The Measurement of Economic Well-Being

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Introduction

In 1980 Ronald Reagan asked the American people a seemingly simple question: "Are you better off today than you were four years ago?" Although U.S. per capita disposable real income (i.e., after tax and after inflation) was, in 1980, some 7.6 percent *higher* than in 1976,[1] his audiences answered "No!" Like any politician, Reagan was implying that his government would "do better." The task of a Royal Commission on Economic Prospects is, similarly, to propose economic policies that will make people "better off." However, if increases in per capita disposable real income do not necessarily make people feel "better off," one might well ask: What is it that constitutes "economic well-being"? When is society economically "better off"?

The difficulty is that measuring economic well-being requires us to find a way to "add up" economic and social benefits over different generations of individuals, over different individuals of the same generation and over different years of the same individual's life. A given level of national income may be obtained at the cost of increased poverty and inequality or at the cost of greater economic insecurity. Judgments about whether society is becoming better off thus depend on the weight given to current income relative to the inheritance of future generations and to economic inequality and insecurity among the current generation.

In the first section of this paper I discuss the bequest this generation will make to future generations and argue that there are few grounds for believing that either decentralized private decisions or collective public decisions will automatically produce an optimal inheritance for future generations. We must, therefore, make conscious choices. This generation decides how much it will consume and how much it will leave for the consumption of future generations, but we need some measures of the value of our collective bequest in order to make informed decisions. For some types of assets we can use market prices as a method of valuation, but Canadians have also indicated that there are some assets they wish to put "beyond the market" as a national heritage held in trust by this generation for the benefit of future generations.

Economic events generally produce some winners and some losers, and deciding whether society is better off requires us to weigh the losses of some people against the gains of others. In the second section I argue that this inevitably involves ethical choices and that we ought to be sure that the measure of well-being we adopt has implicit in it a set of values that we are willing to defend. If we follow the old precept of "do unto others as you would have them do unto you," then we will assign greater weight to the progress of the poor than to the advances of the affluent in measuring economic well-being. The crucial issue, on which views differ widely, is how much greater that weight should be.

Some economic policies involve a trade-off for society between income growth and risk. The third section examines the costs of economic insecurity and the adequacy of private capital and insurance markets as methods of insulating individuals from variability in income flows. Because social insurance programs are usually designed to provide less than full coverage of economic losses (in order to preserve incentives to avoid losses), increases in economic insecurity carry real costs to individuals. Measures of economic well-being should, therefore, be adjusted to reflect the uncertainty and variability of individuals' year-to-year flows of real income.

In the fourth section I discuss the measurement of current consumption and the accumulation of wealth. A comprehensive measure of consumption would include the value of both marketed and non-marketed goods and services, the value of leisure and increased longevity, and the benefits of the consumption of public goods. An all-inclusive notion of wealth accumulation would add tangible capital in housing, equipment and structures, investments in training, research and development, and consumer durables, net changes in the value of stocks of natural resources, and some estimate of the costs of any environmental degradation.

The fifth section closes with a discussion of the statistics one might use to measure trends in economic well-being. Since different people will assign different degrees of emphasis to current consumption, to the inheritance of future generations, to inequality and poverty, and to economic insecurity, it is not possible for a single measure of economic well-being to satisfy everybody. However, the debate on economic policy could be improved by the availability of comprehensible data on each of the dimensions of economic well-being. To avoid confusion, in this paper we use the term "utility" to refer to an individual's satisfaction with economic outcomes at a particular time; the term "welfare" to refer to some measure of an individual's total utility over his or her lifetime; and the term "well-being" to mean the total welfare of society as a whole.

The Welfare of Different Generations and the Well-Being of Society

The Welfare of Future Generations

The first question to ask in measuring economic well-being is whose welfare should be considered. Certainly we should consider the welfare of all existing persons in society,[2] but should we consider as well the welfare of generations yet unborn? We clearly care about the sort of world into which our descendants will be born; and our concern is manifested in such public debates as those surrounding nuclear power, or the preservation of natural species, where people concerned about the environment emphasize the irreversibility of the decisions of the current generation. However, if nuclear waste became harmlessly inert in one hundred instead of several thousand years, or if the extinction of a species were a temporary phenomenon of a century or so rather than permanent extinction, anti-nuclear and conservationist groups would have far less support than they now enjoy. Since almost everyone now alive is sure to be dead 100 years from now, our concern about irreversibility can really be explained only in terms of a concern for the welfare of future generations.

Each generation inherits a stock of resources from its ancestors, enjoys a flow of consumption during its lifetime, and bequeaths a stock of wealth to its descendants. Clearly, the current generation derives pleasure from its consumption of goods and services; it is equally clear that the current generation *could* say "après moi, le déluge" and *could* increase its current consumption by running down the capital stock, by exhausting resources, and by disregarding long-run environmental degradation. We do not do this, however, presumably because we do not think we would be better off if we did. This implies that the economic well-being of society depends on more than the consumption of the current generation, and that any measure of economic well-being must place a value on our bequest to future generations.

Optimal Bequest and the Coordination of Savings

If people always saved the optimal[3] amount out of any given income, then it would not be possible to increase economic well-being by transferring resources from the consumption of the current generation to the inheritance of the next. Whenever incomes went up, economic well-being would necessarily also go up. But if savings decisions are not, in aggregate, automatically optimal, then it is possible for economic well-being to be increased by a better allocation of a given national income between savings and consumption. It is possible also for economic well-being to fall, despite a rise in income, if there is, at the same time, a shift to a worse distribution of resources between this and future generations.

The bequest this generation leaves will be composed partly of privately owned assets (e.g., machine tools), partly of publicly owned assets (e.g., roads) and partly of goods that are not owned, in any effective sense, by anyone (e.g., the atmosphere). In part, our concern for future generations is expressed through the purely private transfers we make to our children, both in education in useful skills and in gifts or bequests of private property.

However, even if purely private property were the only sort of asset, decentralized private decisions might well imply that the private savings of this generation would not leave an optimal bequest to the next. For markets to generate an efficient allocation of resources, individuals must respond to prices. For markets to generate an efficient allocation of resources over time, individuals need access to price signals over time. In the real world, however, forward markets, which would provide these signals, are rare and short term.[4] We could have more confidence in the private decisions of, for example, oil producers to save the "correct" amount of oil in the ground for the year 2000 if oil producers and consumers could establish now a forward price for oil in the year 2000. As it stands, future oil prices are highly uncertain because no such forward market exists, and competitive markets may well produce inefficient patterns of resource depletion and capital accumulation over time.[5] In addition, decentralized private decisions may produce outcomes that individuals would themselves regard as inequitable between generations. In providing for my own children's future I know that their incomes will come partly from the wages they earn and the capital I bequeath to them. However, the wages they earn will depend partly on the size of the capital stock of the economy, which depends in turn on the bequest decisions of all parents. If I misjudge what everyone else is going to leave as bequests, the incomes of my children might well differ from what I would consider equitable.[6]

In addition, publicly owned assets, such as roads and hospitals, are accumulated at a rate determined by government decisions. The accumulation of private capital, in machinery and in skills, is also affected by government policy decisions regarding tax incentives to encourage savings, funded or pay-as-you-go pensions, and the financing of research and higher education. Finally, our environmental bequest to future generations is inherently a collective decision, as manifested, for example, in the standards we establish for the long-term disposal of toxic wastes and the policies we adopt to prevent long-term environmental degradation.[7] There is no guarantee that collective decisions will imply an optimal total bequest to future generations any more automatically than decentralized private decisions. Nevertheless, because government, whether by conscious action or unconscious inaction, has so much influence on the accumulation of all types of assets, there is no real alternative to recognizing the implications for capital accumulation of policy decisions.

The Valuation of Intergenerational Transfers

To develop an intelligent policy about the bequest we leave to our descendants, we need a way of measuring that bequest. Economists have generally argued that capital assets should be valued by the discounted present value of the stream of future consumption they generate, but there is some dispute as to the appropriate rate at which to discount future consumption.[8] In a predominantly private enterprise economy, the rate of accumulation of private capital will depend heavily on real interest rates. Higher interest rates will mean less private investment, but if investment projects in the public sector earn a rate of return less than that earned by private sector projects, it would be possible to increase the total productivity of the capital stock by reallocating investment from the public to the private sector. It can therefore be argued that all public investment projects, and environmental benefits over time, should be evaluated with reference to their "social opportunity costs," i.e., the returns of the private sector investment projects displaced by public sector investment. However, the rate of return on private sector projects will typically embody an allowance for the risk of individual projects as well as for the tax that must be paid on future returns from the project. Consequently, using market interest rates to discount future receipts may short-change the future, because society in aggregate would be willing to accept a lower rate of return and invest more for the future than market interest rates would indicate.[9] Society's pure "rate of time preference" (the relative weight society places on future consumption versus present consumption) is, however, difficult to determine empirically.

If we use discounting to evaluate the future, even at a relatively low rate of discount such as 3 per cent, we say that a dollar of cost or benefit that occurs in 40 years' time is equivalent to a current expenditure or receipt of roughly 30.67 cents ($=\$1(1/1.03)^{40}$) while the cost or benefit of a dollar 150 years from now has a present value of roughly 1.18 cents ($=\$1(1/1.03)^{150}$). However, it is one thing to say that I regard the value of a dollar received at age sixty as equivalent to 30 cents received at age twenty; it is another thing entirely to say that a dollar of my great-great-grandchildren's income is "worth" only a penny of my own.[10] For example, if the options for storing hazardous wastes are either burial in containers that corrode after 150 years or permanent disposal at some additional cost, then discounting at 3 per cent would imply that we should choose permanent disposal only if its additional cost is less than 1 per cent of the cost of the damages that will be borne by future generations. Would it be ethical to impose a dollar of such costs on future generations in order to increase our own consumption by a penny?[11] Is society better off if we do so? Environmental legislation would imply that the general answer to this particular question is "no," as environmental legislation typically mandates the permanent disposal of toxic wastes without mention of costs.

A National Heritage?

Discounting over time still requires some method of determining relative values at a point in time, and economists tend to propose market prices as a solution.[12] But when preservationists say that something is a "priceless part of our national heritage," they are saying that they do not believe that its social worth can be estimated, even approximately, by reference to current market prices and that there are some goods for which a concept of social stewardship is appropriate, i.e., goods that should be held in trust by the current generation, to be passed on, intact, to succeeding generations. For most environmentalists, the broad categories that make up our "heritage" would include man-made objects of great beauty or historical significance, renewable resources, and plant and animal species. Some things are agreed by most people to fall clearly into one of these general categories, while others are much more debatable, but the common denominator in the concept of a national heritage is that these are irreplaceable[13] assets that could, under reasonable conditions, produce utility for many generations to come. Natural species such as passenger pigeons or loons can be exterminated, but not regenerated. Historic buildings and great works of art can be destroyed, but cannot thereafter be re-created. There is broad agreement in our society that such destruction should not, in general, occur (as well as a good deal of argument about particular cases).

Forbidding the destruction of a particular asset is, in one sense, equivalent to saying that society does not want to sell it at any likely price. This cannot be said to be "irrational" since individuals, alone or in aggregate, can presumably refuse to sell whatever they don't want to sell. It is irrational, however, to claim that there is no cost attached to such a decision. There is probably *some* cost at which the current generation would be prepared to sacrifice the interests of future generations, but the difficulty lies in knowing at which cost it should do so. In deciding, for example, whether to log a wilderness area or preserve it for future generations, we must weigh the current financial benefits of logging against the value of untouched wilderness to future generations. Since they are as yet unborn, we cannot know how much they will value wilderness recreation or, for those who may not actually go, having the option of participating in wilderness recreation.[14] Survey methods and observed demands have been used to estimate the value the current generation places on such benefits, but the value to future generations, and the value we should attach to their satisfactions, are much more difficult to gauge. In computing the value of this generation's bequest, the concept of heritage can, however, save us a fair amount of effort. If there is broad agreement that some assets (e.g., the Peace Tower?) will always be passed on intact to future generations, then to assess trends in economic well-being we need only examine trends in consumption and the stock of other assets. Like the

family heirloom that has no price because it is never sold, heritage assets pose some of the trickiest problems of valuation; on the other hand, there is no need to compute an explicit price for a good that will never be sold.

The idea of a national heritage of goods that we place "beyond the market" can be extended to social and political institutions as well as to economic goods and services. Canadians are not interested in taking bids on their national independence or their rights of citizenship. Even if a high price could be obtained, these things are not for sale, either now or for future delivery. The idea that our descendants will derive pleasure from rights and freedoms such as the right to vote is, however, only part of the reason why we wish to preserve them. In part we also want to promote cultural continuity, to ensure that in terms of basic values our descendants will be somewhat "like us." The problem, of course, is to distinguish between valid demands for continuity (e.g., maintenance of the right to form a union) and invalid demands for continuity (e.g., traditional pay scales and employment patterns). The notion of a national heritage is open to potential abuse, in that it can be extended to justify preserving "life as we have always known it," but it also has the potential advantage of asking us to specify what we want to maintain from the past.

Net Foreign Indebtedness

Up to this point we have considered only the net acquisition of real assets by the current generation, but there is a corresponding set of financial liabilities of households, enterprises and governments. To the extent that these financial claims are the property of Canadian households, they generate a distribution of wealth — and ultimately of consumption — which we consider further in the next section. To the extent, however, that the current generation of Canadians piles up net liabilities to foreigners, future generations are enriched by whatever increase in the capital stock is financed from foreign sources and impoverished by the future repayment of these liabilities. Historically, the issue of whether Canadians are mortgaging the future by accepting inflows of foreign capital has been extremely contentious. That portion of liabilities to foreigners that is debt has specified maturity dates and interest rates; as a result, its costs are relatively easy to calculate. The costs of foreign ownership in the form of equity capital, however, are much harder to estimate, not only because they depend on the future level of corporate profits but also because foreign equity ownership has consequences — technology flows, sourcing of research and development, access to export markets, and so on — whose net costs are the subject of great controversy.[15]

Summary

The "economic well-being" of the current generation depends on both the flow of consumption it receives during its own lifetime and the "bequest" it leaves for the benefit of future generations. We cannot *assume* that decentralized private savings decisions will always produce a "bequest" to future generations that is either efficient or equitable between the generations. To assess trends in the economic well-being of society, we must have some way of assessing the value of our collective bequest.

Part of the bequest of the current generation is in the form of private transfers of skills and private property, part in the form of publicly owned assets and part in the form of public goods which can, with some adjustment, be valued with reference to market prices. One can, in principle, value these assets by computing the present value of the consumption they enable future generations to obtain.

It is often argued that for some items, a "national heritage," the market provides a very poor estimate of value and that these assets should be passed, intact, from one generation to the next. If this concept of "social stewardship" is accepted it simplifies somewhat the problem of measuring trends in economic well-being. There remain, however, the conceptual and legal problems of defining the categories of goods which qualify for this removal from the market mechanism, as well as the continuing practical problems of case-by-case determination of particular items.

Some Canadian legislation (e.g., on historic sites, disposal of toxic wastes) can be seen as evidence that as a society we have in practice already adopted a fuzzy notion of a "national heritage." If this idea were made more explicit, its costs and benefits could be more clearly examined.

To the extent that the current generation borrows more abroad than it lends, it burdens future generations with a debt to foreigners. The burden of this debt is, however, difficult to estimate since part of it takes the form of foreign ownership of Canadian industry, whose net costs are highly uncertain.

The Social Welfare of Unequal Individuals

Winners Versus Losers: The Problem of Weighting

One of the simplest and most common ways of assessing trends in the welfare of the current generation is to examine trends in average consumption.[16] If, for example, average consumption increases by $5, some would say that average economic welfare has increased. This conclusion is reasonable enough if *everyone* is able to consume $5 more in goods and services. However, it is rare, in practice, for economic events to produce only winners; more often they produce some losers and some winners.[17]

If there are two individuals and A's consumption increases by $110 while B's falls by $100, it is still true that average consumption has risen by $5, but it is no longer obvious that the welfare of "society" (i.e., A + B),

or even the average welfare of A and B, has increased. Certainly B would argue that it has not, and where more than two people are involved it is quite possible for the majority of people to become worse off even as average consumption rises. If, for example, five individuals in year 1 received $11, $12, $13, $20 and $24 respectively, while in year 2 they received $10, $10, $10, $25 and $45, the average level of consumption increases from $16 to $20 (i.e., by 25 percent), but the majority of people are worse off.

When we ask for a measure of the economic well-being of society, we are asking for a way of summarizing the experiences of dissimilar individuals, a way of weighing the losses of the losers against the gains of the winners and deciding which is greater. Do we say, in the five-person example, that economic well-being (as measured by average consumption) has gone up? In that case we are saying that the gains of the two who are better off outweigh the losses of the three who are worse off. Do we say that economic well-being has declined because the median level of consumption (the level below which 50 percent of the population falls) has gone down? In that case we rate the small dollar losses of the majority as more important than the large dollar gains of the minority. Either choice involves an ethical judgment about whose welfare should count more heavily in evaluating social states. The need to make ethical judgments of some kind cannot be evaded, although we can hope for a solution to the problem of weighting that accords with values that we can defend.

The Utilitarian Argument

The solution proposed by the utilitarian philosophers of the nineteenth century was to measure social welfare by the total satisfaction, happiness or utility of all individuals rather than by their total consumption. If individual A originally had $10,000 and individual B had $200, the utilitarian would add together utility A ($10,000) and utility B ($200) and compare it to the sum of the utility that A would receive from $10,110 and B would receive from $100. Societal welfare was said to increase if total utility increased, but does it? If a given level of consumption produces the same level of utility for everyone we can easily compare the utility of individuals.[18] If we assume, as seems reasonable, that the more one already consumes, the less the additional pleasure generated by one more dollar's worth of consumption, then it is quite likely that the gain in utility for A that comes from 1 percent increase in consumption is less than the loss in utility for B that comes from a 50 percent fall in consumption. So in this case, despite the increase of $10 in total consumption, we would say that total utility has decreased and, by the utilitarian definition, economic well-being has fallen.

If average standards of living are rising only because the very rich are becoming fantastically richer while everyone else is growing steadily poorer, then the utilitarian measure of economic well-being seems reasonable. But it also carries the implication that, because rich A receives less pleasure from his last $100 of consumption than poor B does, total utility would be increased by a redistributive transfer of $100 from A to B, and increased still further by a further transfer of $100. Indeed, the economic well-being obtainable from a given total income is maximized by redistributing income until all incomes are equal.[19]

At this point many begin to draw back and question whether human beings are such that we all get the same satisfaction from the same dollar value of consumption. Perhaps A is a person of exquisite sensibility who really appreciates the nuances of fine wines, while B is a boor who can barely discern the difference between cider and beer. Would not redistribution from A to B then decrease the total utility of society? Perhaps, but it might also be the case that A is the boor and B has the refined tastes, in which case maximizing total utility implies that B should get even more. Imagining the arguments that A and B could have, as each attempts to convince the other of the intensity of their pleasure, might be entertaining, but we also know that this is an argument without end.

The utilitarian measure of economic well-being thus contains a fatal flaw; we cannot measure individual utility in any objective way, and we cannot be sure that the unmeasurable concept of utility is related, in the same way for all individuals, to those things we can measure, such as income or wealth. Yet even if we could measure the utility individuals get from their consumption according to the preferences they now hold,[20] should we consider economic well-being to be the total of individual utilities?

One reason for not accepting a utilitarian argument is that although it is convenient, in economic theory, not to inquire into the origins of preferences, in practice preferences often adapt to changes in circumstances. Where incomes are low, aspirations are also often low. When incomes rise, new tastes often emerge. It may be true that A gets more pleasure from eating butter than margarine while B is indifferent, but before we give A all the butter and allocate B the margarine, should we not ask whether B has ever tasted the difference? If individuals typically learn to adjust their desires in order to minimize their disappointments, then the intensity of their preferences, at any point in time, will depend on how much income they have had in the past. Can it be justifiable, even if A now gets more pleasure from $1 than B, to allocate more income to A if the reason for A's greater pleasure is that he has always had a larger income?[21]

Furthermore, some of our tastes are consciously chosen or, more exactly, we often choose between experiences knowing that the experiences in question will alter our future tastes. People choose whether to experiment with heroin, whether to have a casual affair and risk getting involved, and whether to sign up for art appreciation classes. But as this list of activities

shows, our society does not consider all activities that generate utility to be morally indistinguishable — even if they do not involve harm to other individuals. As moral personalities we are considered capable of making choices about the preferences we develop and, which as consumers, we seek to satisfy.

Utilitarianism, however, does not recognize that preferences may be adaptive, that tastes may be consciously manipulated (by oneself or by others) or that some harmless desires are judged by society to be illegitimate. Neither do utilitarians accept that the total utility of a society can be anything but the sum of the utilities of the individuals who make up that society or that we should evaluate the utility of particular groups (e.g., males) as, ipso facto, more important than that of some other groups (e.g., females). These positions are not held because utilitarians consider them to be descriptively accurate judgments of society as it *is*; rather they are ethical judgments about how individuals and society *should be*. The classic liberal position is that we should not discriminate among individuals, that we should not recognize the legitimacy of disutilities caused by envy or malice, and that individuals are the best judges of what will yield the greatest satisfaction in life and, unless doing so causes harm to others, should not be restrained from pursuing their own happiness.

Justice as Fairness

The utilitarian conception of economic well-being therefore has implicit in it an ethical position that deserves the greatest respect. Even so, respect for the individual can equally well be conceived of as respect for the right of individuals to use the resources they have available in the ways they see fit (without causing harm to other individuals). Moreover, concentrating solely on the sum of utilities ignores any issue involving the distribution of utilities, and this omission may conflict with other ethical notions, such as "justice" or "fairness." An alternative measure of economic well-being, recently restated by John Rawls, is based on the argument that economic "progress" should be assessed in terms of its impact on the least well-off members of society, where "least well-off" is defined in terms of the resources available to produce utility rather than in terms of utility.[22] Economic well-being can therefore increase only to the extent that the resources available to the least advantaged members of society increase.

The basis for this argument is the idea of fairness, as expressed in the ancient moral precept, "do unto others as you would have them do unto you." In any society, economic and social rewards are distributed according to the "rules of the game," which reward some attributes (such as intelligence or having rich parents) and penalize others (such as being physically disabled). Rawls argues that to judge the level of justice in a society one should ask, "Would I choose the 'rules of the game' that operate in that society if I did not know in advance how I would be affected by those rules?" For example, one of the rules of the game in Canada is the absence (everywhere except Quebec) of succession duties or inheritance taxes. In practice, our attitudes to this rule are likely to be coloured by our knowledge of whether we are likely to receive an inheritance or to pass one on, but Rawls would argue that we should make judgments about the fairness of rules as if we were behind a "veil of ignorance" as to whether we would benefit personally from the absence, or otherwise, of inheritance taxes.

Clearly, if we did not know whether we were going to be poor or rich, we would be more likely to be concerned about poverty than if we knew all along that economic disadvantages are suffered by others. Indeed, Rawls goes further and argues that a reasonable person choosing the rules of the game from a position of ignorance as to his/her own attributes would choose the set of social institutions that minimizes the disadvantages suffered by the least well-off members of society.[23] A just society is, in Rawls' conception, organized according to two basic principles:

1. Each person has an equal right to the most extensive scheme of basic liberties compatible with a similar scheme of liberties for all.
2. Social and economic inequalities are to satisfy two conditions: they must be (a) to the greatest benefit of the least advantaged members of society; and (b) attached to offices and positions open to all under conditions of fair equality of opportunity. (Rawls, 1982, p. 161)

There are deep religious roots to the idea that the progress of society should be evaluated in relation to the decency of life of the poor rather than the comforts of the rich, and by the dignity it offers the disabled rather than the rewards it gives to the able.[24] Moreover, because the "least well-off" are, by this definition, those who were born disadvantaged and never managed to escape their disadvantages, we cannot use the upward social mobility of some to excuse the continued disadvantage of others. The Rawls criterion therefore asks us to measure economic well-being by examining the resources available to the poor, i.e., those with the lowest lifetime expectations of income and wealth.[25]

Measuring the resources available to the least well-off raises the issue of whether we should consider absolute changes in the income of the poor or changes in their incomes relative to those of the rest of society. Underlying the first approach is the idea that poverty is not having enough goods and services at one's disposal; hence any increase in the goods and services available to the poor means they are now less poor, i.e., better-off. Underlying the second approach is the idea that poverty (at least in the developed countries) really means falling short of the norms of society, being excluded from normal social intercourse. If a poor person's income increases by 1 percent while all other incomes increase by 5 percent, the poor person has more income but still falls further behind what "ordinary" people have. Economic growth in which some income trickles down to

the poor, but in which they continue to fall further and further behind the mainstream of society is, in the relative conception of poverty, growth in which their relative poverty, their exclusion[26] from society, increases. We can therefore define two rather different versions of the Rawls measure of economic well-being:

1. the changes, over time, in the lifetime incomes of those with lowest lifetime incomes; and
2. the changes, over time, in the ratio of the lifetime incomes of the poor to the lifetime incomes of "average"[27] Canadians.

A Compromise Measure of Social Welfare

The utilitarian and Rawls criteria represent alternative proposals for adding together the gains and losses of individual members of society into an aggregate measure of the economic well-being of society. The utilitarian criterion — the sum of individual utilities — is completely unconcerned with the position of the least well-off, except insofar as their utilities are reflected in the general total. The Rawls criterion is concerned solely with the resources of the most disadvantaged, whether expressed in terms of the lowest money incomes (i.e., absolute poverty) or the relative incomes of the poor (i.e., relative poverty or income inequality). Both criteria embody values that deserve our respect, and it is natural to ask for a compromise measure of economic well-being.

A compromise measure would weight increases in income that are received by the poor more heavily than increases in income that are received by the non-poor, but would still give some weight to the incomes of the non-poor. Even if the incomes of the least well-off fell, if the increase in the incomes of the rest of society was large enough, we might conclude that, on balance, economic well-being had not fallen. This implies that society is willing to trade off the incomes of the poorest and the average income of the rest of society. The implicit ethical issue is the rate at which such trade-offs are made (i.e., the relative weights attached to the incomes of rich and poor when they are added up to measure economic well-being).

Indeed, even if individuals were choosing a "fair" distribution of income from behind a veil of ignorance as to their own place in the distribution of incomes, they might still be willing to trade off the chance of a somewhat lower income (if they turned out to be the least well-off member of society) against the chance of a somewhat higher income (if they turned out to be an "average" member of society). Only if we assume that a reasonable person would not make any such trade-off does justice-as-fairness imply the criterion of concentrating solely on maximizing the resources of the least well-off. If we assume that reasonable people would be willing to trade off the minimum living standard they might expect if unfortunate against the chance of a higher income if they were fortunate, then justice-as-fairness would also imply the "compromise" measure of economic well-being.[28]

We are, however, left to our own value judgments about the crucial issue of how much more attention a measure of economic well-being should pay to the economic progress of the poor than to the advances of the rich. Economists can assist in the discussion by doing "sensitivity analysis" — showing how particular measures of economic well-being are affected by the application of somewhat different weights to the economic gains and losses suffered by different economic groups. However, the degree of attention we pay to the problems of the poor is essentially an issue of moral values.

Summary

Since some people win and some lose as economic events unfold, assessing whether the economic well-being of "society" has increased or not requires us to weigh the gains of the winners against the losses of the losers. There is an unavoidable ethical issue involved in saying whose gains and losses should be counted as "more important" — the measure of economic well-being we adopt should be consistent with an ethics which we can defend.

Utilitarians argue that economic well-being increases if the *total utility* of the members of society increases. We cannot use total income as a proxy measure for total utility since we cannot know if the increased pleasures of income gainers are, in fact, greater than the pains of income losers. In addition, concentrating solely on the *total* of utilities implicitly says that the fairness of the *distribution* of utilities is not important.

If we didn't know whether we, personally, would have to live on the incomes that poor people receive, we might well be more concerned with how low those incomes were. The Rawls conception of justice-as-fairness argues that a just society will maximize the resources available to its least well-off members. One measure of economic well-being is, therefore, simply to examine the lifetime incomes of the poor. If poverty is an absolute concept, economic well-being increases if and only if the incomes of the poorest increase. If poverty is better perceived as relative deprivation or exclusion from the mainstream of society, then economic well-being increases if and only if the incomes of the poorest rise *relative to* those of "average" Canadians.

A "compromise" between the utilitarian and Rawlsian ethical emphases is to assign greater, but not exclusive, weight to changes in the incomes of the poor than to changes in the incomes of the better-off. One cannot avoid choosing some set of weights to assign to the income gains and losses of the poor versus the income gains and losses of the rich, but the crucial issue is the degree of emphasis one gives to the former relative to the latter.

Consumption over an Individual's Lifetime

Variability in Incomes and Individual Insecurity

Individuals differ in their total lifetime consumption and also consume different amounts in different years of their lives. Since income flows can vary considerably from one year to the next, and capital markets are far from perfect, consumption is often constrained by income. Hence a dollar's worth of consumption may well yield a different amount of utility in one year than in another. As a result, adding up the utility of consumption in different years to arrive at a measure of the lifetime welfare of an individual is not straightforward. It is reasonable to suppose that people's preferences for different goods change fairly slowly over time and that life-cycle changes, such as the number and age of children, are also fairly predictable. Income flows do not, however, generally match up with consumption plans, since income flows depend upon rates of job promotion, the likelihood of unemployment, the availability of overtime work, etc. and these can be highly variable.[29]

Variability in income flows would not be a problem if people did not mind a feast or famine lifestyle and derived the same pleasure from an additional dollar's consumption, regardless of the year in which it was received. Alternatively, if "perfect" capital markets were available, an individual could spread consumption evenly over a lifetime by borrowing or dissaving in years of low income and by saving or repaying loans in years of high income. In this case, the (steady) flow of consumption would effectively be divorced from the (variable) flow of income, and we could estimate the value of a stream of consumption by calculating its expected present discounted value over a lifetime. If capital markets were perfect, individuals would be able to predict their future incomes and to finance the same program of consumption from a variable or from a steady stream of income, as long as the present discounted values of each were the same. Income variability and uncertainty, or what is commonly called "economic insecurity," would then have no economic cost to individuals.

However, the assumption of perfect capital markets is rather strong. It requires that the rate of interest paid when borrowing be equal to the rate of interest received when lending; otherwise, people could not finance the same consumption from a variable income as from a steady income. It assumes that future inflation is fully anticipated and reflected in nominal interest rates. It also assumes away the problem of bad debts, even though a cynic would say that the way to maximize your lifetime consumption is to maximize the debts you have at death. In real capital markets, lenders must always assess the credibility of a borrower's pledge to repay. This credibility is enhanced if a borrower has substantial assets to use as security for a loan or if the denial of future credit would be an effective sanction.

Either way, the implication is that those who have few assets or little reason to protect their credit rating are less credible borrowers. Personal loans against the expectation of future labour income are only as good as a person's ability and willingness to repay, which implies those who are judged more likely to become ill or unemployed[30] will face greater difficulties in borrowing.

Private capital markets are, therefore, likely to be especially imperfect for the poor, the old, the sick and the frequently unemployed. Private insurance markets, too, are often infeasible. At any given level of premiums, taking out insurance may pay only for those individuals who know themselves to be high-risk cases. Insurance companies that insure only risks whose expected value of claims exceed the premiums paid will go bankrupt. The recent failure of a Canadian scheme of private insurance against job loss is a case in point. At the high premiums the company had to charge, only individuals who had a very high chance of losing their jobs found it worthwhile to purchase insurance. The company incurred huge losses and soon withdrew from the market.

Social Insurance and the Risk Exposure of Canadians

To some extent, these imperfections of capital and insurance markets are balanced by social insurance programs, such as Canada Pension Plan, medicare and unemployment insurance, in which people even out their real consumption over their lifetimes by paying contributions and taxes while young, healthy and employed and drawing benefits when old, sick or unemployed. Social insurance program designers are generally careful to ensure, however, that the evening-out of levels of consumption is less than complete, in order to maintain an incentive to paid employment — a concern that has been particularly evident in the ongoing debate on unemployment insurance.[31]

However, in that debate the plain meaning of the phrase "decrease the disincentives to paid employment" is to "increase the costs of being unemployed," which necessarily increases the economic insecurity of those workers who might become unemployed. In normal times, most Canadians are unaffected by such insecurities since unemployment is concentrated in particular segments of the population; even in a high unemployment area such as the Maritimes over a third of employees had, in 1981, never been unemployed in their lives.[32] Economic insecurity is, however, of widespread concern when unemployment rates rise.

In terms of aggregate output and total hours worked, an increase from 7 percent to 13 percent in the unemployment rate represents a decrease of roughly 6 percent in paid labour hours, or approximately the same decrease as would occur if everyone left work a couple of hours early on Friday afternoon. But we know that the welfare implications of the two

events are not at all the same, since the psychological, social and financial costs of unemployment can be severe. Ordinarily such costs are felt by only a few, but a large increase in unemployment creates anxieties about whose job will be the next to be lost. The incompleteness of social security programs and the imperfection of capital markets mean that income variability has a cost to individuals, or, to put it another way, that "security" is something individuals typically value.

We can also get some idea of the value people place on security by examining attitudes to inflation, since one of the major costs of changes in the rate of inflation is the uncertainty it creates about the real value of incomes and assets.[33] In the United States, the rate of inflation of consumer prices accelerated from 5.8 percent in 1976 to 13.5 percent in 1980 but, as noted earlier, the American people seem to have considered themselves worse off in 1980 than in 1976, despite the 7.6 percent increase in real per capita disposable incomes.

Summary

Since individuals, in general, prefer to avoid risk, the more uncertainty and variability there is in individual incomes, the less will be the total welfare created by a given level of national income. Imperfect capital markets and incomplete social insurance programmes mean that individuals' consumption plans are constrained, to some degree, by their income at any point in time. "Security" of real income flows is something people value. Estimates of economic welfare such as the present value of consumption should therefore be adjusted to reflect the insecurity and uncertainty of income flows.

Policy proposals which increase the risk exposure of Canadians (for example, the curtailment of coverage under public medical insurance) promise a benefit, greater economic efficiency, and carry a cost, greater insecurity. One's evaluation of such proposals depends on *both* the credibility of the promise of greater efficiency and the relative value one places on the costs in economic insecurity that it entails.

Measures of Consumption and Bequest

The Valuation of Current Consumption

Even if we agree that accumulation and consumption are both part of economic well-being, and that measures of consumption flows should be adjusted to reflect economic insecurity and inequality, the question remains of how best to measure consumption and accumulation. To say that national income statistics like the Gross National Product do not fully reflect changes in economic well-being is not really a criticism; it has never been claimed that they measure all of economic well-being, just that they measure a very important component of economic well-being that is amenable to influence by economic policy. Indeed, when national income accounting was becoming established in the 1930s and 1940s, the major economic problems of the time were the underutilization of capacity during the Depression and the expansion of productive capacity during the war. In this context, focussing attention on production for the market was arguably to focus on the most important part of economic well-being.

With a few exceptions (such as the imputation of a value for "rent" of owner-occupied housing) national income accountants stop "at the door of the household" and attempt to record the final value of production absorbed, and income generated, by market transactions. Since such a large fraction of economic activity passes through markets, statistics such as GNP will always be needed, but it is worth noting that the National Income Accounts do not capture all market transactions. In principle, the National Income Accounts should include the retail value of sales of marijuana as well as the retail value of alcohol sales and they should count the value of services rendered by moonlighting electricians as well as the reported activities of construction firms. The informal economy of illegal goods and unreported (and untaxed) transactions[34] is not counted in our measures of GNP growth, and estimates of its size are highly uncertain.[35]

However, consumption flows as recorded in national income accounting and consumption flows as we would want to record them for a measure of economic well-being differ in more important, conceptual ways. Leisure, for example, is clearly a part of our economic well-being. If the standard work week increased from 40 hours to 60, the Gross National Product would increase but Canadians would undoubtedly feel worse off. National Income Accounts do not pay any attention to time not spent in paid employment; this implicitly places a zero value on both leisure and "household production," or production that does not pass through the market. If I do volunteer work, help my brother paint his garage or mind my own children, the activity escapes notice by national income statisticians, but if I were to charge for my labour it would count as an addition to national income.

If hours of leisure or the value of household production were constant over time, their omission would not affect the measurement of trends in economic well-being. However, such trends as the increased participation by married women in the paid labour force have both benefits to families (greater money incomes) and costs (less time for productive household activities such as child care). National income, as currently measured, counts the benefits but ignores the costs and, for this reason, would tend to overstate improvements in economic well-being. On the other hand, increases in the number of paid holidays and decreases in standard hours of work represent increases in economic well-being that are not counted in national income per capita.

There are arguments as to the best method of placing a value on household production (e.g., does meal preparation have a value equal to the cost of purchasing meals or the wage the cook could earn in the labour market?) As a consequence, estimates of its total value range from 31.6 percent to 59.5 percent of money GNP in the United States and Canada.[36] One early estimate of the total value of leisure in the United States was that it was about equal to the total value of money GNP, or about twice the value of the consumption of marketed goods and services.[37] Using a different methodology, Usher argued recently that over the period 1926–74 real consumption per capita in Canada of marketed goods and services grew at a compound rate of 2.49 percent, but imputing a value for increased leisure raises the rate of growth of per capita consumption to 3.37 percent.[38]

The concept of consumption as used in national income accounting is that of the final absorptive use of economic resources. This concept makes a great deal of sense for purposes such as modelling the behaviour of the market sector and keeping track of the flows and uses of productive resources, but it is not necessarily the case that people derive utility from a final absorptive use of resources. The expenses individuals incur in commuting to work are, for example, counted as part of the consumption of households, but it is arguable that they are "intermediate inputs" — expenditures that, like the heating and lighting of offices, have to be incurred in order for labour to work productively. A more serious issue arises in the treatment of government consumption of goods and services. Some collective expenditures (e.g., public concerts) are for goods that produce pleasure, while others (e.g., defence) are not. Indeed, if anything, guns and missiles are "bads" rather than "goods," which governments purchase in the hope of avoiding something worse. In this sense defence expenditures are also an "intermediate input," and it is illusory to think we are "consuming more" (in the sense of increasing well-being) as defence expenditures rise. Presumably the benefit of defence is "national security," and its costs are the resources it consumes plus the chance of nuclear catastrophe. Increased expenditures may not mean that we get more national security, just that national security is more expensive.

Regrettable necessities come in all shapes and sizes, and just how to treat them remains a controversial issue in the literature.[39] Under current conventions, the consumption by governments of more police services in response to higher crime rates is considered just as much "consumption" as holidays in the Bahamas. But if increased consumption over time takes the form of police services rather than holidays, it is unlikely that people will feel better off.

Nevertheless, the welfare of individuals clearly does increase if they can enjoy consumption over more years as well as if they enjoy more consumption per year. Increased life expectancy has accompanied economic development throughout the world, but placing a value on these extra years of life as part of a measure of economic well-being obviously raises difficult issues. Since 1931 life expectancy at birth in Canada has increased by about 10 years for men and 14 years for women. Making several specific assumptions about the utility individuals get from consumption and from a lower risk of mortality, Usher (1980) argued that this was equivalent to an additional increase in per capita consumption of 0.5 percent per annum.

Part of the decline in mortality doubtless came about because of the eradication of communicable diseases such as smallpox and tuberculosis, but public health expenditures illustrate the problems that can arise if we rely solely on market prices as a valuation of social benefit. The private benefits to me of vaccination against a communicable disease are less than the social benefits vaccination produces; not only do I gain immunity, I also lessen the chances that I will transmit the disease to someone else. If enough people are vaccinated, the disease will die out, which is a benefit to everybody. We cannot value the benefits of vaccination as the expenditures private individuals would be willing to make, because there is a temptation for each of us to let others pay the necessary costs and to benefit from their expenditures. Where social benefits diverge from private benefits, or where a benefit available to anyone is effectively available to everyone, uncoordinated private purchases will fall short of the socially desirable level. Governments have intervened to provide public goods such as environmental protection, public parks, crime-free streets, and public health services, but how do we value the benefits of such expenditures? In practice, such expenditures (as well as those on defence) are not seen as public consumption and are valued at the cost of the inputs they use. This approach is known to be unsatisfactory, but market prices for the outputs (e.g., clean, safe streets) are unavailable. Moreover, what people say the outputs are worth to them may be distorted by how likely it is they think they will have to pay.

Per capita consumption is simply total consumption divided by total population, but the total utility derived from consumption depends on how that population is combined into households. Two may not be able to live as cheaply as one, but they can save money by moving in together. Larger households enjoy economies of scale; people can share some costs, buy in bulk and pay lower rents per person. The rate of household formation is influenced by the age structure of the population (as when baby-boom children reach adulthood and start new households), by social trends (such as divorce), and by income levels (e.g., youth or older people who can afford the privacy of their own dwelling). The long-run trend in Canada is for smaller households, but in measuring economic well-being over time we should adjust for this change in household size. To compare like with like we should examine effective per capita consumption and deflate the gross consumption of each household by a household

equivalence scale measuring the difference in the effective cost of living of individuals residing in households of a particular size.[40]

The imputations and adjustments already mentioned — for the activities of the informal economy, household production, leisure, longevity, intermediate consumption, and household size — all have their difficulties, but there has been more success in estimating their magnitude than in estimating the importance of changing job characteristics for economic well-being. For each of us, the net benefits of paid employment are the pleasures we derive from our pay plus the joys (or minus the sorrows) we get from our jobs. If, for example, the speed of an assembly line is increased, the workers on that line will be worse off, unless wage rates rise. In the long term, there is the likelihood that we will "spend" part of the potential growth in our money incomes on improving the quality of our work life, i.e., by accepting slightly lower increases in money incomes in exchange for such improvements as longer coffee breaks or more comfortable offices. Something of this sort probably does go on, but attempts to measure the differentials in pay that compensate workers for different characteristics of jobs have not been very successful.[41] Similarly, changes in the quality of existing consumption goods and the development of new goods (such as video recorders) produce changes in utility whose magnitude is rather difficult to estimate.[42] It is unlikely that we will ever be able to claim complete coverage in measuring the economic well-being that comes from consumption, but we can attempt to be more comprehensive and to identify the major sources of variation over time.

The Valuation of Net Savings

Similarly, in measuring changes in the bequest this generation will leave to the next, we can develop more comprehensive, but not complete measures. As noted earlier, society accumulates stocks of privately owned, publicly owned and unowned assets for the benefit of future generations. Currently we count only part of owned assets and none of unowned assets, because the concept of capital accumulation is restricted to increments in the tangible capital of enterprises and governments and increases in the housing stock. This concept of capital has the enormous advantage of concreteness[43] but there is a real question as to whether it is a full indicator of the value of the bequest we leave to future generations.

As individuals, we will bequeath to our heirs a stock of consumer durables. Indeed, the acquisition of housing and consumer durables is the main form of saving for the vast majority of Canadian (and American) households,[44] but national income accounting adopts the convention that the purchase of consumer durables by households is consumption, not investment. It has long been recognized as anomalous to count an automobile purchased by a car-rental firm as an investment and a similar one