

The Relevance of Objective Indicators of Well-Being for Public Policy

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Introduction

Social Indicators are back in style. Although for many years governments – in Canada and elsewhere – tended to focus their attention primarily on a few key economic variables (such GDP growth, inflation and unemployment), more recently there has been an explosion of indicators. As a recent consultant’s report¹ has noted:

“Performance measurement/management has become a central preoccupation in Canada and abroad. At the federal level, a new focus on results was launched in 1996 with the Program Review exercise and *Getting Government Right*. In June 1997, the Treasury Board was designated as the Government of Canada's management board. This was followed by *Results for Canadians* and most recently by *Managing for Results*, which complements 83 departmental performance reports. As well, Ottawa has been publishing an annual performance report (*Canada's Performance 2002*), which presents data on 19 societal indicators².”

The increasing prevalence of the rhetoric of political “accountability” may partly explain the growing number of social indicators – and there has also long been dissatisfaction with the omissions of National Income Accounting (e.g. Nordhaus and Tobin, 1973). However, in many cases, “performance reports” by government agencies have involved the publication of an eclectic battery of indicators, with no particular effort made to draw a conceptual link between specific variables – for example the Treasury Board document “Canada’s Performance, 2003” reports 20 societal indicators covering a wide range of domains (see Appendix 1). Other organizations publish even larger arrays of statistics - the “Dashboard of Sustainability³” contains, for example, 60 indicators of ecological impact for over 200 countries. Publication of a list of indicators, with no indication of their relationship or relative importance, leaves any overall evaluation of outcomes to the reader and, whether intended or not, thereby prevents establishment of a clear ranking of jurisdictions. Since there is strong interest in overall evaluations, as Freudenberg (2003) notes, composite indicators “are increasingly being used to

¹ “The Development of Alternative Methods of Measuring the Impacts of ACOA’s Non-Commercial Programs” Gardner Pinfold Consulting Economists Ltd. Halifax, March 2004, page 6

² See: Treasury Board of Canada, Secretariat, “A Comparative Analysis of Governments' Performance Measurement Strategies” (Ottawa, 2000). www.tbs-sct.gc.ca/rma/communic/prr2000/coman_e.asp
Treasury Board of Canada, Secretariat, *Getting Government Right: Governing for Canadians* (Ottawa: 1996).<http://www.tbs-sct.gc.ca/report/dwnld/gfce.pdf>

³ <http://esl.jrc.it/envind/dashbrds.htm>

rank countries in various performance and policy areas⁴ (see Appendix 2) – but these come with widely varying degrees of logical coherence.

This explosion of well-being indicators raises the questions:

Why do we collect numbers on social and economic performance?

What sort of numbers should we collect?

The particular focus of this essay will be the balance that should be struck in well being measurement between data on subjective attitudes / evaluations and more objective information on social outcomes. A secondary theme will be the balance to be struck between conceptual coherence and the eclectic “Report Card” strategy of breadth of perspective, unconstrained by explicit logical links. However, without some explicit idea of the purposes which numbers are intended to serve, it is hard to justify a particular statistical strategy, so Section 1 will begin with the “why” question – viewed from both an “idealistic” and a “cynical” point of view. Section 2 then considers the choice between a logical and an eclectic perspective.

1. Why do we want to have Indicators of Well Being ?

The idealistic motivation for research on indices of well-being is to help produce better political and public policy decisions. Measurement of well-being is not an end in itself, nor is it (like, for example, the measurement of the mass of sub-atomic particles) some sort of intermediate step in the development of science. The construction of an index of well-being presumes that individuals care about the well-being of the community as a whole. (After all, if people only cared about their personal well-being, and only made decisions about their own lives, then one could assume that individuals can calculate what is in their own self-interest – and there would be no point to calculating an index of *society's* well being.) Because all citizens can exercise choices (e.g. in voting) on issues that affect the collectivity, and because they care

⁴ Freudenberg, M. (2003)

about the implications of those choices for the collectivity⁵, they have reason to ask questions of the form: “Is ‘society’ better off?”. An index of well-being is useful if it can help citizens answer this sort of question, by assisting them in thinking systematically about public policy.

From this perspective, affecting public policy is the whole point of constructing an index of well-being. The underlying presumption is that better information will produce better decisions. Communicability is therefore key – the social payoff to construction of an index occurs when it is actually used in social decision-making, and actually improves those decisions. In this respect, the measurement of economic and social well-being differs fundamentally from measurement in some other domains, such as the natural sciences. Public communicability is of little concern to measurement issues in, for example, physics since these measurements are intermediate steps in the work of elite researchers with the skills (e.g. the mathematics training) and the time to digest highly abstract and complex measures – but the whole point of constructing an index of societal well-being is lost if it is only used by specialist researchers.

From this idealistic perspective, modern democracies need national systems of social and economic statistics to provide the informational feedback loop of public policy. By providing measures of social and economic outcomes, statistical agencies provide decision makers and voters with the information that is needed to define the success or failure of public policies. Evidence on such successes or failures can be used to reallocate resources and improve the decisions made by governments. Voters can also use such data to replace governments; hence the calculation of measures of well-being is an important issue. Seen from this angle, the core problem of statistical agencies is that of deciding what information to record and how to present it. Knowing that all statistics are imperfect attempts to summarize a complex reality, and knowing that there are wide variations among the public in which aspects of social reality are considered to be of greatest importance, statistical agencies still have to decide what to count, and what not to count, as part of a measure of well being. Information processing capacity is a scarce resource, both in the sense that the

⁵ Formally, if one thinks of individuals as choosing to vote for the public policy alternative that maximizes some index $I = \forall_1$ (own utility) + \forall_2 (society’s well-being), then a measure of social well-being is useful unless $\forall_2 = 0$ for all persons, always.

collection and dissemination of statistics takes real resources and in the sense that voters have limited time and capacity to absorb statistical information.

Since summarizing the well-being of a complex society inevitably requires a series of ethical and statistical judgments, any single index number may embody decisions that many people may disagree⁶ with, and it is often difficult to disentangle their relative importance. Furthermore, in thinking about the appropriate public policy response, it is not particularly useful to know only that well-being has gone “up” or “down”, without also knowing which aspect of well-being has improved or deteriorated. In this sense, the practical problem in the construction of measures of well-being can be seen as a problem in the optimal aggregation of information. Excess aggregation is not helpful in improving the quality of public decision making and political debate, because it does not enable value judgments and statistical judgments to be separated. Excess aggregation also offers no guide to policy priorities, because it prevents voters from knowing just *where* things went right and *where* things went wrong. However, the cost of information processing means that some aggregation is essential, and even a “dashboard” or “report card” strategy of multiple indicators must aggregate data to produce each separate indicator.

In the idealist perspective, therefore, the reason why we construct social indicators is to improve the democratic debate, on the presumption that better objective information produces better social decisions. Although the optimal design of social indicators should respect the constraints of information overload, greater dis-aggregation (or, at least, transparent aggregation) is to be preferred, since it offers a clearer guide to specific policy implications. An idealist would therefore argue for the use of indicators of well-being that are constructed in a transparent and logically coherent way from disaggregated objective data.

But is this perspective based on an unrealistic vision of the political process? A cynic might well argue that politicians are the people who make public policy decisions, politicians

⁶ Implicit in the Genuine Progress Indicator calculations, for example, is the assumption that the depletion of wetlands and farmlands (calculated to cost \$9.5 billion (1986\$) and \$22.6 billion respectively for Canada in 1994) and the cutting of old growth forest (\$4.2 billion) are considerably more important to well being than the costs of crime (\$3.6 billion).

direct the affairs of statistical agencies and politicians care primarily about election or re-election. As well, a cynic might argue that the political process in modern capitalist democracies is not really about expressing the popular will, rather it is all about elite management of potential discontent, and the preservation of privilege in a highly unequal society. The purpose of published indicators of well-being is, in this view, not to guide the actual evolution of public policy, rather it is to warn elites when current management strategies risk provoking discontent to a destabilizing degree.

From the cynical point of view, the publication (and selective use) of indicators may have the direct political function of helping to convince potential malcontents that their particular concerns are being heard and to give the impression that they are being addressed. From this point of view, the fact that a “report card” of many dissimilar incommensurable indicators cannot be clearly aggregated to a summative evaluation is a positive advantage – different constituencies of concern (like child welfare advocates or environmentalists) can each see that their pet issue is part of the “Report Card” (therefore presumably considered “seriously” by government) without necessarily committing elites to do anything about it. From the perspective of maintaining elite control over the political process, it is also a positive advantage if indicators can be kept at a high level of aggregation, which maximizes the potential for reinterpretation and “framing” of the substantive issue (and minimizes the clarity of implications for specific public policies).

A cynic would argue that it is subjective perceptions – not objective data – that shape voting behaviour. In a representative democracy, voting is a highly aggregative process. Each citizen is called upon to somehow ‘add it all up’ across many dissimilar policy domains (and across many other concerns) in evaluating a particular candidate and voters then have to compare their aggregation of preferences across candidates⁷. There is therefore very little

⁷ Formally, one can think of each voter as comparing candidates $i = 1 \dots n$ on a vector $j = 1 \dots N$ of policy positions (and personal attributes). Voters may be thought of as assigning a score $[X_{ij}]$ to each candidate, on each possible position. Votes also have preferences for each policy position (or attribute) that can be summarized in some weight β_j . Total preference for each of the i candidates can be summarized as:

$P_i = \sum_{j=1}^N X_{ij} \beta_j$. One observes a vote for candidate A if $P_A > P_i$ for all $i \dots A$ - i.e.

$$\sum_{j=1}^N X_{Aj} \beta_j > \sum_{j=1}^N X_{ij} \beta_j$$

information content about specific policies in the vote totals – political analysts may have theories about why candidates won or lost, but vote totals do not reveal directly the public popularity of specific policies. Furthermore, politicians care primarily about *how many* votes they receive – the reasons *why* they get votes are distinctly secondary. Presumably, objective facts (e.g. whether the economy is actually growing or not) have some influence on subjective perceptions, but the crucial issue for voting behaviour is subjective perceptions at a highly aggregative level (e.g. whether or not voters *think* the economy is prospering).

For example, in 1980 Ronald Reagan asked the American people a seemingly simple question: "Are you better off today than you were four years ago?" Although real Gross Domestic Product (GDP) per capita in the United States was in 1980, 8.8 percent higher than in 1976, his audiences answered "No!"⁸. The election of Ronald Reagan, and its impacts on US public policy, is an important example of the principle that it is subjective perceptions, not objective data, that actually matter. And although it was this example of voter "irrationality" that motivated Osberg's (1985) idea of an improved objective Index of Economic Well-Being and prompted Osberg and Sharpe (2002) to construct such measures for OECD countries, one could also have taken the lesson that analysts should go directly to what really matters and collect highly aggregated data on subjective public attitudes. From the political cynic's perspective, the crucial issue for the actual direction of public policy is, for example, whether people *think* that they are better off economically (or whether people *think* that there is a trade-off between the welfare state and growth in economic well being⁹), not whether these things

for all $i \dots A$ One cannot, from observation of the vote, distinguish between the influence of preferences for policy outcomes [B_j] and differing ratings of the objective position of each candidate [X_{ij}]. From the idealist perspective, the publication of social indicators increases the commonality and accuracy of [X_{ij}] and is valuable if the rating of candidates has some uncertainty, which can in principle be reduced by the dissemination of objective information.

⁸ Among many other potential examples, when Canadians were asked in 1998 how the overall financial situation of their generation compared to that of their parents at the same stage of life, less than half (44 percent) thought that there had been an improvement — despite an increase of approximately 60 percent in real (GDP) per capita over the previous 25 years. See the August 4, 1998 press release of the Angus Reid Globe/CTV poll posted at http://www.angusreid.com/media/dsp_search_pr_cdn.cfm.

⁹ As Lindert (2003:3) has commented: "It is well known that higher taxes and transfers reduce productivity. "Well known" -- but unsupported by statistics and history. The econometric consensus on the effects of social spending confirms the raw data - there is no clear net GDP cost of high tax-based social spending on GDP, despite a tradition of assuming that such costs are large."

are true in some more objective sense¹⁰.

However, the case for using data on subjective attitudes as part (or all) of an Index of Well-Being is not just a cynical one. The relatively weak relationship between self reported happiness and objective measures of income implies that one does not necessarily have to be a cynic about politics to argue for the importance of data on subjective beliefs – an idealist with a bit of scepticism about “standard economics” may also agree. If the viewpoint that utility depends entirely on an individual’s consumption of commodities is wrong, and if the well-being of individuals is not, in fact, heavily influenced by “objective” variables like money income, then even a political idealist might favour the collection of subjective beliefs about well-being.

In recent years, a number of economists have begun to notice that: “The accepted view in psychology is that objective economic circumstances have only a slight though statistically significant effect on happiness and other measures of well-being.” (for a list of references see Headey and Wooden (2004:1)). Indeed, it has become something of a challenge to economists to show a connection between income and happiness. As Headey and Wooden (2004:3) note:

“Well-being (or happiness) and ill-being (or psychological distress) are empirically distinct dimensions with different causes; they are not opposite ends of the same dimension. Well-being comprises life satisfaction and positive feelings (e.g., joy, vitality), or what psychologists call positive affects. Ill-being comprises anxiety, depression and other negative affects. There is much evidence that people can experience both high levels of well-being and also quite high levels of anxiety at the same time (see Headey, Kelley and Wearing 1993).

... economic variables, notably income, appear to have little effect on either well-being or ill-being. ... Well-being turns out to be much more affected by personality traits, personal relationships and social participation, and ill being by personality problems, marital problems, job problems (including unemployment) and self-assessed health.

.... An important motivation for the recent interest among economists in psychological theories and results relating to well-being is a concern that the ‘revealed preferences’ approach may be open to challenge. This approach depends on

¹⁰ Philosophers have debated at length the ideas of “objective” and “subjective” “truth. For present purposes this essay adopts the (admittedly simplistic) position that “objective truth” exists and can, at least in principle, be distinguished from “subjective truth” by third party verification. In particular, it labels as “subjective” data individuals’ responses to questions such as “Are you better off now than four years ago?” and labels as “objective” data their responses to questions such as “What is your current salary?”

the assumption that people's preferences for goods and leisure are exogenously determined and hence that increases in supply will increase utility. However, if people change their preferences in response to what others have and want, ..then one cannot reasonably infer that more goods and leisure, preferred at time t , will necessarily increase utility if acquired at time $t+1$."

In this literature (see also Frey and Stutzer, 2002; DiTella and McCulloch, 2003), it is clearly established that some objective outcomes do matter – for example, there is a very large and consistent negative relationship in all countries' data between unemployment and self-reported happiness. Interestingly, unemployment “lowers the happiness of those persons who actually lose their jobs and, for various reasons, also causes distress to employed persons” (Frey and Stutzer, 2002:108 – see also Jahoda, 1979) and the impact of unemployment is substantial, even if the income losses from unemployment are compensated. The crucial importance of long term relationships, especially marriage, is also clear. As well, it has long been known that within affluent nations, the rich are slightly happier than the poor of the same country, but this may be just a relative income comparison effect, since rich nations are on average no happier than poor nations. Hence, the challenge for economists is to find some role for the absolute, as opposed to the relative, level of individual income in predicting individual happiness. Headey and Wooden (2004:17) add personal wealth to the equation predicting self-reported happiness and conclude:

“Wealth (net worth) appears to matter at least as much as income, so its inclusion changes our picture of the importance of economics to well-being. Wealth is probably important because it provides economic security, which many people value highly.”

The largest recent happiness study is by DiTella and MacCulloch, (2003), who examined the responses of almost 400,000 people living in the OECD during 1975-97. Their conclusion was that “Happiness is positively correlated with an individual's absolute income, even after controlling for country and year dummies.” The effect was, however, relatively small compared to other influences (such as unemployment) and their conclusion on the relative size of the happiness gain from more income, compared to the happiness loss from less leisure and social life is worth quoting at length:

“Whilst Americans are working harder than before, Europe has experienced the opposite trend. We are able to calculate which group has done better in terms of well-being. Annual hours of work declined in France from 1,865 hours in 1975 down to 1,605 hours in 1997. Over the same period annual working hours rose in American from 1,890 up to 1,966 hours. In other words, whereas hours worked fell by 260 in France they increased by 76 in America. Has this widening of the gap by 336 hours been worth it for Americans? ...these results suggest that the higher incomes of Americans compared to the French have not been sufficient to compensate for the longer working hours in happiness terms. We can calculate the increase in GDP per capita required in America to match the rise in happiness in France arising from their shorter working hours and higher GDP per capita between 1975 and 1997. ... the shortfall in American GDP compared to the level in France amounts to approximately 78 per cent of 1975 GDP per capita, or approximately \$13,260 in 1990 dollar values.” (2003:24)

As the France / USA comparison indicates, the level and growth of GDP per capita may be a very misleading indicator of subjectively experienced happiness, when increases in market output largely reflect longer working hours, but a believer in objective data would not necessarily read this as indicating that objective economic data is unimportant for well-being. Rather it might suggest the importance of collecting the right objective data – in particular, the importance of correcting for trends in working hours when assessing the impact on happiness of rising consumption of commodities, and the importance of unemployment trends in considering macro-economic outcomes.

Although the literature on self-reported happiness has paid a good deal of attention to the measurement validity and plausibility of such data, the deeper critique¹¹ of philosophers asks whether “happiness” and “well-being” are synonymous. If “well-being” is interpreted to mean something like Sen’s idea of “capabilities to choose a life one has reason to value”, or “feasible functionings” (Sen, 1999:70) then it is a person’s objective characteristics that are relevant for well-being (e.g. their health, or ability to move about, or ability to purchase clothing that enables them to “appear in public without shame”). Alternatively, if one assesses “well-being” by some ethically or religiously based criterion of “the good life”, then it is a person’s objective distance from that norm that defines their well-being. In either event, “well-being” is being assessed by criteria known to the researcher, but not necessarily to the respondent, so one

¹¹ See, for example, Sen and Williams (1982) or Elster and Roemer (1991).

cannot necessarily expect subjective response happiness data to reveal an individual's well-being. In this interpretation, "well-being" is an objective characteristic of individuals, which consequently needs objective data for its measurement.

As well, happiness responses typically depend heavily on the difference between an individual's expectations or aspirations and their actual outcomes. Although, for example, there continues to be a gender gap in actual incomes, and in many other aspects of life, as Frey and Stutzer (2002:54) note: "Women exhibit higher self-reported happiness than men, but the difference is rather small." If aspirations and expectations are systematically depressed for some citizens, or elevated for others, then happiness responses may reflect individuals' sense of entitlement, as much as their actual experiences of outcomes. An egalitarian idealist would then argue that one *should not* rely on subjective self-reports of happiness, and that objective data on outcomes should be compared to a common norm for society, which would suggest that researchers on well-being should specify an objective indicator of well-being for all individuals, and collect objective data.

2. Conceptual Coherence or Eclectic "Report Card"?

As Appendix 1 (which summarizes the Treasury Board Secretariat's report *Canada's Performance 2003*) illustrates, there is often very little in common among the variables that are reported in a "Report Card" of social indicators of well-being. Some variables are clearly stocks (e.g. average educational attainment) and some are clearly flows (e.g. GDP per capita) while others are harder to classify (e.g. "healthy lifestyles"). There is a great deal of variation in the precision with which concepts are measured (e.g. "real disposable income per capita" and "innovation" are both labelled as indicators). Although most variables are objective, some are not (e.g. "attitudes to diversity"). In drawing some sort of conclusion from this smorgasborg of indicators, it is quite unclear how the various indicators might be added up and what relative weight should be assigned to improvements or deterioration in each dimension.

In thinking about how to report data on "well-being", analysts differ in the relative

importance they assign to conceptual clarity and logical coherence. The Treasury Board document can be thought of as an example of the “eclectic” perspective, which can be justified on the argument that the diversity of human experiences cannot be adequately summarized within a single conceptual framework, and that there are significant costs in attempting to force data reporting into a particular conceptual mould. This perspective is relatively untroubled by the absence of any clear conceptual relationship between the various items making up the “Report Card”. Like diners at a smorgasborg, readers of the report card are invited to emphasize what they think is important and to come to some overall intuition about outcomes, and the compilers of the report card make no attempt to specify how.

By contrast, the most common single measure of aggregate well-being now in use (GDP per capita) exemplifies some of the costs and benefits of conceptual coherence. In measuring GDP, national income accountants attempt to obtain an accurate count of the total money value of goods and services produced for sale in the market in a given country in a given year. The use of market values of transactions creates a clear intellectual referent to guide any discussion of ambiguous measurement issues and ensures a common unit of account for all activities – which makes aggregation of activities across individuals straightforward. This is a major advantage over survey data which reports responses to questions on subjective attitudes (e.g. happiness, life satisfaction or personal security), which have no clear conceptual framework to guide questionnaire wording. Such surveys report qualitative responses (like “very happy” or “somewhat happy”) which can reflect the respondent’s ordinal rankings of outcomes, but cannot be interpreted as cardinal numbers – so they cannot be added, or averaged, in the same way that cardinal variables (like income) can be. Since the scaling of ordinal numbers is arbitrary, any aggregation of such data is similarly arbitrary. A major advantage of the money metric of GDP accounting is the consequent clarity of aggregation or decomposition – but it is far from clear how to “add up” the responses to subjective questions, either across domains or across individuals.

The rigour of the market value of transaction framework comes, however, at the cost of omitting consideration of many issues (e.g. environmental degradation, changes in leisure time, longevity of life) which are clearly important to the well-being of individuals. Indeed, GDP

accounting has been much criticized for counting “regrettable necessities” (such as the costs of environmental remediation or crime prevention) as a seeming benefit. As the USA / France discussion has already indicated, the implications of the omission of non-market outcomes, such as assigning zero value to foregone leisure, are potentially very large.

To some extent, the criticism that conceptual rigour produces selective blindness can be answered by constructing a more complex, yet still coherent, accounting framework. Osberg and Sharpe (2002), for example, construct an Index of Economic Well-Being with four components or dimensions¹²:

- effective per capita consumption flows — which includes consumption of marketed goods and services, government services, effective per capita flows of household production, leisure and changes in life span;
- net societal accumulation of stocks of productive resources — which includes net accumulation of tangible capital, housing stocks, net changes in the value of natural resources stocks; environmental costs, net change in level of foreign indebtedness; accumulation of human capital and R&D investment;
- income distribution — the intensity of poverty (incidence and depth) and the inequality of income;
- economic security from job loss and unemployment, illness, family break-up, poverty in old age.

All components are constructed using objective data, and all can be disaggregated further (which is an advantage from the idealists’ conception that indicators of well-being should be a guide to specific public policies, but a potential disadvantage to a political cynic). For example, the issue of economic security in the event of job loss is viewed as a compound probability - the

¹²A sufficient (but not necessary) set of conditions for this index of economic well-being would be that societal economic well-being can be represented as the well-being of a "representative agent", if: (1) such an agent has a risk-averse utility function (i.e. diminishing marginal utility); (2) from behind a "veil of ignorance" as to his/her own characteristics, each person draws an individual income stream (and prospects of future income) from the actual distribution of income streams; (3) each person has a utility function in which both personal consumption and bequest to future generations are valued; (4) individual income streams are exposed to unpredictable future shocks; (5) capital markets and public policies do not always automatically produce a socially optimal aggregate savings rate.

product of the risk of unemployment and the extent to which people are protected from the income losses of unemployment. [Changes in the employment rate (employment/population ratio) are taken as a proxy for the risk of unemployment¹ since changes in this ratio reflect both 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 is modeled as the product of: 1) the percentage of the unemployed who claim regular UI benefits, and 2) the percentage of average weekly wages replaced by UI.

In measuring each component of economic well-being, an alternative possible methodology would be to use subjective data. [Note that in contrast to Section 1 of this essay which considered subjective *evaluations* such as “Am I happy?”, we are now considering subjective *estimations* of probabilities or events.] Tracking economic security, for example, as a component of well-being, might use responses to such subjective questions as:

Agree/Disagree “I feel there is a good chance I may lose my job” or “I feel that I have lost all control over my economic future”.¹³ Comparing these two methodologies, from the point of view of a political idealist, one advantage of objective data based methods is the fact that a measure of employment security that is calculated as the product of a number of objective trends can be explicitly decomposed into its components (e.g. the risk of income loss due to unemployment can be calculated as the product of the actual probability of job loss, the actual probability of receiving transfer payments (conditional on job loss) and the percentage of income replaced – and change in each component might suggest a particular policy response). Such decomposition cannot be done with the more subjective sort of question.

All this suggests that an idealist might prefer an indicator of well-being that is constructed on a logically coherent basis from objective social data. However, although an index of economic security based on the calculation of compound probabilities from objective data has many analytic and data advantages, the core question is whether it adequately captures

¹³ Both items have been asked for some years by EKOS. Although “I feel I have lost all control over my economic future.” must be considered a toughly worded statement, the percentage agreeing was quite high during the early 1990s – e.g. 52% in October 1993, and 42% in April 1996. (A further 16% neither agreed nor disagreed in April of 1996 - leaving only 42% of Canadians who were then willing to say that they felt they had control at all over their economic future). The percentage agreeing with the statement, “I think there’s a good chance I

the psychology of insecurity. Similarly, if part of well-being is security from crime victimization, the question is how dependably the subjective experience of personal security matches the trends in objective data. In fact, the issue of correspondence between subjective estimates of outcomes and objective data is broader, since subjective estimates of social outcomes may diverge significantly from objective social data.¹⁴ One way of putting it is to ask: “Should one use conceptually coherent objective data to model the well-being of “illogical” people?” Section 2.1 therefore considers the relationship between objective risk and subjective “insecurity”.

2.1 Can Objective Data Capture Subjective Reality – “Risk” and “Insecurity” compared

In discussing “insecurity”, psychologists such as Riskind (1997:685) emphasize the concept of perceived threat and the patterned interaction between subjective assessments of risk and objective indicators of hazards (Beck and Clark :1997). As Wells and Matthews (1996:422) put it: “It is well established that anxious individuals show bias in selective attention. They are prone to material whose content is threatening in preference to positive or neutral material.” Riskind (1997) also notes that movement or change is an important trigger for anxiety responses in many experimental situations. He proposes a model of “looming vulnerability” as a way of explaining both pathological and normal anxiety. Anxiety responses are triggered by changes, since “in general, the perceptual and nervous systems detect changes in things rather than static things”.(Riskind: 1997,698). Known hazards, of an unchanging nature, may generate an objective probability of harm, but will not generate a corresponding degree of insecurity, or attention, if individuals become habituated to that risk. However, as the saying goes, “once bitten, twice shy” - anxiety responses are more likely to be observed in individuals who have had a direct prior personal experience of a negative event.

could lose my job in the next couple of years” was, at the same dates, 41%, and 44%. EKOS Research Associates (1996:82, 84).

¹⁴ On inequality perceptions, for example, see Osberg (2004) for a discussion of the difference between perceived and actual pay differentials or Evans and Kelley (2003) who note that there is a systematic tendency for survey respondents to place themselves “in the middle” of the income distribution, whatever their actual income.

As Kreps (1990:112) notes, the predominant approach in economics is to weight the utility to be derived from any future outcome by the compound probability of that outcome occurring. Individuals' assessments of probabilities are assumed not to diverge systematically from objective probabilities and small changes in probabilities are assumed to receive the weight that such changes mathematically deserve. Unfortunately, there is considerable evidence that people use predictable heuristic devices to help solve the problem of probability estimation. Even for the statistically sophisticated, these heuristics diverge in predictable ways from a "rational" Bayesian approach. In forming estimates of the probability of events, people tend to be insensitive to prior probabilities, to sample size information, and to the predictability of events. Estimates are often influenced by such misconceptions of chance processes as expecting heads after a run of tails in tossing a coin, and people tend to "anchor" probabilities in such initial estimates as equal probability. As well, probability estimates are heavily influenced by the availability of illustrative instances and the vividness of possible outcomes.¹⁵

Once a probability estimate has been formed, how is that information processed? A large body of empirical research has presented experimental subjects with stated probabilities of events and has demonstrated the prevalence of "irrational" choices when individuals are faced with very small probabilities, with probabilities of uncertain magnitude and with choices that are "framed" in different ways.¹⁶ In estimating probabilities, the evidence is that "individuals rescale probabilities, with more weight (proportionately) given to small probability events"(Kreps;1990,116). These experiments are quite distinct from the literature on anxiety, or that on the formation of subjective probabilities, since they typically take the form of volunteer subjects choosing between alternative prospects of gain, with defined probabilities – i.e. there is no uncertainty and no prospect of unwanted negative outcomes.

As well, Kahneman and Tversky have argued that: "the outcomes of risky prospects are evaluated by a value function that has three essential characteristics. *Reference Dependence*: the carriers of value are gains and losses defined relative to a reference point.

¹⁵ For further discussion, see Tversky and Kahneman (1974), Kahneman et al (1982)

¹⁶ "Framing" – whether a nuclear power plant is portrayed as having a 99.9% chance of safety or a 0.10% chance of meltdown – has been shown to be crucial in many contexts. See also Kreps' discussion of the Allais

Loss Aversion: the function is steeper in the negative than in the positive domain; losses loom larger than corresponding gains. *Diminishing Sensitivity*: the marginal value of both gains and losses decreases with their size”. They justify these propositions by citing a great deal of experimental evidence designed to distinguish between loss aversion in outcomes and the conceptually distinct issues of risk aversion and the estimation and processing of probabilities. They argue: “The value function appropriately reflects three basic facts: organisms habituate to steady states, the marginal response to change is diminishing and pain is more urgent than pleasure. The asymmetry of pain and pleasure is the ultimate justification of loss aversion in choice. Because of this asymmetry a decision maker who seeks to maximize the experienced utility of outcomes is well advised to assign greater weight to negative than to positive consequences”. (Tversky and Kahneman,1991:1039, 1057)¹⁷

All these issues – how people form subjective estimates of probabilities, how they process probability information and how they evaluate losses – interact in their implications for a conception of individual economic insecurity, and how it might differ from risk. Losses appear to matter more than gains and objectively small probabilities of vivid losses can matter disproportionately. Furthermore, in the real world the inability of individuals to deal “rationally” with very small probabilities of loss and the prevalence of anxiety responses often occur simultaneously. One general implication is that survey data on subjective estimates of risk or security are extraordinarily likely to be sensitive to which issues are raised and exactly how questions are posed.

However, to put the issue more clearly, a real world example is useful. Presumably all would agree that the possibility of death due to terrorist attack detracts from well-being and that it might be reasonable to consider this risk as part of an indicator of well-being. Objectively, as an actual probability in any given year or as a proportion of deaths from all causes, deaths from terrorist attack in North America are minute – both before and after September 11, 2001. If objective probabilities were the guide, the probability of death in an

and Ellsberg paradoxes (1990,112-120) or the discussion by Slovic et al (1990) of the importance of compatibility and framing in perception.

¹⁷ Tversky and Kahneman(1991:1054) suggest that in practice losses have about twice the utility impact of gains, in both risky and riskless choices.

automobile accident would be far more important to include as a component of a well-being indicator – and an idealist might argue that the costs and benefits of saving lives through highway improvements or counter-terrorism measures should be compared rationally by voters.

However, subjective estimates of the probability of deaths due to terrorism, and subjective anxieties about terrorists, were far above their objective probability before 11/9/2001 and have since escalated. Should subjective or objective data on the risk of death from terrorist attack be included¹⁸ as part of an indicator of well-being? A cynic might have a different answer than an idealist. An idealist might hope that objective data would illuminate the actual importance of this issue in voters' lives. However, for a cynic, the billions that have been spent on anti-terrorism measures and the constraints on political debate and human rights that it has enabled are ample evidence of the political potency of this issue – and the possibilities that it can be manipulated to ensure electoral success.

3. Conclusions:

This paper has been written by someone who has devoted a great deal of time and effort to the construction of a logically coherent Index of Economic Well-Being, assembled in a transparent way from objective economic data (see, for example, Osberg and Sharpe, 2002). The revealed preference of the author is clearly not to use subjective data and not to present an eclectic “Report Card” of miscellaneous indicators. Using the cynic / idealist dichotomy of Section 1 of this essay and the logical / eclectic distinction of Section 2, this can be seen as an example of the behaviour of a “logical idealist”.

However, in economics it is also common to distinguish between normative analysis of how things should be and positive analysis of how things actually are. Eclecticism in social indicators can be partly defended on the “positivist” grounds that conceptual coherence sometimes comes at considerable empirical expense. And as a positive analysis of why and how governments now actually use indicators of well-being, the cynical perspective has a certain realism to recommend it.

¹⁸ Or perhaps excluded, on the grounds of empirical unimportance.

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Appendix 1

Twenty societal indicators, by theme

Economic opportunities and innovation in Canada

- real gross domestic product per capita
- real disposable income per capita
- innovation
- employment
- literacy
- educational attainment

The health of Canadians

- life expectancy
- self-rated health status
- infant mortality
- healthy lifestyles*

The Canadian environment

- climate change
- air quality
- water quality
- biodiversity
- toxic substances in the environment

The strength and safety of Canadian communities

- volunteerism
- attitudes toward diversity
- cultural participation
- political participation
- safety and security

Appendix 2.**Examples of composite indicators****Area / Name of Composite Indicator****Economy**

Composite of Leading Indicators (OECD)
 OECD International Regulation Database (OECD)
 Economic Freedom of the World Index (Economic Freedom Network)
 Economic Sentiment Indicator (EC)
 Internal Market Index (EC)
 Business Climate Indicator (EC)

Environment

Environmental Sustainability Index (World Economic Forum)
 Wellbeing Index (Prescott-Allen)
 Sustainable Development Index (UN)
 Synthetic Environmental Indices (Isla M.)
 Eco-Indicator 99 (Pre Consultants)
 Concern about Environmental Problems (Parker)
 Index of Environmental Friendliness (Puolamaa)
 Environmental Policy Performance Index (Adriaanse)

Globalisation

Global Competitiveness Report (World Economic Forum)
 Transnationality Index (UNCTAD)
 Globalisation Index (A.T. Kearny)
 Globalisation Index (World Markets Research Centre)

Society

Human Development Index (UN)
 Corruption Perceptions Index (Transparency International)
 Overall Health Attainment (WHO)
 National Health Care Systems Performance (King's Fund)
 Relative Intensity of Regional Problems (EC)
 Employment Index (Storrie and Bjurek)

Innovation/ Technology

Summary Innovation Index (EC)
 Networked Readiness Index (CID)
 National Innovation Capacity Index (Porter and Stern)
 Investment in Knowledge-Based Economy (EC)
 Performance in Knowledge-Based Economy (EC)
 Technology Achievement Index (UN)
 General Indicator of Science and Technology (NISTEP)
 Information and Communications Technologies Index (Fagerberg)
 Success of Software Process Improvement (Emam)
Source: JRC (2002) and compilation by OECD.

ⁱ. Our approach is broadly consistent with that of Di Tella et al. (2001), but will provide lower estimates of the aggregate costs of increases in unemployment since the employment/population ratio exhibits less variability than the unemployment rate.