



Chinese Journal of Population Resources and Environment

ISSN: 1004-2857 (Print) 2325-4262 (Online) Journal homepage: <http://www.tandfonline.com/loi/tpre20>

Toward Ecological Economy

Robert Costanza

To cite this article: Robert Costanza (2007) Toward Ecological Economy, Chinese Journal of Population Resources and Environment, 5:4, 20-25, DOI: [10.1080/10042857.2007.10677527](https://doi.org/10.1080/10042857.2007.10677527)

To link to this article: <http://dx.doi.org/10.1080/10042857.2007.10677527>



Published online: 20 May 2013.



Submit your article to this journal [↗](#)



Article views: 19



View related articles [↗](#)

Toward Ecological Economy

Robert Costanza

Gund Institute of Ecological Economics, Rubenstein School of Environment and Natural Resources,
University of Vermont, Burlington, VT 05405-1708, USA

Stories about the economy typically focus on Gross Domestic Product (GDP), jobs, stock prices, interest rates, retail sales, consumer confidence, housing starts, taxes, and assorted other indicators. We hear such things that “GDP grew at a 3% rate in the fourth quarter, indicating a recovering, healthy economy, but with room for further improvement.” Or, “the Fed raised short-term interest rates again to head off inflation.”

However, do these reports and the indicators they cite really tell us how the economy is doing? What is the economy anyway? And what is this economy for?

Conventional reports on these questions are rather narrow. The “economy” we usually hear about refers only to the market economy—the value of those goods and services that are exchanged for money. Its purpose is usually to maximize the value of these goods and services—with the assumption that the more activity, the better off we are. Thus, the more GDP (which measures aggregate activity in the market economy), the better. Likewise, the more contributors to GDP (such as retail sales and salaries paid to employees), the better. Predictors of more GDP in the future (such as housing starts and consumer confidence) are also important pieces of information from this perspective. Declining or even stable GDP is seen as a disaster. Growth in GDP is assumed to be government’s primary policy goal and also something that is sustainable indefinitely.

However, is this what the economy is all about? Or more accurately, is this *all* that the economy is about? Or, is this what the economy *should be* about? The answer to all of these is an emphatic no. The following focuses on the reasons.

Let’s start with purpose. The purpose of the economy *should be* to provide for the sustainable well-being of people. That goal encompasses material well-being, certainly—but also anything else that affects well being and its sustainability. This seems obvious and non-controversial. The problem comes in determining what things actually affect well-being and in what ways.

There is a substantial new research on this “science of happiness” that shows the limits of conventional economic income and consumption in contributing to well-being. Kasser (2003) pointed out, for instance, that people who focus on material consumption as a path to happiness are actually less happy and even suffer higher rates of both physical and mental illnesses than those who do not. “Material consumption beyond real need is a form of psychological “junk food” that only satisfies for the moment and ultimately leads to depression”, Kasser said.

Economist Easterlin (2003), a noted researcher on the determinants of happiness, has shown that well-being tends to correlate well with health, level of education, and marital status, and with income only up to a fairly low threshold (Fig. 1). He concluded in a recent paper in the *Proceedings of the National Academy of Sciences*, “People make decisions assuming that more income, comfort, and positional goods will make them happier, failing to recognize that hedonic adaptation and social comparison will come into play, raise their aspirations to about the same extent as their actual gains, and leave them feeling no happier than before. As a result, most individuals spend a disproportionate amount of their lives working to make money, and sacrifice family life and health, domains in which aspirations remain fairly constant as actual circumstances change, and where the attainment of one’s goals has a more lasting impact on happiness. Hence, a reallocation of time in favor of family life and health would, on average, increase individual happiness.” British economist Layard (2005) echoed many of these ideas and concluded that current economic policies are not improving happiness and that “happiness should become the goal of policy, and the progress of national happiness should be measured and analyzed as closely as the growth of GNP”. Several countries are now interested in alternative measures of progress. For example, Bhutan has recently announced that it will make “Gross National Happiness” its explicit policy goal.

Economist Frank (1999) also concluded that the nation

Corresponding author: Robert Costanza (Robert.Costanza@uvm.edu)

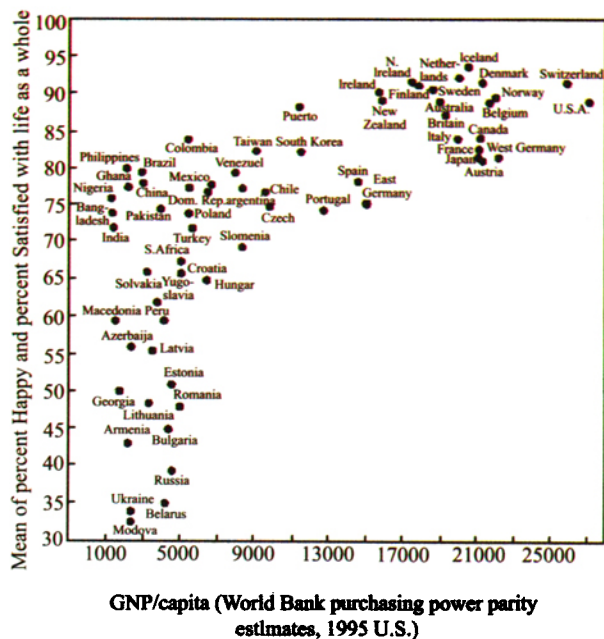


Fig. 1(a) Subjective well-being by level of economic development.
 Source: World Values Surveys, GNP/capita purchasing power estimates from World Bank, World Development Report, 1997.
 $R = 0.70$ $N = 65$ $p < 0.0000$

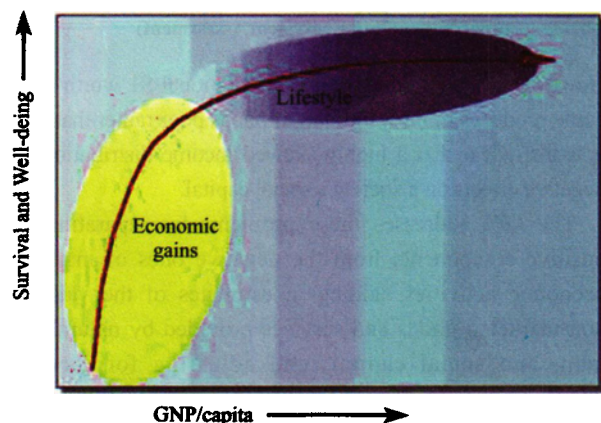


Fig.1(b) Relationship between GNP/capita and life satisfaction
 Source: World Development Report and R. Inglehart, 1997

would be better off—overall national well-being would be higher, that is—if we actually consumed less and spent more time with family and friends, working for our communities, maintaining our physical and mental health, and enjoying nature.

On this last point, there is substantial and growing evidence that natural systems contribute heavily to human well-being (Fig. 2). Costanza et al (1997) estimated the

annual, non-market value of the earth's ecosystem services is \$33 trillion globally, substantially larger than global GDP. The just released UN Millennium Ecosystem Assessment is a global update and compendium of ecosystem services and their contributions to human well-being.

Therefore, if we want to assess the “real” economy—all the things that contribute to real, sustainable, human welfare and quality of life—as opposed to only the “market” economy, we have to measure the non-marketed contributions to human well-being from nature, from family, friends and other social relationships at many scales, and from health and education. One convenient way to summarize these contributions is to group them into four basic types of capital that are necessary to support the real, human-welfare-producing economy: built capital, human capital, social capital, and natural capital (Fig. 3).

The market economy covers mainly built capital (factories, offices, and other built infrastructure and their products) and part of human capital (spending on labor), with some limited spillover into the other two types. Human capital includes the health, knowledge, and all the other attributes of individual humans that allow them to function in a complex society. Social capital includes all the formal and informal networks among people: family, friends, and neighbors, as well as social institutions at all levels, such as churches, social clubs, local, state, and national governments, non governmental organizations (NGOs), international organizations, and the institutions of the market itself. Natural capital includes the world's ecosystems and all the services they provide that support human well-being. Ecosystem services occur at many scales, from climate regulation at the global scale, to flood protection, soil formation, nutrient cycling, recreation, and aesthetic services at the local and regional scales.

Therefore, how have the world's real economies been doing recently, compared to their market economies? The short answer is, not so good. How do we know? One way is through surveys of people's life satisfaction, which in the US have been decreasing slightly since about 1975. A second approach is an aggregate measure of the real economy that has been developed as an alternative to GDP called the Genuine Progress Indicator (GPI).

Let's first take a quick look at the problems with GDP as a measure of true human well-being. GDP is not only limited—measuring only marketed economic activity or

FEATURES

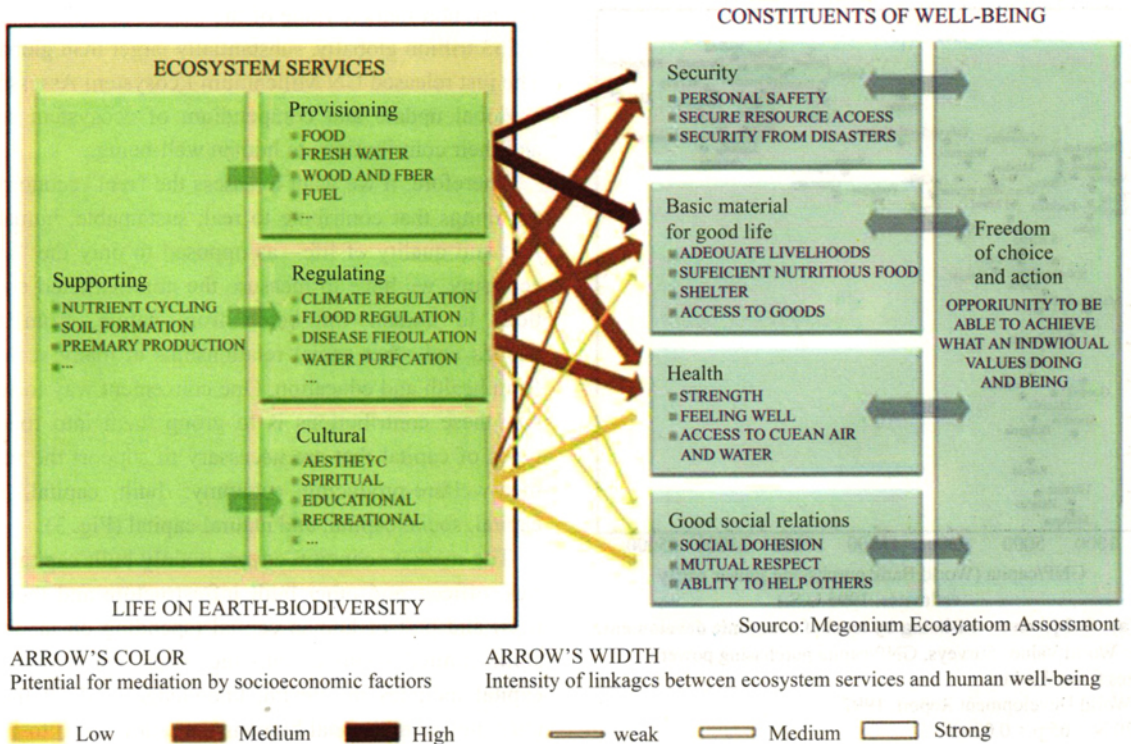


Fig.2 Consequences of ecosystem change for human well-being (source: Millennium Ecosystem Assessment)

gross income—it also counts all of this activity as positive.

It does not separate desirable, well-being-enhancing activity from undesirable well-being-reducing activity. For example, an oil spill increases GDP because someone has to clean it up, but it obviously detracts from society's well-being. From the perspective of GDP, more crimes, sickness, wars, pollution, fires, storms, and pestilence are all potentially good things, because they can increase market's activities in the economy.

GDP also leaves out many things that *do* enhance well-being but are outside the market. For example, the unpaid work of parents caring for their own children at home does not show up, but if these same parents decide to work outside the home to pay for child care, GDP suddenly increases. The non-marketed work of natural capital in providing clean air and water, food, natural resources, and other ecosystem services does not adequately show up in GDP, either, but if those services are damaged and we have to pay to fix or replace them, then GDP suddenly increases. Finally, GDP takes no account of the distribution of income among individuals.

However, it is well-known that an additional \$1 worth of income produces more well-being if one is poor rather than rich. It is also clear that a highly skewed income distribution has negative effects on a society's social capital.

The GPI addresses these problems by separating the positive components from the negative ones of marketed economic activities, adding in estimates of the value of non-marketed goods and services provided by natural, human, and social capital, and adjusting for income-distribution effects (Fig. 4 lists the components of the GPI). While it is by no means a perfect representation of the real well-being of a nation, GPI is a much better approximation than GDP. As Amarta Sen and others have noted, it is much better to be approximately right in these measures than precisely wrong.

Comparing GDP and GPI for several countries shows that in many "developed" countries the benefits of growth in the market economy is now being outweighed by the uncounted costs of that growth. For example, Fig. 5 shows that in the US while GDP has steadily increased since

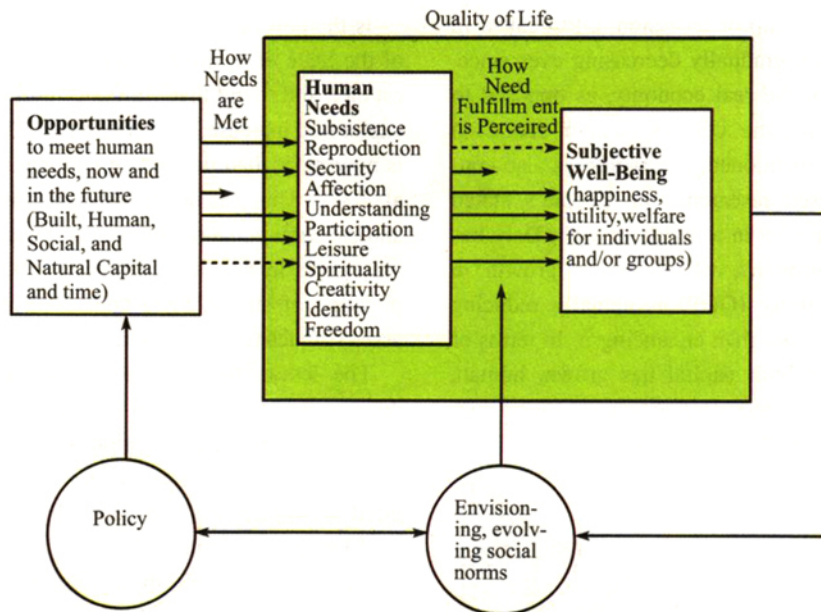


Fig.3 Quality of Life(QOL) as the interaction of human needs and the subjective perception of their fulfillment, as mediated by the opportunities available to meet the needs.

Source: Costanza, R., B Fisher, S. Ali, C. Beer, L. Bond, R. Boumans, N. L. Danigelis, j. Dickinson, C. Blliott, J. Farley, D. E. Gayer, L. MacDonald Glenn, T. Hudspeth, D. Mahoney, L. McCahill, B. McIntosh, B. Reed, S. A. T. Rizvi, D. M. Rizzo, T. Simpatico, and R. Snapp. 2006. Quality of Life: An Approach Integrating Opportunities, Human Needs, and Subjective Well-Being, *Ecological Economics* 61: 267–276.

Additions	Column A: Personal Consumption Expenditures	<ul style="list-style-type: none"> ■ Built Capital ■ Human Capital ■ Social Capital ■ Natural Capital
	Column B: In come Distribution	
	Column C: Personal Consumption Adjusted for Income Inequality	
	Column D: Value of Household Labor	
	Column E: Value of Volunteer Work	
	Column F: Services of Household Capital	
	Column G: Services High ways and Street	
	Column H: Cost of Crime	
	Column I: Cost of Family Breakdown	
	Column J: Loss of Leisure Time	
Subtractions	Column K: Cost of Underemployment	
	Column L: Cost of Consumer Durables	
	Column M: Cost of Commuting	
	Column N: Cost of Household Pollution Abatement	
	Column O: Cost of Automobile Accidents	
	Column P: Cost of Water Pollution	
	Column Q: Cost of Air Pollution	
	Column R: Cost of Noise Pollution	
	Column S: Loss of Wetlands	
	Column T: Loss of Farmland	
	Column U: Depletion of Nonr enewable Resources	
	Column V: Long-Term Environmental Damage	
Column W: Cost of Ozone Depletion		
Column X: Loss of Forest Cover		
Column Y: Net Capital Investment		
Column Z: Net Foreign Lending and Borrowing		

Fig.4 The genuine progress indicator by column

1950, with the occasional dip or recession, GPI peaked in about 1975 and has been gradually decreasing ever since. From the perspective of the real economy, as opposed to just the market economy, the US has been in recession since 1975. As already mentioned, this picture is also consistent with survey-based researches on people's stated life-satisfaction. We are now in a period of what Daly has called "un-economic growth", where further growth in marketed economic activity (GDP) is actually reducing well-being on balance rather than enhancing it. In terms of the four capitals, while built capital has grown, human, social and natural capital have declined or remained constant and more than canceled out the gains in built capital.

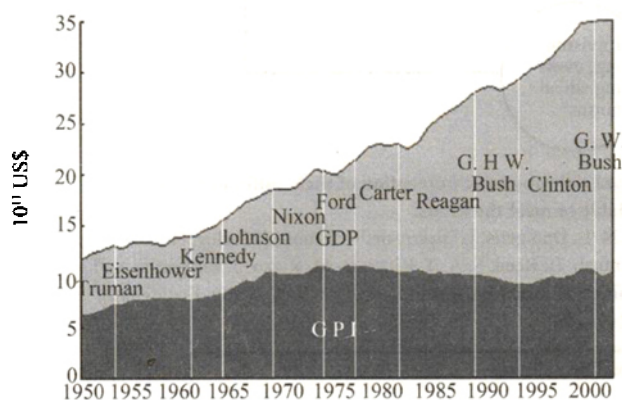


Fig.5 Gross production vs. genuine progress for the US, 1950 to 2002

Source: Redefining Progress-<http://www.rprogress.org>

While the US' GPI was beginning to trend upward again at the end of the Clinton years, the policies of the Bush administration have led to a significant worsening of income distribution (thereby further decreasing social capital), an increasing depletion of natural capital, and worsening human capital through decreased spending on education and health and loss of jobs. And the built capital component (GDP) has not been growing fast enough to outweigh these negatives. While the dollar incomes of some wealthy individuals may have improved over this period, the overall well-being of the US has significantly declined. Further, the psychological evidence is that even the well-being (as opposed to income) of the wealthy individuals has probably not improved very much and may even have declined. From the perspective of the real economy, things are not improving.

Is the news all bad? No. We recently estimated the GPI of the State of Vermont and of Burlington, the state's largest city, and found that Vermont's and Burlington's GPI per capita had increased over the entire 1950–2000 period and is now more than double the national average (Costanza et al, 2004). This was due to Vermont's attention to protecting and enhancing natural, human, and social capital in balance with gains in built capital—accomplished through the application of strong, local democratic principles and processes still actively at work in Vermont.

The lesson from Vermont and from similar analyses done at the regional level in other locales concluded that there is a significant variation within and across countries in trends in well-being and quality of life, and plenty of good examples we can learn from to improve overall well-being at multiple scales.

How can we apply these lessons to get out of the real recession in human well-being at the national scale that many countries are now in? Several policies as follows would help to turn things around.

Shifting our primary national policy goal from increasing marketed economic activity (GDP) to maximizing national well-being (GPI or something similar). This would allow us to see the interconnections between built, human, social, and natural capitals and build well-being in a balanced and sustainable way.

Reforming tax systems to send the right incentives by taxing negatives (pollution, depletion of natural capital, over consumption) rather than positives (labor, savings, investment).

Reforming international trade to promote well-being over mere GDP growth. This implies protecting natural capital, labor rights, and democratic self-determination first and *then* allowing trade, rather than promoting the current trade rules that ignore all non-market contributions to well-being.

Implementing strong democracy, as proposed by Prugh et al (2000). Strong democracy implies true participation of all in governance and is an essential prerequisite to building a sustainable and desirable future.

Increasing the size of the "commons sector" of the economy (as opposed to the private and public sectors) but creating common property asset trusts to "propertize" natural and social capital assets, as described by Barnes

(2006).

Ultimately, getting out of the recession in well-being we are currently in will require us to look beyond the limited definition of the “economy” we read about in the newspapers, and recognize what the real economy is and what it is for. We must not allow deceptive accounting practices—analogueous to those that caused the Enron and WorldCom debacles—to paint an inaccurate and ultimately destructive picture of how “well” we are doing. Alternatives are available, but they need significant further discussion and research.

With nothing less than our current and future well-being at stake, we can certainly afford to devote greater efforts to learning how to adequately understand and measure it. If we want the things that really matter to our well-being to count, we must learn how to recognize and count them, use that information to inform policy in a real democracy, and create adaptive institutions that can effectively implement the policy.

References

1. Barnes P, 2006. *Capitalism 3.0: A Guide to Reclaiming the Commons*. San Francisco: Berrett-Koehler
2. Costanza R, d'Arge R, de Groot R, Farber S, Grasso M, Hannon B, Naem S, Limburg K, Paruelo J, O'Neill R V, Raskin R, Sutton P, van den Belt M, 1997. The value of the world's ecosystem services and natural capital. *Nature*, 387: 253–60
3. Costanza R, Erickson J, Fligger K, Adams A, Adams C, Altschuler B, Balter S, Fisher B, Hike J, Kelly J, Kerr T, McCauley M, Montone K, Rauch M, Schmiedeskamp K, Saxton D, Sparacino L, Tusinski W, Williams L, 2004. Estimates of the Genuine Progress Indicator (GPI) for Vermont, Chittenden County, and Burlington, from 1950 to 2000. *Ecological Economics*, 51: 139–155
4. Daly H E and Farley J, 2003. *Ecological Economics: Principles and Applications*. Washington, DC: Island Press
5. Easterlin R A, 2003. Explaining happiness. *Proc Natl Acad Sci*, 100 (19): 11176–11183
6. Frank R, 1999. *Luxury Fever: Why Money Fails to Satisfy in an Era of Excess*. New York: The Free Press
7. Kahneman D, Diener E, Schwarz N, eds., 1999. *Well-Being: The Foundations of Hedonic Psychology*. New York: Russell Sage Foundation
8. Kasser T, 2003. *The High Price of Materialism*. Cambridge, MA: MIT Press
9. Layard R, 2005. *Happiness: Lessons from a New Science*. New York: Penguin
10. *Millennium Ecosystem Assessment: Synthesis*. 2006. Washington, DC: Island Press
11. Prugh T, Costanza R, Daly H, 2000. *The Local Politics of Global Sustainability*. Washington, DC: Island Press, 173