

5. Has economic well-being improved in Canada and the United States?

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INTRODUCTION

By standard measures of economic well-being, the year 2000 was the best yet in North America. Inflation and unemployment were both down, while gross domestic product (GDP) per capita was up. Although Canadians were a bit unhappy because growth was much stronger in the United States than in Canada in the early 1990s, the 30 years from 1970 to 2000 saw substantial growth in GDP in both countries. Admittedly, both the US and Canadian economies experienced sharp recessions in the early 1980s, but over the entire period between 1970 and 1990, they both grew by about the same amount (per capita real GDP was up 56.6 per cent in Canada and 53.8 per cent in the United States). In the early 1990s, both countries went into recession, but a growth-oriented monetary policy in the United States produced rapid recovery and enabled GDP per capita to grow by a further 24.8 per cent from 1990 to 2000. Because the Bank of Canada was willing to sacrifice growth for inflation aversion, it took until 1995 for Canadian GDP per capita to recover to its level of 1989 – by which time US GDP was 7.6 per cent above its 1989 level. Since then Canadian growth in per capita GDP has been comparable to US growth, but much of the early 1990s gap remained. Still, in both countries GDP per capita was, in the year 2000, at historic highs. So what? Does growth in GDP per capita imply greater economic well-being?

In 1980 Ronald Reagan asked the American people a seemingly simple question: 'Are you better off today than you were four years ago?'. Although US real GDP per capita, was, in 1980, 8.8 per cent higher than in 1976, his audiences answered 'No!'. In 1998, when Canadians were asked how the overall financial situation of their generation compared to that of their parents at the same stage of life, less than half (44 per cent) thought that there had been an improvement – despite an increase of approximately 60 per cent in real GDP per capita over the previous 25 years.¹ Evidently, national income accounting

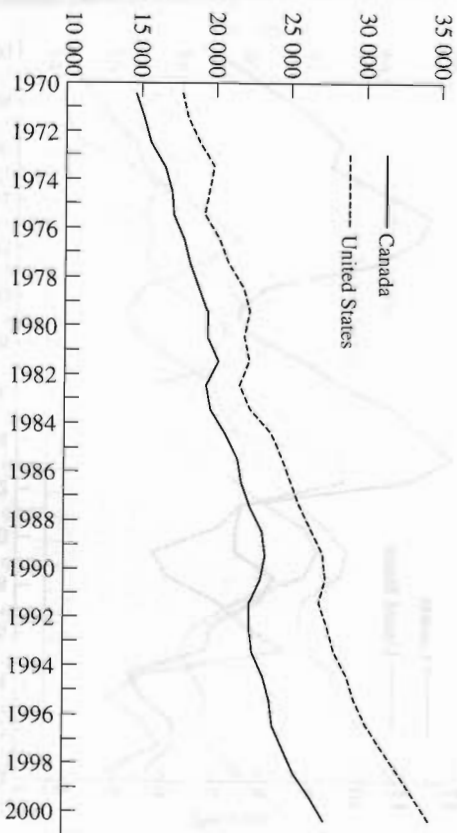
measures may not necessarily be a good guide to popular perceptions of trends in economic well-being.

Are such popular perceptions unreasonable? National income accounts omit consideration of many issues (for example, leisure time, the length of life) that are clearly important to the well-being of individuals. For many years, the System of National Accounts (SNA) has been the accounting framework within which most discussions of trends in economic well-being have been conducted, and GDP per capita has been an often used summary measure of economic trends.² The compilers of the national accounts have often protested that their attempt to measure the aggregate value of marketed economic output was never intended as a full measure of economic well-being, but it has often been used as such.

Although GDP per capita has many deficiencies as a measure of economic well-being, it is at least a quantity of output measure. Trends in the unemployment rate and hourly wages are also often used to indicate economic performance, but the hourly wage rate is a price (the price of labor), from which individuals derive no direct utility. The unemployment rate measures utilization of an input in the production process. Their widespread use as evaluative criteria cannot be because they indicate directly the utility that individuals enjoy, but because they are indirect indicators of something else, like potential consumption or insecurity.

Summarizing the economic well-being of a complex society inevitably requires a series of ethical and statistical judgments. There are many different dimensions to well-being, which are valued to different degrees by different observers. With a single index number, it may be difficult to disentangle the relative importance of value judgments and technical measurement choices in the construction of the index. Osberg (1985a), therefore, proposed that an index of economic well-being should be based on indices of consumption, accumulation, inequality, and insecurity.³ This basic framework is consistent with a variety of theoretical perspectives. We, therefore, avoid a specific, formal model.⁴

This chapter is divided into three main sections. First, we present evidence on trends in standard measures, such as GDP per capita and the unemployment rate. Second, we develop estimates of the four key components or dimensions of the index of economic well-being – consumption flows, stocks of wealth, inequality, and insecurity; and develop preliminary estimates of the overall index and its components for the United States and Canada. Third, we discuss the ‘productivity’ of GDP growth for trends in economic well-being.



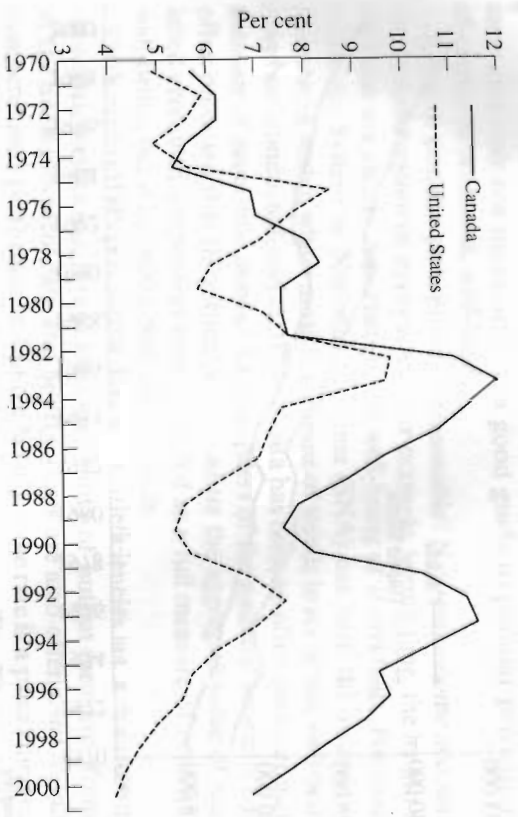
Sources: Canada: GDP: 1981–2000, CANSIM II 380-0002; 1970–1980, CANSIM D15721. Price deflator: CANSIM D15689. Population: CANSIM P200000. United States: GDP & price deflator: Bureau of Economic Analysis (see: <http://www.bea.doc.gov/bea/dn/gdplev.htm>). Population: *Economic Report of the President*, 2000. PPPs: 1997 GDP PPP exchange rate estimate 0.83 US\$/CAN, from Statistics Canada, CANSIM II, v647808, August 2001.

Figure 5.1 Real GDP per capita, 1970–2000 (1997 US dollars at purchasing power parity)

RECENT TRENDS IN CONVENTIONAL ECONOMIC AND LABOR MARKET VARIABLES

GDP Per Capita

Figure 5.1 presents the trend in real GDP per capita in Canada and the United States since 1970. Three slowdowns in growth can be discerned. In 1974–75 the United States experienced a more severe recession than Canada, but in 1981–82 the recession was sharper in Canada. In 1988, Canadian monetary authorities embarked on the pursuit of ‘price stability’, and ensuring high interest rates meant that Canada led the United States into the recession of 1990–91, and produced a considerable lag in emerging from that recession. Nevertheless, by 2000 both countries had realized impressive gains in the level of real GDP per capita and both were growing strongly – and both experienced a considerable growth slowdown in 2001.



Sources: Canada: *Labour Force Historical Review 2000* and CANSIM D44950. United States: *Economic Report of the President, 2000*, and US Bureau of Labor Statistics.

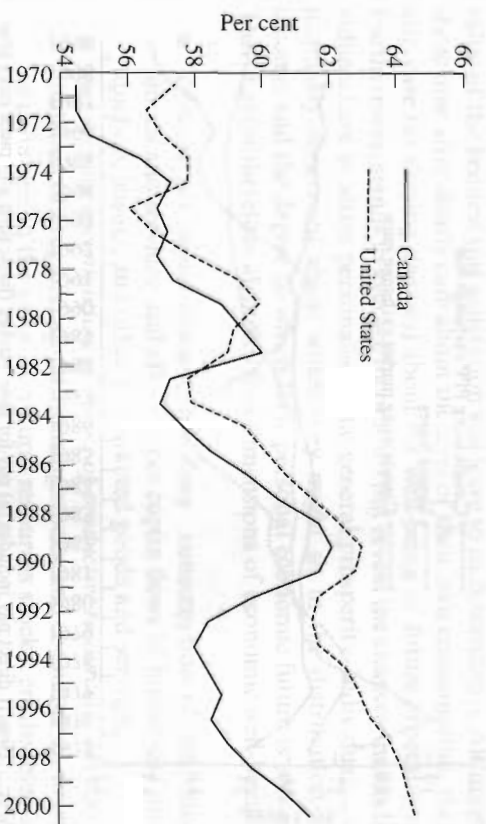
Figure 5.2 Unemployment rates in Canada and the United States, 1970-2000

Unemployment and Employment

Figure 5.2 presents long-term trends in the official unemployment rate in Canada and the United States.⁵ As Riddell (1999) has documented, the divergence between Canadian and US unemployment rates in the 1980s can primarily be ascribed to the supply side: in Canada the labor force participation rate increased faster than in the United States. In the 1990s, however, the main event has been strong growth of aggregate demand and jobs in the United States, but a very delayed recovery in Canada. Figure 5.3 presents the employment/population ratio for the two countries. The recessions of the early 1980s and 1990s can easily be identified – and the difference in the recovery paths can also clearly be observed – as Canadian monetary policy in the 1990s remained subservient to the objective of ‘price stability’ (officially defined as a rate of core inflation in the range of 1 to 3 per cent, with the actual objective below the mid-point of the target band and average annual CPI inflation from 1994 to 2000 at 1.5 per cent).

Trends in Average Hourly Real Wages

Figure 5.4 presents average direct hourly real wages for production workers in Canada and the United States. For many workers, and for many years,



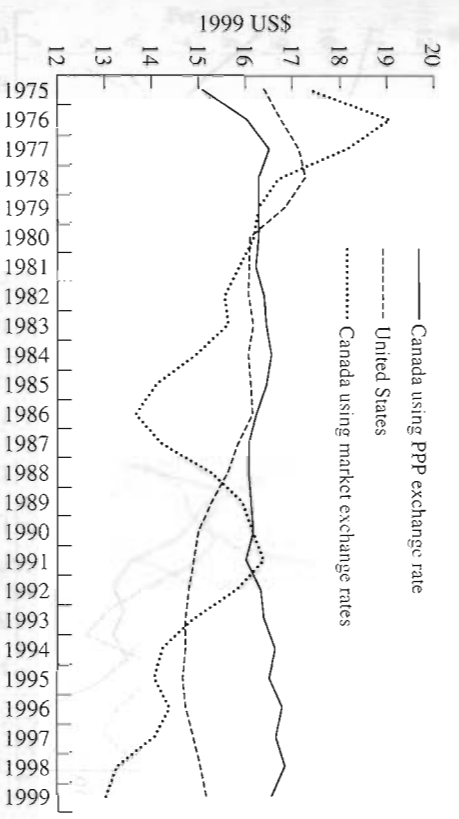
Sources: Canada: *Labour Force Historical Review 2000*. United States: *Economic Report of the President, 2000*, and US Bureau of Labor Statistics.

Figure 5.3 Employment/population ratio for Canada and the United States, 1970-2000

hourly real wages have been fairly flat in North America. Although there has been substantial growth in incomes at the top end of the income distribution (which has pulled up the average income of the population as a whole), the middle part of the income distribution has seen little progress (Osberg 1999). Figure 5.4 also illustrates the fact that Canadian and American production workers have, if jobs are available, similar earning possibilities. However, the difference between expressing Canadian wages in purchasing power parity (PPP)-adjusted US dollars, or converting at the current exchange rate, also illustrates the competitive advantage that Canadian firms obtain when the Canadian dollar is undervalued relative to its estimated PPP value.

So What Does All This Have To Do With Economic Well-being?

Economists often start by assuming that individuals derive utility from consumption and from leisure. But GDP per capita includes many items (such as exports or investment) that are not part of consumption, while it excludes completely any leisure enjoyed by individuals. The employment rate measures labor supply, which is often thought of by economists as a cost that people incur in order to enable consumption – it is not clear why



Note: Hourly direct pay includes (a) pay for time worked (basic time and piece rates plus overtime premiums, shift differentials, other premiums and bonuses paid regularly each pay period, and cost-of-living adjustments) and (b) other direct pay (pay for time not worked (vacations, holidays, and other leave, except sick leave), seasonal or irregular bonuses and other special payments, selected social allowances, and the cost of payments in kind), before payroll deductions of any kind. Direct pay is also measured on an hours-worked basis for every country.

Source: US Bureau of Labor Statistics (<http://ftp.bls.gov/pub/special.requests/ForeignLabor/supplab.txt>).

Figure 5.4 Hourly direct pay for production workers in manufacturing, Canada and the United States, 1975–1999 (1999 US dollars)

working more is, by itself, a ‘good thing’. The wage rate is useful as an indicator of the price of labor (that is, the rate at which people trade time for goods), but it is not inherently a source of utility. None of the above measures really corresponds to anything that individuals would actually want. The difference between trends in average hourly real wages for production workers (in PPP terms, fairly flat in both countries, but somewhat higher in Canada by 1999) and trends in GDP per capita (up strongly, but more so in the United States) is a clue to the fact that indicators of economic performance may disagree. But saying that these indicators are unsatisfactory is one thing; can a better measure of economic well-being be constructed?

AN INDEX OF ECONOMIC WELL-BEING

GDP is a measure of the aggregate marketed income of a society, however ‘income’ is a flow variable that does not directly consider the aggregate

value of the bequest this generation will leave to its descendants. Although those now alive clearly care about the level of their own consumption, they also care (in varying degrees) about the well-being of future generations. Furthermore, trends in average income do not reveal the chances that individuals have to share personally in the general prosperity. Individuals are justifiably concerned about where they might sit in the distribution of income, and the degree to which their personal economic future is secure. This chapter therefore identifies four dimensions of economic well-being:

- *effective per capita consumption flows* consumption of marketed goods and services; and effective per capita flows of household production, leisure, and other unmarketed goods and services;
- *net societal accumulation of stocks of productive resources* net accumulation of tangible capital, housing stocks, and consumer durables; net changes in the value of natural resources stocks; environmental costs, net change in level of foreign indebtedness; accumulation of human capital; and research and development (R&D) investment;
- *distribution* the intensity of poverty (incidence and depth) and the inequality of income; and
- *economic security* economic security from job loss and unemployment, illness, family breakup, poverty in old age.

A fuller discussion of the rationale for this framework of consumption, accumulation, distribution, and insecurity can be found in Osberg (1985a). We distinguish these four main dimensions of economic well-being to enable persons with differing value judgments (for example, a greater or lesser preference for intergenerational bequest, or for the reduction of poverty, compared to increases in average consumption) to account explicitly for those values. Each dimension of economic well-being is itself an aggregation of many underlying trends, on which the existing literature is sometimes spotty.⁶

We recognize that the SNA has, thanks to many years of development effort by international agencies, produced an accounting system for GDP that is rigorously standardized across countries. Internationally comparable statistics on other dimensions of economic well-being are far less complete. However, using GDP per capita as a measure of well-being would implicitly: (i) assume that the aggregate share of income devoted to accumulation (including the value of unpriced environmental assets) is automatically optimal, and (ii) set the weight of income distribution or economic insecurity to zero, by ignoring their influence entirely. Neither assumption seems justifiable.

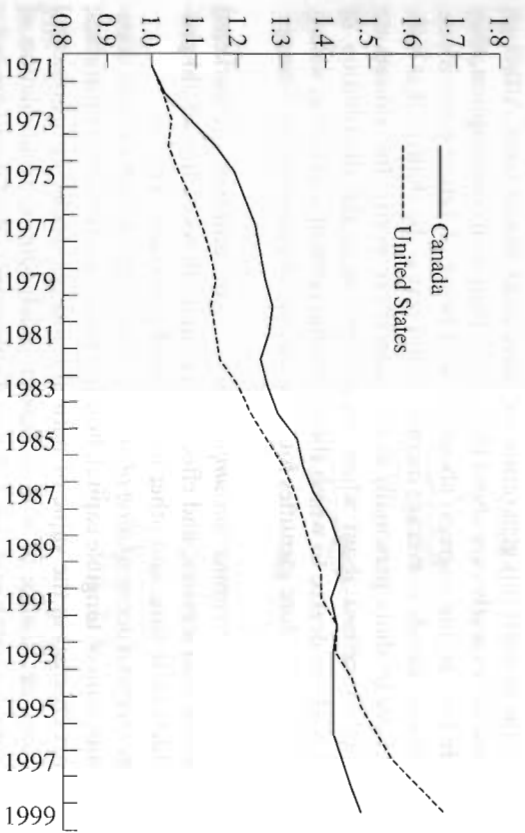


Figure 5.5 Trends in per capita consumption in the United States and Canada

Average Consumption Flows

Current consumption is certainly an important component of economic well-being, but a better measure than GDP per capita is required. The objective of this subsection is to outline our methodology for calculating average effective consumption in order to show specifically how GDP can be improved on as a measure of economic well-being. Figure 5.5 presents our final calculation of trends.

The starting point is aggregate real personal consumption per capita in constant prices.⁷ The SNA provides a strong basis for estimating the consumption of marketed goods and the cost of providing government services, and there have been enough studies of the value of household production to enable some confidence as to the range of reasonable values.⁸ Estimates are more imprecise when one considers the value of a number of other factors that also influence consumption flows, such as leisure, regrettables, the underground economy⁹ and life expectancy. At this stage in the development of the index of economic well-being, our preference (wherever possible) is to include, rather than exclude. Since omitting a variable would implicitly set its value to zero, an imprecise measure is likely to embody a smaller error than omitting a variable. However, when there is no estimate available at all, omission is unavoidable.

Life expectancy has increased significantly in recent years in North

America, and we have every reason to believe that having a long life is an important component of well-being. The economic value of these extra years of life should be included in the total consumption flows of individuals, since presumably people care about both how much they consume per year, and how many years they get to consume it.¹⁰ For this chapter, we adopt the simple expedient of considering an increase in consumption per year and consumption for an increased number of years to be equivalent; that is, we add to consumption flows in each year the percentage increase in average life expectancy.¹¹ However, we do recognize the crudity of this measure of an existential issue. Between 1971 and 1999, Canadians enjoyed an 8.1 per cent increase in life expectancy while Americans experienced an 8.0 per cent rise. Personal consumption per capita is adjusted upward by the percentage increase in life expectancy relative to base.¹²

When individuals cohabit in households, they benefit from economies of scale in household consumption. There is a large literature on the estimation of 'equivalence scales', which attempt to account for the magnitude of such economies of scale in households of different sizes.¹³ When comparing the average effective consumption of individuals over time, the implication is that as households have shrunk in average size, economies of scale have been lost. Trends in average per capita consumption should, therefore, be adjusted for the average loss over time of economies of scale in household consumption.¹⁴ All Western countries have experienced a long-term decline since the 1970s in average family size; in the United States, the decline was 10.9 per cent, from 3.57 in 1971 to 3.18 in 1999. The 'LIS' (Luxembourg Income Study) equivalence scale (that is, the square root of family size) has been applied to average family income to construct an index of equivalent family income (1971 = 100), which is used to adjust personal consumption per capita.

Some of the economic activity included in GDP does not contribute to economic welfare, but rather measures defensive expenditures – or intermediate inputs – that individuals make in order to be able to produce or consume. The costs households pay in order to commute to work are considered in the GDP to be part of household consumption, but the expenses which firms incur to bring materials to the work site are seen as an intermediate input in production. Since intermediate inputs in the business sector are netted out in the calculation of value added, we argue that similar expenditures by households should be subtracted from marketed consumption to obtain a better estimate of true consumption flows. Similarly, if the good that individuals want to consume is 'a crime-free street', but it now takes a greater expenditure on police services to produce that good, an increase in police expenditure that only serves to maintain the crime rate unchanged should not be counted as an increase in (public

sector) consumption. This chapter uses the estimates of costs of commuting, crime, house pollution abatement, and auto accidents constructed by Anielski and Rowe (1999) and subtracts these from the value of current consumption.

A major defect of GDP as a measure of well-being is that because it counts only market income, it effectively assigns a zero value to leisure time. Among OECD countries there are major differences in both the initial level and trends over time in the average annual number of hours worked. Therefore, we standardize for changes in hours of paid work relative to the average annual hours worked per adult of working age in the United States in 1971. Unlike the measure of economic welfare developed by Nordhaus and Tobin (1972), no attempt is made here to define leisure activities, estimate the amount of leisure enjoyed, and place a value on this total leisure time. We avoid placing a monetary value on inframarginal hours of leisure, which might be highly problematic. Rather, we adjust the value of consumption for differences in paid hours relative to a benchmark, namely, the United States in 1971. When average annual hours worked is less than the benchmark we make a positive adjustment to consumption and a negative adjustment when there is more working time than the benchmark.

Our methodology is equivalent to saying that at the margin, individuals ascribe a value equal to the after-tax average wage to changes in nonworking time that are not due to unemployment fluctuations. Estimates of relative working time per person employed are adjusted for the employment/working-age population ratio to provide estimates of relative nonworking time on a working-age population (15–64) basis to account for differences in employment/population ratios. These estimates are then valued at the after-tax¹⁵ wage rate to provide estimates of the value of relative nonworking time per working-age person, adjusted by the working-age population/total population ratio to control for differences in demographic structure. This amount, expressed in constant prices, is then added to consumption flows to produce a working-time-adjusted estimate of consumption relative to the US benchmark.

However, unemployment does not constitute leisure. Many authors have noted that there are psychological costs to unemployment (for example, Clark and Oswald 1994). We cannot, in this chapter, provide estimates of the negative utility of unemployment time, or any partial value of such time. However, in the imputations for the value of nonworking time, we deduct hours of unemployment,¹⁶ that is, assign such hours zero value.¹⁷ To account for involuntary leisure we subtract average annual hours of unemployment per working-age person from the relative nonworking time estimate.

By 1999, working hours per adult (15–64) in the United States were 141

hours above their 1971 level, but only up 54 hours in Canada. Since 141 hours is equivalent to around 2.7 hours per week, this represents a substantial change in well-being that should be reflected in a reasonable measure of economic progress. However, since leisure hours receive zero valuation in GDP accounting, these changes do not show up in GDP per capita.

The provision of nonmarketed or heavily subsidized services by the government is also part of the flow of effective consumption. Current expenditure data (for all levels of government including defense and capital consumption allowances, but excluding debt service charges and transfer payments) are taken from the national accounts, expressed in constant prices. The importance of government final consumption expenditures relative to personal adjusted consumption in 1999 was 19.9 per cent in the United States, lower than in Canada (29.3 per cent).

The components of per capita consumption flows (adjusted personal consumption, government consumption, the cost of regrettables, and the imputation for nonworking time) are summed to total consumption flows adjusted for hours worked.

Accumulation, Sustainability, and the Intergenerational Bequest

If individuals alive today care about the well-being of future generations, measurement of trends in current well-being should include consideration of changes in the well-being of generations yet unborn. This consideration of future generations can also be justified on the grounds that a concept of 'society' should include both present and future generations. Either way, wealth accumulation by this generation will increase the bequest left to future generations, and is an important component of well-being.¹⁸

Figure 5.6 provides our estimates of trends in the accumulation of productive assets. We emphasize that this component of economic well-being consists of those stocks of real productive assets that can generate real income for future generations, not the financial instruments that will determine the allocation of the returns from those assets. As Osberg (1998a) discusses in more depth, financial 'generational accounting' techniques focus on the distributional impact of government debt; in this subsection we are concerned with the real accumulation of productive assets that will generate the income flows that are allocated by financial claims. It is the stocks of 'wealth' left to the next generation, broadly conceived to include environmental and human resources as well as physical capital stock, that will determine whether a society is on a long-run sustainable trajectory of aggregate consumption, irrespective of the distribution of those consumption flows at the individual level.

The physical capital stock includes residential and nonresidential

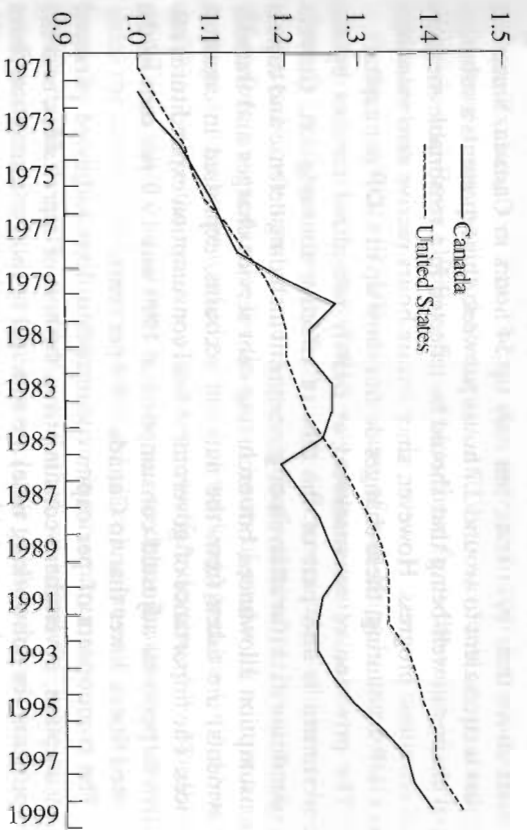


Figure 5.6 Trends in per capita wealth accumulation in the United States and Canada

structures, machinery, and equipment in both the business and the government sector. The greater the capital stock, the greater is the future productive capacity and future potential consumption flows and economic well-being. The capital stock data are based on the perpetual inventory method where investment flows are accumulated over time, with depreciation rates applied to the different assets. Data for the current net fixed capital stock, expressed in constant prices of national currency units, have been taken from national sources. It is assumed that their growth rates are internationally comparable, although the use of different depreciation rates by statistical agencies may reduce comparability for both level and rate of growth comparisons.¹⁹ Between 1971 and 1999, the increase in the fixed capital stock, on a per capita basis, was higher in Canada (71.0 per cent) than in the United States (62.6 per cent).

Closely related to the physical capital stock is the concept of the R&D capital stock. In an era of rapid technological change, expenditure on R&D is a crucial ingredient in the ability of society to innovate and create wealth. Statistical agencies do not produce R&D stock data, but OECD data on annual flows of total business enterprise expenditure on research and development can be accumulated into a stock of R&D capital valued at cost of investment; a depreciation rate of 20 per cent on the declining balance is assumed.²⁰

Current consumption levels could be increased by running down stocks

of nonrenewable natural resources or by exploiting renewable resources in a non-sustainable manner, but this would be at the cost of the consumption of future generations. A key aspect of the wealth accumulation is net changes in the value of natural resources (which depends on both changes in resource prices and the estimated stocks of resources). From an intergenerational perspective, it is the value of the natural resources, not their physical extent, which counts. The valuation of these resources poses serious conceptual problems.²¹ Statistics Canada (1997) has provided estimates for both physical and value estimates of natural resources such as forests, energy reserves, and minerals and the Bureau of Economic Analysis (*Survey of Current Business*, April 1994) has provided estimates for oil and gas, coal, metals, and other minerals. These were used in the construction of the index of economic well-being for Canada and the United States (Osberg and Sharpe 1998, 1999).

The human capital accumulated by the workforce generates both current and future income. Trends in the stock of human capital, including both formal educational attainment levels and on-the-job training, are important determinants of current and future economic well-being. School retention and participation in post-secondary education have increased dramatically in Canada over the last three decades, and there is a strong relationship between educational attainment and individual income.²² This chapter uses an admittedly crude and incomplete (but feasible) input cost method: the cost per year of education expenditures at the primary, secondary, and post-secondary levels. Yearly estimates of the distribution of education attainment in the population were then used to compute the total cash cost of production of human capital in education. Data on the educational attainment of 25–64-year-olds and expenditure per student for the early childhood, primary, secondary, non-university tertiary, and university-level education were used to estimate the per capita stock of human capital. In order to clearly distinguish intercountry differences in the quantity of education obtained, as opposed to differences in its cost of production, we apply a common cost base (the cost of education in the United States) to both countries.

We do not count the gross level of government or corporate debt as a 'burden' on future generations, and we do not count as part of the intergenerational bequest the value of paper gains in the stock market. In general, financial instruments represent both assets to their holders and liabilities to their issuers. The distribution of such assets/liabilities will play a major role in allocating the real returns to the future capital stock, but the issue at this point is the aggregate value of the real intergenerational bequest.

However, net debt to foreigners is another issue. Since interest payments on the net foreign indebtedness of citizens of one country to residents of

other countries will lower the aggregate future consumption options of those citizens, increases in the level of foreign indebtedness reduce economic well-being within a given country. Estimates of the net investment position are from national sources and are deflated by the GDP deflator and adjusted for population to obtain real per capita estimates in the net international investment position.

Like the excess depletion of natural resources, current consumption can be increased at the expense of the degradation of the environment, reducing the economic well-being of future generations. Consequently, changes in the level of air and water pollution should be considered an important aspect of wealth accumulation. Countries pass on from generation to generation both a natural and a man-made national heritage. If this heritage were damaged, the economic well-being of future generations would be reduced. Since it is very difficult, if not impossible, to put a monetary value on, for example, the pristine condition of national parks, or historic buildings, there will be no attempt to set an aggregate value to these assets.²³

However, the issue of trends in well-being is the change in such assets, which is easier to measure and for which indicators of environmental quality can be developed. Probably the best-known environmental change is global warming arising from increased emissions of greenhouse gases, the most common of which is carbon dioxide emissions. Fortunately, data are available on these emissions and their estimated costs can be subtracted from the stock of wealth to obtain an environmentally adjusted stock of wealth. The conceptual issues to be dealt with in estimating the costs of CO₂ emissions include whether the costs should be viewed from a global, national or subnational perspective, whether the costs increase linearly with the levels of pollution, whether the costs should be borne by the producer or receptor of transborder emissions, and whether costs should vary from country to country or be assumed the same for all countries. Since global warming affects all countries, we estimate world total costs of emissions and allocate these costs on the basis of a country's share of world GDP. Fankhauser (1995) has estimated the globalized social costs of CO₂ emissions (with no adjustment for different national costs) at US\$20 per ton in 1990. Since world CO₂ emissions in 1997 were 22636 million metric tons this implies a global social cost of \$452720 million. This amount was allocated on the basis of share of real world GDP, expressed in US dollars, then converted into national currency at the PPP exchange rate and divided by population. As these costs represent a loss in the value of the services provided by the environment, they can be considered a deduction from the total stock of wealth of the society. For example, in 1999, per capita stocks of wealth in Canada were reduced by Can\$364 because of the social costs imposed by CO₂ emissions according to this methodology.

As the estimates of the physical capital stock, the R&D capital stock, natural resources, human capital, net foreign debt, and environmental degradation are expressed in value terms, they can be aggregated and presented on a per capita basis. Net foreign debt per capita and the social costs of CO₂ emissions are negative entries and subtracted from the stocks of wealth. For the 1971–99 period, estimates for the six components of the wealth stock are found on the website tables containing the data underlying this chapter. The rate of change for per capita real wealth stocks in national currency at constant prices was 43.7 per cent in the United States, higher than in Canada (39.5 per cent).

Income Distribution: Inequality and Poverty

Would economic well-being in a society in which everyone has an income of \$500 remain the same if income were redistributed so that half the population had \$999 and the other half had \$1? Both societies would have the same average income, but the more equal society is likely to generate more aggregate utility.²⁴ The idea that 'social welfare' depends, in general, on both average income and the inequality of incomes has a long tradition in welfare economics. However, in measuring the level of social welfare, the exact relative weight to be assigned to changes in average incomes, compared to changes in inequality, cannot be specified by economic theory. Since Atkinson (1970), it has been recognized that the measurement of inequality itself depends on the relative value which the observer places on the utility of individuals at different points in the income distribution. For a 'Rawlsian', only changes in the well-being of the least well-off matter, but others will admit some positive weight for the income gains of the nonpoor,²⁵ and will assign some negative weight to inequality among the nonpoor.

Since the economic well-being of the population is affected both by inequality in the distribution of income and by the extent of poverty, there are two issues: (i) the importance of inequality/poverty compared to trends in average income, and (ii) the relative weight to be placed on poverty compared to inequality. We suggest that a compound subindex should place some weight (β) on a measure of inequality in the aggregate distribution of income (summarized here by the Gini coefficient of after-tax household income²⁶) and some weight ($1 - \beta$) on poverty intensity.

In 1999 the Gini coefficient was considerably larger in the United States (0.457) than in Canada (0.403); although poverty intensity was also higher in the United States than in Canada, the differential shrank during the late 1990s (Osberg 2000; Osberg and Xu 2000). The overall index of equality is a weighted average of the indices of poverty intensity for all units or

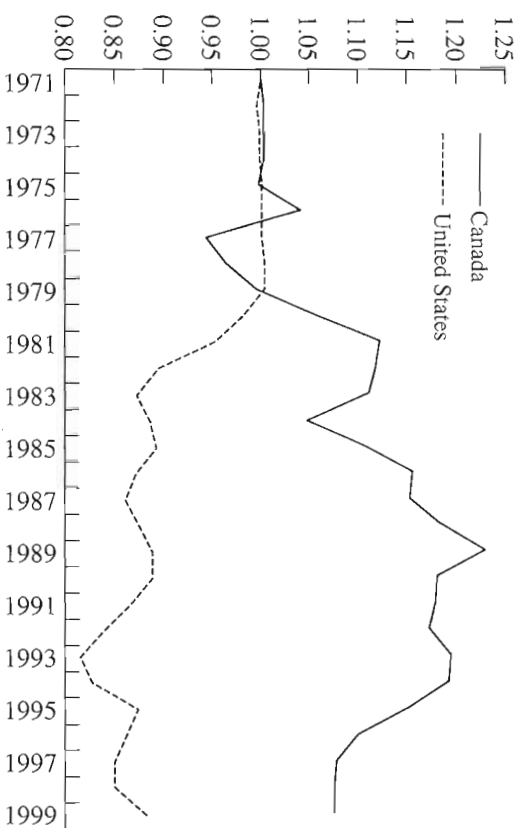


Figure 5.7 Trends in income equality in the United States and Canada

households and the Gini coefficient, with the weights 0.75 and 0.25, respectively. The index is multiplied by -1 in order to reflect the convention that increases are desirable. Figure 5.7 presents the trend in economic equality from 1971 to 1999.

Insecurity

If individuals knew their own economic futures with certainty, their welfare would depend only on their actual incomes over their lifetimes, since there would be no reason to feel anxiety about the future. However, uncertainty about the future will decrease the economic welfare of risk-averse individuals. Individuals can try to avoid risk through social and private insurance, but such mechanisms do not completely eliminate economic anxieties, which have to be considered a subtraction from well-being.

Although public opinion polling can reveal that many feel themselves to be economically insecure, and that such insecurity decreases their subjective state of well-being, the concept of economic insecurity is rarely discussed in academic economics.²⁷ Consequently, there is no generally agreed definition of economic insecurity. Osberg (1998b, p. 23) has argued that economic insecurity is, in a general sense, 'the anxiety produced by a lack of economic safety; that is, by an inability to obtain protection against subjectively significant potential economic losses'. In this sense, individuals' perceptions of insecurity are inherently forward looking, the result of their

expectations of the future and their current economic context, hence only imperfectly captured by measures such as the *ex post* variability of income flows.²⁸ Ideally, one would measure trends in economic security with data that included (for example) the percentage of the population who have credible guarantees of employment continuity and the adequacy of personal savings to support consumption during illness or unemployment. However, such data are not widely available. For these reasons, rather than attempt an overall measure of economic insecurity, this chapter adopts a 'named risks' approach, and addresses the change over time in four key economic risks.

Over 50 years ago, the United Nations' Universal Declaration of Human Rights (Article 25) stated:

Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other loss of livelihood in circumstances beyond his control.

For this chapter, we construct measures of the percentage change over time in the economic risks associated with unemployment, illness, 'widowhood' (or single-female parenthood), and old age. In each case, we model the risk of an economic loss associated with the event as a conditional probability, which can itself be represented as the product of a number of underlying probabilities. We weight the prevalence of the underlying risk by the proportion of the population that it affects. Figure 5.8 presents the results. The core hypothesis underlying the measure of economic insecurity proposed here is that changes in the subjective level of anxiety about a lack of economic safety are proportionate to changes in objective risk.

The economic risk associated with unemployment can be modeled as the product of the risk of unemployment in the population and the extent to which people are protected from the income risks of unemployment. We have taken as a proxy for the risk of unemployment changes in the employment rate (employment/population ratio). Changes in this ratio reflect changes in the unemployment rate and changes in the participation rate (both cyclical and structural). The extent to which people have been protected by unemployment insurance (UI) from the financial impacts of unemployment can be modeled as the product of: (i) the percentage of the unemployed who claim regular UI benefits,²⁹ and (ii) the percentage of average weekly wages replaced by UI.

Viewed from a longer-term perspective, the economic insecurities associated with illness in Canada certainly dropped considerably with the introduction of universal health insurance in 1968–70 (that is, prior to the period

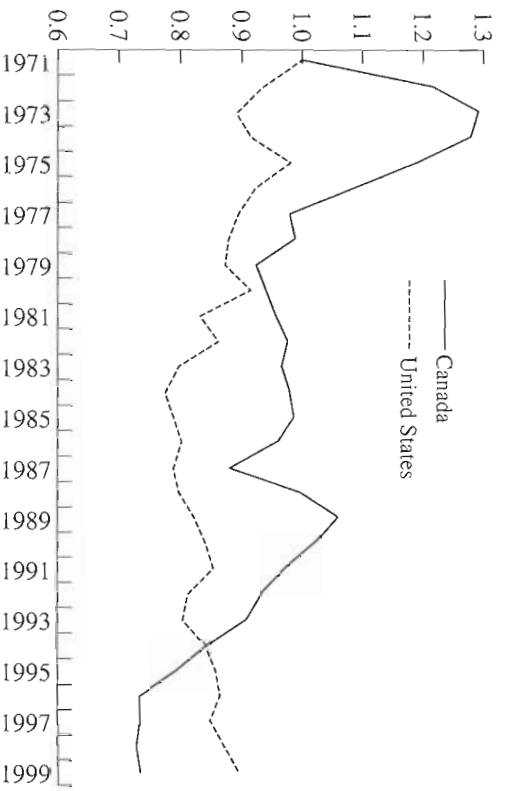


Figure 5.8 Trends in economic security in the United States and Canada

of analysis of this chapter). However, a full estimate of the trend in economic anxieties associated with ill health should also include the risk of loss of earnings. Historically, a portion of the labor force has had some income loss protection through sick-leave provisions in their individual or collective employment contracts. In Canada, self-employment increased substantially in the 1990s and is now roughly twice the US level. One implication of a trend to short-term contract employment and self-employment is an increase in the fraction of the population whose employment income ceases totally in the event of ill health. Data limitations prevent us from modeling such risks. Instead, we focus on the risk of health-care costs and assume that risk is proportional to the share of uninsured private medical-care expenses in disposable income (which has risen in Canada with the increase in uninsured drug costs).

Medical-care expenses as a proportion of disposable income (excluding medical insurance premia and net of insurance reimbursement for medical expenses) were in 1999 much higher in the United States than in Canada. However, to follow the convention that increases in the subcomponents of the index of economic security are improvements, we want an index of 'security' and not an index of 'insecurity', hence we multiply the risk of illness, where increases are negative for economic well-being, by -1 .

When the UN Universal Declaration of Human Rights was drafted in 1948, the percentage of single-parent families was relatively high in many countries, partly as a result of World War II. At that time, 'widowhood'

was the primary way in which women and children lost access to male earnings. Since then, divorce and separation have become the primary origins of single-parent families. However, it remains true that many women and children are 'one man away from poverty', since the prevalence of poverty among single-parent families is extremely high. To model trends in this aspect of economic insecurity, we multiply (the probability of divorce) * (the poverty rate among single-female-parent families)^{30*} (the average poverty gap ratio among single-female-parent families).³¹ The product of these last two variables is proportional to the intensity of poverty.

We stress that in constructing a measure of the economic insecurity associated with single-parent status, we are *not* constructing a measure of the social costs of divorce. Economic well-being is only part of social well-being, and divorce has emotional and social costs (for example, for the involved children) that are not considered here. Arguably, over time the social costs associated with divorce (for example, stigma) have changed, as the institution of marriage itself has changed, but such issues lie well beyond the scope of this chapter. The annual divorce rate in 1999 was 2.05 per cent of legally married couples in the United States but lower in Canada (0.95 per cent). The poverty rate for single-female parents was 45.2 per cent in the United States and 43.0 per cent in Canada in 1997 (the most recent year comparable data for the two countries were available). The average poverty gap ratio for single-female parents was greater in the United States (39.8 per cent) than in Canada (31.2 per cent).

Again, to follow the convention that increases in the subcomponents of the index of economic security are improvements, we want an index of 'security' and not an index of 'insecurity', hence we multiply the risk of single parenthood, where increases are negative for economic well-being, by -1 . A negative sign, therefore, indicates that an increased negative value represents a decline in well-being (and a decreased negative value, an increase in well-being).

Since income in old age is the result of a lifelong series of events and decisions, which we cannot hope to disentangle in this chapter, we model the idea of 'insecurity in old age' as the chance that an elderly person will be poor, and the average depth of that poverty. The poverty rate for the elderly in 1997 was 24.4 per cent in the United States and 5.4 per cent in Canada. The average poverty gap ratio for the elderly was higher in the United States (28.3 per cent), than in Canada (15.8 per cent).

Again, to follow the convention that increases in the subcomponents of the index of economic security are improvements, we want an index of 'security' and not an index of 'insecurity'. Hence we multiply the risk of elderly poverty by -1 .

Overall Index of Economic Security

The four risks discussed above have been aggregated into an index of economic security using as aggregation weights the relative importance of the four groups in the population:

- for unemployment, the proportion of the population aged 15–64 in the total population;
- for illness, the proportion of the population at risk of illness, which is 100 per cent;
- for single-parent poverty, the proportion of the population comprising married women with children under 18; and
- for old-age poverty, the proportion of the population in immediate risk of poverty in old age, defined as the proportion of the population aged 45–64 in the total population.

The above proportions have been normalized for all years to one. For example, the weights for Canada in 1999 were the following: unemployment (0.2784), illness (0.4149), single parenthood (0.2134), and old age (0.0934).³² Implicitly, by expressing changes as proportionate to an initial base, we are assuming that individuals habituate to a given level of background stimulus, but respond similarly to proportionate changes in stimulus.

Based on the above weights, the overall index of economic security for Canada and the United States is shown in Figure 5.8. The decline in economic security in Canada in the 1990s is notable.

ESTIMATES OF TRENDS IN THE OVERALL INDEX OF ECONOMIC WELL-BEING

Weighting of Components

Trends in any index are determined by the choice of variables that are included in the index, the trends in those variables, and the weights these variables receive. Since the four main dimensions of average consumption, intergenerational bequest, inequality/poverty, and insecurity are separately identified, it is easy to conduct sensitivity analyses of the impact on perceived overall trends of different weightings of these dimensions: we think that this is a major advantage of the index. We therefore present two examples: first, a simple average of the four components of well-being that assigns equal weight to each component, and second, a

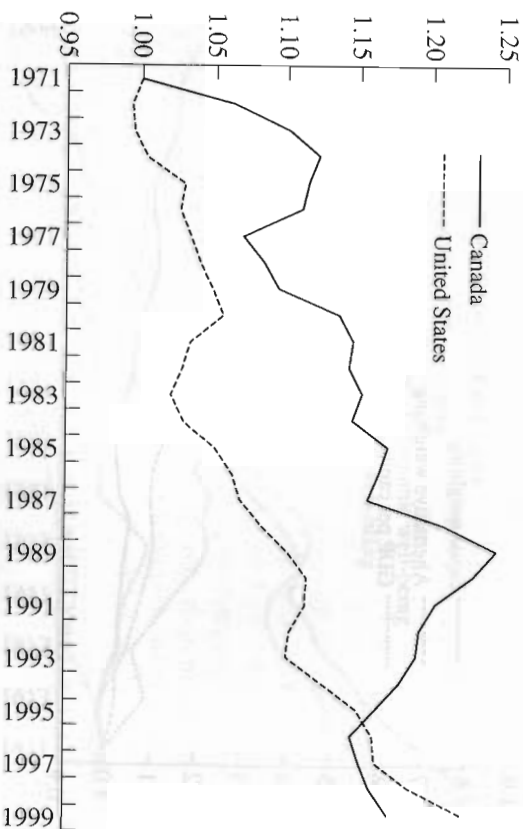


Figure 5.9 Trends in economic well-being in the United States and Canada (equal weighting of consumption, accumulation, distribution, and economic security)

'consumption-oriented' weighting that assigns relatively heavy weight (0.7) to per capita effective consumption and relatively little weight to accumulation (0.1), equality (0.1), and security (0.1).

Trends in the Overall Index of Economic Well-being

Figure 5.9 compares trends in economic well-being in Canada and the United States under the 'equal-weighting' assumption. The contrast between the two countries in the early 1970s, when well-being rose much more strongly in Canada than in the United States, and in the 1990s, when well-being declined in Canada but rose in the United States, is particularly striking. Generally, the more heavily current average consumption is emphasized the closer the index of economic well-being mirrors trends in GDP per capita. Figures 5.10–12 illustrate the point by comparing trends in GDP per capita, the 'consumption-oriented' weighting, and equal weighting, for both the United States and Canada. However, in every instance the consideration of a wider range of issues than those recognized in GDP accounting reduces the measured increase in economic well-being.

In the United States, GDP per capita increased by 84.1 per cent over the 1971 to 1999 period, but our equally weighted index of economic well-being

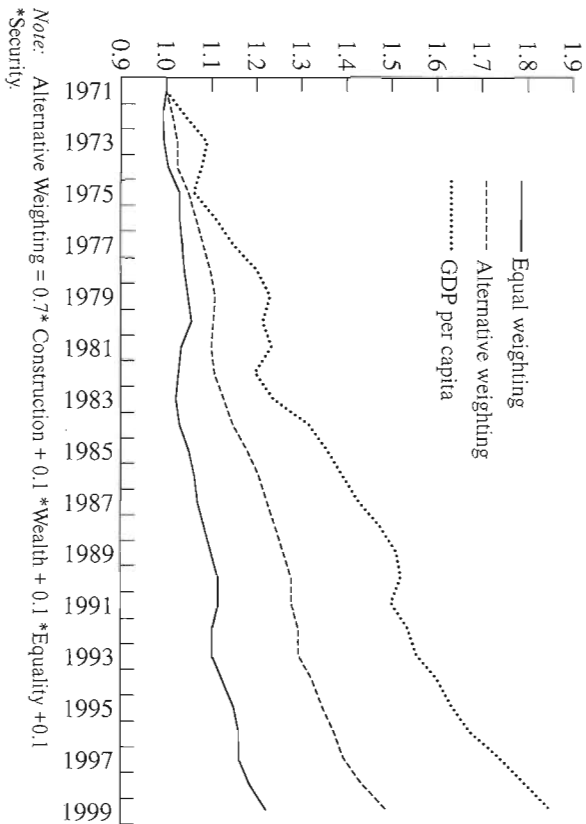


Figure 5.10 Trends in economic well-being in the United States (equal

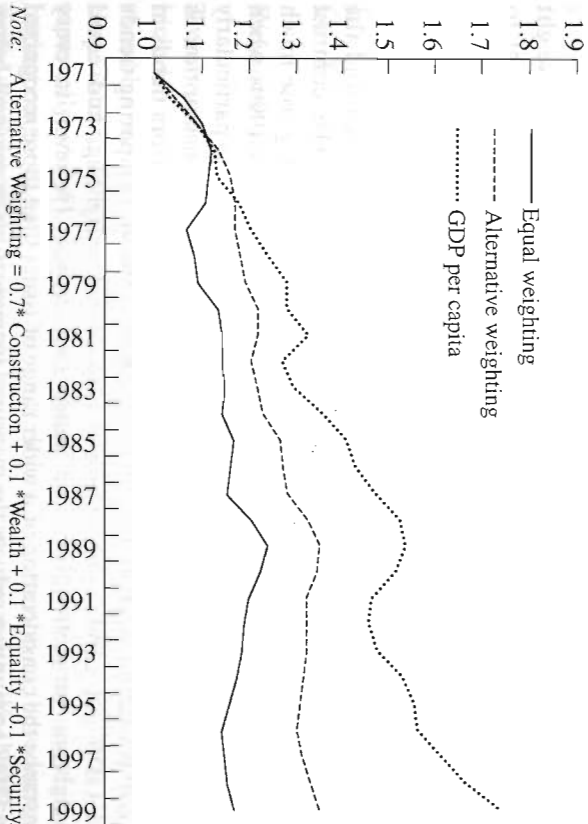


Figure 5.11 Trends in economic well-being in Canada (equal weighting, alternative weighting, and GDP per capita)

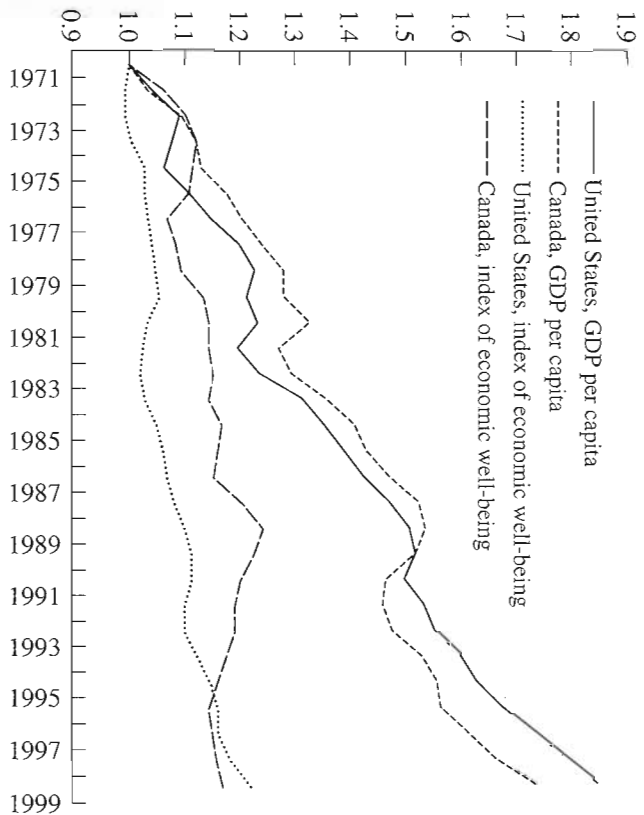


Figure 5.12 Trends in economic well-being (equal weighting) and GDP per capita in the United States and Canada

was up only 21.8 per cent. The United States has been marked by a substantial increase in economic inequality over this period, as seen in Figure 5.7, and increases in money income have been limited to the top end of the income distribution (see Osberg 1999). Increases in money income have also been obtained at the cost of substantial increases in working hours. Hence, this is not an unreasonable finding. In Canada, GDP per capita rose 73.0 per cent between 1971 and 1999, while the index of economic well-being based on an equal weighting scheme advanced only 17.0 per cent. As Figures 5.7 and 5.8 indicate, the 1990s saw a substantial decrease in economic equality and economic security in Canada, with insufficient counterbalancing gains in average consumption and aggregate wealth (see Figures 5.5 and 5.6). The result is shown in Figures 5.9 and 5.11: a decline in overall economic well-being in Canada for much of the 1990s.

Level Comparisons of Economic Well-being

Comparisons of the level of well-being across countries are inherently much more problematic than comparisons of the trends in various components of

economic well-being within countries. In describing trends, one can focus on changes at the margin (such as the *change* in environmental quality) and finesse the valuation of infra-marginal units (such as the total value of environmental amenities enjoyed by Canadians and Americans). In cross-country comparisons, the institutional context of economic data differs to a far greater extent than in within-country, over time comparisons. Calculations of PPP equivalence across several countries have greater uncertainty than comparisons of within-country consumer price levels. Statistical agencies in different countries differ in their data availability and data-gathering practices to a greater degree than they change those practices over time in the same country. For all these reasons, this chapter avoids direct commentary on comparative levels of economic well-being.

CONCLUSION AND IMPLICATIONS

Early economists were fairly broad in their conception of 'prosperity', but were in no doubt that it had many positive implications. More recently, the measure of economic success has been narrower, and it falls to critics of the System of National Accounts to show that alternative measures to GDP per capita are possible, plausible and make some difference. This chapter has, therefore, developed an index of economic well-being based on four dimensions or components of economic well-being – consumption, accumulation, income distribution, and economic security.

In general, a key finding of this chapter is that economic well-being has increased at a much slower rate over the last 30 years than real GDP per capita. Although GDP per capita is a widely used indicator, it is best seen as an *input* into economic well-being. Hence, if 'productivity' is the ratio between 'outputs' and 'inputs', and if the output we want (economic well-being) is growing more slowly than the input we supply (GDP per capita), then in a very real sense social productivity is declining.

Historically, the 'welfare state' of advanced capitalist countries aimed at mitigating the extent of economic insecurity and economic inequality, two key dimensions of economic well-being. Recent years have seen substantial revisions to social policy in both Canada and the United States, and it is precisely the inequality and insecurity dimensions of well-being in which there have been the strongest adverse trends (particularly in Canada). If growth in GDP no longer translates into as great an increase in economic well-being, these recent changes in social policy may well be responsible for this decline in social productivity.

Social policy clearly operates within the context set by macroeconomic policy and by broader social, economic and technological change, and each

particular social policy needs to be evaluated on its own merits. Nevertheless, the general implication of this chapter is that policy design should consider the impacts of economic and social policy on *all* the dimensions of economic well-being – consumption, accumulation, distribution and insecurity.

NOTES

1. We would like to thank Lynn Lethbridge, Dmitry Kabreyan, and Jeremy Smith for their exemplary work on this project and the Social Sciences and Humanities Research Council of Canada for its support to Osberg under Grant 010-97-0802. An earlier version of this chapter was presented at the Conference, 'Labor in a Globalising World: The Challenge for Asia', City University of Hong Kong, Hong Kong, China, 4–6 January, 2001. The underlying data are posted at www.csis.ca under the 'Projects/Index of Economic Well-being'. Comments are welcome. Revised versions will be posted at <http://jis.dal.ca/~osberg/home.html>. This paper also draws on material from Osberg and Sharpe (1998, 1999).
2. For real GDP per capita see CANSIM D14606; for poll details see Angus Reid Globe/CTV poll of July 1998, available at: www.angusreid.com.
3. Keuning (1998) reviews the contributions in Dawson (1996) and Kendrick (1996) and the most recent (UN 1993) revisions to the SNA.
4. We argue for the explicit recognition that the weights attached to each component will vary, depending on the values of different observers. By specifying additive subindices, we are implicitly assuming that preferences for social outcomes are separable into their components (for example, that the weight placed on consumption does not depend on the weight placed on inequality). We do not explicitly constrain the weights to be assigned to each component of well-being, since we think of them as the preferences of different observers. However, some observers may, if they are consistent, have linked preferences. For example, if attitudes about insecurity are driven solely by risk aversion (but see Osberg 1998b), the weight an individual places on inequality, and the weight he/she places on insecurity, will both depend on the second derivative of his/her utility function.
5. However, a sufficient, but not necessary set of conditions for the index of economic well-being that we propose would be that societal economic well-being can be represented as the well-being of a 'representative agent' if: (i) such an agent has a risk-averse utility function (that is, diminishing marginal utility); (ii) from behind a 'veil of ignorance' as to his/her own characteristics, each person draws an individual stream of equivalent income (and prospects of future income) from the actual distribution of income streams; (iii) each person has a utility function in which both personal consumption and bequests to future generations are valued; (iv) individual income streams are exposed to unpredictable future shocks; and (v) capital markets and public policies do not always automatically produce a socially optimal aggregate saving rate.
6. The definition of the unemployment used by Statistics Canada for the official Canadian unemployment rate differs somewhat from that used by the Bureau of Labor Statistics for the US unemployment rate. The BLS now publishes a series for Canada based on US definitions. Adjustments are made to exclude (i) those aged 15 years; (ii) passive job seekers, defined at those whose only job search method is looking at help wanted ads in newspapers; (iii) persons waiting to start a new job who did not seek work in the past three weeks; and (iv) those unavailable for work due to personal or family responsibilities. An adjustment is made to include full-time students looking for full-time work. The passive job seeker adjustment is the most important. The net impact of the adjustments is to lower the annual average Canadian unemployment rate 0.4–1.0 percentage points in the 1990s. See Sorrentino (2000) for further information.

