868	0.31	0.24
ILO Key Indicators of the Labour Market	1,819	1,864	1,877		0.31	
Current Population Survey	2,049	2,044	2,064	2,038	-0.03	-0.05

Sources and notes:

Angus Maddison: *Monitoring the World Economy: A Millennial Perspective*, OECD Development Centre Studies. Based on the CES, with adjustments.

Current Employment Survey: establishment-based survey, BLS. Annual estimate calculated as weekly estimate*52. From Appendix Table 4.

OECD: *Employment Outlook*, June 2002. Based on the CES estimate, with adjustments for multiple job holders and economy-wide coverage from the CPS.

Groningen Growth and Development Centre and the Conference Board: based on the CES and OECD, with additional adjustments.

Key Indicators of the Labour Market: based on OECD estimates, with further adjustments.

Current Population Survey: household-based survey, BLS. Annual estimate calculated as weekly estimate*52. From Appendix Table 8.

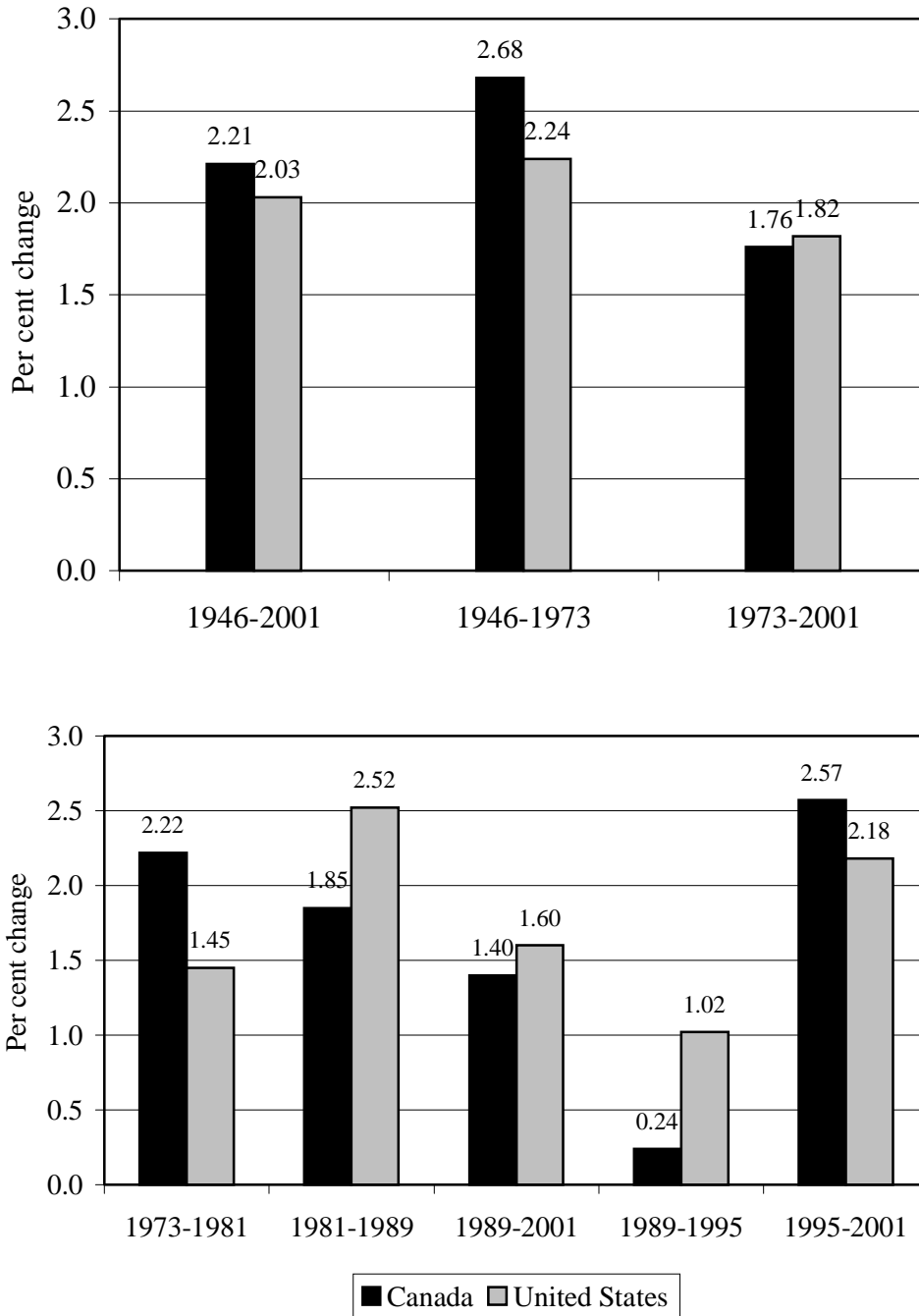
Appendix Table 10: Statistical Revisions to the US National Accounts, July

	Nominal GDP				Real GDP (1996\$)			
	Old	Revised	Size of Revision	Relative Size of Revision (as a % of Old)	Old	Revised	Size of Revision	Relative Size of Revision (as a % of Old)
1999	9,268.6	9,274.3	5.7	0.06	8,856.5	8,859.0	2.5	0.03
2000	9,872.9	9,824.6	-48.3	-0.49	9,224.0	9,191.4	-32.6	-0.35
2001	10,208.1	10,082.2	-125.9	-1.23	9,333.8	9,214.5	-119.3	-1.28

	Personal Income (nominal)				Personal Disposable Income (nominal)			
	Old	Revised	Size of Revision	Relative Size of Revision (as a % of Old)	Old	Revised	Size of Revision	Relative Size of Revision (as a % of Old)
1999	7,777.3	7,786.5	9.2	0.12	6,618.0	6,627.4	9.4	0.14
2000	8,319.2	8,406.6	87.4	1.05	7,031.0	7,120.2	89.2	1.27
2001	8,723.5	8,685.3	-38.2	-0.44	7,417.3	7,393.2	-24.1	-0.32

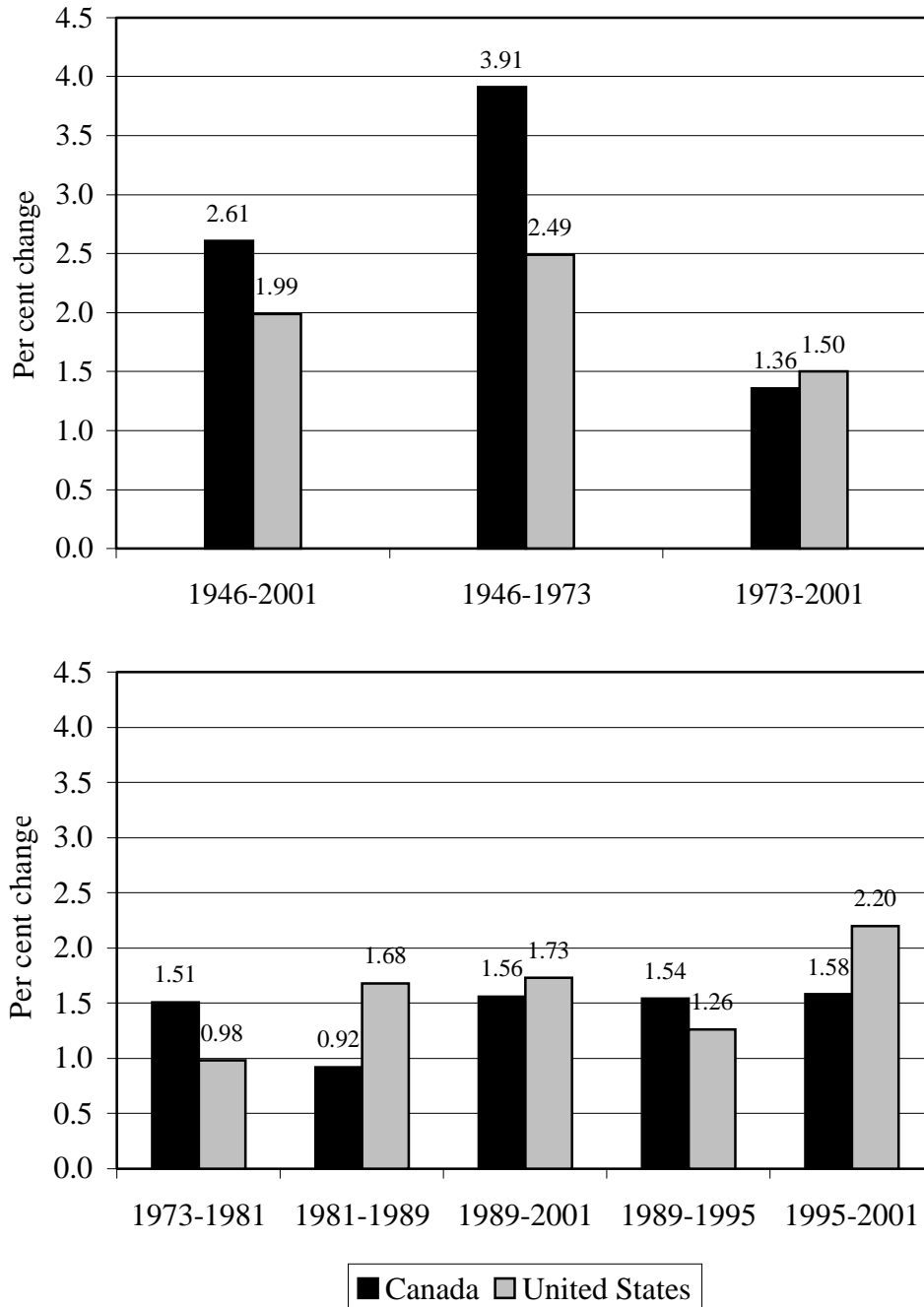
Source: BEA NIPA Tables, August 7 2002, and old data from the NIPA Tables prior to the revisions, June 3 2002.

**Chart 1: Real GDP per Capita in Canada and the United States
(Average annual rates of change)**



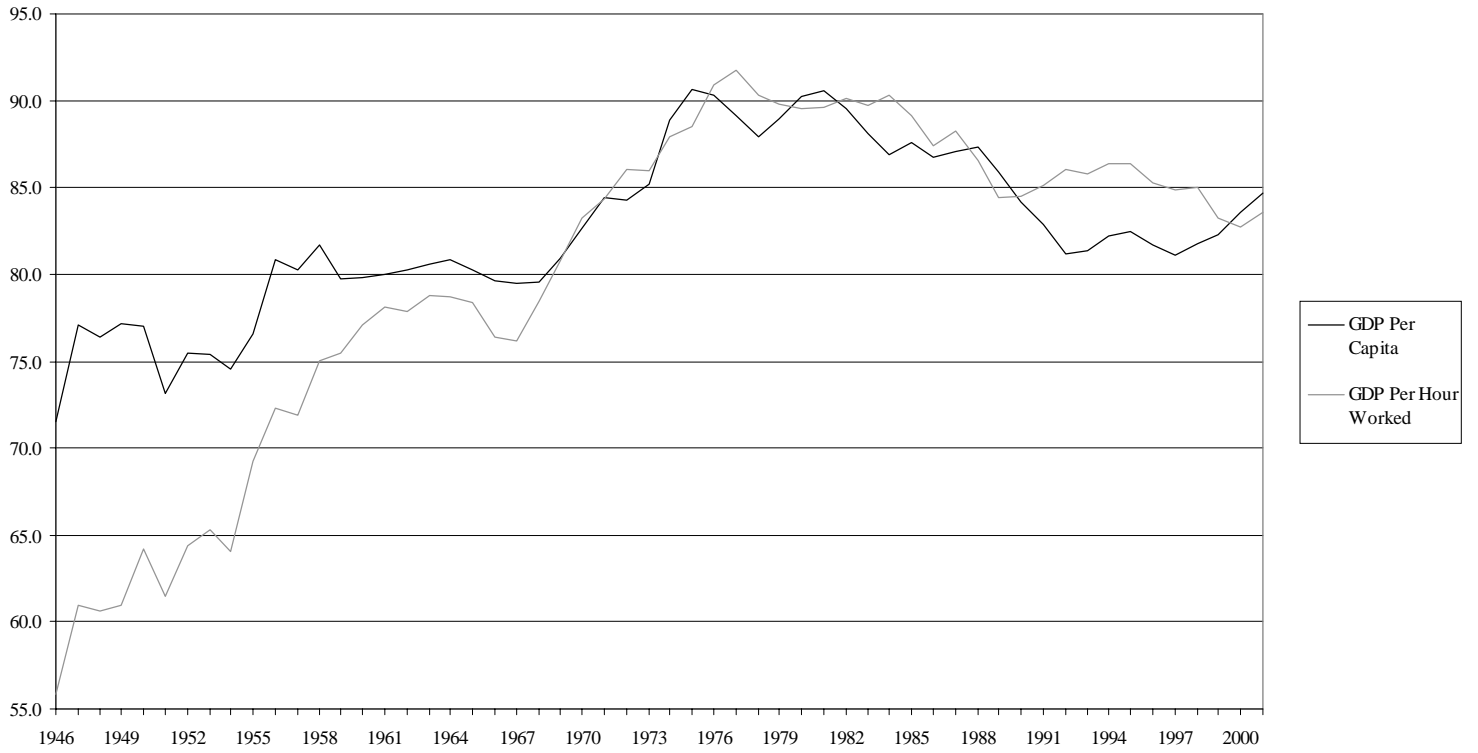
Source: Tables 2 and 3.

**Chart 2: Real GDP per Hour Worked in Canada and the United States
(Average annual rate of change)**



Source: Table 14.

Chart 3: Trends in the Canada-US GDP Per Capita and GDP Per Hour Worked Gaps, 1946-2001

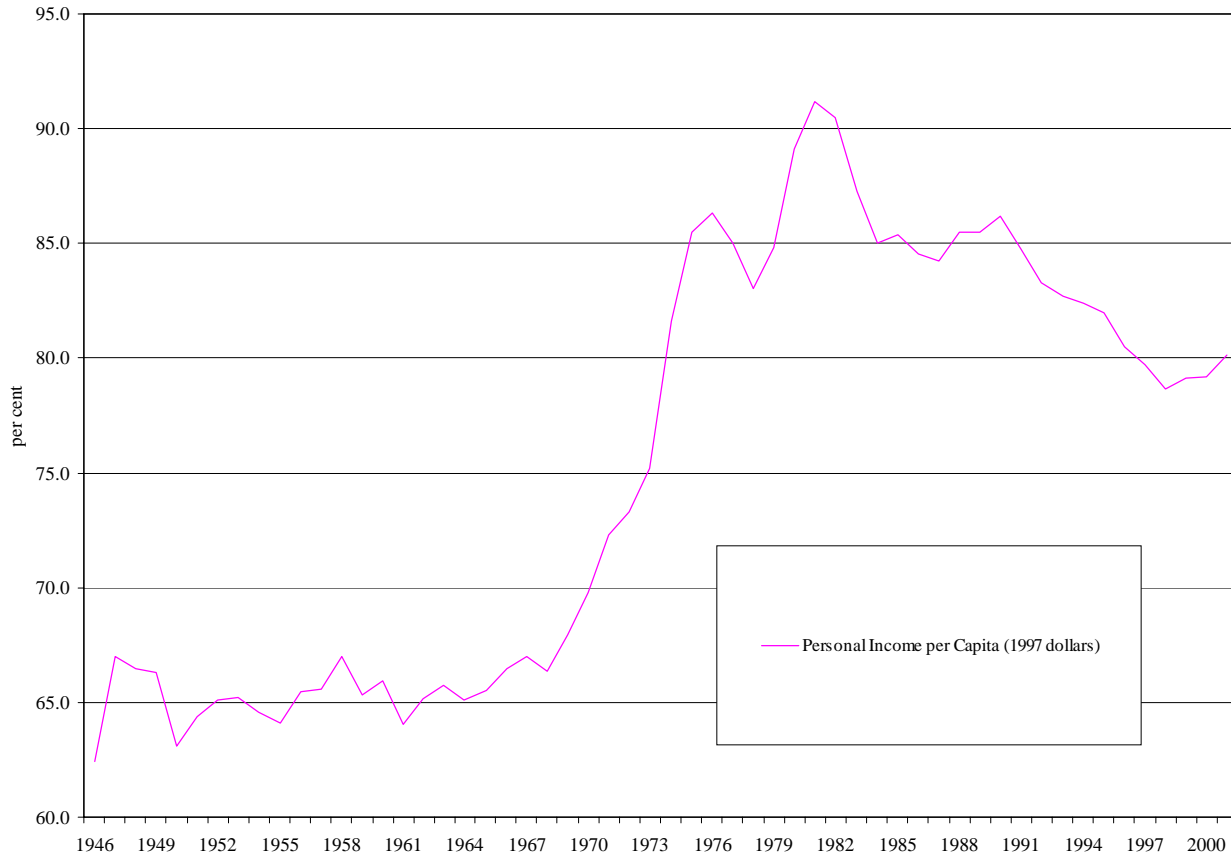


: Tables 1 and 11.

Chart 4: GDP per Capita Levels, Canada as a Percentage of the United States, 1946-2001

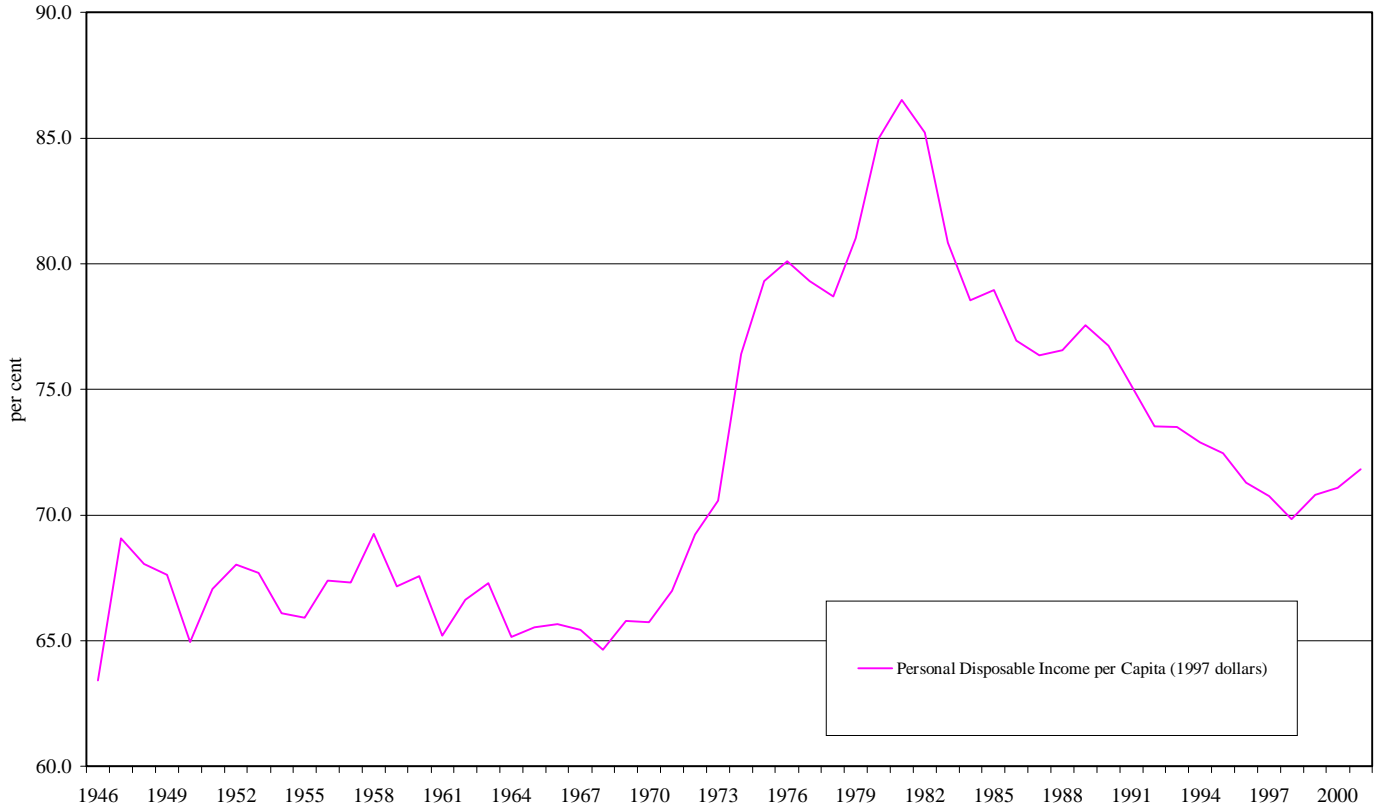
Source: Table 1 and 3A

Chart 5: Personal Income per Capital Levels, Canada as a Percentage of the United States, 1946-2001



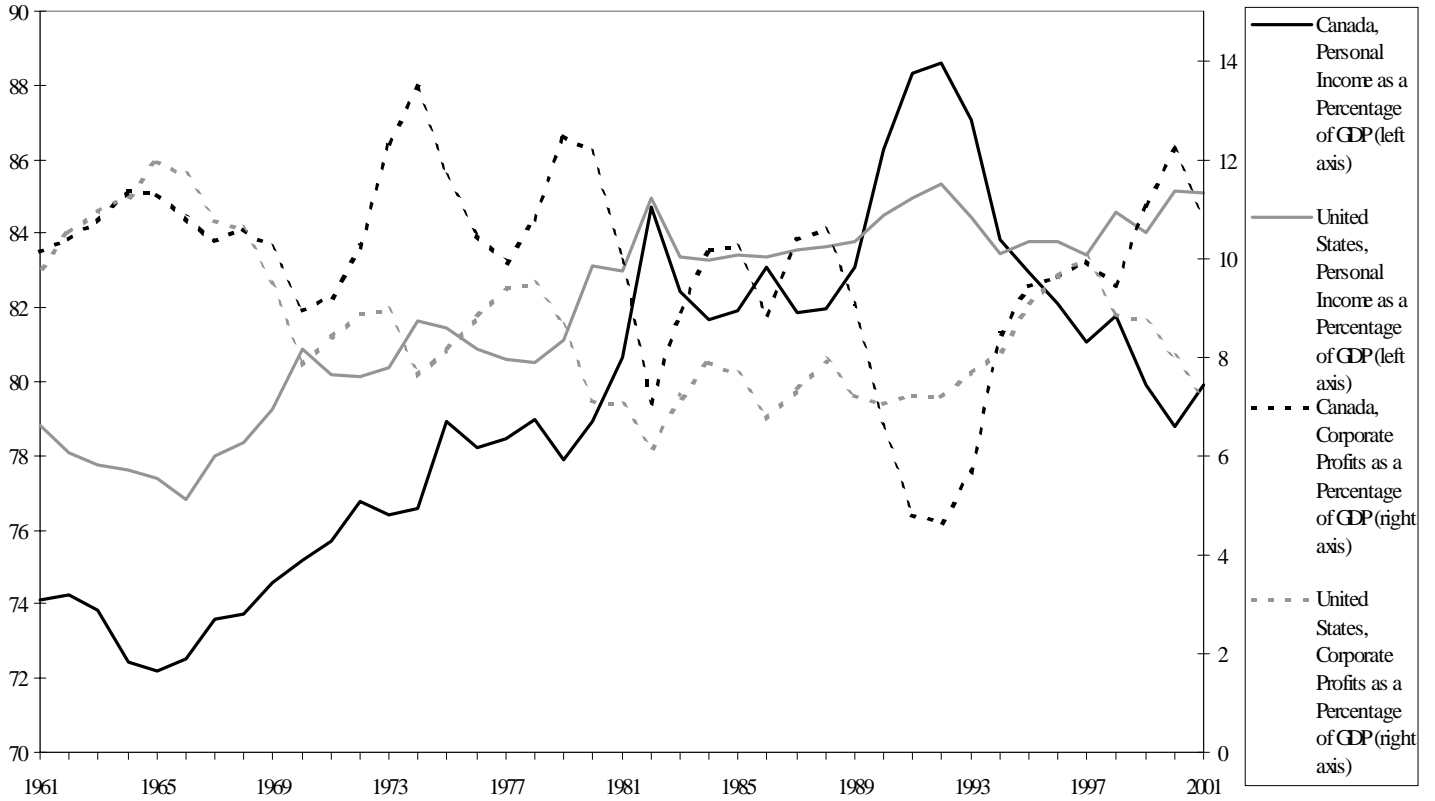
Source: Table 1 and 3A

Chart 6: Personal Disposable Income per Capita Levels, Canada as a Percentage of the United States, 1946-2001



Source: Table 1 and 3A

Appendix Chart 1: Personal Income and Corporate Profits as Percentages of GDP, Canada and the United States, 1961-2001



Source: US data from the BEA, NIPA Tables, August 7 2002. Data for Canada from CANSIM II, July 16 2002.