Measuring the Real Wealth of Nations

An Analysis of Recent Initiatives

by

Luke Andrew Walker

Thesis

submitted in partial fulfillment of the

requirements for the Degree of

Bachelor of Arts with

Honours in Economics

with Business

Acadia University

March, 2003

This thesis by Luke Andrew Walker

is accepted in its present form by the

Department of Economics

as satisfying the thesis requirements for the degree of

Bachelor of Arts with Honours

Approved by the Thesis Supervisor

Maurice Tugwell — April 15 2003

Maurice Tugwell — Date

Approved by the Head of the Department

John Davies — 15/4/2003

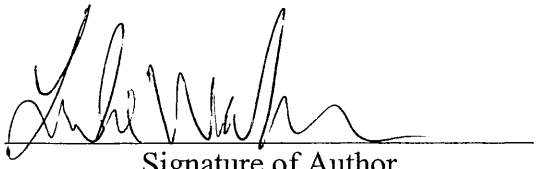
John Davies — Date

Approved by the Honours Committee

April 30, 2003

Date

I, Luke Andrew Walker, hereby grant permission to the University Librarian at Acadia University to provide copies of the thesis, on request, on a non-profit basis.



Signature of Author

April 14/2003

Date

Acknowledgements

I would, first and foremost, like to thank Dr. Tugwell for his support through my many topic changes and missed deadlines, and his wise combination guidance when I needed and laissez-faire when he knew I could figure things out on my own.

I also greatly appreciate the efforts of the rest of the department, particularly Dr. Davies for his careful reading and for giving me a title, and Dr. Hobson and Dr. Moussa for sitting down with the honours students and 'getting the fire burning' beneath us.

Finally, I would like to thank Kate Wagner for keeping on with her own thesis all the way through. Without that little thought in the back of my head that I was falling behind or the frequent check-ins at crunch time, I might not have had the motivation to finish.

Table of Contents

Abstract

As sustainable development becomes a central concern, GDP and other traditional indicators of growth are increasingly seen as inadequate measures a society's progress toward its goals. These tools were meant to measure a less complete form of growth than is now expected. This thesis examines the history of economic measurement, and analyses new indicators that focus on the concepts of social welfare and progress.

These tools began to emerge twenty years after Kuznets developed his measure of gross national income, the first comprehensive framework for measuring growth. The alternatives to this system generally adopted its basic framework, but added different variables, from the value of housework to the cost of environmental degradation. The Genuine Progress Index is one such US-developed indicator that incorporates into GDP the monetized value of different growth and environmental measures.

Two Canadian organisations are each independently improving upon the initial US GPI. The Pembina Institute has developed a complete framework for progress-oriented accounting, focusing on indices and avoiding monetization. GPI Atlantic has focused on developing community-based indicators, surveying residents of two Nova Scotia counties to determine the values appropriate for use in the GPI. This thesis advocates the combination of these two efforts to develop a goal-based, weighted index, which could prove a valuable tool in sustainable policy development.

1. Introduction

Society has changed over the last sixty years - the world is now in an information age filled with new technologies, which allows for a greater understanding of both the physical and social world. This has brought to light some major concerns surrounding the ways individuals and societies conduct the business of their lives and how these practices are harming the planet and all life on it. However, the measurements used to denote progress have not changed dramatically over this time. In fact, since the introduction of gross national product and the national accounting system behind it in the 1940's, few changes have been made to its basic framework.

Since their introduction, these measures - GDP, GNP, national income and a host of others - have become enshrined in global society. The development of nations has been evaluated almost solely on the level of income per capita. Dips in the growth rate of the economy, based solely on growth in GDP (gross domestic product), have been enough to trigger panic in the media and swift government and central bank actions. However, major changes in other factors affecting the lives of people around the world have not been able to generate such reaction. Growing income equality and poverty in the developed world, decreasing leisure time and an accompanying increase in stress levels, and even decreases in volunteerism and increased commuting times, all serve as examples of important changes in society that have not been met with the same reaction as weak growth of output. The factor receiving perhaps the most attention is environmental degradation, and even then, change in this area has been far from swift, or well-received, since any actions taken to protect the planet could potentially hinder GDP growth figures.

There is no doubt, though, that these factors affect the economy – perhaps not that economy measured by GDP, but the economy that people actually experience, which is far more complex than physical products and dollars. However, despite a movement toward more complete social indicators in the 1960's, no viable replacement, or even complement to the current system of national accounting statistics has emerged. However, since 1995, work has been underway on a new accounting framework, called the Genuine Progress Indicator (GPI). This work has spread from the United States to several countries spanning the globe, including, and perhaps most importantly, Canada.

While other nations have adopted the very basic GPI framework and used it mostly in left-of-centre alternative policy think tanks, GPI in Canada has become an official Statistics Canada pilot project. Organisations in two provinces, Alberta and Nova Scotia, are working to turn a relatively simple indicator that aimed to modify GDP to express "the economy that people actually experience" (Cobb, Halstead et al. 1995) into a rich, flexible accounting framework that includes over 50 indicators and builds a complete picture of the state of a region's progress. The need for this work and the direction in which it must proceed in order to truly become a valuable addition to the national statistics toolkit will be the focus of this thesis.

Building an argument for investment in such a framework must begin with an explanation of its necessity. Chapter 2 serves as a survey of the literature on the nature of economic growth measurements, and an explanation of why certain elements of society have and have not been included in previous statistics. This chapter also introduces the notion of progress and how better to measure it using alternative indicators. One of these indicators, GPI, emerges as the focus of Chapter 3, which examines the original

Redefining Progress initiative. It then moves to analyse recent developments in the field prompted by two Canadian organisations, GPI Atlantic and the Pembina Institute, the two organisations that are working to turn the basic, flawed GPI framework into a valuable tool. Chapter 4 examines the next steps that the two organisations must take to make their research valuable. One of the major flaws in the development of GDP that lead to this need for GPI was a lack of consensus in relation to the goals of growth and how best to measure them (Kapuria-Foreman and Pearlman 1995, 1532), and without a consensus on this in any new work, the indicators will be no better than the GDP they are working so hard to displace as the primary policy-making indicator.

However, if the two organisations are able to combine their efforts, a weighted composite genuine progress *index* could emerge, which, based on Pembina's framework and GPI Atlantic's research on community values in Kings County, Nova Scotia, could be the first real, usable tool and a step toward implementing GPI on a national, or even international scale. This tool would allow for the measurement of a region's progress toward its own goals, and not those of the select group of individuals responsible for GDP, allowing societies, for the first time, to truly, genuinely measure their progress.

2. Economic Measurement: Evolving from Growth to Progress

For the last half-century, Gross Domestic Product (and before 1991, Gross National Product) has been the primary tool for measuring economic growth. While it has been an acceptable tool for its principal function, measuring marketed economic activity, the wide range of uses it has been associated with have rendered its value as an overall measure of progress questionable. In recent years particularly, GDP has been seen as a simple but definitive measurement of how society is doing, while all it is really measuring is the sum of goods which have been produced *and* sold at market[1]. While there is little doubt among North Americans that increasing GDP is a sign of a society's success, there is also little doubt that it takes more than economic growth to have real progress. However, all that GDP measures is economic activity – not necessarily even the complete economy: indicative of this is the fact that in Nova Scotia, for example, the value or product of unpaid labour or housework amounts to 42% of the value of GDP (Colman 1998, 96). Simon Kuznets, one of the architects of GDP, questioned the value of his rendition of national income in his very first report to Congress on the subject: "the welfare of a nation," the report concluded, can 'scarcely be inferred from a measurement of national income as defined above'" (Cobb, Halstead et al. 1995).

Several new indicators that more adequately account for the issue of welfare, including Redefining Progress' Genuine Progress Indicator (and similarly, GPI Atlantic's

---

[1]Certain exceptions to this exist. For example, food and fuel produced and consumed by farm families, and the rental value of owner-occupied dwellings are both included in the calculations of GDP/GNP despite being transactions outside the realm of markets. See page 66 of: Daly, H. E. and J. John B. Cobb. 1994. *For the Common Good.* Boston, Beacon.

Genuine Progress Index), the United Nation's Human Welfare Indicator, Tobin's Measure of Economic Welfare, and Green, or Environmentally-Adjusted Net National Product, each take into account a different portion of what GDP leaves out – from the costs of using up natural resources, to the value of unpaid labour, to various social concerns like stress, healthcare, literacy, and crime rates. These new measures all face the struggle of competing with GDP for attention, although many of them, seemingly, have a more direct relationship with certain critical areas of the measurements society needs than does GDP. The following is an examination of how GDP came to play such an important role in global society, and how the need for alternative indicators has arisen.

2.1 Measuring Growth

Attempts to measure national accounts go as far back as 1655, when Thomas Petty attempted to measure the taxable base of England. Contemporaneously in France, the Physiocrats sought to measure the nation's agricultural capacity, as agriculture and its tangible products were seen as the true source of the nation's wealth (Cobb, Halstead et al. 1995). Adam Smith, equally, believed that the true wealth of a nation came from its tangible products, and that all other forms of labour, while useful, were "barren and unproductive."

> The unproductive class, that of merchants, artificers, and manufacturers, is maintained and employed altogether at the expence of the two other classes, of that of proprietors, and of that of cultivators. They furnish it both with the materials of its work and with the fund of its subsistence, with the corn and cattle which it consumes while it is employed about that work. The proprietors and cultivators finally pay both the wages of all the workmen of the unproductive class, and of the profits of all their employers. Those workmen and their employers are properly the servants of the proprietors and cultivators. They are only servants who work without doors, as menial servants work within. Both the one and the other,

> however, are equally maintained at the expence of the same masters. The labour of both is equally unproductive. It adds nothing to the value of the sum total of the rude produce of the land. Instead of increasing the value of that sum total, it is a charge and expence which must be paid out of it (Smith IV.9.14).

By the end of the 19th century, Britain had become very focused on trade and finance, and service industries were making up an ever larger portion of the activity of the nation. To leave these out of the realm of economics by declaring them "barren and unproductive" no longer made sense. Alfred Marshall, in his *Principles of Economics*, explained that "in the second class are those immaterial goods which belong to him, are external to him, and serve directly as the means of enabling him to acquire material goods. Thus it excludes all his own personal qualities and faculties, even those which enable him to earn his living... But it includes his business and professional connections, the organization of his business" (Marshall 1898, 125-6), clearly indicating that it is not the tangibility of goods that defines their worth, but their utility in terms of acquiring tangible goods. Marshall also outlined an aggregate output indicator much along the same lines as GDP, the national dividend: "In other words, each will have an equal share in the net sum total of things and services produced: or, as we may say, the *national dividend.* This will constitute the demand for labour" (579).

One of Marshall's students, John Maynard Keynes, in his *General Theory of Employment Interest and Money*, laid out an aggregate demand function in which effective demand is simply "the aggregate income (or proceeds) which the entrepreneurs expect to receive, inclusive of the incomes which they will hand on to the other factors of production, from the amount of current employment which they decide to give" (55). This is largely the definition of the aggregate demand function still used today, and the

point at which the expected income is equal to the supply price that amount of output can fetch can be used to determine the total income and the equilibrium level of employment. Keynes's work also made it possible to calculate GDP using via expenditures: the sum of consumption; tax less government expenditure; investment; and net exports.

In the 1930's, as Keynes was developing his theory, Simon Kuznets developed a system of accounts used to estimate GDP based on incomes for the US Department of Commerce. His efforts "formalised the first phase of the institutional measurement of national income and the creation of the American national income accounts...Kuznets' approach to and conception of national income are most clearly elucidated in his 1933 article for the *Encyclopedia of Social Sciences* entitled 'National Income'" (Kapuria-Foreman and Pearlman 1995, 1529). Gross National Product was one of Kuznets' aggregate measures, based upon national income combined with indirect taxes, business transfer, government enterprise surpluses, and capital consumption charges, less subsidies. By his definition, national income was the "aggregate earnings of labor and property from current output, or total factor cost of goods and services produced," and GNP was the "market value of the output of goods and services, before deductions of capital consumption charges" (Kuznets 1948, 155).

In June 1932, based on a draft of Kuznets' article for the *Encyclopedia*, the U.S. Senate passed a resolution directing the Secretary of Commerce to provide it with national income figures for the three years previous. Two of Kuznets students, Robert Nathan and Milton Gilbert, were charged with preparing these estimates. By 1941, estimates were available for U.S. national income from 1919-1938, and researchers James Meade and Richard Stone were preparing the equivalents for the United Kingdom.

By this time, Keynes had published his work, *How to Pay for the War: A Radical Plan for the Chancellor of the Exchequer*. This brought forth income estimates for the U.K., which were used to explain why war effort during World War II should be financed using higher taxation rather than deficit spending. Differences existed between the U.S. and U.K. in terms of income estimating methodology, in that Meade and Stone's work was entirely Keynesian, whereas the U.S. numbers deviated somewhat from that framework, as well as from Kuznets' own framework.

Gilbert's guidelines are still those used today, and although the structure has been refined, it is largely the same as that used in the 1940's. Even at the time of its development, the originator of the work, Kuznets, saw many flaws in its construction. Kuznets saw national income estimates as a "summary and appraisal notion rather than an analytical entity" (Kuznets in Kapuria-Foreman and Pearlman 1995, 1531).

> Such an appraisal requires an understanding (on the part of the accountant) of the goals of economic activity and some mechanism for defining and evaluating social productivity. In the absence of these criteria, national income would be a meaningless total... Therefore some concept of a socially accepted definition of productive activity must be antecedent to any definition of national income and must guide all subsequent choices regarding the treatment and valuation of particular entries (Kapuria-Foreman and Pearlman 1995, 1532).

Kuznets felt that Gilbert's work lacked such a consensus on productive activity and that decisions had been made "on the basis of expediency" (ibid). To Kuznets, existing social structure was a key element in deciding the make-up of national income, so the omission of the services rendered by housewives from national income was a large one, an argument with which nearly all the developers of alternatives to GDP would agree.

2.2 Measuring Welfare

Initially, reporting of growth tended to focus on Gross National Product, which, denotes "the total money income of [a nation's] citizens". The other, now more common, measure is GDP, which "measures the total money-denominated, domestically-produced goods and services" (Henderson 1991, 148). Since November 1991, the U.S. Department of Commerce has been focusing its attention on GDP. This change has various implications, since GNP measures income of a country's nationals, whereas GDP measures everything happening within a nation's borders, leaving out the contribution of citizens working abroad, but including incomes earned by foreigners, money that generally does not stay in the nation.

This is, by GDP/GNP's critics, only a minor problem in the current national accounting system. Much more important, they argue, is all that which GDP/GNP leaves out completely: unpaid labour, the consumption of natural resources, and pollution, as well as countless other factors. There is also room for the argument that no measure of economic welfare alone, even if it includes all of the System of National Accounts' (SNA) omissions, can truly serve as an indicator of progress or development. This is the attitude taken by the United Nations Development Programme, whose indicators – in which economic progress is only one of several factors – are outlined later in this chapter.

Two decades after the introduction of GNP, a flurry of alternative indicators emerged, in attempts to address the perceived inadequacies of the wartime measures. Many of these used GNP as a basis, adding or removing various factors that were deemed to be significant or superfluous to the creators of a given index. While exact composition varied from index to index, those advancing these more normative indicators found the

basis for their efforts in four main flaws in the use of GNP for giving an indication of welfare:

1. such measures cannot be equated with psychological satisfaction, happiness, or life fulfillment;
2. the market valuation of goods and services is not necessarily related to their welfare content;
3. non-marketed activity tends to be excluded from consideration;
4. GNP measures often obscure important distribution averaging. (Encel et al. in Carley 1981, 17-8)

Economists tended to treat these indicators lightly, pointing out that GNP was never meant to measure social welfare (Okun in Carley 1981; Kuznets in Cobb, Halstead, et al. 1995). This led to the creation of social indicators linked more closely to the non-economic aspects of development, serving to highlight other aspects of welfare or development while recognising the important role that good economic health plays in well-being – the U.N. indicators outlined later in this chapter being a prime example. The U.S. Department of Health, Education and Welfare, in 1969, defined this type of social indicator as a "statistic of direct normative interest which facilitates concise comprehensive and balanced judgement about the condition of major aspects of a society. It is, in all cases, a direct measure of welfare and is subject to the interpretation that if it change in the 'right' direction... things have gotten better" (Carley 1981, 22).

Alternative economic indicators have, nonetheless, emerged over the past 40 years. Rather than trying to measure growth, these indicators attempt, in different ways, to describe progress. The difference between these two terms, while not necessarily obvious, is important. Growth, according to Rostow in the footnotes of *The Process of Economic Growth*, is "a relation between the rates of increase in capital and the working force, on the one hand, and in population, on the other, such that per capita output (not

necessarily consumption) is rising" (Rostow 1960, 82). Inflation-adjusted, or real GDP is then a relatively good measure of economic growth, as it is "the value... of all final goods and services produced by the economic system during a calendar year. *Real* GDP is output measured in constant prices" (Peterson and Estenson 1996, 696). Increases in this measure increase the growth of marketed economic activity in a given area.

GDP, and a focus on simple economic growth, is, however, often criticized for all that which it does not count. The proponents of GDP's widespread use claim it to be objective: "A measure of national progress must be scientific and value-free, they say" (Cobb, Halstead et al. 1995); "economics focuses on concepts that can actually be measured" (Samuelson in Cobb, Halstead et al. 1995). On the other hand, those who find fault with the current practice believe that GDP, by leaving out all that which is hard to count, is imposing its own value judgements:

> To leave social and environmental costs out of the economic reckoning does not avoid value judgments. On the contrary, it makes the enormous value judgment that such things as family breakdown and crime, the destruction of farmland and entire species, underemployment and the loss of free time, count for nothing in the economic balance. The fact is, the GDP already does put an arbitrary value on such factors--a big zero (Cobb, Halstead et al. 1995).

The opponents of GDP's use as the primary indicator believe that by assigning this 0-value to certain aspects of society, the resulting number is not an accurate representation of how society has truly changed. Mark Anielski of the Pembina Institute, an environmental policy research organisation, believes that "the GDP is like a faulty calculator that can only add the transactions in an economy without accounting for the benefits and costs of real wealth - natural, human and social - that are the foundation of genuine well-being" (Anielski 1999, 1); on the same note, Robert F. Kennedy once wrote

"(GNP/GDP) measures everything except that which makes life worthwhile" (Kennedy in Cobb, Halstead et al. 1995). These authors, and many others, including Kuznets, one of the creators of GDP, are leading the way toward an indicator of progress, rather than simple economic growth.

Although often used interchangeably with growth, progress, "the action of stepping or marching forward or onward" (Oxford English Dictionary), necessitates a goal to move toward; in other words, it is value-dependent. Using 'progress' when 'growth' is meant suggests that increasing product per capita is a means toward the goal of maximizing this measure, and that reaching this goal is desirable. However, particularly with the growth in popularity of 'sustainable development,' it has become clear that simple growth, while perhaps a necessary criteria, is not a sufficient measure of progress. "The current reliance on economic growth statistics alone as the basic measure of prosperity and progress implicitly devalues the importance of our natural and social capital" (GPI Atlantic 2000, iii). A more comprehensive measure of progress would take into account welfare, that of society, and of its surroundings; a more comprehensive measure would take into account all that which is important to society.

In the early 1970's, Nordhaus and Tobin developed a Measure of Economic Welfare (MEW) with the aim of developing a "convincing measure of the positive contribution of the economy to social welfare" (Daly and John B. Cobb 1994, 75), without claiming it to be a complete measure of well-being. However, the goal behind this was not to improve on the work of GNP, but to eliminate MEW's own necessity by demonstrating that "GNP correlates sufficiently well with economic welfare to make it unnecessary" (ibid 76). According to Daly and Cobb, Nordhaus and Tobin first separated

consumption from investment and intermediate expenditure. This is necessary as GNP is a measure of production, whereas economic welfare is a measure of consumption. The pair then made a series of adjustments to come to a sustainable per capita consumption figure, noting that some portion of national product must be reinvested to sustain per capita consumption given a rising population. The second step is to make imputations for leisure, non-market work, and capital services. The third task is to subtract the negative externalities required for economic growth in an urban setting: "Some portion of the higher earnings of urban residents may simply be compensation for the disamenities of urban life and work. If so, we should not count as a gain of welfare the full increments of NNP that result from moving a man from a farm or small town to city" (Nordaus and Tobin in Daly and John B. Cobb 1994, 78). There is some debate over whether or not this list of regrettable expenditures should be expanded, or whether some of the adjustments should be removed. This is a common problem among indicators – MEW and the like are, after all, meant to include that which GDP omits or unnecessarily adds in its perceived evaluation of social welfare. Nordhaus and Tobin argue that it is entirely possible that "all our wants are just regrettable necessities; maybe productive activity does no better than to satisfy the wants which it generates; maybe our net welfare product is tautologically zero" (ibid).

After computing this index for the period 1929-1965, Nordhaus and Tobin found that "the progress indicated by conventional national accounts is not just a myth that evaporates when a welfare-oriented measure is substituted" (ibid, 79). Daly and Cobb, however, found that a closer examination of the findings led to a vastly different conclusion: while the overall trend matched that of GNP in that they both moved upward,

from 1935 to 1945, while GNP rose 90%, MEW rose only 13%; over the next two years, while GNP rose 15%, MEW rose 16%; and during the final 18 years of the period covered, while neither depression nor post-war recovery was a factor, GNP rose at a rate six times that of MEW (Daly and John B. Cobb 1994, 79-80).

This work on MEW created interest among other researchers, despite the original authors' dropping of the research after deciding that sufficient similarity existed between GNP and MEW. Economists in Japan, basing their work on MEW, developed a new measure, New National Welfare (NNW), which does not include the value of housework or leisure, but does add some forms of environmental degradation and the cost of highway accidents (ibid 81).

Daly, a World Bank economist, and Cobb, a theologian, developed their own welfare indicator, after uncovering what they believed to be flaws in the MEW. They created their Index of Sustainable Economic Welfare on a base of "mainstream economic discussion," believing that "it is urgent we replace the GNP with a measure that does not encourage the growing gap between the rich and the poor and that discourages unsustainable practices" (1994. 84). This is a vastly different attitude from that of Nordhaus and Tobin, who aimed to prove that GNP was a valid measure of welfare, as well as from that of the creators of GPI or the UNDP indicators, who believe that while GNP is not perfect, it is of some value. Daly and Cobb make much more drastic modifications to the consumption portion of GNP than did Nordhaus and Tobin, or the creators of NNW. They begin by weighting personal consumption based on distributional inequality, add household labour, other services and improvements in health and education spending, and then subtract the costs of urban life, pollution, loss of habitat,

and long-term environmental damage, among others.[2] The authors found that, despite strong GDP growth over the 40 year period studied, ISEW grew only 16.5%, or 0.39% per year. Broken down further, the authors found that ISEW grew slowly in the 1950's at 0.21% per year, 1.57% per year in the 60's, down to 0.21% a year in the 70's, and during the 1980's, actually declined 0.43% per year. "Economic welfare has been deteriorating for a decade, largely as a result of growing income inequality, the exhaustion of resources, and unsustainable reliance on capital from overseas to pay for domestic consumption and investment... improvements in car safety and reductions in air pollution have made small but important contributions to raising the level of economic welfare... Clearly the question then becomes whether our nation is going to continue in its efforts to increase total output or whether we are going to redirect our focus towards the enhancement of sustainable economic welfare" (Daly and John B. Cobb 1994, 507).

2.3 Measuring Progress

Similar to ISEW, Redefining Progress, a California-based public policy organisation, has since 1995 been measuring societal progress in the United States using their Genuine Progress Indicator (GPI). This new alternative to GDP was introduced an article in *The Atlantic Monthly* entitled "If GDP is Up, Why is America Down" (Cobb,

[2] Full methodology and ISEW calculations for 1950 to 1990 can be found in the Appendix to *The Common Good* (Daly and Cobb 1994, 443-507).

Halstead et al. 1995) by several of the institute's lead researchers.[3] The authors have attempted to develop a complete method of describing real growth in society using some of the building blocks of GDP, making several adjustments, and adding over twenty factors traditionally not included in national accounts. "In contrast to the GDP, the GPI attempts to measure the costs and benefits of human, social, natural and human-made capital" (Cobb, Halstead et al. 1995).

The process, according to Anielski, begins with the same personal consumption expenditures, which "make up 65 percent of the U.S. GDP" (1995, 2), which are then adjusted for income inequality. To this, researchers then add the value of: housework, parenting and the service from household infrastructure; volunteer labour; and the value from streets and highways. GPI Atlantic found in a study on the value of housework that this portion of the previously-listed *alone* amounts to the equivalent of 42% of Nova Scotia's GDP at market prices (Colman 1998, 96) and is essential to the very existence of the market economy:

> The market economy cannot exist without the shadow economy. The market economy is dependent upon people (mostly women) to maintain those who work in the formal economy... but the market economy pays nothing for this work. In effect, then, the shadow economy, or the informal economy, subsidizes the market economy. (ibid 1998, 23)

After these additions, several factors seen as costs to society are subtracted from the value, including: the costs of lost leisure, family breakdown, commuting and underemployment; the costs of crime, car accidents and consumer durables; and the costs

---

[3] It should be noted that while John Cobb Jr. co-authored *For the Common Good*, it was Clifford Cobb who led the research into GPI. The two did collaborate on research on *The Green National Product: An Alternative to Gross National Product to Measure Well-Being* (Lanham, Md: U.P. America).

of environmental degradation, including various forms of pollution and habitat degradation. The figure is then adjusted to reflect net capital formation and foreign borrowing to arrive at a final GPI.

This figure gives a dramatically different picture of progress than GDP. Whereas GDP has shown near-continuous economic growth in the U.S. since 1950, GPI has been faltering since the early 1970's. Several other nations, including Germany, the U.K., Australia, and several Canadian provinces, are in the process of developing GPI projects of their own. One of the most innovative projects is occurring in Nova Scotia, where GPI Atlantic is developing community-based indices, working from the ground up, rather than attempting to modify existing aggregate data.

2.4 Measuring Development

Moving further away from purely economic measurement, the United Nations has developed a set of indicators "to capture the attention of policy makers, media and NGOs and to draw their attention away from the more usual economic statistics to focus instead on human outcomes, not economic data" ([United Nations Development Programme] 2002). The process for finding these indicators is much simpler than determining GPI or deriving GDP, and the indicators make no pretense of measuring the economic well-being of a nation. Although GDP is included as a measure of standard of living, the focus of the indices is on very human terms, to emphasize the other, non-economic aspects of development that are often ignored in policy-making" (ibid). They are each calculated using only a few different sets of data, as opposed to GPI's over twenty adjustments to GDP, and each results in a simple index by which countries can be ranked for

comparison, or compared to themselves over time. However, the UN Development Program admits that the indices are not a complete, stand-alone measure of development, and that they serve only to bring to light issues for further, more detailed, study: "the indices can only offer a broad proxy on the issues of human development, gender, and human poverty. A fuller picture of a country's level of human development requires analysis of other human development indicators and information" ([United Nations Development Programme] 2002).

The UN's Human Development Index, the most commonly-used of these indices, attempts to "measures a country's achievements in three aspects of human development: longevity, knowledge, and a decent standard of living" (ibid). The process of calculating this index is relatively simple. For each of the three aspects, which are given equal weighting in the final index, one or two indicators were chosen, and minimums and maximums were assigned. For the *Human Development Report 2002* (253), these were:

Table 2.1 – Minimum and Maximum Values for HDI Components

Indicator	**Maximum Value**	**Minimum Value**
Life expectancy at birth (years)	85	25
Adult Literacy Rate (%)	100	0
Combined Gross Enrolment Ratio[4]	100	0
GDP per capita[5]	40,000	100

[4] This is the combined primary, secondary, and tertiary enrolment in a given region. (UNDP FAQ)

[5] GDP per capita, for the purposes of these indicators, is measured in purchase power parity, where the GDP is adjusted to take into account price level differences between countries and better reflect standard of living (UNDP FAQ).

The index is then calculated using the process outlined in Appendix 1. The resulting number will be an index, with a value between zero and one, which makes comparison between nations simple.

The Gender-related Development Index (GDI) focuses on the same measurements as HDI, but adjusts the indicators to penalize gender-inequality. The male- and female-specific indices are calculated for each of the three key areas, and the weighted-average is taken, the weight being based on the proportion of males and females in the population of the area in question. The index is then compiled in the same fashion as HDI, with equal weights going to the life expectancy, education and income indices (United Nations Development Programme 2002, 255-6). The United Nations Development Programme uses GDI to "draw attention to gender issues" ([United Nations Development Programme] 2002). It also frequently uses its Gender Empowerment Measure, which measures political and economic participation and decision-making power and power over economic resources, to complement GDI.

Whereas the HDI and GDI measure achievement in a nation, another UN indicator, the Human Poverty Index, measures failures. HPI-1, the formula used in developing countries, consists of the same three aspects – longevity, knowledge, and a decent standard of living – as the HDI, but looks at each of those factors in a more negative sense. It counts the probability of not surviving to the age of forty, the adult illiteracy rate, and the un-weighted average of the percentage of the population not using improved water sources and that of children under five who are underweight. HPI-2 is measures the same type of social exclusions in OECD countries using measures more appropriate for developed nations. The probability at birth of not surviving to age 60, and

the percentages of adults lacking functional literacy skills and population below the income poverty line, and the rate of long-term unemployment are each given equal weighting. Calculating HPI is "more straightforward than calculating HDI. The indicators used to measure deprivation are already normalized between 0 and 100, so there is no need to create dimension indices as for HDI" (United Nations Development Programme 2002, 254).

While these UN indicators create an interesting way to cast light on issues of development and inequality throughout the world, they are all based on widely available data combined using very naïve and arbitrary mathematics – in terms of development, should education have the exact same weighting as standard of living? The UN itself admits that its indicators provide only an overview of development, and that to make any judgment on the true state of a nation's development, many more indicators must be taken into account ([United Nations Development Programme] 2002), rendering of questionable value further study of their validity as indicators of well-being.

At the same time, the creators of the MEW have themselves declared its irrelevance, and, arguably, both the Japanese, and Daly and Cobb have already improved the research behind it, with NNW and ISEW. For this reason, and because of its widespread support on the international level, and the innovative local Community GPI initiative, GPI will become the focus of the remainder of this thesis.

2.5 Conclusion

Since Thomas Petty's initial attempts to measure the taxable base of England in the 17th century, the scope of that which is included in standard economic measurements

has increased dramatically. The concept of a 'good' expanded from the tangible, to include immaterial services, and measures expanded eventually to include even the utility of owner-inhabited dwellings. However, mainstream economic measurement largely stopped growing after this last development and the creation of GDP. For the last 60 years, estimates of the wealth of nations have remained largely unchanged in their methodology. However, the nature of society has changed in this time: there is an increased focus on environmental degradation and the protection of natural resources, health and education, and ever disappearing leisure time. Companies are becoming 'green' and introducing environmentally friendly practices due to customer demand. Employers are focusing more on non-cash benefits – holiday and flex-time, medical and dental insurance, and other incentives – rather than simple salary increases, due to employee demands. In short, there is an increased focus on well-being rather than simply wealth. Indicators of growth should, some argue, reflect this new focus. Kuznets himself acknowledged that as the nature of society changes, so must the nature of our indicators (Kapuria-Foreman and Pearlman 1995, 1532).

This is exactly what the various GPI projects worldwide, including GPI Atlantic, are attempting to achieve: an indicator that matches the values of the society it is describing. This goal, although seemingly simple, is really quite complex. How does one determine exactly what it is a society values, and once this is done, how can one compare the results between societies, that, because of their diverse nature, will result in indicators with different weightings and potentially entirely different factors? The problem is not simply one to be dealt with on the international level – will the GPI's being calculated for Alberta and Kings County, Nova Scotia even be comparable, or are the two regions

distinct enough that any comparison is impossible? Adding time to this mix only increases the complexity of a values-based measure. Is GPI, then, a worthwhile project, or will it result in a measure that is good only in the location in which it is developed, at the time it is initially calculated? These questions will be the focus of the remainder of this thesis.

3. Developing a Consensus on Genuine Progress

In an attempt to address the various inadequacies of GDP discussed previously, Redefining Progress developed the GPI in 1994. Cobb and his co-authors published a critique of GPI, and their development, in the Atlantic Monthly in October 1995. This has been followed with annual updates (the latest being released on December 2001) of the U.S. GPI. The concept has also spread to other areas: Mark Anielski and the Pembina Institute have led a GPI movement in Alberta; GPI Atlantic has focused on developing a community-based Genuine Progress Index; and there are also think thanks in countries like the UK, Sweden, Germany, and Australia working toward developing an index for their own economies (Matsu 1997, 59). This chapter will focus on uncovering the driving force behind the interest in GPI, and on the unique approach of Alberta and Nova Scotia's GPI efforts.

3.1 The American Effort

In October 1995, Clifford Cobb, Ted Halstead and Jonathan Rowe, all of Redefining Progress, published their article "If the GDP is Up, Why is America Down" in *The Atlantic Monthly.* This article was the first major announcement of their new economic indicator, the Genuine Progress Indicator. The GPI was meant not simply to denote the monetary value of transactions that had occurred over the course of a year, but give some indication as to the value placed by society on these transactions. The indicator is supposed to provide a glimpse of "the economy that people experience. We call it the 'genuine progress indicator' (GPI), and it provides substance to the gap between the economy limned by the commentators and the one that has brought increasing

apprehension and pain to so many others" (Cobb, Halstead et al. 1995). The authors noted that this original GPI was not meant to be an end in and of itself, that it was open to modification, and that it was meant largely "to suggest the kinds of measurements that the federal government, with its enormous statistical resources, could construct" (Cobb, Halstead et al. 1995), as contrasted with the meagre resources of Redefining Progress.

The authors developed their indicator from the viewpoint of a family sorting out its expenditures. "A family does not count every dollar spent as a step forward" (ibid), and neither does GPI – the authors have developed a list of the factors that add to well-being, and those that take away, and have added or subtracted them appropriately from the personal consumption figures of GDP. These modifications fall into ten major categories: crime and family breakdown; household and volunteer work; income distribution; resource depletion; pollution; long-term environmental damage; changes in leisure time; defensive expenditures; lifespan of consumer durables and public infrastructure; and dependence on foreign assets ([Redefining Progress] 2001).

These measures have been chosen because Redefining Progress believes that they reflect the values of the American people, and that they are the factors necessary for consideration in developing a new type of indicator, one "that would empower and facilitate America's move toward a more sustainable and socially equitable world" (Anielski and Rowe 1999, iii). The reasoning behind the inclusion (or omission, as GPI, much like its GDP forefather, could easily be considered an incomplete indicator) of certain factors may not be clear at first glance. Income distribution is very obviously linked to social equity, just as resource depletion, pollution and long-term environmental damage are linked to the notion of sustainability. How, though, do family breakdown,

defensive expenditures, and the lifespan of consumer durables relate to either of these two goals?

3.2 The Problem of Measuring Happiness

One of the major difference between GDP and GPI is that the creators of GPI will freely admit that it is a normative, value-based measurement, whereas GDP attempts to be a positive instrument that measures only a certain, very concrete set of the economy's characteristics (although Cobb, Halstead and Rowe, as well as Colman, argue that this is not the case, that by refusing to include certain items because it would require a value-judgment is to make the very type of judgment one was attempting to avoid). The creators of GPI also admit that their version of progress, as outlined using their ten major factors, is only a starting point. For this reason, many of the projects conducted outside the US have involved various factors that fit better with the values of that region; even Canadian GPI's differ in their composition from their American counterpart. GPI Atlantic bases its index on five main areas of concentration, using twenty-two indicators, including the Human Freedom Index, which was not included in the initial work of Redefining Progress (GPI Atlantic 2000, iii-iv).

The ten indicators combined to create GPI do represent, to some extent, the values of Redefining Progress and its researchers. It represents what those researchers feel is essential to defining progress in the American context, and the different renditions of GPI, as well as the cold reception of the indicator from different parties could lead one to believe that the consensus Kuznets felt was so necessary in developing a system of national accounting is not yet present:

> Such an appraisal requires an understanding (on the part of the accountant) of the goals of economic activity and some mechanism for defining and evaluating social productivity. In the absence of these criteria, national income would be a meaningless total... Therefore some concept of a socially accepted definition of productive activity must be antecedent to any definition of national income and must guide all subsequent choices regarding the treatment and valuation of particular entries (Kapuria-Foreman and Pearlman 1995, 1532)

This was the criticism he expressed toward Gilbert's GDP, which experienced the same competition in terms of content from other nations during its development as GPI is now. However, GPI is still in its relative infancy – whereas Gilbert's guidelines for GDP, and implicitly, when seen through the spectacles of welfare, his valuation of various sectors of society, have remained largely unchanged over the last 50 years, GPI, as an indicator continuously under development, seems to be trying to develop such a consensus. GPI Atlantic's Community Genuine Index project, to be discussed at greater length later in this chapter, is to be an index built from the ground-up based on the input of its pilot communities' stakeholders, indicating that some type of consensus may exist: "The selection of indicators is intended to help forge a community consensus on some important goals for social progress, and to stimulate a healthy debate on what such goals should be" (GPI Atlantic 2000, 2).

The two different approaches taken by GPI Atlantic, who focus on developing localized GPI, based on the needs of the community, and Redefining Progress and their focus on how national GPI compares to GDP raise an interesting question: How wide must this consensus on the goals of economic activity be? If progress is, as the Oxford English Dictionary defines it, "the action of stepping or marching forward or onward," and if each nation or even each community has a different set of goals that would be considered progress, would developing a universal indicator of development not prove to

be a futile effort? Would not even the development of a national indicator prove futile, given that every nation consists of a variety of types of communities that would doubtlessly value different aspects with different weights, and have different target goals in each sector? These questions will become the basis of the discussion in Chapter 4. For the remainder of this chapter, it will be important to note that GPI is a work in progress, one that is guided by the values of those striving to calculate it.

Cobb et al. wished to focus on sustainability and social equity (Anielski and Rowe 1999, iii), however, this focus may not be made entirely clear simply by listing the elements of their indicator. Especially confusing, as mentioned earlier, might be the inclusion of family breakdown, defensive expenditures and the lifespan of consumer durables. How do these items contribute to movement toward the goals of sustainability and social equity?

Anielski and Rowe defend the inclusion of family breakdown in GPI not on the basis that the traditional 'nuclear' family model of two married parents with children is 'good' and other now very common models are 'bad,' but that these alternative families (single-parents families, for example), tend to have lower incomes, causing an increase in the percentage of the population that finds itself hovering around the poverty line, while the top income-earners have seen their wages grow to 116 times that of a typical production worker (Anielski and Rowe 1999, 5). However, this factor is already accounted for by including income distribution in the makeup of the indicator, meaning that unless there is a second type of cost associated with family breakdown, its effects are being double counted. These costs are opportunity cost associated with family breakdown. "The breakdown of families has an enormous impact on the social cohesion

of the nation. When couples divorce, the GDP includes the expenditures on lawyers' fees, counseling, and the setting up of separate households. This does not include the opportunity costs of time that is wasted or lost due to the stress, struggle, and anguish that results from the dissolution of relationships. The impacts on children involved in divorce is perhaps the most tragic consequence. Yet the GDP does not account for the societal costs of divorce in these terms" (Anielski and Rowe 1999, 14). Redefining progress includes these costs in GPI by estimating the out-of-pocket expenses associated with divorce, including lawyer's fees, the costs of establishing separate residences, etc., which were estimated to be $7,296 per divorce in 1992 USD. The cost of divorce's effect on children, which includes the estimated lifetime costs of counseling, health, and difficulties in schools and personal relations, is then calculated, at an estimated $10,904 per child in 1992 USC. These two figures are then multiplied by the total number of divorces and the number of children affected by divorce respectively. The same type of imputations is completed for many of the other factors involved in GPI: the indirect costs of commuting, the costs of lost leisure, the value of household labour and volunteer work and the cost of noise pollution, all of which are normally expressed in terms of frustration, inconvenience, satisfaction or time, depending on the nature of the activity. Basically these are all terms normally expressed in much more human terms than that of money.

This is one of the many examples of how GPI differs fundamentally from GDP - rather than simply counting, it attempts to value the very human aspects of life. The harm divorce causes to a child is highly subjective, relative, and variable, as is the inconvenience caused by traffic and excessive noise. To some children, separating a very

dysfunctional family is doubtlessly a benefit, and yet an average rate of harm is applied to each child affected, which is, itself, a dated estimate. GDP, on the other hand, is the sum of a nation's product (within the limits of its definition, in that situation). It is an objective count of relatively well-defined products and services, used as a measure of well-defined, countable products and services. In this context, Kennedy's criticism that it counts all that except what makes life worth living (Cobb, Halstead et al. 1995) is pointless, as it was never meant to be a measure of that which makes life worth living. However, its popular use has been stretched to cover the topic of welfare, which is, by its nature, a subjective topic. According to the Oxford English Dictionary, welfare is "the state or condition of doing or being well; good fortune, happiness, or well-being (of a person, community, or thing); thriving or successful progress in life, prosperity." Good fortune and happiness are not words normally associated with economics, or sciences in general. Happiness and other emotions cannot be counted like barrels of oil.

Happiness, is, however, exactly what GPI wants to count, indirectly. With reports on obesity, stress, and other social ills that prevent society from progressing to happiness, Redefining Progress, GPI Atlantic, and other similar think tanks promote their indices and indicators as methods of monitoring progress toward this ultimate goal of bettering society and increasing the general level of happiness, although the actual term used varies. However, this cannot be done directly. The groups instead measure the variables that affect happiness: family breakdown, income distribution, environmental degradation, volunteer work, crime. Once again, the issues of consensus and differing values among those affected are at issue, but this time, it is not at a national or regional level. Every individual could well have a different opinion on what will make them happy, on what

genuine progress they are experiencing in their lives. Does this then mean that each citizen of a community should have an individualized GPI?

In its defense, Cobb, Halstead and Rowe (1995) argue that their index "is a balance sheet for the nation that starts to distinguish between the costs and benefits of 'growth.'" It is meant to provoke thought – policies, after all, must be developed and implemented on a scale much greater than that of the individual, and since instruments of measurement can play a significant role in decision making, having an indicator that valued certain relatively widely-held values would be a great benefit to policy-making:

> If the GDP defines the framework, then cost-benefit analysis becomes a made-in-heaven deal for polluters and those who cause social disruption. If nothing counts other than what is conventionally counted, then tangible increases in production will win out over the less easily quantified--but no less real--harm to the natural and social spheres. To broaden the reckoning, however, could produce results quite the opposite of what the current advocates of cost-benefit analysis intend. (Cobb, Halstead et al. 1995)

Cobb, Halstead and Rowe argue that this type of approach could lead to more effective taxation that promotes sustainability, employment, and 'good' growth, to policies that strengthen families and communities. In short, policies that minimize social disruption and attempt to improve a community's social and physical environment based a set of criteria that reinforce the values of that community, on average.

If the GPI is meant to encourage value-promoting policy decisions, then it must be continuously updated to fit with the values of the society to which it applies, and it must update its methodology to use the latest practices, in order to gain the credibility required for widespread acceptance, particularly at this early stage of its existence. In 1999, Redefining Progress updated its original methodology: it began using chain-type GDP deflators instead of consumer price index and GDP implicit price deflators, and now

expresses all units in 1992 chained dollars rather than 1982 constant dollars, as earlier renditions of GPI had done; and it implemented for the first time the use of the Gini coefficient, the relatively standard method of denoting income inequality, rather than a customized index (Anielski and Rowe 1999, 1). Gradually, it seems that GPI in the United States is moving from custom components to better-accepted standards for the components of its makeup that are not common parts of the social indicator field, much as the United Nations Development Program did with its HDI and other indicators.

3.3 From Indicator to Index

Following the same path GPI Atlantic is beginning its Genuine Progress Index (as opposed to Indicator) from the ground up with "the best available methodologies in each area and [integrating] existing data from accepted sources... The Nova Scotia GPI is not intended as a rigid formula or fixed set of methodologies, but as an ongoing work in progress that can be continuously improved as better methodologies and data sources become available" (GPI Atlantic 2000, iv). The Nova Scotia project differs from that of Redefining Progress in that it encompasses five main themes using twenty-two types of indicators, and it is being built from the community up, rather than first being applied to the nation as a whole.

GPI Atlantic's themes are time use, natural capital, the environment, socioeconomic concerns, and social capital. Each of these encompasses several sets of indicators, the complete list of which can be found in Appendix 2. Nova Scotia GPI begins with the same fundamental basis as US GPI - the gross domestic product of the region in question - recognizing the important role that traditional indicators can play:

> It is important to note that despite the emphasis on the *differences* between GDP and GPI approaches to measuring progress, the Genuine Progress Index does not reject the conventional market statistics as irrelevant. On the contrary, they are very much included, and the GPI simply seeks to *broaden* the scope and range of what is measured, and to put the market statistics into a larger perspective (GPI Atlantic 2000, 16).

Beyond this, GPI Atlantic seems to be taking on the 'aim' portion of the 'ready, shoot, aim' philosophy practiced in the introduction of GPI. After Cobb, Halstead, and Rowe took what they felt were society's values and created their indicator, calculated some numbers on a low budget with limited resources, and released their findings to the world, GPI Atlantic is going back to re-target GPI and make sure it fits with "the economy that people actually experience" (Cobb, Halstead et al. 1995).

> We cannot hide the fact that the Genuine Progress Index openly questions the current dominance of this materialist ethic, and brings some vital non-material measures of progress into the core of our accounting process... However, if we are to question the current dominance of the materialist, consumer ethic, we must find out whether this assumption resonates with the residents of Kings County [the area of interest in this case] (GPI Atlantic 2000, 18).

GPI Atlantic is focusing on a community-by-community basis in developing its GPI for the province of Nova Scotia, beginning with pilot projects in Glace Bay and Kings County. The project is particularly interesting since, unlike in the case of the US GPI where existing data was readily available or relatively easily imputed, little data exists at the community level. In Nova Scotia, GPI Atlantic is, therefore, engaging in the protracted process of collecting the data itself, when it is not available from another quality source (ibid 15). Data collected will then be presented in the best available form, to produce a "well-regarded" final product:

> Rather than rushing towards a "bottom-line" overall index of sustainable development, the Nova Scotia GPI is being constructed on a sector-by-

> sector basis since that approach is most useful for policy purposes. In other words, the project must produce twenty well-regarded and acceptable sets of indicators to produce one well-regarded and acceptable general index (GPI Atlantic 2000, iv).

The approach, is, however already flawed in some respects. GPI is, obviously, time-relative: in order to be useful, data for all indicators must be collected at more or less the same time, since conditions are constantly changing. If the indicators were static over time, there would be no point in attempting to measure changes. However, in its first round of development of the Kings County GPI, GPI Atlantic chose only to collect primary data on well-being of families and households, voluntary and community service, employment and underemployment, peaceful and secure society, and health and education (ibid 14), which encompass many, but not all of the themes of Nova Scotia GPI. While these components will give an indication as to the values of the people of Kings County, there is no way a complete GPI can be measured simply from the survey questionnaires utilised. Even with the use of secondary data, the organizing committee estimated that it would be "three to five years before Kings County has a final set of annual benchmarks of progress that represent a true consensus" (ibid 10).

At that point, GPI Atlantic hopes that both pilot communities, Kings County and Glace Bay, will have tools to "assist community development planners in forging sustainable development strategies" and, through the process, a better understanding of themselves:

> Perhaps most importantly, the purpose is not only to develop a useful 'product' for development planners to use. The *process itself* should be a thoroughly enjoyable and challenging educational tool – a way for the community to learn more about itself, to review the legacy it is leaving for its children, and to discuss the society it wants to create in the new millennium – the future it genuinely wishes to inhabit (ibid 2).

This, ultimately, should be the focus of GPI. It is an "educational tool" – not a real economic statistic, in the same sense as other indicators of growth and change. It can still be a useful tool, no doubt. However, even once a consensus has been reached (if such a consensus is possible), it will not be a static instrument easily comparable over time, as the nature of societies and that which affects them changes. Because of this, it is entirely possible that the items compromising GPI, and their relative weights, will vary from time to time and from community to community, unlike GDP, which has had a relatively consistent structure over time (or which can be recalculated with relative ease when changes are made) and which has an accepted standardized structure under protocols like the System of National Accounts. This is a problem inherent in calculating progress as a whole rather than the components making it up: societal goals change as they are reached and surpassed. This is not to say that there is no value in calculating progress. The next chapter will more thoroughly discuss the potential value of GPI, but briefly, having one final indicator of societal progress allows for comparison of that statistic between nations and times. Although goals will change and the makeup of GPI will be different, as long as there is a standardized way to calculate the components making it up, comparisons may be made between, for example, how far Wolfville is from its ideal situation now as opposed to how far it was in 1995, or how far Peru is from its goals.

While one arm of GPI Atlantic focuses on developing complete community-based indicators, another is tackling the problem at the provincial level. The organisation has published reports on the state of renewable natural resources, farm viability, soil productivity, fish and the marine environment, greenhouse gases, the full cost of highways, the cost of chronic disease, obesity, crime, and the value of unpaid housework

and child care in Nova Scotia, among others. These reports address different aspects of the GPI of Nova Scotia as a whole, and all involve, to differing extents, the development and application of methodologies for calculating the costs of non-monetary activities, collecting source data, and determining the importance of different activities in an attempt to develop appropriate weightings for a final Nova Scotia GPI.

The organisation has taken a similar approach with community-based data, collecting and releasing it in a piecemeal fashion, rather than simply producing one final index immediately, in an attempt to draw attention to different issues. The first statistics to be released in the Glace Bay project were focused on the costs of smoking, and no data has been released by the Kings County project, as of the time of writing. This approach demonstrates a belief mirroring that of the UN Development Program, that no one indicator can truly measure the development or progress of a community:

> The concept of human development is much broader than can be captured in the HDI, or any other of the indices... The indices can only offer a broad proxy on the issues of human development, gender, and human poverty. A fuller picture of a country's level of human development requires analysis of other human development indicators and information ([United Nations Development Programme] 2002).

3.4 An Alberta Alternative

This approach of gathering and releasing data and then developing a basic framework some time in the future is not that being taken by Alberta's Pembina Institute for Appropriate Development, which has developed a complete accounting framework for use in creating sustainable policy, as opposed to a simple indicator or index. The Institute believes that "the GPI accounting framework provides a conceptually sound and pragmatic framework for the accounting of sustainability by accounting for the current and historic condition of all capital as well as examining the total monetary costs and

benefits associated with capital consumption or management" (Anielski 2001, 5). The GPI developed by the Pembina Institute consists of three parts: a series of over fifty economic, environmental and social variables; a balance sheet for the complete economy; and an income statement providing a full cost-benefit analysis of the economy (ibid). This complete accounting system is the first-step in fulfilling a recommendation of the 1997 Alberta Growth Summit, calling for the development of a GPI to complement GDP: "The Alberta GPI Accounting Project is a first small step toward the development of a more elegant and complete accounting system for monitoring sustainable development by accounting for integrated relationships of economy, society and environment" (Anielski 2001, 6).

This framework has not been built from the ground-up like the work of GPI Atlantic.

> The GPI accounting framework combines the strengths of traditional accounting systems (balance sheet, income statement, ledgers), the original U.S. GPI and ISEW (Index for Sustainable Economic Welfare), the United Nations Human Development Index, the Edmonton Social Health Index, and other quality of life indices. The Alberta GPI accounting architecture was constructed by first examining the strengths and weaknesses of a wide variety of existing performance indicators and sustainable welfare accounting systems (ibid 7).

The researchers recognized the problem of consensus: whereas national accounting has its System of National Accounts, and financial accounting its Generally-Accepted Accounting Principles, no such framework existed for welfare accounting. According to the Pembina Institute, and following with the community-based approach of GPI, "What is required is a flexible accounting system that is consistent with the unique values of the respective community rather than a unifying, one-size-fits-all framework" (ibid). Like Redefining Progress, however, the Institute has taken a 'ready, shoot, aim' approach,

releasing a framework expressing the values it expects of Albertans, in order to stimulate discussion and thought. The data for the project thus far was retrieved from existing Statistic Canada sources, as well as other provincial and federal government departments, although this data is not yet complete.

The framework is also quite flexible, unlike that of other GPI's. Redefining Progress presents its audience with only a final number, and some of the highlights causing changes from year to year in its reports, and GPI Atlantic has yet to release a complete report on the GPI of Nova Scotia. The Pembina Institute's work, on the other hand, presents enough data to allow different groups of readers to calculate their own indicators based on their particular values:

> The GPI accounts provide an open architecture that can be modified depending on the needs of each end-user, government or community. Different communities may choose different GPI ledgers, accounts and indicators to measure sustainability and quality of life. Such flexibility and diversity should be celebrated; it is not necessary to try to create a unified framework for all nations (Anielski 2001, 9).

A complete list of the variables included in the framework can be found in Appendix 3. These accounts are not all translated into monetary terms. For this reason, the balance sheet does not balance as a traditional financial statement would – the units of each indicator are left, as converting them to monetary terms could distort their significance:

> We do not support monetizing stocks and flows of human, natural and social capital as the World Bank is attempting to do with its total wealth accounting exercise. While monetizing these assets might seem intuitively attractive, it is not clear what purpose—other than financial or monetary policy purposes—this would serve. We feel that expressing human and natural capital in monetary terms is inappropriate, particularly if this masks the physical and qualitative realities of depletion or degradation. Some forms of natural capital (e.g., air and water) might defy monetizing given their irreplaceable nature. Placing monetary values on natural, human and social capital in a sense implies that these forms of living capital are a substitute for money (ibid 12).

This is a significant departure not just from the work of the World Bank, but from that of Redefining Progress, which presents its measurement of progress in completely monetary terms. This strategy, however, can not only lead to the problem expressed above of creating a belief that living capital is a substitute for money, but that can also involve many assumptions and generalizations that cause otherwise good data to become nearly worthless.

In keeping with the original US GPI, Pembina's GPI Net Sustainable Income, the bottom line of the Alberta GPI balance sheet, provides a monetized expression of sustainable GDP. This number, the most similar aspect of Pembina's work to the US GPI, is based on the work of Redefining Progress, as well as that of Daly and Cobb's ISEW, and GPI Atlantic's efforts in Nova Scotia. Net Sustainable Income "tells us whether we are running an annual surplus or deficit in genuine progress—whether we are living sustainability off the interest of total capital or eroding the capital stock," although Anielski openly admits that this particular calculation, as with all GPI accounting, is controversial since it can be difficult to tell whether an expenditure is truly regrettable, or whether it is desirable. He cites the cost of commuting as a specific example that some might find desirable, whereas others feel it is an annoyance. "Each person and household will hold different value sets, but a GPI at a regional scale should reflect the values held in common by most households, recognizing there will always be differences of opinion and values" (Anielski 2001, 15).

GPI has suffered these problems since its creation. The complete extent of which items should and should not be included, and whether or not certain expenditures are only regrettable in certain situations is simply not clear. However, the only major revisions to

take place have been changing from constant-dollar to chain-type GDP estimates and from a custom inequality index to the use of the Gini coefficient, completely avoiding some of the more fundamental issues. In this sense, the efforts of Canadian researchers are unique in the world, at the present time. Although GPI is used in several other nations, Canada's Pembina Institute and GPI Atlantic are the first groups to challenge some of the initial assumptions of the original efforts:

> The original U.S. GPI work contained many methodological and conceptual biases and other issues that, for the most part, have not been fully debated or resolved. However, most of the current GPI or ISEW analyses replicated internationally have adopted the original U.S. GPI or ISEW methodology without significant change to the accounting architecture. The Alberta GPI project and the GPI Atlantic project for Nova Scotia are the first to consider changes and improvements to the original GPI/ISEW work (Anielski 2001, 14).

These challenges have lead to some interesting outcomes, and will doubtlessly lead to many more. In particular, both GPI Atlantic and the Pembina Institute seem to be leaning away from the use of a single monetary indicator as their end result. GPI Atlantic's work has yet to yield a final figure, or even the basis on which a final figure would be calculated, but based even solely on the name change from Genuine Progress Indicator to Genuine Progress Index, the literature seems to suggest that the final product of Nova Scotia GPI's framework will eventually be a unit-free index, rather than a monetary indicator.

The Pembina Institute has both a monetary indicator in their Net Sustainable Income and a non-monetized result in the Sustainability Circles. These graphical representations of GPI present the user with much more information than a simple composite. As Anielski outlines (2001), each of the fifty indicators is divided by its maximum value to yield an index where zero is the worst possible score, and 1 or 100 is

the best – this means that all indicators must be expressed either in a cost-minimizing or benefit-maximizing fashion. Then, each indicator's index is charted on a circular graph, with concentric rings from 0 to 100, with 100 being the largest. The indicators spread around the entire circle, and the charted points are connected. The smaller the area of the circle not included by this shape created by the indices, the better off society is. For examples, see Appendix 4.

These charts allow users to tell quickly, graphically how close a society is to its goals as a whole, and in each of the different indicators. The problem with these circles is that each value has the same visual weight. A very major indicator, like the state of oilsands in Alberta holds the same importance on the graph as every other factor, including, for example, the state of the fishery, which would be relatively minor in Alberta. Even when compiling a composite index (not Net Sustainable Income), Pembina does not include any weighting bias (Anielski 2001, 25), which generate a rather unrealistic image of the economy. Once complete, the work of GPI Atlantic will potentially be able to create a very interesting fusion of Pembina's framework with community-appropriate weights for the various factors, resulting in a final indicator that represents the true state of a region's progress toward its goals.

This will represent a vastly different, potentially far more useful instrument than was ever intended in the initial creation of GPI. Redefining Progress created an indicator whose purpose is largely to generate discussion, and in this it has succeeded – GPI as Redefining Progress intended is slowly spreading around the globe. However, the tools that Canadian researchers at the Pembina Institute and GPI Atlantic are working toward have potential to extend well beyond simple shock value, and become real, useful tools

for policy-making. A combination of Pembina's framework and GPI Atlantic's research into the values of the Nova Scotia population and the perceived state of affairs has the potential to create a very powerful tool, specifically for Kings County and Glace Bay. The following chapter will more closely analyze how this type of tool might take form, the value of a composite index, and the potentially benefits that creating such an index could have for comparative purposes, over US GPI or GDP.

4. Applying GPI

GPI, in its Redefining Progress form, aims to express the economy the public actually encounters on a day-to-day basis, in a format directly comparable to GDP. Given, however, that progress is movement toward a goal, is GPI just as 'meaningless' as GDP? GPI in the US in 2000 was US $9,550, compared to US$33,497 of GDP per capita (Cobb, Glickman et al. 2001, 1), but is this number good or bad? The process of developing GPI labels the basic influences of our society as 'goods' and 'bads,' assigning a value judgment, but the calculated indicator, the GPI, makes no clear indication as to the sum of these judgments. In other words, like its GDP predecessor, it continues to merely summarize change, *not* progress. How much closer is society to where it wants to be than it was last year? Without assigning goals to the indicator, it is of little value for measuring that for which it has been named. For this reason, this chapter will argue for the need of developing a true *index*, as opposed to an indicator, along the lines of the Alberta GPI, but taking the form of a single index number, similar to those of the United Nations Development Program indicator series.

4.1 Reinforcing the Dominance of Economic Growth

One of the first practices that should be discarded from the methodology of calculating GPI is the monetization of all values. The value of monetizing the various inputs making of GPI is clear – doing so allows for a direct comparison with GDP, a well-accepted (although not necessarily widely understood) indicator, making it easy to grasp without much effort. However, expressing these indicators in a form that may have

little or no relevance to the items they measure may distort their significance. This opinion is mirrored in the work of the Pembina Institute in Alberta:

> We do not support monetizing stocks and flows of human, natural and social capital as the World Bank is attempting to do with its total wealth accounting exercise. While monetizing these assets might seem intuitively attractive, it is not clear what purpose—other than financial or monetary policy purposes—this would serve. We feel that expressing human and natural capital in monetary terms is inappropriate, particularly if this masks the physical and qualitative realities of depletion or degradation. Some forms of natural capital (e.g., air and water) might defy monetizing given their irreplaceable nature. Placing monetary values on natural, human and social capital in a sense implies that these forms of living capital are a substitute for money (Anielski 2001, 12).

At the same time, expressing all the widely-varied indicators that make up progress in terms of any other common unit introduces the same problem. While converting personal consumption figures to the units of leisure time per capita could be an interesting exercise, expressing consumption in such a way is of questionable value. However, in order to be an effective indicator, GPI must bridge the gap between its various components. The approach taken by the Pembina Institute, and the approach advocated in this paper, is to convert each indicator into an index. This also appears to be the direction in which GPI Atlantic is headed, with its name change from Genuine Progress Indicator to Index.

The Pembina Institute uses a simple process to do this: it simply picks the best year's entry for a specific indicator and assigns it a value of 100, a perfect score, or in the case of indicators that have set targets, like emission reductions, uses those. All other years are then divided by this year to arrive at a unit-free ranking of years that allows for easy comparison between indicators. For example, it is difficult to compare a suicide rate of 14 deaths per 100,000 adults and a per capita GDP of $33,000, and come to a decision

about which is closer to meeting society's goals for progress. Convert this to an index, and perhaps the suicide rate will be 96, compared to a GDP of 74, making it clear that GDP is further off target than suicide rates, and that perhaps more resources should be devoted to it than to further reducing the suicide rate. However, this method of calculating indices using the highest recorded value in the time range under consideration as the perfect score once again avoids one of the major purposes of GPI – measuring society's progress toward its goals. "Goals for 'more' growth should specify of what and for what" (Kuznets in Cobb, Halstead et al. 1995), and this cannot be done effectively by simply basing optimal levels, or goals, on past performance. As perhaps the simplest example, when looking at a developing country, there can be little doubt that the highest GDP per capita on record is *not* the best that society can do, most likely not even in the short run. Why then should it be set to 100?

4.2 Setting Goals for Growth

The Pembina Institute has been reluctant to set optimum targets for any of the indicators:

> In some cases we use predefined benchmarks or targets, such as reduction targets for greenhouse gas emission reductions relative to 1990 levels. Some indices use a lower bound or minimum that requires establishing a reasonable and informed threshold for worst performance. In other cases, we have chosen another provincial benchmark as our optimum condition benchmark. We have, as a rule, tried not to pick an optimum target for any of the indicators, appreciating the complexity of such decisions and the need to engage citizens in defining targets for sustainability. We assume, in general, that the optimum performance is the best condition registered over a time period (Anielski 2001, 19).

This is, perhaps for now, a good approach to take. The Pembina Institute has not done, and is not engaged in, the type of community-level primary research that GPI Atlantic is

conducting, and so to arbitrarily assign optimum levels for each of the indicators would create much of the same bias found in Redefining Progress' work, of which it is so critical (Anielski 2001, 14). However, if GPI Atlantic is able to reach its goals with its work in community-based indicators, it will have the ability to set these optimal levels without imposing its own bias on the work: "Part of the questionnaire should assess some of the core values of Kings County residents. We should not hide the fact that any index of progress is based on a set of values...We want to find out whether the actual values and priorities of Kings County residents match the assumptions in our new measures of progress" (GPI Atlantic 2000, 17). With the information they are collecting on the values of residents of the county, GPI Atlantic will be able to judge which indicators should be included, what the optimum values are for each, and what percentage of a final progress index that each indicator should account for. GPI will then truly be measuring progress toward the goals of society, since these goals will be defined by the values of the society they are measuring, rather than simply past performance.

This may yield dramatically different optimal levels than those that Pembina is currently using. Even in situations where the optimal level is set by a government benchmark rather than historical performance, the indicator may not be a true reflection of society. However, if the purpose of GPI, in its indicator or index form, truly is to measure "the economy that people actually experience" (Cobb, Halstead et al. 1995), then using indicators relevant to society with the goals that society is looking to meet is absolutely essential, regardless of whether this agrees with government legislation or is in direct contradiction of it. The problem is that this goal-related data, the data involved in measuring the values of a society as opposed to that measuring the state of society's

progress, involves a time and labour-intensive collection process. Even after years of effort are complete, GPI Atlantic will have only collected such information on two of Nova Scotia's counties. However, after this groundwork has been laid GPI may well begin to be accepted as a standard part of the social-indicator toolkit:

> as the result of ongoing consultations and exchanges of information on data and methodology, Statistics Canada in Ottawa, with the approval of the Assistant Chief Statistician, has decided to recognize the Nova Scotia initiative as a 'pilot project' with potential applicability to the county as a whole. If it chooses, Nova Scotia would, in effect, become the first province to apply the new accounting methods in a systematic way. Since Statistics Canada is itself regarded as the leading statistical agency in the world, the Nova Scotia project also has potential as a model internationally (GPI Atlantic 1998, 6).

Such acceptance and administration by the resource-rich central statistics bureau of Canada and other countries, as they adopt the measure, could enhance the quality of surveys administered to determine the appropriate values, and allow the surveys to reach a larger audience more efficiently. Statistics Canada could, for example, include appropriate value-related questions in the long-form of its census, which was completed by 20% of Canadian households in 2001 – the other 80% only complete a short 7-question form ([Statistics Canada] 2002). This may not, however, be the most appropriate venue for the instrument, given the length and complexity of GPI Atlantic's surveys, and is simply meant to serve as an example of the greater efficiency with which Statistics Canada could administer the surveys on a national basis that Kings County has been administering on a small-scale.

This data could then be used as the basis of a GPI on a national scale or broken down to the provincial or community level, since the composition of the index and the goals for the indicators would vary from region to region. As an example, although it is

impossible to tell without conducting such surveys as are being proposed, it is quite likely that income expectations would be lower in a rural setting where the cost of living is lower than in major urban centres. This would result in a different goal being set for that particular component of the index, as well, potentially, as the weight it holds in the final index. Collecting this data on a national level and breaking it down would also avoid the potential pitfall of leaving areas out that comes when the data is collected on a county-by-county basis by non-governmental organisations.

It is also important to note that the data being referred to is that regarding the composition of the index, not the data actually used to calculate the index. For the large part, this data is already available. GPI Atlantic has made a commitment to using the best data and methodologies available in the calculation of its indices, rather than developing its own and collecting primary data for three reasons:

> (a) While the original GPI was based on sound principles, there were some serious methodological flaws which have been ably summarized by Hans Messinger of Statistics Canada who himself did a straight replication of the GPI to Canada. There is no reason to repeat these errors when there are clear alternatives and modifications that can considerably improve the methods and make them more accurate... (b) If the goals and values of the index are clearly specified and based in a broad consensus reflecting the province's vision and sense of direction, and if there is a strong integrating framework adhering to the principles or sustainable development, then there is no need to solidify the way in which the measurements are made... (c) It is in the very nature of methodologies to be incomplete, partial, piece-meal, and subject to constant change (GPI Atlantic 1998, 28).

For this reason, while it intends to lay out the framework of GPI using its own research, GPI Atlantic, as well as the Pembina Institute, intends to use data from other sources in its calculations, allowing it to focus on the development and use of the indicator, rather than the details more aptly dealt with by other organisations.

4.3 Measuring the Real Economy

After this process is complete, Canada and all of its communities could have a GPI that accurately reflects its citizens' values and priorities, uses the best practices available in terms of data collection and calculation, and can be used as a valuable tool in policy decisions. The sustainability circles[6] developed by the Pembina Institute could accurately reflect progress toward the goal of each individual indicator, as opposed to their current inconsistent basis on either historical values or government goals. However, these circles, and the composite index proposed by the institute (Anielski 2001, 24) are still of limited value: neither of these final products presents the data in a weighted fashion. Each of the fifty indicators is given equal value in the final evaluation, even though some will clearly emerge as societal priorities over others. To put an indicator like teen pregnancy rates on par with unemployment and income statistics would undoubtedly skew the importance of the statistic, making it seem as large a problem (or as big a victory) as the other indicators, when, despite its important effects on the welfare of many individuals, it is a relatively minor component of "the economy that people actually experience" (Cobb, Halstead et al. 1995).

This is the other major benefit of GPI Atlantic's current work in community-based indicators: aside from determining what and how much should be measured when defining our goals for growth as Kuznets dictated, it has the potential to indicate the importance of each goal in the composition of the overall goal of progress. Rather than simply averaging indicators to create a final composite GPI, it would create an index that

---

[6] See Appendix 4 for examples of sustainability circles.

takes into account the relative importance of each different goal in developing a view of progress. This is a very important addition to the process. Internationally, developing a global consensus on the value of different indicators would be nearly impossible; the world is simply too diverse. Even on a local level, the needs of urban communities will be a far cry from those of rural communities. Communities, regions, countries, and continents do not all fit into one mould – why then would it make sense to try to measure their progress as though they do?

This raises issues of comparison between regions. If each community has its own GPI, and the weights and optimum levels vary dramatically, how can GPI ever be a useful tool for comparison between regions? There are two main potential solutions to this problem.

The first solution is to realise that it is not a problem at all. GPI was developed to measure the progress of a nation or community. In that sense, regardless of the composition of the indices themselves, their results are directly comparable. Whether or not Regions A and B have the same goals, knowing that Region A scores 89 out of 100 in terms of attaining those goals whereas Region B scores only 75 is a valuable tool in determining the relative welfare of each area. This could become an important tool in the development process of third world nations. Since Harry Truman coined the term underdevelopment in 1949 (Truman 1949), the key to advancing the majority of the world's nations and bringing their populations to the level of the first world has largely been seen as economic growth. However, before the introduction of first world aid and intervention programmes, the development or progress goals of these nations could have been very different and simply failed to fit with the North's tools of measurement: "The

problem of the underdeveloped countries is not just growth, but development... Development is growth plus change. Change, in turn, is social and cultural as well as economic, and qualitative as well as quantitative... The key concept must be improved quality of people's life" (United Nations 1962). The United Nations Development Program created its set of development indicators for this exact reason: counteracting the inadequacies of GDP in order to develop a more complete picture of the state of development in the nations of the world ([United Nations Development Programme] 2002). These indicators allow for the inclusion of certain non-economic indicators, but they are far from comprehensive.

GPI, as a weighted index, takes that concept one step further. Rather than simply including three indicators of progress in an unweighted index, it attempts to create a comprehensive picture of a society's progress. With its flexible, open framework, the use of GPI could allow a country to show that it is meeting its own goals more adequately than might be perceived with the simple use of GDP. As a complement to that, the majority of the GPI's value lies in the indicators that make it up, and a closer examination of these individual goals, as well as the overall index, could lead nations, developed or developing, to better understand their individual areas of concern, from their citizens point of view, rather than the point of view of Gilbert, Mead or Kuznets.

This then leads to the second solution of to the problem of inter-regional comparability of GPI, given its variable makeup. Since GPI is so open and flexible, a huge portion of its value lies in its components. It would then be relatively useless to provide the overall index without providing the indicators used to make it up. Recalculating the index using a different set of weightings would be a very simple matter.

It would be slightly more involved, but still relatively simple, to recalculate that second set of indices based on different optimal quantities. Part of the appeal of GPI's approach to measurement – to use already-existing data in a relatively simple but comprehensive framework – is that the compilation of the indices is simple once one has obtained the data, making it a relatively accessible instrument.

By recalculating GPI, individuals and organisations could gain new perspectives on the economy in which they function. For example, one could calculate how the economy of Nova Scotia is advancing in terms of Canada or US national goals or vice versa, or how the local Kings County economy is progressing based on a set of characteristics and values that the party calculating the statistic finds to be important. In this sense, GPI really is merely a framework or system for a new kind of accounting, rather than an actual indicator as Redefining Progress originally calculated.

4.4 Applications in Public Policy

Can such a variable framework, as opposed to hard and fast indicators, truly be useful in policy-making situations? Without any doubt, the answer is yes. It is true that the flexible nature of the composite index leaves much room for manipulation and could potentially be presented in a manner biased against one factor or another to attempt to build a faulty argument. However, the transparency of the framework and the need for users to be able to see the underlying indicators makes this possibility highly unlikely. Far more likely would be the case that a widely available GPI could shed new light on society, outside of simply its composite numbers. While the majority of data used to create GPI is already available, it has yet to be presented in one common, freely

accessible environment. By putting all these varied indicators in one place, on a common scale, the organisation with final responsibility for GPI would be facilitating the process of decision-making. If not because a composite measure of progress would be available, it would be doing so at least because a set of twenty or fifty or more indicators would be ready at the fingertips of policy makers, from national governments to community group leaders across the country and around the world.

What is important to stress is that it is this framework that is the important end product of the work of the Pembina Institute and of GPI Atlantic, and therefore, there must be a consensus between these two, and any other bodies involved, on the nature of this framework. Without such a consensus, the work suffers the same flaws Kuznets found in the original renditions of GDP (Kapuria-Foreman and Pearlman 1995, 1532), and without the type of government support given to GDP, the work on GPI would be nearly useless. The tool can only become a powerful, accepted one if the two institutes combine their work, as suggested earlier in this chapter: the research GPI Atlantic is in the process of conducting, combined with the basic framework laid out by the Pembina Institute, has potential to create the first real, usable example of GPI, in Kings County, Nova Scotia, in the very near future. If, on the other hand, GPI Atlantic decides to reinvent the wheel, GPI could be much further from a tangible product, and could potentially lose the competitive advantage it currently enjoys as a government endorsed 'pilot project,' should another indicator emerge in the field of progress measurement.

The other reason that this consensus is so important is that it is necessary to take portions of the work of both organisations to develop a complete, weighted index. However, without cooperation from both GPI Atlantic and the Pembina Institute, this

possibility seems highly unlikely. For this reason, it is encouraging to note that Anielski, of Pembina, recognizes the work of GPI Atlantic and has already integrated some of its indicators and research into Alberta's efforts at developing an index (2001, 14).

A weighted composite index of the vast array of indicators used by both Canadian researchers is the only option currently available that would, in reality, be measuring "the economy that people actually experience" (Cobb, Halstead et al. 1995), the goal behind the initial efforts of Redefining Progress at developing a GPI. Without GPI Atlantic's research and the weightings that could arise from it, the Alberta GPI cannot properly express the varying degrees to which each indicator affects society. Its unweighted composite index avoids the bias that would be caused if a few researchers applied values they felt appropriate to measure an economy that a group for larger and more diverse than themselves are forced to experience. At the same time, it creates the implication that none of the indicators in question is any less important than any of the others, much as GDP creates the implication that all growth in economic activity is good growth. The Redefining Progress GPI suffers from similar flaws in its limited scope of included factors, and in its insistence on monetizing and creating an indicator directly comparable to GDP. This indicator still suggests that any growth is good growth, but that it is simply occurring at a different rate than a glimpse at GDP would lead one to believe. It also serves to reinforce the dominance of money and economic activity in measuring progress, something an index would avoid.

In the end, if measuring society's progress is the goal, a weighted genuine progress index with an open, flexible framework is the best tool Canada has, or will soon have, at its disposal. This new accounting framework, upon completion, will have the

ability to guide leaders at all levels around the world to develop sustainable policies that operate in the best interest of the people. Since it is so dependent on input from local populations, the implementation of GPI on a broad scale could take time, but once in place, it has the potential to resolve many of the issues of measuring progress outside the traditional industrial and commercial settings for which more traditional measures of growth were intended. It has the potential to allow for easy but meaningful comparison between regions that otherwise have little in common: urban and rural areas, developed and developing nations, and regions that have changed dramatically in composition over time. By measuring the progress toward the unique goals of each region and using that as a basis of comparison, the playing field becomes more level, the comparisons become more meaningful, and the bias toward activities with high income-generating potential is removed. Society would have, as GPI Atlantic suggests, a "challenging educational tool" that provides an opportunity "for the community to learn more about itself... and to discuss the society it wants to create in the new millennium – the future it genuinely wishes to inhabit" (GPI Atlantic 2000, 2).

5. Conclusion

Measuring progress has been a controversial task for some time now. While GDP leaves much of what society values out, it has long stood as the world's primary indicator in the measurement of growth and development. It allows for an easy comparison of the status of nations and regions that otherwise have little in common. However, it fails to take into account a vast number of factors that affect the real world that society faces. Economists argue that it was never meant to incorporate these factors – it was simply meant to serve as measurement of marketed economic activity, not a complete indicator of social welfare.

It has nonetheless taken on this role, perhaps because it was, and still is, the best tool available for that task. In recent years, though, the climate has changed slightly: after many failed attempts on the part of various organisations at developing complete social measurement tools, the United Nations released its set of development indicators, including HDI and HPI. This was followed in short order by the creation of the Genuine Progress Index, Redefining Progress' attempt to measure "the economy that people actually experience" (Cobb, Halstead et al. 1995). It was, however, a simplistic, biased instrument that did not really attack the problem of coming to a consensus on the goals of growth and its measurement, one of the primary concerns that Simon Kuznets had with economic indicators like GDP, a tool he had created.

Canadian researchers at GPI Atlantic and the Pembina Institute have taken this original, flawed instrument, and with two different approaches, worked to turn it into a usable tool for policy-making. The Pembina Institute in Alberta has focused on the creation of an accounting framework, using a set of indicators expanded upon from

Redefining Progress' work, while GPI Atlantic has focused on conducting primary research in an attempt to develop community-based genuine progress indices based on the values of the society in question.

It is the combination of these two efforts that will lead to a truly usable final product, a GPI that is the weighted composite of each of the indicators, with goals and weights determined by primary research among the citizens in a given area, and the actual data to be calculated coming from the best sources, using the best methodologies currently available. Such an index would vary in its composition over time, and from region to region. It would measure movement toward the goals each region, be it a city, county, province, or country, had set for itself, and would be free of units. Unlike the original GPI, it would not continue the implied dominance of economic growth in the measurement of progress; it would not monetize the underlying factors.

Such an index would allow for direct comparison between regions and within regions over time, despite constantly changing goals. It would shed new light on the development of nations. By summarising all the aspects affecting the development of a nation, rather than just the income component, it might become clear that underdeveloped regions are much closer to the goals that are important to their unique societies than an outsider would guess based on their GDP per capita, or that the problem areas are not necessarily income, but other factors. This would be possible because while the composite index is a simple, easy to use tool, the true power of GPI lies in the fact that it would combine over fifty social indicators in one place, making them easily accessible to leaders from small organisations to large governments. While this data is, for the most part, currently available, it is spread among a diverse number of sources, has not

necessarily been calculated in an easily usable format, and it does not have the advantage of having an attached goal or optimum level.

This framework could become a key tool in policy-making. If GPI Atlantic and the Pembina Institute are able to work together and develop an instrument that has all the abilities listed above, it has the potential to be adopted on a broader scale by Statistics Canada, as it is currently a pilot project. The international reputation of Statistics Canada would only serve to hasten the spread of this modified GPI internationally. It is entirely possible that GPI will reach one of its creators goals and begin "to suggest the kinds of measurements that the federal government, with its enormous statistical resources, could construct" (Cobb, Halstead et al. 1995). If this is the case, if GPI is successfully introduced into the toolkits of statistics bureaus worldwide, it could reshape the way in which people measure the world around them, and much as GDP helped create a focus on maximizing economic growth, GPI could shift society toward a focus on environmentally and socially sustainable, forward-looking policy. In short, GPI could give society its quantifiable account of the progress or lack thereof that everyone on the planet experiences each and every day.

Appendix 1. HDI Calculations

The following process can be found in "Technical Note 1" of *Human Development Report 2002* (253), where minimum and maximum relate to the previously mentioned goals, and :

1. Calculate the Life Expectancy Index

   i. $Life\ Expectancy\ Index = \frac{actual - minimum}{maximum - minimum}$

2. Calculate the Education Index

   i. $Adult\ Literacy\ Index = \frac{actual - minimum}{maximum - minimum}$

   ii. $Gross\ Enrolment\ Index = \frac{actual - minimum}{maximum - minimum}$

   iii. $Education\ Index = \frac{2}{3}(Adult\ Literacy\ Index) + \frac{1}{3}(Gross\ Enrolment\ Index)$

3. Calculate the GDP Index

   i. $GDP\ Index = \frac{\log(actual) - \log(minimum)}{\log(maximum) - \log(minimum)}$

4. Calculate the HDI

i. $HDI = \frac{1}{3} Life\ Expectancy\ Index + \frac{1}{3} Education\ Index + \frac{1}{3} GDP\ Index$

Appendix 2. GPI Atlantic Indicators

The following list of components of the Nova Scotia GPI can be found on pages iii-iv of *Application of the Genuine Progress Index to Community Development: Kings County & Glace Bay Pilot Projects* by GPI Atlantic:

The Nova Scotia GPI consists of the following social, economic and environmental components:

Time Use:

- Economic Value of Civic and Voluntary Work
- Economic Value of Unpaid Housework and Childcare
- Costs of Underemployment
- Value of Leisure Time

Natural Capital:

- Soils and Agriculture
- Forests
- Marine Environment/Fisheries
- Nonrenewable Subsoil Assets

Environment:

- Greenhouse Gas Emissions
- Sustainable Transportation
- Ecological Footprint Analysis
- Air Quality
- Water Quality
- Solid Waste

Socioeconomic:

- Income Distribution
- Debt, External Borrowing, and Capital Movements
- Valuations of Durability
- Composite Livelihood Security Index

Social Capital:

- Health Care
- Educational Attainment
- Costs of Crime
- Human Freedom Index

Appendix 3. Pembina Institute Indicators

The following list of components of Alberta GPI can be found on pages 9-11 of *The Alberta Genuine Progress Indicator (GPI) Accounting Project: Charting a Sustainable Future for All Canadians* by Mark Anielski:

Economic Sustainability Indicator Accounts
The Economic Sustainability Indicator accounts would account for the overall health of the economy as measured by the GDP (and its components, including trade), income and equity, infrastructure and transportation. The accounts would be split into two components: 1) a monetary (economic value) account and 2) a non-monetary indicator account. Both sets of accounts would be constructed on the basis of a "balance sheet" (stock) and "income statement" (flow) of human-social capital.

Economy
GDP and its components:
- Personal consumption expenditures
- Government expenditures
- Government investment in fixed capital
- Business investment in fixed capital
- Business investment in inventories
- Trade balance: exports less imports of goods and services
- Expenditures (households, business and government)
- Disposable income
- Debt (households, government, business, farm, student)
- Savings (households, government) and net worth

Livelihood
- Employment, unemployment, underemployment
- Poverty
- Equity: income and wealth inequality and distribution

Infrastructure
- Household infrastructure
- Public infrastructure

Transportation and Trade
- Private and public transportation (commuting)
- Commercial transportation and trade

Economic Sustainability Index

GPI Societal Sustainability Indicator Accounts

The Societal Sustainability Indicator accounts would account for the overall health of people and communities, and would be constructed as per Figure 3. The accounts would be further split into two components: 1) an economic value account (monetary) and 2) a well-being indicators (non-monetary) account. The economic value account would consider the total costs and benefits associated with each well-being indicator that could be used to reconcile with existing GDP and national/regional income accounts.

Time Use
- Paid work
- Unpaid work time
- Unpaid housework, parenting and eldercare
- Volunteerism
- Leisure time
- Commuting time
- Employment, involuntary unemployment, underemployment and overtime

Social Capital
- Crime and violence
- Family breakdown
- Democracy

Knowledge Capital
- Educational attainment

Health and Wellness
- Life expectancy and self-rated health
- Obesity
- Premature mortality
- Disease
- Auto crashes
- Infant mortality and low birth-weight babies
- Teen pregnancy
- Suicide
- Spirituality
- Aboriginal well-being
- Substance abuse (drugs, alcohol, tobacco)
- Gambling

Societal Sustainability Index

Environmental Sustainability Indicator Accounts

The Environmental Sustainability Indicator accounts would account for the health and sustainability of natural resources (renewable and non-renewable resource capital), environmental quality and ecological systems health. The accounts would be constructed as per Figure 4. Again, the accounts would be split into two components: 1) a monetary (economic value) account and 2) a non-monetary indicator account. Both sets of accounts

would be constructed on the basis of a "balance sheet" (stock) and "income statement" (flow) of human-social capital.

Ecological Footprint
- Household ecological footprint (food, energy, clothing, transportation)
- Industrial footprint (eco-efficiency, energy efficiency, material flow)

Natural Resource Accounts
- Non-renewable resources (oil, gas, coal)
- Minerals
- Forests (timber and non-timber resources)
- Wetlands and peatlands
- Agriculture and other soil productivity
- Carbon budget
- Fish and wildlife
- Parks and wilderness
- Ecosystem integrity

Environmental Quality Accounts
- Air quality and greenhouse gas emissions
- Water quality and flow (surface and ground water)
- Noise pollution
- Toxic waste
- Municipal landfill waste

Environmental Sustainability Index

Composite (Economic, Social, Environment) GPI Index

Each one of the more than 50 Alberta GPI accounts or ledgers contains information on:
1. physical or qualitative raw data (e.g., GDP, timber volume, crime rates or leisure time);
2. monetary full benefit and cost data (e.g., full costs of crime, the value of unpaid work); and
3. indices that convert the raw data set to an index that can be compared with other GPI account indices.

Each of the GPI accounts has been developed using statistical data (primarily Statistics Canada sources) for the study period 1961 to 1999 and are maintained in MS Excel spreadsheets, both independently and in a composite balance sheet and income statement format. Where longitudinal data are not available, data have either been extrapolated or left out. The intent is to have a long enough time series of data on the physical condition and monetary values to provide for meaningful trend analysis and inter-GPI account comparisons.

Some of the GPI accounts are linked or related to other accounts., whether explicitly or implicitly. For example, the carbon budget account is linked or related to the oil and gas (non-renewable energy) accounts, the ecological footprint account, the forest account, the agriculture account and the peatland-wetland account.

One of the future stages of GPI accounting will be to develop a more sophisticated information and analysis system that examines interrelationships between GPI accounts and variables and to conduct "what if" analysis, attribution analysis, and forecasting or futures analysis.

Appendix 4. Sustainability Circles

The following sustainability circles are examples found on pages 20-22 of *The Alberta Genuine Progress Indicator (GPI) Accounting Project: Charting a Sustainable Future for All Canadians.* The data used is example data only, and not a real indication of the state of the Alberta economy.

Figure 1.

Alberta GPI Sustainability Circle Index

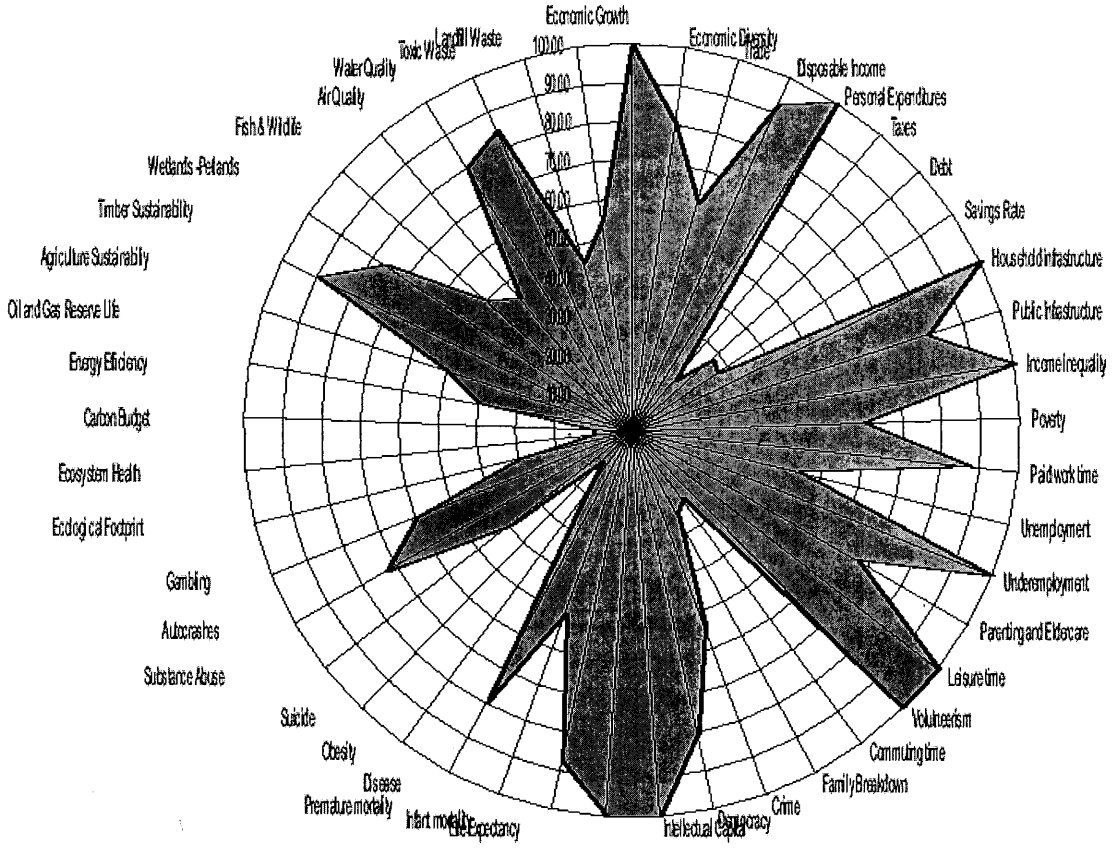
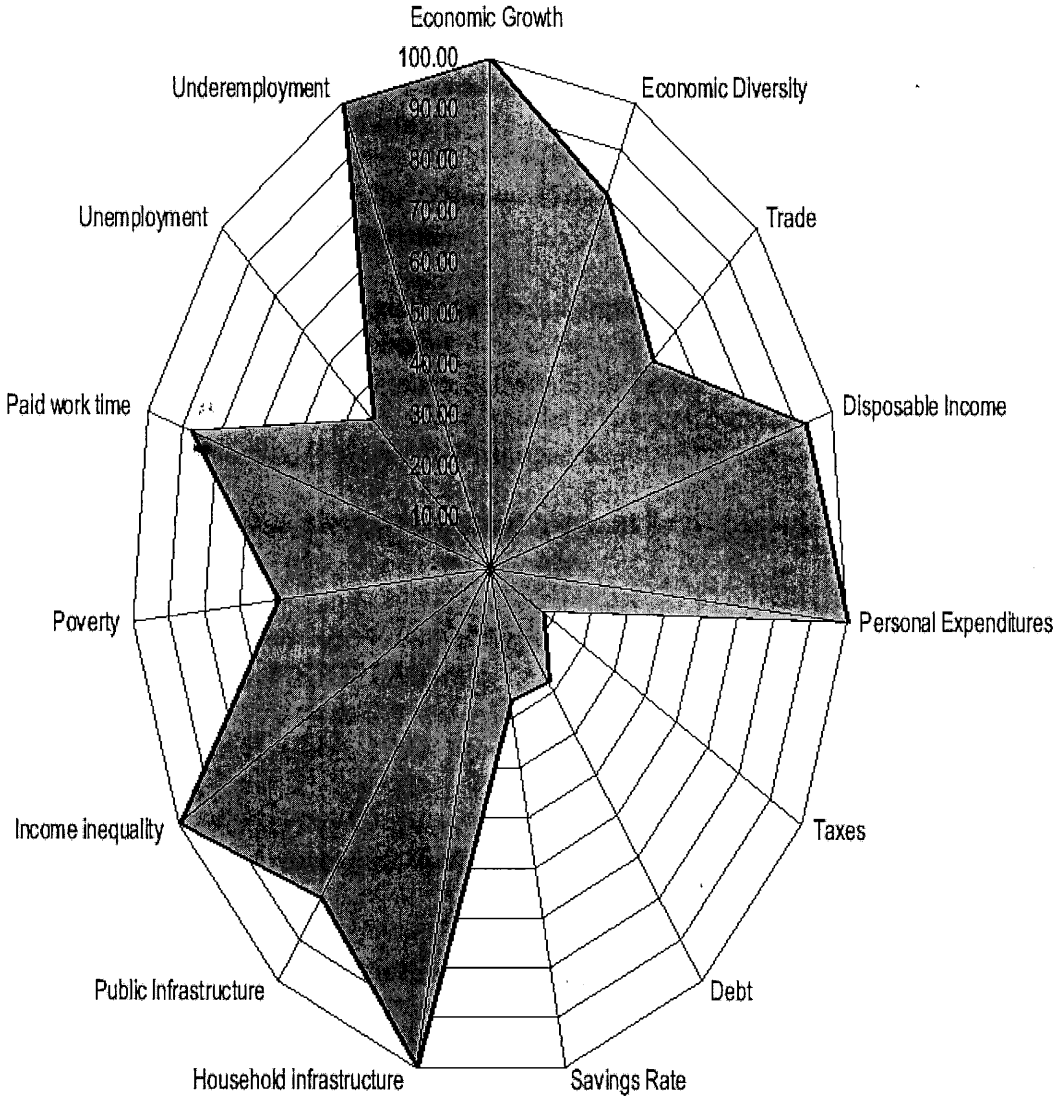


Figure 2.

Economic Sustainability Circle



Works Cited

Anielski, M. 1999. *The Genuine Progress Indicator - A Principled Approach to Economics*. Drayton Valley, AB, The Pembina Institute.

___. 2001. *The Alberta Genuine Progress Indicator (GPI) Accounting Project: Charting a Sustainable Future for All Canadians*, The National Roundtable on the Environment and the Economy.

Anielski, M. and J. Rowe. 1999. *The Genuine Progress Indicator - 1998 Update*. San Francisco, Redefining Progress.

Carley, M. 1981. *Social Measurement and Social Indicators*. Edited by M. Bulmer. London, George Allen & Unwin.

Cobb, C., M. Glickman, et al. 2001. *The Genuine Progress Indicator 2000 Update*. Oakland, California, Redefining Progress: 6.

Cobb, C., T. Halstead, et al. 1995. *If the GDP is Up, Why is America Down? The Atlantic Monthly*. October 1995.

Colman, R. 1998. *The Economic Value of Unpaid Housework and Child Care in Nova Scotia*. Tantallon, NS, GPI Atlantic.

Daly, H. E. and J. John B. Cobb. 1994. *For the Common Good*. Boston, Beacon.

GPI Atlantic. 1998. *Measuring Sustainable Development: The Nova Scotia Genuine Progress Index: Framework, Indicators, and Methodologies*. Tantallon, NS, GPI Atlantic.

___. 2000. *Application of the Genuine Progress Index to Community Development: Kings County & Glace Bay Pilot Projects: The GPI Atlantic Developing a Community Genuine Progress Index Package*. Tantallon, NS, GPI Atlantic.

Henderson, H. 1991. *Paradigms in Progress: Life Beyond Economics*. San Francisco, Berrett Koehler.

Kapuria-Foreman, V. and M. Pearlman. 1995. "An Economic Historian's Economist: Remembering Simon Kuznets." *The Economic Journal* 105(433): 1524-1547.

Keynes, J. M. 1936. *The General Theory of Employmnt Interest and Money*. New York, Harcourt Brace.

Kuznets, S. 1948. "National Income: A New Version." *The Review of Economics and Statistics* 30(3): 151-179.

Marshall, A. 1898. *Principles of Economics*. London, MacMillan.

Matsu, K. 1997. *A Genuine Progress Indicator for Australia. Adbusters*. August 1997: 59.

Peterson, W. C. and P. S. Estenson. 1996. *Income, Employment, and Economic Growth*. New York, W.W. Norton.

[Redefining Progress]. 2001. *Contents of the Genuine Progress Indicator*, Redefining Progress. Website. <http://www.redefiningprogress.org/projects/gpi/gpi_contents.html> (March 1).

Rostow, W. W. 1960. *The Process of Economic Growth*. London, Oxford.

Smith, A. 1904. *The Wealth of Nations*. Edited by E. Canaan. London, Methuen.

[Statistics Canada]. 2002. *History of the Census of Canada*, Statistics Canada. Website. (15 March 2003).

Truman, H. 1949. *Inaugural Address*. Washington, D.C.

United Nations. 1962. *The UN Development Decade: Proposals for Action*. New York, UN.

United Nations Development Programme. 2002. *Human Development Report 2002: Deepening democracy in a fragmented world*. Oxford, Oxford University Press.

[United Nations Development Programme]. 2002. *Human Development Reports: FAQ*, United Nations Development Program. Website. <http://hdr.undp.org/statistics/faq.cfm> (January 24, 2003).