

What is Ecological Economics?

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Introduction

Deforestation, overfishing, toxic waste production, climate change, overgrazing, and air, water and land pollution are all driven by economic decisions. Yet, until recently, our economic tools for measuring and understanding these issues have been tremendously limited. Traditional economic theory has tended to overlook or diminish the importance of ecosystems, fairness, and democracy. It has provided a distorted roadmap, one without sufficient consideration of the ecological, social and, in fact, economic consequences of many economic decisions. This deficiency is driving ecological and social crises. Ecological economics is a new academic field that attempts to correct this distortion. Ecological economics incorporates traditional economic theory as well as fundamental missing pieces traditional economics overlooks.

Improving economic theory is nothing new. The Great Depression of the 1930s caused massive factory closures and unprecedented unemployment. Unemployment rates ranged up to eighty percent in some U.S. cities and the National Guard was called out to protect the U.S. Capitol from angry crowds. At that time, existing economic theory could not explain or solve the crisis. It was incomplete, incorrect and incapable of resolving the economic problems of the Great Depression. Prior to the Depression, the economic field of macroeconomics did not exist. There were no measures on a national scale of unemployment, inflation, or productivity. The gross national product, the national unemployment rate, and the consumer price indices were invented to enable us to monitor the national economy and develop theory about national economic policy. Macroeconomics was born.

Today macroeconomics guides national economic policy. However, it appears unable to solve the critical environmental, social and economic problems of our time. Ecological economics is generating new measures and analyses to specifically deal with these problems. Ecological Economics is a more complete economic theory-- one that is more responsive to key modern realities such as ecological deterioration and record inequality.

Comparison of Ecological Economics and Conventional Economics

Sustainable scale

Traditional economic theory assumes no scale limits to the economy. The environment is considered to be part of the larger economic system. Environmental and resource economics are subsets of economics. Agriculture, forests, fisheries, and ecosystem services are viewed

only as subsets of the larger economy. From Econ 101 through a Ph.D. in Economics, the economy is never presented or discussed as a subset of the planet.

Ecological economics reverses this view. It points out that resources such as air, water, food, wood, fiber, minerals, and energy resources are the foundation of the economy and come from the Earth. Sunlight is the only critical resource from outside our planet. Our lives and economy are completely dependent upon and bounded by the ecosystems and materials of this planet. In the view of ecological economists, the actual reality is that the economy is a subsystem of earth.

This relationship leads to concerns about scale never discussed by traditional economists. As the economy has expanded, consuming more materials, space and energy, this expansion has reduced ecosystem services and renewable resources (forests, fisheries, wetlands) by harming ecosystems. This has caused a reduction in available materials (e.g., water, land, mineral and other shortages), harmed the ability of ecosystems to absorb wastes, and filled even global atmospheric waste sinks to the point of causing serious negative impacts (e.g., global warming, rapture of the ozone shield, and increased human exposure to toxics and pollutants).

The result of growing economic activity has been increasing costs in many areas of the economy, costs which in some cases outweigh the benefits of growth, making some growth uneconomic. In essence, there are limits to the Earth's capacity to act as a source of material inputs feeding the economic system and as a sink for the wastes it produces. In order to keep intact ecological services humanity depends on (including maintenance of the composition of the atmosphere, climate regulation, flood control, water supply, waste assimilation, recycling of nutrients, generation of soils, pollination of crops, provision of food, and others) and in order to ensure that the benefits of any growth outweigh its costs, humans need to keep the scale of the economy within the capacity of the global ecosystem to sustain it.

Because of their recognition of the importance of scale, ecological economists stress the concept of development instead of growth. Where traditional economists stress the goal of increased economic growth in the sense of increased physical movement of energy and matter through the economy, ecological economists tend to stress qualitative improvement -- getting more production or satisfaction out of the same or less material input. An example of the relationship of these two concepts can be found in comparing a child and an adult. While a child both grows in the sense of adding body mass, and develops, an adult can develop tremendously, even after no longer adding body mass.

Fairness and Justice

"Distribution" refers to the division of opportunities and resources among different people and competing uses at a particular point in time and across time. How are opportunities and

resources divided up among members of the current generation? How are they divided between members of the current generation and future generations? How much space is kept in pristine ecosystems and how much is utilized by the economy in ways that make it permanently unavailable to other species?

Traditional economics largely limits discussion of fairness and distribution to the way markets work to distribute, or "allocate" resources between different end products and consumers. This is why traditional economics can be blind to important categories of social impacts such as fairness and justice. Human rights, discrimination, and the initial distribution of rights and ownership all impact how a market distributes benefits. The slave trade was highly profitable for slave producers, traders and consumers. These groups benefited from a market which literally made a commodity of millions of people. The market may have been "efficient," but the original granting of ownership rights over people was profoundly unjust. With its focus on efficiency, traditional economics often is ill-equipped to flag even the most egregious violations of justice and fairness.

Globalization issues provide another example of how traditional economics tends to overlook issues of justice and distribution. In Ecuador, shrimp aquaculture operators were granted tenure rights over coastal areas and local fishermen and women were dislocated. Wild fisheries production was displaced by shrimp aquaculture. Questions about who is granted property rights such as tenure, and how such rights are granted, are fundamentally important from the perspective of justice.

Traditional economics, however, would tend to overlook these questions because economic growth is perceived as the solution to distribution issues. If the size of the economic pie is increased, it is assumed that everyone will be better off.

Ecological economists take a different view of justice and fairness questions. In particular, they believe that difficult questions about the distribution of resources and opportunities need to be tackled for the benefit of humanity, society and the economy. Specifically, they believe that issues of intragenerational, interspecies, and intergenerational equity need to be explicitly addressed through democratic and transparent, ethically-guided, societal choice.

They reject the assumption that growth solves distribution issues. For example, they cite evidence that economic growth in many countries has been accompanied by a widening of the income gap and that, in some cases, the poorest have become even poorer during periods of growth. The conversion of the Mexican agriculture sector from small subsistence farmers in the 1980s and 1990s to large export operations increased total income to the sector and resulted in vast gains by relatively few farmers and bankruptcy and dislocation and impoverishment for a great number of small farmers. Total income increased and so did poverty. This failure of

growth to stem inequity reinforces the ecological economic view that questions about distribution have to be addressed more directly through policy and action.

Can we leave it all to the market? The ecological economics decision hierarchy.

Like traditional economists, ecological economists believe efficiency is important and markets are essential. Efficiency involves the ratio of the value of output to the value of input. An efficient allocation is an allocation, or division, of resources among product end uses according to individual preferences as weighted by the willingness and ability of individuals to pay. The mechanism that brings about efficient allocation is the market. Most traditional economists focus their attention on the market.

Ecological economists also believe in the critical importance of markets. However, because markets do not address issues of scale and fairness, ecological economists believe these issues must be addressed in the rules that govern the market so that the market can achieve not only an efficient allocation, but one which is sustainable and just as well. Once the correct scale, sustainability, and social rules are in place, if uncertainty is small and costs and benefits are born by market participants, then the market should be allowed to increase efficiency, promote innovation, allocate resources, and distribute goods and services efficiently.

A closely related concept is that of the triple bottom line. The triple bottom line establishes mechanisms that ensure that social and environmental impacts of a decision are accounted for along with efficiency and financial returns.

Decision-making in the face of high stakes uncertainty

Traditional economists tend to minimize uncertainty. They also tend to argue that technology will be able to address any collapse in ecological systems.

Most ecological economists believe, in contrast, that it is irresponsible to bet the future of humanity on uncertain technological developments. They believe that in the case of complex systems like the Earth's biophysical cycles and ecosystems, where some decisions are irreversible and uncertainty is high, a precautionary approach is best, economically, environmentally and socially. In the face of high stakes uncertainty, they believe we should take steps to reduce uncertainty, encourage but not bank on technological development, and develop mechanisms to safeguard against potentially catastrophic effects.