

**John Gowdy**  
**Visiting Leverhulme Professor**  
**School of the Environment and Natural Resources**  
**University of Leeds**  
**December 13, 2004**

## **The Revolution in Welfare Economics and Environmental Policy**

### I. Welfare Economics and Environmental Valuation

The umbrella covering the various pieces of economic theory is called *welfare economics*. It provides the basic framework for applying the tools of economics to problems like valuing environmental features and determining the best use of the Earth's limited natural resources. Welfare economics also provides the basic worldview of economists, giving answers to fundamental questions regarding the ultimate purpose of economic activity and the best policies to promote human well-being. For more than half a century economics was dominated by a type of welfare economics called *Walrasian economics*, named after the 19<sup>th</sup> century political economist Léon Walras. The cornerstone of the Walrasian system is the characterization of human behavior embodied in "economic man" or *Homo economicus* whose preferences are assumed to be stable, consistent, and independent of the preferences of others. With this starting point, Walras and his followers constructed a mathematical model of economic general equilibrium that defined the optimal allocation of scarce resources among alternative ends.

Today, welfare economics is undergoing a revolution fundamentally changing the way economists see the world. Challenges to Walrasian welfare economics are coming from two sources *within mainstream economics*. First, work in economic theory has demonstrated that statements about economic policy cannot be made without making interpersonal comparisons of utility. Second, a new experiment-based economics is emerging that recognizes the social context of decision-making and the complexity of human behavior. The current sea change in economic theory offers a unique opportunity to move mainstream economic theories and policies toward an empirical, science-based approach to environmental policy and sustainability.

### II. Behavioral Economics and Environmental Policy

The classic textbook policy solutions to environmental "externalities" are (1) get the prices right and (2) assign property rights. Experimental results show that, in some cases at least, establishing prices incentives for providing public goods may actually reduce their availability. Civic virtue may be "crowded out" by market incentives. Also, in some cases taxing public "bads" may increase their number because people feel they have "bought the right" to act in an anti-social way. The question of how real humans respond to incentives is currently being addressed by researchers in a variety of disciplines working together. The economic model of behavior is moving from arm-chair theorizing to being empirically based. This should make economic policy recommendations more effective and more amenable to democratic decision-making processes.

### III. Well-Being and the Environment

The new work in experimental economics has demonstrated that the traditional assumption that utility may be equated with money income is flawed. Psychologists have long argued that well-being derives from a wide variety of individual, social and genetic factors. The increasingly high level of rigor of experimental psychology has helped to make the idea of directly measuring well-being acceptable to economists. Methods have been devised and tested and calibrated to accurately measure levels of happiness across individuals and even across cultures. What makes people happy? Surveys, behavioral experiments, and neurological analysis have identified key factors positively influencing well-being. About one-half of the variation in self-reported well-being can be explained by inherited predisposition. Other factors include health (especially self-reported health), close relationships and marriage, intelligence, education, and religion. Age, gender and income also influence happiness, but not to the degree once thought.

These results have far-reaching implications for environmental policy. Some evidence indicates that when individuals are more secure financially (not necessarily wealthier) they are more likely to care about the well-being of future generations and the environment. So it seems that focusing policies on subjective indicators of well-being, rather than on per capita income, would pay a double dividend. People would be happier and also more willing to support policies promoting environmental sustainability.

Focusing policy on well-being rather than per capita consumption might have important positive implications for sustainability. But even if sustainable welfare policies are based on scientifically measured “preferences” this leaves us with the problem that it may not insure the preservation of the life support systems of the planet. Examples abound of societies that apparently worked well in satisfying the preferences of their citizens but ended in ecological collapse. Applying economic tools to studies of whole societies can give us some clues about this process.

### IV. Island Cultures as Microcosms of Global Change

The study of Pacific Island cultures is a rapidly growing area of multidisciplinary research in the sustainability of human societies. Pacific islands are a kind of natural laboratory to examine the relationship between human culture and its biological and geological base.

#### 1. Overshoot and Collapse - Easter Island

Over the course of about 500 years Polynesian settlers of Easter Island so eroded the resource base that the peak population of about 10,000 people was reduced to a few hundred living in a state of constant warfare and deprivation. A burning question is why the population could not correctly assess their situation and change their socially destructive behavior. It is a very small island—from the highest vantage point it is possible to see the whole island—and the destruction caused by deforestation should have been obvious.

#### 2. Transition to Sustainability - Tikopia

A society that apparently escaped the overshoot-and-collapse fate of so many other cultures is the South Pacific island culture of Tikopia. Archaeological data indicates

that Tikopia was headed down the same path as many other Polynesian cultures—with massive deforestation, soil erosion and rapid population growth—but somehow managed to achieve a stable existence. How it managed to do so sheds a great deal of light on the sustainability debate.

## V. Summary

Economics is changing rapidly. Key to this change is the realization by economists that the model of human behavior embodied in *Homo economicus* is a poor predictor of actual human behavior and a poor guide for economic policy. Local project evaluation is a dynamic process -- more than uncovering fixed human preferences. Global environmental policies toward climate change and biodiversity protection must be broader than establishing market incentives by adjusting prices. Long-run sustainability is a dynamic interaction between human value systems, environmental characteristics, and genetically predisposed behavioral patterns. The on-going revolution toward "consilience" in the behavioral sciences holds the promise of putting economic theory and policy on a more sound scientific footing. This can only be a positive step toward formulating realistic and effective environmental policies.

## Suggested Reading

### *I. Critiques of Welfare Theory*

Albert, M., and R. Hahnel. 1990. *A Quiet Revolution in Welfare Economics*. Princeton, NJ: Princeton University Press. Available on-line

Gowdy, J. and J. Erickson. 2004 (or 2005). "The Approach of Ecological Economics" *Cambridge Journal of Economics*, forthcoming.

Gowdy, J. 2004. "The Revolution in Welfare Economics and its Implications for Environmental Valuation" *Land Economics*, 80(2), 239-257.

Gowdy, J. 2004. "Toward a New Welfare Foundation for Sustainability" *Ecological Economics*, in press (December).

Koning, N., and R. Jongeneel. 1997. "Neo-Paretian Welfare Economics: Misconceptions and Abuses." Wageningen Economic Papers, 05-97, Wageningen University, The Netherlands.

(more Technical)

Boadway, R. 1974. "The Welfare Foundations of Cost-Benefit Analysis." *Economic Journal* 84 (December), 926-939.

Bowles, S., and H. Gintis. 2000. "Walrasian Economics in Retrospect." *Quarterly Journal of Economics* 115 (4), 1411-1439.

Chipman, J., and J. Moore. 1978. "The New Welfare Economics 1939-1974." *International Economic Review* 19 (3), 547-584.

## *II. Well-Being, Income and Happiness Studies*

Diener, E., Diener, M. and Diener, C., 1995. "Factors Predicting the Well-Being of Nations." *Journal of Personality and Social Psychology* 69, 851-64.

Easterlin, R., 1974. "Does Economic Growth Improve the Human Lot? Some Empirical Evidence." In P. David and M. Reder (eds.), *Nations and Happiness in Economic Growth: Essays in Honor of Moses Abramowitz*, pp. 89-125, Academic Press, New York.

Easterlin, R., 1995. "Will Raising the Incomes of all Increase the Happiness of All?" *Journal of Economic Behavior and Organization* 27, 35-37.

Easterlin, R., 2001. "Income and Happiness: Towards a Unified Theory." *Economic Journal* 111, 465-484.

Ferrer-i-Carbonell, A. and Frijters, P., 2004. "How Important is Methodology for the Estimates of the Determinants of Happiness?" *Economic Journal* 114, 641-659.

Frank, R., 1999. *Luxury Fever: Why Money Fails to Satisfy in an Age of Excess*. Free Press. New York.

Frey, B. and Stutzer, A., 2002. *Happiness and Economics: How the Economy and Institutions Affect Well-Being*. Princeton University Press, Princeton, NJ.

Layard, R., 2003. *Happiness: Has social science got a clue?* Lionel Robbins Memorial Lecture Series, London School of Economics, March 3, 4 and 5.

## *III. Island Societies as Microcosms of Global Change*

Diamond, J. 1995. "Easter's End" *Discover Magazine* (August), 63-69.

Diamond, J. 1997. "Paradises Lost" *Discover Magazine* (November), 69-70.

Erickson, J. and J. Gowdy. 2000. "Resource Use, Institutions and Sustainability: A Tale of Two Pacific Island Cultures" *Land Economics* 76(3), 345-354.

Gowdy, J. and C. McDaniel. 1999. "The Physical Destruction of Nauru: An Example of Weak Sustainability," *Land Economics*, 75 (2), 333-338.

Kirch, P. 1997. "Microcosmic Histories: Island Perspectives on Global Change"  
*American Anthropologist* 99, 30-42.

McDaniel, C. and Gowdy, J., 2000. *Paradise for Sale: A Parable of Nature*. University of California Press, Berkeley.

Tainter, J. 1988. *The Collapse of Complex Societies*, Cambridge University Press.