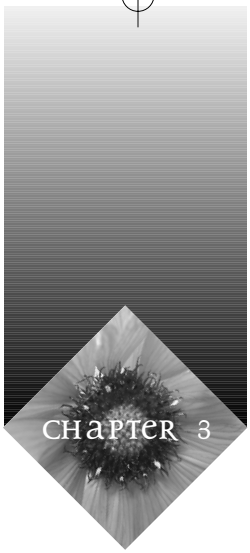

What's Wrong with the Picture of Progress?

Too much and too long, we seemed to have surrendered personal excellence and community values in the mere accumulation of material things. Our Gross National Product [GNP]... — if we should judge America by that — ...counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for the people who break them. It counts the destruction of the redwood and the loss of our natural wonder in chaotic sprawl. It counts napalm and counts nuclear warheads and armored cars for the police to fight the riots in our cities.... Yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country, it measures everything in short, except that which makes life worthwhile.

— Robert Kennedy, March 18, 1968[1]

What we measure reflects what we value and what matters most; what we use to measure and report progress gets our attention. Robert

Kennedy reminded us just how limited our measures of economic progress can be. Virtually every nation tells its story of economic progress using gross domestic product (GDP): the monetary value of all the goods and services bought and sold in an economy. We are led to believe by economists and politicians that the more the GDP grows the better off we are. But who really cares if the GDP rose another few percentage points, representing billions more dollars in production of many things we don't actually need more of, while ignoring deficits of love, relationships and the health of the environment? The GDP is simply a poor measure of well-being and genuine progress, as Kennedy pointed out.

New research into well-being and happiness is showing that increasing economic growth does not necessarily improve well-being.[2] Well-being is more than making more money and even more than just happiness. Well-being means developing as a person, being fulfilled, and making a meaningful contribution to the community.[3] If economic measures of progress fail to measure that which makes life worthwhile — that is, well-being — where did we go wrong? What can we do to change the ways we measure and manage progress so that they align with our values?

Many of us intuitively know there is something wrong with the current picture of progress where indicators like the GDP measure economic well-being solely in terms of what is bought and sold. We are continually told by economists and even presidents that improving our economic well-being requires stimulating the economy through more economic growth. "Stimulating the economy" means producing more stuff, spending more, and consuming more even if our basic corporeal needs have been satisfied. One of the most poignant moments for me was when President George W. Bush, following the horrific events on September 11, 2001, urged Americans to go shopping. Why? To ensure the economy kept going and growing even if many Americans and Canadians experienced the joys of slowing down, listening to nature as the skies grew quiet from the noise of airplanes, and renewing friendships with neighbors and strengthening our relationships with those we love.

Behind President Bush's invocation for more consumption and more growth is the fundamental economic belief that a rising tide of the GDP ultimately raises the well-being of all households in an economy. Economic growth has been the central objective of most governments over these last 50 years, and the GDP has been the key measure of progress. But has the rising tide of the GDP led to improved conditions of well-being for the average American or Canadian? Are we any happier today with more income and

more material possessions than 40 years ago? Lynne Twist author of *The Soul of Money* notes that society is caught up in a myth that more growth, more production and more consumption are good for our lives.[4]

If we examine leading economic indicators like the GDP, stock market indices and consumer spending it is true that after 50 years of progress our capitalist western societies have enjoyed unparallel economic success. We have more GDP per capita, more income, more material possessions, larger homes, more cars and more kitchen gadgets than at any time in history. The average American now spends almost 250 percent more (in inflation-adjusted dollars) in 2005 than she or he did in 1950. Consumer spending is the key driver of the GDP. The following graph shows trends in economic growth in the US. Between 1950 and 2004 the US GDP rose 3,887% in current dollars while total stock market capitalization value rose a fantastic 8,160% (even after the major correction in stock-market values following 9-11-2001). According to economic logic these upward-sloping graphs should mean that overall well-being in the US has improved.

As an economist, I was used to seeing GDP curves like this for the US and Canada. But as a member of my community I felt these indicators were

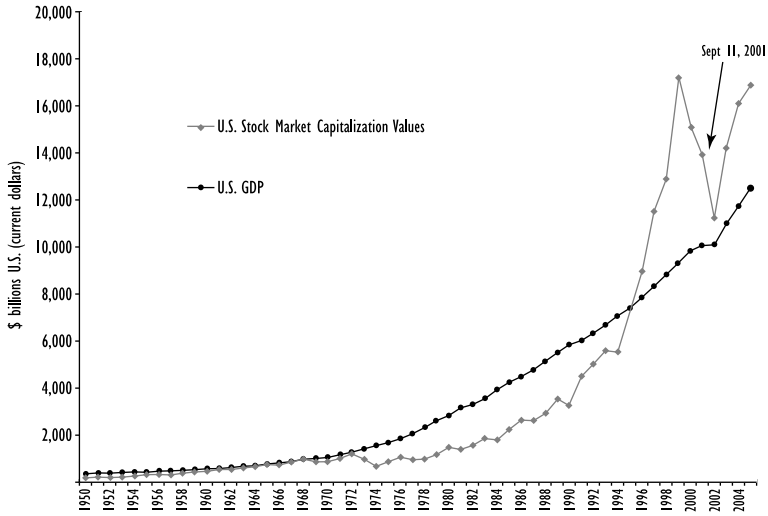

FIGURE 3.1. US GDP and Stock Market Valuations, 1950–2005.
Credit: US Bureau of Economic Analysis & New York Stock Exchange (nyse.com)

masking what was really going on at the household level. While economists and politicians bragged about rising GDP, my neighbors in Edmonton would lament that their personal economic well-being showed little improvement.

The Genuine Progress Indicator (GPI)

The Genuine Progress Indicator or GPI was developed in 1995 by Cliff Cobb, an economist with the San Francisco economic-think tank Redefining Progress as an alternative measure of economic well-being and progress to the GDP.[5] If the GDP was designed to account for the total monetary value of consumption and production in an economy, the GPI was designed to indicate genuine progress in people's quality of life and overall economic, social and environmental well-being.

The GDP's ideal economic hero is a chain-smoking, terminal cancer patient going through an expensive divorce whose car is totaled in a 20-car pile-up, as a result of being distracted by his cell phone while munching on a fast-food hamburger — all activities which would contribute to the GDP. GPI, on the other hand, suggests that many of these "heroic" activities are regrettable and indeed should not be counted as genuine progress.

The GPI addresses seven major fallacies embodied in the GDP and similar national income accounts:

1. The GDP regards every expenditure as an addition to well-being, regardless what that expenditure is for and its effects. By this reasoning a healthy person in a solid marriage that cooks at home, walks to work and doesn't smoke or gamble is an economic villain. The hero borrows and spends; the villain pays cash and saves for the kids' education. What economists call "growth," in other words, is not always the same as what most people would consider good.
2. The GDP ignores the crucial economic functions that lie outside the realm of monetary exchange. The GDP excludes the value of unpaid housework, child care, volunteer work and leisure. Parents do real work. So do neighbors, communities, open spaces, rivers and oceans, the atmosphere and trees. Anyone who doubts this might try getting along without them. Such things contribute more to well-being than does much that we buy from the market. Yet the GDP regards these life-sustaining functions as worthless — until the economy destroys them and we have to buy substitutes from the market or from government. Then the GDP says that the economy has "grown." When parents default and kids need

counseling or foster care, the GDP goes up because money has changed hands. When a parent cares for kids at home the GDP stagnates; when that same parent takes care of other peoples' kids and calls it "daycare" the GDP goes up. When the city cuts down shade trees to widen a street and homeowners have to buy air conditioners for cooling, the GDP goes up again. It looks like economic growth, but no real increases have occurred. Instead, something that used to be free now costs money; social and environmental decay has been transmogrified into "growth" through the myopic lens of the GDP.

3. The GDP does not account for natural resources that are required to sustain current and future economic development — implying that the future has no value. The GDP excludes natural resource capital, environmental resources services, human resources, research and development. All that matters is the present. The implications of current economic activity for our kids and grandkids do not enter the calculation. For example, the GDP counts the depletion of natural resources as current income rather than as the liquidation of an asset. This violates both basic accounting principles and common sense. Similarly, saving doesn't add much to the GDP; economists actually chide Japan for its high savings rate. But maxing out on credit cards makes the GDP soar.
4. The GDP ignores totally the distribution of income, the social costs of inequality and poverty. Changes in the GDP are insensitive to income inequality, poverty and the distribution of personal consumption and wealth. Even assuming that the GDP represents a rising tide of beneficence, it can't have that effect unless all share. If the economy is getting bigger but the benefits are going mainly to those who need it least, the result are material accretion not economic advance. This is true even in conventional economic terms. For a family struggling on the minimum wage, a tenth that amount can mean the difference between macaroni and chicken for many nights.
5. The GDP contains intermediate and regrettable expenditures that do not contribute to economic welfare. It includes government spending for weapons. It also includes personal costs related to commuting, crime, environmental protection and automobile accidents.
6. The GDP minimizes the value of expenditures on education, health care, social services and environmental protection because it does not reflect the outcomes or returns on investment from such expenditures. Such

outcomes might include physical well-being (e.g. life expectancy), intellectual and labor market skills, educational attainment and improved quality of the environment.

7. The GDP does not directly measure investment in social capital. Social capital includes investments in the health and wellness of communities, social institutions and democratic processes.[6]

When you add up all of these fallacies, is it any wonder that economists and leaders may see current economic reality and the future as rosy and while many Americans and Canadians intuit there is something wrong with the picture of progress they are given?

The GPI attempted to address these shortcomings of the GDP by measuring the social and environmental costs and benefits which the GDP either ignores or counts as economic progress. The GPI made intuitive sense to me and seemed to address the fundamental challenges posed by one of the creators of national income accounting, Simon Küznets. Küznets had deep reservations about the limits of the new national income accounting and in 1934 cautioned the US Congress that "the welfare of a nation can scarcely be inferred from a measurement of national income [as defined by the GNP]." Almost 30 years later Küznets had come to the conclusion that national income accounting should be completely rethought. Writing in the *New Republic* in 1962 he noted "Distinctions must be kept in mind between quantity and quality of growth, between costs and return, and between short and long run." He noted further that "Goals for more growth should specify more growth of what and for what." Küznets foreshadowed the need for an alternative measure of economic well-being stating that eventually "national income concepts will have to be either modified or partly abandoned, in favor of more inclusive measures, less dependent on the appraisals of the market system. The eventual solution would obviously lie in devising a single yardstick."[7] John Kenneth Galbraith, one of the 20th century's greatest economists, echoed Küznets' concern: "There is a major flaw in measuring the quality and achievement of life by the total of economic production — (GNP/GDP) — the total of everything we produce and everything we do for money." Galbraith noted that measures such as the GDP override and obscure deeper and more important aspects of economic life, failing to take sufficient account of the value and enjoyment of what is produced.[8]

To calculate the GPI, we begin with the personal consumption expendi-

tures. We include capital investment, government spending and net exports. But the GPI adjusts personal consumption expenditures by:

- Adjusting GDP for income inequality — the gap between rich and poor
- Adding the values of unpaid housework, parenting and volunteer work
- Adding the value of the service from household infrastructure
- Adding the value of the service from streets and highways
- Subtracting the value of time including costs of lost leisure time, family breakdown, commuting time, unemployment and underemployment
- Subtracting the costs of crime, auto accidents and cost of consumer durables
- Subtracting the costs of long-term environmental degradation, air pollution, water pollution, ozone depletion, noise pollution, loss of farmland, loss of forests, loss of wetlands and
- Adjusting for net capital formation and net foreign borrowing

In other words, the GPI reveals hidden environmental costs as well as several measures of both social progress (value of unpaid work) and decline which the GDP obfuscates. I realized that the GPI, while itself incomplete and methodologically challenging, nevertheless represented one of the most heroic attempts in economics to present decision makers with a more meaningful and accurate picture of human progress. In my mind, the GPI represented a gold mine of economic research opportunities.

In 1999 I helped to update the US GPI to the year 1998 as a Senior Fellow with Redefining Progress. The results in Figure 3.2 showed erosion of natural, human and social capital in the US while the GDP continued to rise. The loss of economic well-being since the mid-1970s went on through the 1990s even when US stock markets were red hot. While the GDP per capita rose by 1.4 percent per annum throughout the 1990s the GPI was declining at an average annual rate of 2.7 percent.

The key negative drivers or costs causing the sharp decline in the US GPI through the 90s included soaring income inequality (the gap between the rich and everyone else), the cost of the depletion of nonrenewable resources ($1.3 trillion), long-term environmental damage ($1.0 trillion), the cost of commuting and loss of leisure time ($638 billion combined) and increasing foreign indebtedness.

The strength of the GPI is that the results are expressed in the same dollar or monetary terms as the GDP. For example, the US GPI account update I

completed in 1999 revealed that personal consumption expenditures (which makes up 65% of US GDP) were $4.9 trillion (in 1992 dollars) in 1997. But when the benefits of unpaid work (+$2.6 trillion) are added and the costs of the loss of nature, family breakdown and other social costs are deducted (-$5.7 trillion) from economic progress, the result is a net GPI for 1997 of only $1.7 trillion. Some of the positive social benefits included in GPI, but otherwise unaccounted for in GDP, include the value of unpaid housework, parenting and volunteerism — a benefit of $1.97 trillion — that amounts to an equivalent of 27% of the value of the 1997 US GDP. On the negative side, the costs of pollution and environmental degradation — $1.44 trillion — represented 20% of the 1997 US GDP. The cost of resource depletion (including loss of forests, farmland, wetlands) totaled $1.84 trillion or 25% of the US GDP.

Making money, growing poorer

In the fall of 1999, David Korten, author of *When Corporations Rule the World,* gave a public lecture at the University of Alberta. He presented a graph which he believed reflected the current state of US economic as well as quali-

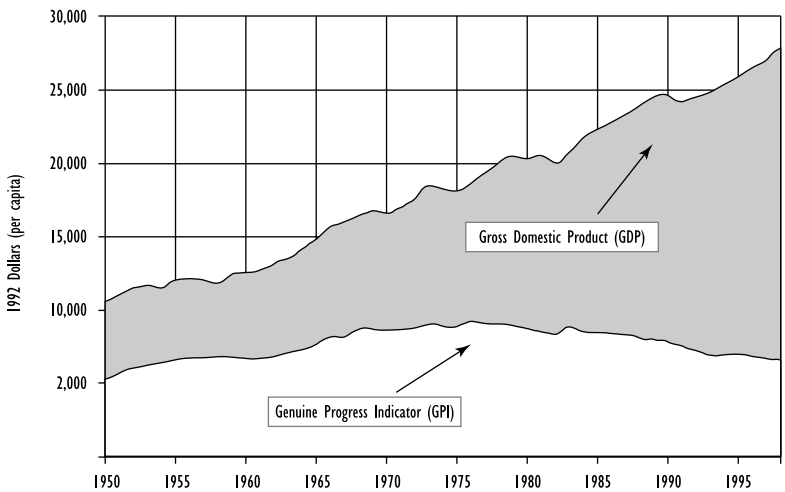

FIGURE 3.2. US GDP versus the Genuine Progress Indicator (GPI), 1950–1997

Credit: Jonathan Rowe and Mark Anielski. *The Genuine Progress Indicator 1998 Update — Executive Summary.* Redefining Progress, 1999.

ty of life indicators. The lines on that graph were constructed with fictitious numbers, so I decided to reconstruct Korten's graph with actual data including 50 years of US statistics on GDP, stock market indices, the US GPI and other quality of life indicators. Being a student of the nature of money in our economy, I identified a key indicator missing in Korten's graph: the total amount of outstanding household, business, government and foreign debt in the US. The following graph emerged.

This graph shows an incredibly robust set of economic indicators: a rising GDP as well as a rising stock market, with the noted collapse of stock market values following 9-11-2001. The current market capitalization value of all domestic stocks traded in the US have risen over 12,254% (over 12 times its value) since 1950 reaching a value of $16.9 trillion. Over the same period the US GDP (in current dollars) has risen 4,143% reaching $12.5 trillion in 2005. The US GPI line is hardly noticeable while the estimated costs of environmental degradation and natural capital depletion in the US is evident in the line which declines steadily. The most remarkable line in this graph is the total amount of outstanding US debt. This includes all forms of

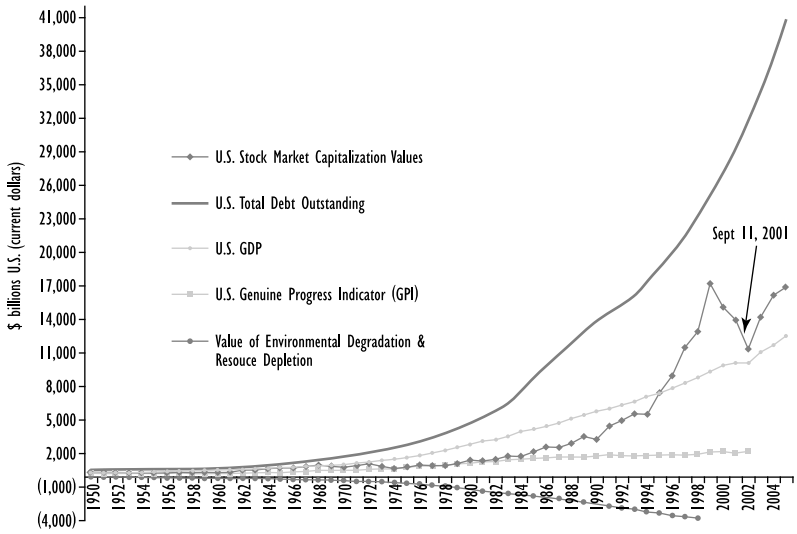

FIGURE 3.3. US GDP, Stock Market Values, Debt, GPI and Environmental Degradation Costs.

Credit: 1: US GDP: US Bureau of Economic Analysis; 2. Stock Market Values: New York Stock Exchange (nyse.com); 3. US Total Credit Debt Outstanding: US Federal Reserve; 4. GPI: Redefining Progress; 5. Environmental Degradation Costs: Redefining Progress.

debt including government (public), household, business and foreign debt. Between 1950 and 2005, the total debt outstanding (as reported by US Federal Reserve statistics) has risen 7,935% reaching a staggering $38.3 trillion by the second quarter of 2005. The increase in total debt is so dramatic that it has reached parabolic heights which appear unsustainable in the long-run.

This graph clearly illustrated that while the US was making money it was also growing poorer in genuine economic and environmental terms. This graph also affirmed something I have come to appreciate: that there is a direct relationship between debt and the GDP. The graph shows that debt places a permanent claim on life's capital, like an insatiable cancer cell sucking life from its hosts. The graph implies that eventually the host/economy will die because outstanding debt can never be repaid out of current production. We can see how the unrepayable debt load of the US exerts insatiable pressure on that economy to keep growing *ad infinitum.* Perhaps this is why President George W. Bush urged Americans to go shopping after the tragedy of 9-11; without continued spending the outstanding mountain of debt could not be serviced and the economy would face a heart attack. Moreover, the graph warns that even if we want to pursue an economy of moderation based on ethics of sufficiency this would be impossible with the debt overhang that exists in the US as in most nations.

The epiphanies of this analysis led me to examine other social quality of life and environmental health indicators in contrast to the GDP. Graphing the GDP in relationship with the GPI, the Index for Social Health, the World Wildlife Fund's Living Planet Index and an estimate of the ecological deficit for the US (measured using Ecological Footprint analysis) showed that every key life indicator has been in decline in the US since the mid-1970s.

For example, the Index for Social Health (ISH), a 17-indicator composite measure of societal well-being developed by Marc Miringoff at Fordham University, includes indicators such as suicide rates, teen pregnancy, income inequality, life expectancy and other intuitive social and human health indicators. It declined 45% between 1970 and 1993. Over the same period the GPI declined 29% since its peak in the mid-1970s. The Ecological Footprint deficit[9] of the US continued to rise (revealed by a declining trend line). As a proxy for world ecosystem health, the Living Planet Index — a measure of the health of the world's forests, freshwater and oceans — declined 32% globally over the same study period. There are indicators that show positive improvements in quality of life including increasing life expectancies and improved

air quality. But here again is strong evidence that the "progress" represented in conventional economic and financial market indicators masks the cancerous state of many our life support systems.

Our affluent society has been fueled largely by non-renewable fossil fuels. Our GDP, our food and much of our lifestyle is literally soaked in oil. For example, agricultural production is now roughly 90% dependent on oil inputs; our food is literally petroleum based.[10] It takes about three-quarters of a gallon of oil to produce a pound of beef.[11] If all of the world ate the way the United States eats, humanity would exhaust all known global fossil-fuel reserves in just seven years.[12] Every second the world consumes 37,000 gallons of oil, 480 tons of coal and 3 trillion cubic feet of natural gas.[13] The US now consumes more than one-quarter of the world's total fossil fuel production (more than 20 million barrels of day). According to some petroleum geologists the world is facing a stark reality: peak world oil production. Peak oil describes reaching the midpoint between discovery and depletion of finite re-

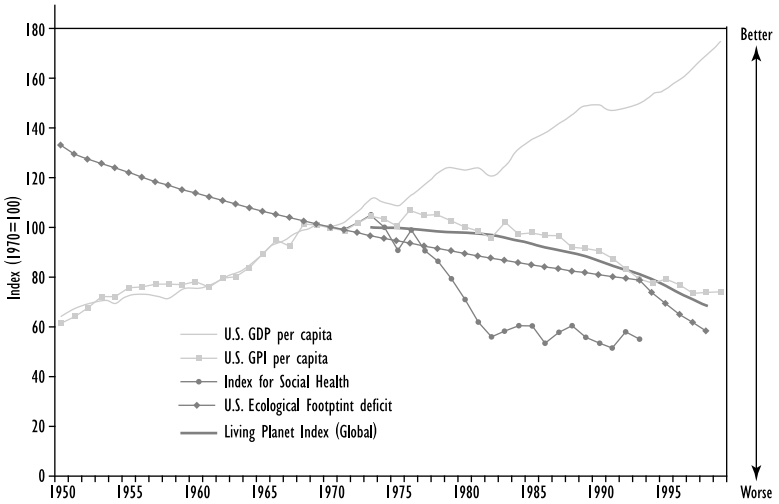

FIGURE 3.4. Genuine Well-being (Quality-of-Life) Indicators versus GDP (1970–100)

Credit: 1. US GDP: US Bureau of Economic Analysis; 2. US GPI: Redefining Progress (rprogress.org); 3. Index for Social Health: Marc Miringoff. 4. UN HDI: UN Human Development Report 1999; 5. US Ecological Footprint: derived from Wackernagel & Rees, *Our Ecological Footprint,* New Society, 1995 and rprogress.org; 6. Living Planet Index: World Wildlife Fund.

serves of oil, gas and other non-renewable energy. At the point of peak world oil production, prices become more volatile as nations scramble to secure the remaining and diminishing supplies of oil. According to the Association for the Study of Peak Oil and Gas (ASPO) the world reached a peak oil situation in 2005; the US and Canada reached peak of conventional oil and gas reserves in the early 1970s.[14]

Figure 3.5 pictures trends in US dependency on non-renewable fossil fuels relative to the GDP (current dollars) between 1950 and 2005. The graph clearly shows how US economic progress has been fueled by the use of non-renewable oil, gas and coal resources. However, the good news is that the US economy is in fact much more energy efficient today than it was 50 years ago — requiring only 6.8% as much total energy input in 2005 per dollar GDP than in 1950; in 1950 a dollar of GDP required roughly 20,314 barrels of oil equivalent (117, 822 Btus) of total energy (fossil fuels, electricity and renewable energy) compared to only 1,383 barrels of oil equivalent (8,020 Btus) in 2005.[15] This suggests that the US economy is in fact more frugal with respect to energy inputs while maintaining high economic well-being.

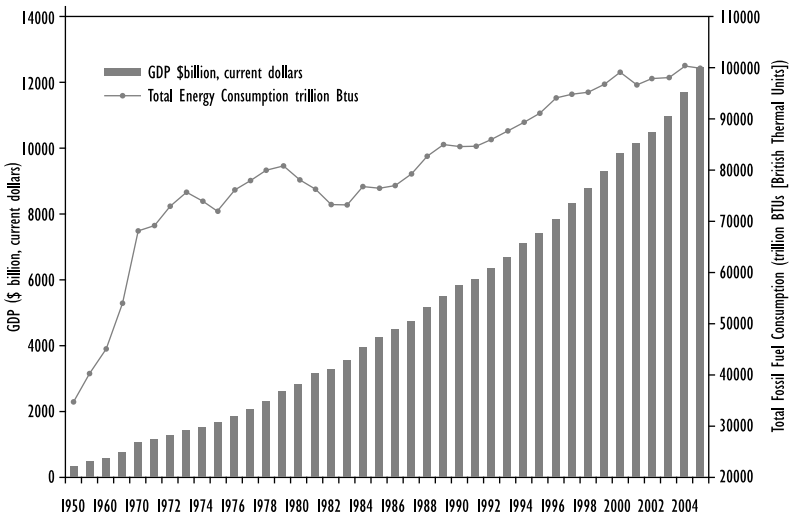

FIGURE 3.5. US GDP versus total fossil fuel consumption, 1950–2005

Credit: 1. US GDP: US Bureau of Economic Analysis; 2. US fuel consumption: US Department of Energy, Annual Energy Review 2005, Section 2: Energy Consumption by Sector.

Yet the US faces a significant challenge from the pressures of peak oil and its continued dependency on fossil fuels. In 2005, of the 99,894 trillion Btus in total energy consumption, fossil fuels still made up 86% of energy consumption followed by nuclear energy (8.1%) and renewable energy (6.1% of which 45% is from hydroelectric power generation). The contribution of renewable energy as a percentage of total energy consumption has actually declined from the high of 10.5% in 1971.

To examine whether the US as a whole was better off today than it was in 1950, I constructed a large database. I wanted to compare trends in economic indicators with quality of life indicators like average real incomes, income inequality, water quality, air quality, the extent of natural environments like wetlands and old growth forests, crime rates, car crashes and a number of health indicators. I asked the simple question: "are today's citizens happier and enjoy a higher quality of life than they enjoyed 50 years ago?" I organized the available indicators according to what I felt people might intuitively say they would want more of and what they would want less of to improve their quality of life. The results of my analysis for the US are sobering. Here I have compared several well-being indicators in the year 2000 with the benchmark year 1950.

These indicators demonstrate again that many life conditions for the average US citizen have grown worse despite increasing levels of GDP and booming financial markets.

The Alberta GPI

As the US GPI update project was nearing completion in January of 2000 I began to construct a similar but more detailed GPI analysis for my home province of Alberta in Canada. I was motivated by a simple question: were Albertans in general better off today in terms of economic, social, health and environmental well-being than they were in 1960 when I was born?

The Alberta GPI sustainable well-being accounts track 51 indicators of economic, social and environmental conditions from 1961 to 1999. The accounts include variables shown in the graph below. These indicators can compare individually with GDP growth or with each other. We also designed a unique data indexing system which allowed us to aggregate indicators into composite indices such as an economic well-being index, a social-health well-being index and environmental well-being index. An overall Genuine Well-being Index was also created, combining all 51 indicators.

Figure 3.6. Is the US citizen better off or worse off today compared to 1950?

What we want *more* of....	Progress Indicator	Better or Worse (compared with 1950)	Description of Change in Quality of Life since 1950
Happiness	Self-rated happiness	☹ Worse	The number of Americans who say they are "very happy" has declined from 35% in 1957 to 30% in 2002.[16] The US ranked only 16th in the world in 2003 in terms of self-rated happiness.[17]
Longer lives	Life Expectancy	☺ Better	The average life expectancy has increased 6.0 years for American men and women between 1970 and 1997.[18] However, the US ranks only 24th among world nations in terms of life expectancy with Iceland and Japan topping the list.
Overall societal well-being	Index for Social Health	☹ Worse	The Index of Social Health (ISH) has declined 45% between 1970 and 1993.[19]
Healthy youth	Youth suicide rate	☹ Worse	The teen suicide rate has more than tripled since the 1950s.[20]
Prosperous economy	Gross Domestic Product	☺ Better	The US GDP has grown 164% (in real 1992 inflation-adjusted dollars) or 4,183% in current dollars.
Healthy markets	Stock market values	☺ Better	Total stock market capitalization value of all US (domestic) stocks stands at $16.9 trillion and has increased 12,254% in current dollar value from 1950 to 2005.[21]
More money	Personal income Real wages	☺ Better ☹ Worse	Average real (adjusted for inflation) incomes have risen by 229% from $8389 in 1950 to $27,608 by 2005,[22] however, average hourly real wages (in 2005 inflation-adjusted dollars) have remained virtually unchanged since the early 1960s ($16.11/hr. in 2005 compared to $15.94/hr. in 1964).
Genuine Progress	Genuine Progress Indicator (GPI)	☹ Worse	While the GPI per capita increased 22% from 1950 to 1978 it declined 29% since 1978.
More material possessions	Consumption expenditures	☺ Better	Real (inflation adjusted) personal consumption spending on material possessions has increased by 249% from 1950 to 2005.[23]
More leisure time and time with family and friends	Leisure time	☹ Worse	The average US worker enjoys 19% less leisure time today than in the 1950s. TV viewing per household has increased 58%.
Strong and healthy relationships	Divorce rate	☹ Worse	The divorce rate has increased by 195%; the number of kids impacted by divorce has increased 238%.
Healthy farm land	Productive farm land	☹ Worse	The area of productive farmland has decreased by 248% since 1950.
More time to give to others	Volunteer time	☺ Better	169% increase in average hours volunteered per capita.
Reduced dependency of fossil fuels	Fossil fuel use versus renewable energy consumption	☹ Worse	Fossil fuel consumption has increased by172% since 1950, however, in 2005 it now takes one fourteenth as much energy to produce $1 of GDP. More than 86% of energy consumed in 2005 still comes from fossil fuels (compared with 91.4% in 1950). The percentage of energy from renewable energy sources is only 6.1% of total energy consumed, down from a high of 10.5% in 1971.

Credit: Updated by Mark Anielski. Originally published in Mark Anielski and Colin Soskolne. "Genuine Progress Indicator (GPI) Accounting: Relating Ecological Integrity to Human Health and Well-Being." Chapter 9 in *Just Ecological Integrity: The Ethics of Maintaining Planetary Life,* eds. Peter Miller and Laura Westra. Rowman and Littlefield, 2001, pp. 83-97.

Figure 3.6. (continued)

What we want *less* of….	Progress Indicator	Better or Worse (compared with 1950)	Description of Change in Quality of Life since 1950
Debt	US total outstanding debt	☹ Worse	Total outstanding US debt (domestic financial, domestic non-financial and foreign) stands at $40.7 trillion an increase of 9,471% between 1950 and 2005. Average household personal debt was $84,454 in 2004.
Violence	Violent crime rate	☹ Worse	While the violent crime rate in 2004 (465 per 100,000 inhabitants) is now 38% lower than the peak reached in 1991 (758 per 100,000), it is still 2.9 times higher than in 1960 (161 per 100,000).
Inequality in terms of both income and wealth	Gini coefficient	☹ Worse	The Gini coefficient, a measure of income inequality, has risen by 18% since 1968 low. 70% of the rise in average family income between 1977 to 1989 went to the top 1 % of the richest families.[24] By 1995 the richest 0.5% of families claimed 28% of net worth, almost as much as the bottom 90% of the population (32%).[25]
Poverty	Poverty rates	😐 ?	According to 2004 UN Human Development Report, 19% of US citizens still live in poverty (50% of median income).
Work	Hours of work	☹ Worse	The average US worker worked 7% more hours per annum in 2000 than in 1950. On average, Americans work nearly nine full weeks (350 hours) longer per year than their peers in Western Europe do.[26] The average American worked 1815 hours in 2002 or more than 473 hours (almost 12 weeks) more than the average Norwegian (1342 hours), the lowest rate in Europe.[27]
Work-related commuting time	Commuting time	☹ Worse	The average commuting time to work and back has increased by 89%; Americans, on average, spend more than 100 hours a year commuting to work (more than the average two weeks of vacation time).[28]
Under-employment	Underemploy-ment rate	☹ Worse	The percentage of Americans who are under-employed has increased by 375%
Automobile crashes, deaths and injuries	Auto crashes	☹ Worse	The number of auto crashes has increased by 200%.
Long-term environmental damage	Cost of environmental damage	☹ Worse	The estimated cost of environmental damage has increased 142%.
Loss of wetlands	Area of wetlands	☹ Worse	6% decrease in the area of total wetlands in Alaska and lower 48 states since 1950; 53% loss of total US wetlands since 1900 (World Watch).
Loss of old growth forests	Area of old growth forest	☹ Worse	69% less old growth forest.
Air pollution	Air quality indices	☺ Better	Ambient air quality has improved by 42%. However, emissions of carbon monoxide are down 13%, nitrogen dioxide up 132%, VOC (volatile organic compounds) down 9%, sulphur dioxide down 15% and particulate matter up 83%.
Reliance on foreign borrowing and debt	Foreign debt outstanding	☹ Worse	Foreign debt outstanding was $1.4 trillion in 2005, an increase of more than 100 times the amount owing in 1950 ($14 billion).[29]

The Alberta GPI project went beyond the original US GPI work by developing well-being "ledgers" or accounts from which any number of indicators of well-being could be derived and reported. I found the accounting metaphors of ledgers, balance sheets and income statements useful to speak not only to the business community but also to average Albertans. A well-being balance sheet shows the conditions of Alberta's human, social, natural, built and financial or economic capital just like a company's balance sheet reveals some of its key financial and capital assets. It reveals both the assets (strengths), liabilities (weaknesses) and distribution of wealth and income in Alberta. I reasoned that such a balance sheet could lead to more informed and wiser stewardship of our common wealth.

Figure 3.7. The Alberta Genuine Progress Indicators

Economic Well-Being Indicators	**Social Well-Being Indicators**	**Environmental Well-Being Indicators**
Economic growth	Poverty	Oil and gas reserve life
Economic diversity	Income distribution	Oilsands reserve life
Trade	Unemployment	Energy use intensity
Disposable income	Underemployment	Agriculture sustainability
Weekly wage rate	Paid work time	Timber sustainability
Personal expenditures	Household work	Forest fragmentation (ecological integrity)
Transportation expenditures	Parenting and eldercare	Fish and wildlife
Taxes	Free time	Parks and wilderness
Savings rate	Volunteerism	Wetland
Household debt	Commuting time	Peatland
Public infrastructure	Life expectancy	Water quality
Household infrastructure	Premature mortality	Air quality related emissions
	Infant mortality	Greenhouse gas emissions
	Obesity	Carbon budget deficit
	Suicide	Hazardous waste
	Drug use	Landfill waste
	Auto crashes	Ecological footprint
	Divorce	
	Crime	
	Problem gambling	
	Voter participation	
	Educational attainment	

Credit: Mark Anielski, Mary Griffiths, David Pollock, Amy Taylor, Jeffrey Wilson, and Sara Wilson. *Alberta Sustainability Trends 2000: Genuine Progress Indicators Report 1961 to 1999*. Pembina Institute for Appropriate Development, April 2001, p. 4. pembina.org/pdf/publications/gpi-ab2000-trends.pd.

A new income statement could adjust the GDP for a number of unaccounted benefits (e.g. the value of unpaid work such as volunteerism), net out regrettable expenditures (e.g. cleaning up auto crashes) and adjust for the depreciation costs to human, social and natural capital as a result of their loss or consumption. Such an income statement would provide a rough full cost-benefit accounting of Alberta's economic progress. Moreover, it would help to assess the true benefits (or costs) of various economic development policies — such as forestry or oil and gas development policies or the introduction of legalized gambling (e.g. casinos and video-lottery terminals) in the province in the early 1990s — over time.

While the business section of newspapers and general government economic reporting heralded Alberta's booming oil-based economy, the Alberta GPI accounts told a different if not more honest story. By combining all 51 Genuine Progress Indicators, we derived a composite index—the GPI Well-being Index — which we compared with the GDP over time. Figure 3.8 illustrates this comparison. From 1961 to 1999, Alberta's GDP (in constant

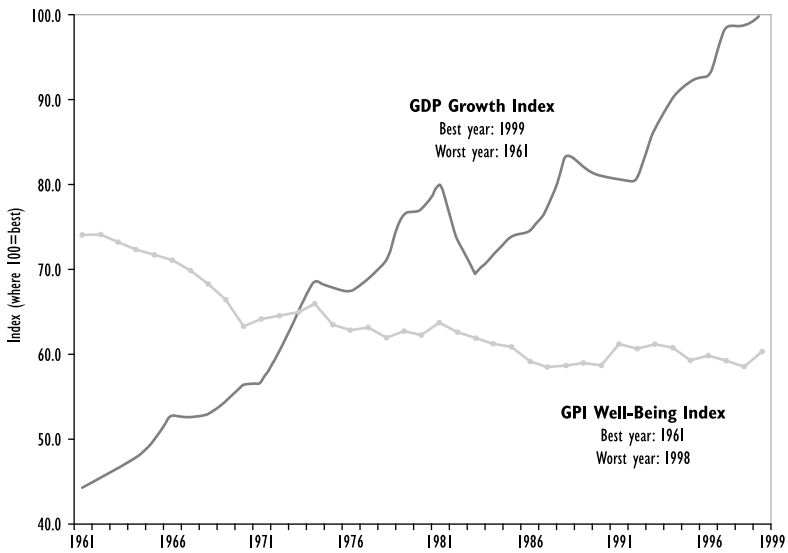

FIGURE 3.8. The Alberta GPI Well-being Index versus Alberta GDP Index, 1961 to 1999.

Credit: Mark Anielski, Mary Griffiths, David Pollock, Amy Taylor, Jeffrey Wilson, and Sara Wilson. *Alberta Sustainability Trends 2000: Genuine Progress Indicators Report 1961 to 1999.* Pembina Institute for Appropriate Development, April 2001, p. 6. pembina.org/pdf/publications/gpi-ab2000-trends.pd.

1998 dollars) increased by over 400%, or 4.4% per annum, while the Alberta GPI Well-being Index declined at an annual rate of 0.5% per year. The GPI Index was highest in the 1960s then declined to reach a plateau in the 1990s despite continued economic growth. Our study indicates that the best GPI Index was recorded in 1961 and the lowest in 1998. In the 1990s, the GDP per capita grew at an annual rate of 2.4% while the GPI per capita was virtually stagnant, growing a mere 0.43% per year, on average.

We also presented all 51 indicators of well-being in a unique spider graph: the Sustainable Well-being Circle Index. Using this graph, you can compare relative conditions of well-being across all indicators regardless of their unit of measurement. This provides a full-length mirror of Alberta's well-being in any given year.

The unique Genuine Well-being Circle Index clearly shows the strengths and weaknesses of various conditions of well-being in Alberta in 1999. This

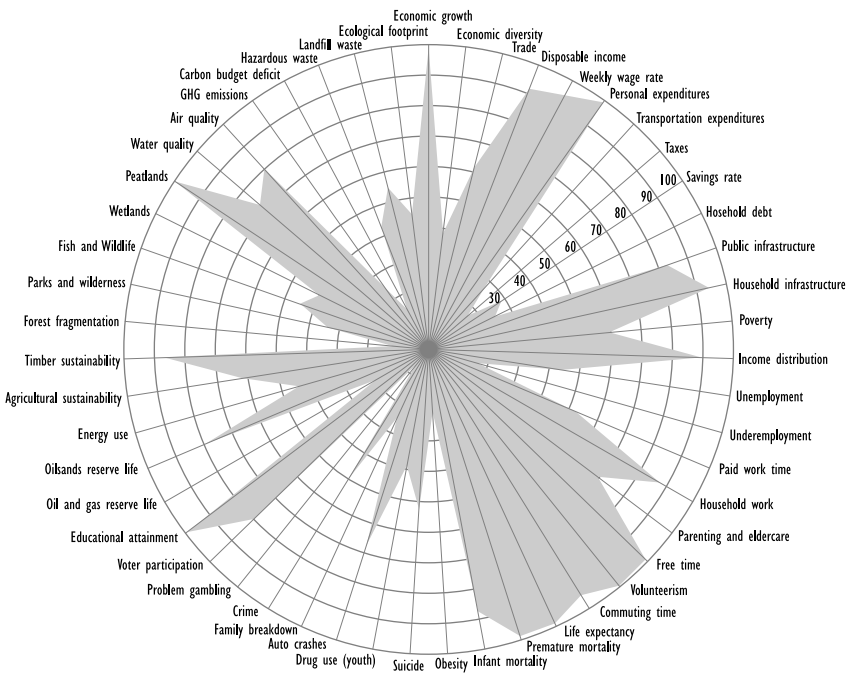

FIGURE 3.9. The Alberta GPI Sustainable Well-being Circle Index for 1999.

Credit: Mark Anielski, Mary Griffiths, David Pollock, Amy Taylor, Jeffrey Wilson, and Sara Wilson. *Alberta Sustainability Trends 2000: Genuine Progress Indicators Report 1961 to 1999.* Pembina Institute for Appropriate Development, April 2001, p. 7. pembina.org/pdf/publications/gpi-ab2000-trends.pd.

Index is like a company balance sheet on which each type of living and produced capital is reported as an index score relative to historical conditions. This index shows the condition of all capital in Alberta in 1999, each indicator with its own score.[30]

The GPI Circle Index provides a powerful visual image of the overall condition of economy, society and environment that could be applied at the local, state or provincial or national level. It provides an alternative to trend lines and shows clearly the contrast between the condition of the factors that contribute to quality of life. For example, health indicators such as life expectancy, premature mortality and infant mortality are in good condition—that is, their scores are close to 100 points. Many social and environmental indicators, on the other hand, were in an unhealthy condition in 1999 compared with the previous 40 years. While we may not value each indicator equally (for example, timber sustainability cannot be compared with agricultural sustainability), the presentation of all indicators together does show relative conditions for any point in time. Moreover, each of the 51 indicators can be portrayed as an individual trend line allowing policy makers to visually contrast, for example, the trend in GDP compared to suicide rate or life expectancy.

The story of 40 years of economic progress in Alberta can be told by comparing GDP growth with changes in other living capital accounts. While real GDP per Albertan rose 126% between 1961 and 1999 to $109.7 billion or $37,005 per capita (1998 dollars) the following changes occurred in terms of economic, social, human and environmental capital between 1961 and 1999:

- While GDP is up, disposable income levels remain stagnant throughout the 1990s suggesting that not all Albertans are sharing equally in the economic good times
- Taxes (per capita) have increased 494% to $5,172 per capita (1998$)
- Total debt (federal, provincial, household, farm) per capita increased 262% to $48,182 per capita
- Poverty (% living below the Low-Income-Cutoff) has increased 37%
- Income inequality (after-tax income) has actually decreased thanks to the positive impacts of a progressive income tax system and government transfers
- The gap between rich and poor is still significant with the eight wealthiest Albertans having an estimated hourly income of $33,307 per hour versus $5.90 per hour for a minimum wage earner

- Paid work hours fell 17% while underemployment is the highest in history
- Unpaid work hours (per person) increased 4% and is valued at $32.6 billion or 31% of the GDP
- Time with the kids and parents has fallen 33%
- Family breakdown (divorce and separations) increased 312%
- Life expectancy increased 10% to an average 79.3 years
- Asthma amongst children is up dramatically
- While Albertans have one of the lowest cancer rates in Canada, both the incidence and mortality from all forms of cancer (particularly lung, breast, thyroid, prostate and colorectal cancers) are higher than in 1970
- Obesity has more than doubled since 1985
- Suicide increased 30% to 14.4 suicides per 100,000 population at a societal cost of $365 million in 1999 (0.3% of GDP)
- Auto crashes have increased 37% for a total societal cost of $3.97 billion or 3.6% of GDP
- Crime rates per capita increased 59% with total costs of crime amounting to 2% of GDP
- Intellectual capital has increased with over 54% of Alberta's adult population with some post-secondary education
- Democracy is weaker with fewer Albertans voting in federal, provincial and municipal elections than 30 years ago
- Alberta's ecological footprint increased 63% and is the fourth highest in the world, while the Canadian average ranks 10th in the world
- Forests are younger, more fragmented, and timber supply has become unsustainable with less than 14% of Alberta's boreal forests and less than 1% of Alberta's foothill forests remaining in a wilderness condition
- Oil and gas reserves are dwindling (except for oilsands) with less than nine years of natural gas and seven years of conventional crude oil reserves remaining. More than 300 years of oilsands reserves remain. If valued correctly as depreciation of natural capital, the depreciation cost of oil and gas depletion in 1999 would be $9.9 billion and reduce Alberta's 1999 GDP by 9.4%
- Wetlands and peatlands have declined. Wetlands declining 58% in area since pre-1880 settlement times reduces ecological services such as carbon sequestration
- Alberta's carbon budget deficit continues to increase with forests and

peatlands sequestering no more than 25% of total anthropogenic carbon emissions

- Slightly higher levels of fecal coliform, nitrogen and *E. coli* appear in some Alberta rivers along with reduced dissolved oxygen levels and lower phosphorous levels
- Glacial melt in the Rocky Mountains is increasing and will impact river water flow rates
- Very little is known about the condition of groundwater aquifers either in terms of volume or quality or the potential risk to water from feedlot developments
- Ecosystem health has declined dramatically if measured in terms of ecosystem fragmentation with over 88% of Alberta's forest ecosystem fragmented by roads, seismic lines, well-sites and pipelines[31]

One of our key findings was that while Alberta's GDP continued to increase after the recession of 1982, the economic well-being of Albertans (measured

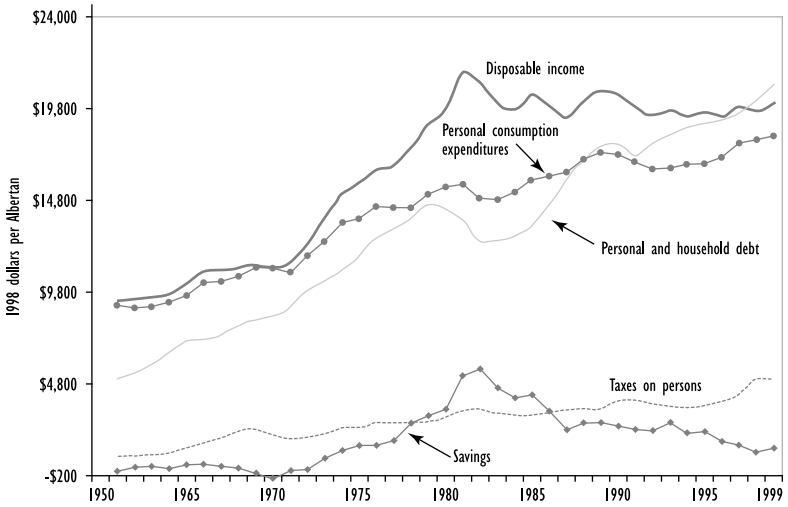

FIGURE 3.10. Real Disposable Income, Personal Consumption Expenditures, Personal and Household Debt, Savings, and Taxes Paid per Albertan (1998$), 1961 to 1999

Credit: Mark Anielski, Mary Griffiths, David Pollock, Amy Taylor, Jeffrey Wilson, and Sara Wilson. *Alberta Sustainability Trends 2000: Genuine Progress Indicators Report 1961 to 1999.* Pembina Institute for Appropriate Development, April 2001, p. 11. pembina.org/pdf/publications/gpi-ab2000-trends.pd.

in terms of income, taxes, debt and savings) had remained virtually unchanged for almost 20 years.

While the real GDP per capita rose 36% between 1982 and 1999, our analysis showed that disposable income (adjusted for inflation) and real weekly wages per average Albertan have still not recovered to the highs reached in 1982. Personal consumption expenditures per Albertan continued to rise although more slowly than GDP growth, but these expenditures are increasingly financed through debt rather than through income.

Personal and household debt has increased significantly since 1982. In 1997 for the first time in history, this debt surpassed real disposable income reaching an unprecedented rate of 109% of disposable income in 1999. At the same time, savings have fallen from their peak in 1982. The total of all government taxes and fees paid by each Albertan exceeds the amount she or he is saving.

The big story is that while more money changed hands between 1982 and 1999 (i.e. the GDP was increasing), not all Albertans benefited equally from this increased cash flow. The flow was caused by more economic output

FIGURE 3.11 Alberta's GDP per capital versus Alberta's suicide rate, 1961–1999.

Credit: Mark Anielski. Alberta GPI Accounts: Suicide. Report #10. Pembina Institute, November 2001, p.4.

and more exports. The GPI accounts suggest that in 1999, average Albertans struggled to keep their households afloat against growing debt and higher levels of total taxes (paid by persons), while their disposable income remained in the doldrums, thus eroding their capacity to save for things like retirement and their children's needs. Most Albertans I have talked to in person and on radio talk-shows in Edmonton relate to this evidence.

Figure 3.11 compares Alberta's GDP with its suicide rate. While there is no statistically significant correlation between suicide and the GDP, the suicide rate has increased since the 1960s as did the GDP. Such a striking image provokes one to ask: if the GDP is up, how are other aspects of life?

In 2005, Amy Taylor, an economist with the Pembina Institute and one of the key economic researchers on the original project , released an update to Alberta GPI on the centennial of Alberta as a province. The results showed that most of the trends continued from the 2001 results: incomes, consumer spending and household debt were up but savings rates were down. While life expectancy increased, the gap between rich and poor continued to increase along with poverty, suicide, problem gambling and commuting times. Voter participation in elections also continued its decline. On the environmental side, the Ecological Footprint continued to increase while oil and gas reserves continued to decline along with the area and ecological conditions of wetlands.[32]

The Alberta GPI project accounts for well-being in a manner that intuitively aligns with most people's values. The GPI accounting approach helps us better understand the potential relationship between economic growth and social, health and environmental conditions of well-being, thus enlightening our debate about progress. GPI accounts can be used to develop annual reports to citizens about the changing conditions that affect their lives. Understanding these conditions is critical to charting a sustainable future and ultimately to working towards an economy of well-being. With better information, people are empowered to participate more fully in the democratic process of shaping their future.