

# Prolegomenon to Any Future Environmental Economics

By **David R. Keller**

*Society must cease to look upon 'progress' as something desirable. 'Eternal progress' is a nonsensical myth. What must be implemented is not a 'steadily expanding economy,' but a zero-growth economy, a stable economy. Economic growth is not only unnecessary but ruinous. We must set ourselves the aim not of increasing national resources, but merely of conserving them.*

—Alesksandr Solzhenitsyn (21-22)

**G**ERMAN ZOOLOGIST ERNST HAECKEL coined the word 'ecology' in 1866 by combining the ancient Greek words οἶκος ('oikos') and λογος ('logos'). 'Oikos' means "earthly home" or "dwelling place (Liddell and Scott, 1204), and 'logos' means "reason" (ibid., 1057-59), so ecology means, roughly, the scientific study of the earthly dwelling-place—that is, the biosphere.

'Economics' shares the same root as ecology ('oikos'), and means, roughly, "management of the home." Following this thread,

we might well conclude that in order to manage our earthly home well, we must know how it works. Informed economics presupposes ecological wisdom.

Yet, standing back, it's easy to conclude that economic policy is hardly concerned with ecology. Ecology tells us that the activities of all organisms are constrained by the environment, humans not excepted. Yet mainstream economic thought—what American economist Herman Daly calls the “growthmania synthesis” of Keynesian with neoclassical economics (Daly and Townsend, 13-15)—sees the economy as perpetually expanding, *ad infinitum*.<sup>1</sup> As we will see, one reason for this disconnect is that contemporary economic theory has its roots in the philosophical assumptions of the seventeenth and eighteenth centuries, which are now outmoded.

How may the common heritage of ecology and economics be rediscovered so that we may achieve a more environmentally sustainable lifestyle? The only answer is to bring economic public policy in line with the lessons of ecological science. The Marxian notion that all social institutions, or “superstructures” (custom, law, religion, etc.) derive from basic economic “substructures” (the productive relationships between people and social institutions). As Frederick Engels said at Marx's graveside: “...mankind must first of all eat, drink, have shelter and clothing, before it can pursue politics, science, art religion, etc.; that therefore the production of the immediate material means of subsistence...form the foundation upon which the state institutions, the legal conceptions, art, and even the ideas of religion...have been evolved[,] instead of *vice versa*” (1989, 467-68). Engels reiterates the same point eleven years later in *Anti-Dühring*: “...men, consciously or unconsciously, derive their ethical ideas...from the practical relations in which they carry on production and exchange” (Marx and Engels 1987, 87). Thus, if we want to improve our ecological relationships with the biosphere through a change in habits, we need to first modify economic policy.

So the root solution must be economic, not legislative, since the economy largely determines the character of law. As business writer

Paul Hawken says, “No ‘plan’ to reverse environmental degradation can be enacted if it requires a wholesale change in the dynamics of the market” (xv). Rediscovering the common origin of ecology and economics is subversive in the sense of wishing the end of expansionary capitalism. But, as Paul Hawken, Amory Lovins, and Hunter Lovins write, environmental economics (what they call “natural capitalism”) is *wise*. It “. . . is not about fomenting social upheaval. On the contrary, that is the consequence that will surely arise if fundamental social and environmental problems are not reasonably addressed. Natural capitalism is about choices we can make that can start to tip economic and social outcomes in positive directions. And it is already occurring—because it is necessary, possible, and practical” (op. cit., 322).

Let’s see to what extent we may rediscover the common heritage of ecology and economics in hopes of laying the groundwork for an “environmental economics.”

### **Expansionary Capitalism (Or, “Smith’s Tornado”)**

In contrast to the partial or complete state ownership of the means of production in socialism and communism, capitalism places the means of production in private hands. “Expansionary capitalism,” as I define it, is that form of capitalism, described first in detail by eighteenth century Scottish philosopher and economist Adam Smith, which posits a continually growing economy based on increasing levels of population, consumption, and production, all fueled by natural resource utilization.

It is difficult to understand the origin and genesis of Smithian economics without contextualizing his *An Inquiry into the Nature and Causes of the Wealth of Nations* within the project of the Enlightenment. According to economist William Kapp:

[T]he origin and development of economic science can be fully understood only in the light of the philosophical presuppositions of the seventeenth and eighteenth centuries.

The essence of these presuppositions was seen to be the unquestioned belief in the existence of a beneficent and rational order of things in social affairs[;] the political economists of the eighteenth century visualized this ‘natural’ order of things in economic life as a system of natural liberty based upon private property and free competition (237).

Hence, echoing one of the pervasive themes of the Occidental intellectual tradition, Enlightenment thinkers such as Smith saw a beautifully ordered cosmos intelligible by reason. This teleological worldview is exemplified in natural science by John Ray (40), who argued that species were created by God and thus are perfect and unchanging, and in the humanities by Immanuel Kant (62-64) who argued that since everything must exist for a purpose, the faculty of reason must exist for a purpose, and this purpose is for the cultivation of morality.<sup>2</sup>

For Smith, an economic system based on autonomous, free agents making rational choices about production is consonant with the cosmic order. In asserting this, Smith was reacting to both the mercantilist paradigm of the Renaissance, and the physiocrats of eighteenth century France. In the words of economic historian Lionel Robbins, Smith “...was anxious to kill the mercantile system and abolish all sorts of regulations, he was anxious to set out in a systematic way how the economic system would work in the absence of the agricultural system” (128), as the physiocrats had argued. Here, then, is the origin of classical, free-market economics.

Smith argues that a nation’s wealth is created by the interaction between the labor of an increasing population, consumption, and production. On this model, increasing human population creates more demand for products, which in turn stimulates manufacturing. In turn, escalating production calls for more laborers. Wages enable laborers to raise families which in turn stimulates demand for products. Smith writes:

The liberal reward of labor, by enabling them to provide better for their children, and consequently to bring up a greater number, naturally tends to widen and extend those limits. It deserves to be remarked too, that it necessarily does this as nearly as possible in the proportion which the demand for labour requires. If this demand is continually increasing, the reward of labour must necessarily encourage in such a manner the marriage and multiplication of labourers, as may enable them to supply that continually increasing demand by a continually increasing population[.] It is in this manner that the demand for men, like that for any other commodity, necessarily regulates the production of men (80).

He concludes: “The liberal reward of labour, therefore, as it is the effect of increasing wealth, so it is the cause of increasing population. To complain of it, is to lament over the necessary effect and cause of the greatest public prosperity” (ibid., 81).

Thus, according to Smith (see Figure 1), increasing population [P] results in increasing demand for products [D] and their consumption, which in turn stimulates manufacturing [M], or production. Once a business owner turns a profit, he or she will hire more employees (ibid., 69). So, fortuitously, the very people who stimulated the process are ready to fill the needed jobs to complete the self-propagating cycle.

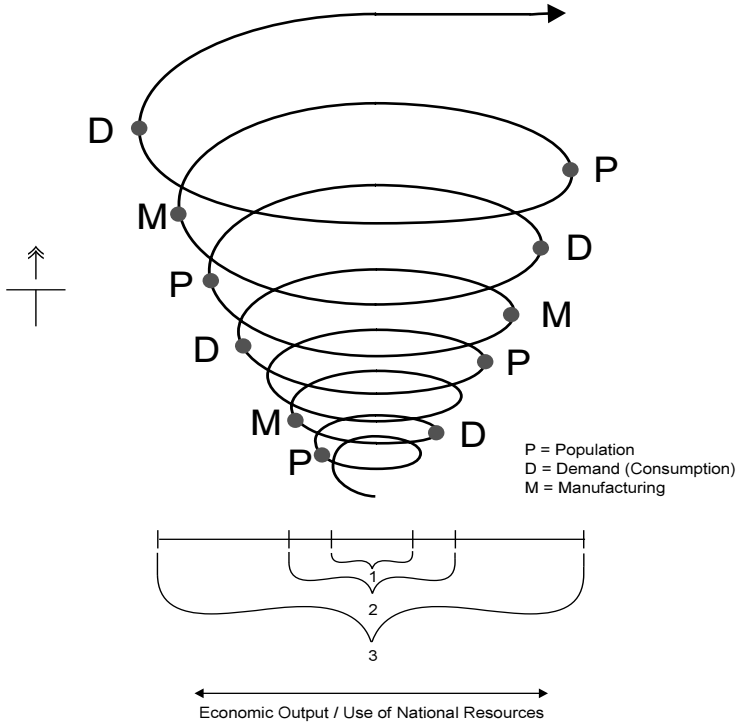
Also fortuitously, a larger pool of laborers facilitates the division of labor, which Smith thought advanced the wealth of the nation in three ways: one simple operation increase dexterity, time is saved from passing from one kind of work to another, and makes the invention of machines to aid the laborer easier (ibid., 7-9).

As time [T] goes on (the vertical axis), economic output (in Keynesian-neoclassical economics, the Gross Natural Product, or GNP) increases, from [1] to [2] to [3].

The engine of this ongoing cycle is fueled by the use of natural

resources. When the economy is relatively small [1], less natural resources are required to fuel the engine, until the economy expands to [2] and [3] and on.

"Smith's Tornado"



It is easy to see why Smith thought it was reasonable to argue for an expansionary capitalism. From the perspective of eighteenth-century Scotland, he knew that the world was not literally infinite, but the natural resources needed to fuel this ever-expanding cycle of production appeared *functionally* infinite. The unbroken deciduous forest from the Atlantic coast to the Great Plains of North America, for example, must have seemed so vast as to be virtually inexhaustible.

### **The Breakdown of Expansionary Capitalism**

Natural resources are in fact finite, and that finitude is more obvious to us than it was to Smith. Contemporary pundits for expansionary capitalism have attempted to skirt this problem. As illustrated by the history of agriculture, Danish social scientist Ester Boserup has asserted that increasing population density requires utilizing fallow or marginal land through intensive farming techniques such as irrigation and fertilizer (1965, 64). Technological changes, in turn, allow for increasing population levels, which in turn motivates further innovation. “Other areas would have little or no technological change because of stagnant populations, and would continue to have stagnant populations because of no technological change” (1981, 5).

Following Boserup, American economist Julian Simon has argued that while *certain* resources are limited, substitutes for them are not (62-67). For instance, copper used to make wire for telephone lines is finite, but copper wire can be substituted with fiber optic cable, and so on. As a resource becomes scarce, a technological innovation will find a replacement. Simon writes, “...the more people there are, the more minds that are working to discover new sources, and increase productivity, with raw materials as with all other goods” (ibid., 407-8).

Upon close consideration, however, arguments for continual population growth and allied economic expansion fail for at least three reasons: (1) the lack of substitutability of some natural resources, (2) the invalidity of the population-innovation argument, and (3) the problem of externalities.

First, the whirlwind of expansionary capitalism cannot continue *ad infinitum* without the resources to fuel it. The substitution principle advocated by Simon and others fails to make an end run around these limits as the principle works for certain resources but not for others. As population grows and development continues in the desert Southwest, what is the substitute for water? For clean air? There are none.

Second, economic arguments for continual population growth fail on other grounds as well. The contention by Boserup, Simon and others that more people equals more innovation due to population pressures is totally fallacious.

Obviously the cause of lack of innovation is the lack of imagination. Unfortunately for the growth model, large numbers of people do not necessarily guarantee new ideas: there is no logical impossibility of having a large, uncreative population. A small group of creative people, by feeding off each other's ideas and energy, could be more creative than a larger group. It is no surprise that some of the most innovative individuals were part of small, creative communities. Socrates, Plato, and Aristotle formed one of the greatest teacher-student/teacher-student relationships in history. Writers living in Paris during the 1920s (Beckett, Joyce, Hemmingway, Eliot, Stein, Faulkner, to name a few) regularly exchanged ideas at cafés along the Seine and gave the twentieth-century some of its greatest literature. Similarly, the so-called Beat writers (Ferlinghetti, Kerouac, Ginsberg, Snyder, Burroughs) were friends and shared ideas. Creativity is a function of the *quality* of individuals, not the *quantity* of them.

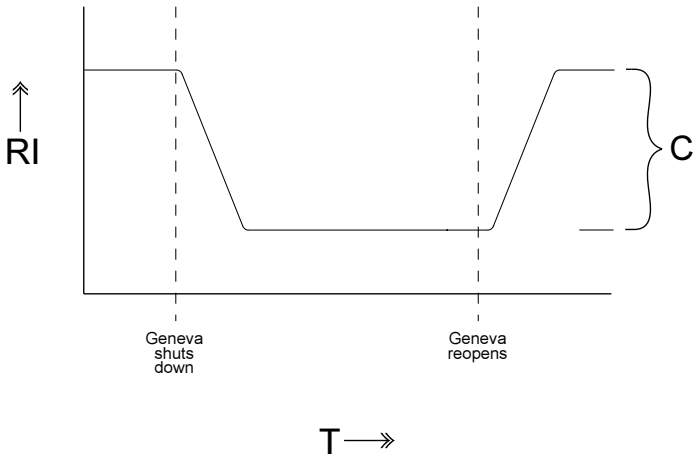
Third, there is an even more serious problem for economic arguments advocating increasing human population when we bring these arguments into the context of the ontological realities of ecological systems. This is the problem of *externalities*. An externality is a consequence—favorable or unfavorable—of an activity for which those affected by the activity are not compensated.<sup>3</sup> Turning a park into a toxic waste dump causes a negative externality for homeowners by lowering property values; cleaning up a toxic waste dump and turning it into a park causes a positive externality by raising property values. But such consequences are hard to track and tabulate, and so for the sake of convenience, economists often “bracket” such consequences in cost/benefit analyses and label them “externalities.” Plus, as Swedish economist Peter Söderbaum (11) points out, factoring in to economic policy implies governmental interven-

tion, thus taking a step from a free-market economy to a planned economy, which some economists oppose in principle.

Despite the dual character of externalities, the term has become a euphemism for masking the negative environmental consequences of economic activities. More often than not, factors relating to the fundamental ontological interconnectedness between living things and the non-living environment (the relationship of higher taxa to lower taxa in food webs, the effects of toxins, biological diversity, and ecological stability) are not amenable to the quantification required by the Keynesian-neoclassical synthesis. So the severing of links in food webs, the deleterious effects of industrial chemicals and biocides, reduction of biodiversity, and the consequences of ecological instability are often written off as “externalities” and excluded from the economic calculus.

But externalities represent very real social and ecological costs. This is clear in the case of Geneva Steel, a mill located in heavily populated Utah Valley south of Salt Lake City. After Geneva Steel ceased operations for thirteen months in the mid 1980s due to a labor dispute, a landmark epidemiological study found that the incidence of respiratory disease in the area declined dramatically (Pope). Predictably, when the plant reopened, the incidence of respiratory disease rose back to previous pre-shutdown levels (see Figure 2<sup>4</sup>). And just as predictably, local politicians and owners of the plant deflected attention away from the effects of Geneva’s pollution by attacking the validity of the study—which was later vindicated (Israelsen, B2)—instead focusing on easily-quantified benefits such as the number of jobs created and dollars added to the tax base. Later studies have confirmed a strong correlation between air pollution and adverse health effects (Dockery et al., 1759) at levels lower than are found in Utah Valley (Wilson and Gorrell, A1). The ontological reality is that Utah Valley is an ecological system, and that heavily polluted air will have deleterious health effects on the organisms—including humans—that live in that system. These consequences are costs.

In Utah Valley, the atmosphere is a sink for emissions from the production of steel—what biologist Garrett Hardin (1244) famously dubbed a “common.” The tragedy of the commons, Hardin argued, is that we are currently locked in a system where it is economically pru-



dent to exploit commonly-held resources. The practical outcome is that the cost of doing business is shifted to a third party—the public.

It is for these sorts of reasons that have led many economists to criticize the practice of externalizing costs in cost/benefit analyses of economic activity. In a landmark treatise, economist A. C. Pigou (186) argued that private benefit often occurs at a social cost, such as increased expenditures for police and prisons necessitated by the sale of alcohol. Indeed, as Kapp remarks, “capitalism must be regarded as an economy of unpaid costs, ‘unpaid’ is so far as a substantial proportion of the actual costs of production remain unaccounted for in entrepreneurial outlays; instead they are shifted to, and ultimately borne by, third persons or by the community as a whole” (231).

In the case of Geneva Steel, the cost of treating respiratory illness (C in Figure 2) is a real cost of producing steel. Yet C was not paid for by Geneva, it was paid for by the community. Essentially, the

community was subsidizing the production of steel. Thus, as Kapp notes, “if entrepreneurial costs do not measure the total costs of production, the competitive cost-price calculus is not merely meaningless but nothing more than an institutionalized cover under which it is possible for private enterprise to shift part of the costs to the shoulders of others and to practice a form of large-scale spoliation which transcends everything the early socialists had in mind when they spoke of the exploitation of man by man” (ibid., 233). In externalizing the cost of pollution, Geneva Steel exploited Utah residents for the sake of profit.

### **Internalize Externalities!**

Clearly, the method of externalizing costs—and benefits—results in skewed economic policy. Due to their ecological importance, factors such as RI should hold a central place in cost/benefit analyses. If such factors were not treated as externalities and included in economic analyses, public policy on economic growth would certainly be very different.

From an ecological standpoint, the method of externalities is absurd (Ehrlich et al., 24-26). Former Vice President Al Gore puts it well:

Our current system of economics arbitrarily draws a circle of value around those things in our civilization we have decided to keep track of and measure. Then we discover that one of the easiest ways to artificially increase the value of things inside the circle is to do so at the expense of those things left outside the circle[.] A direct and perverse ratio emerges: the more pollution dumped into the river, the bigger the short-term profits for the polluter and his shareholders[.] Our failure to measure environmental externalities is a kind of economic blindness, and its consequences can be staggering (189).

Just because ecological consequences are not quantifiable does not mean that they are unreal and are appropriately assigned the value of *zero* in cost/benefit analyses.

Business writer John Elkington provides a framework of internalizing externalities with his notion of the “triple bottom line” (70-96). In addition to the traditional bottom line of profit, Elkington argues that business decisions must be made with consideration to two other “bottom lines:” social justice and environmental quality (*ibid.*, 73). Using the triple bottom line procedure, business decisions will be different than the traditional single bottom line of profit since more factors are weighed. As has been clear since Marx and Engels brought attention to the plight of the working poor in Britain and elsewhere—see e.g. Engels description of Manchester (Marx and Engels 1975b, 350-54)—profit is often generated at the expense of social justice. For example, a garment manufacturer may be able to avoid adhering to U.S. labor law by moving its operations from Manhattan to Matamoras and exploit Mexican children. However, the triple bottom line mandates that if the company decides to move, it should limit working hours, buy safe equipment, provide health and medical benefits, even if Mexican law does not require it.

The environmental bottom line may impact the economic bottom line. The now bankrupt Magnesium Corporation of America (MagCorp), which allegedly dumped heavy metals, dioxins, and hexachlorbenzols (HCBs) in unlined ditches in the west desert of Utah, was eventually sued by the Environmental Protection Agency for \$902 million on 16 violations (Fahys and Oberbeck, A14). The plant also emitted enough chlorine and sulfur dioxide to make Tooele County, Utah, one of the ten most polluted areas in the country. Certainly MagCorp’s *modus operandi* would have been different if their business decisions included the environmental bottom line.

Or the environmental bottom line may impact the social justice bottom line. Again, in Tooele County, some members of the Skull Valley Band of the Goshute Indians have sought to improve their dire economic situation by proposing to store 40,000 metric tons of high-

ly radioactive uranium on their desolate reservation (Keller 2001). But given the fact that the waste would be stored within close proximity to more than one million people and could have deleterious consequences, perhaps other economic development programs should be pursued instead.

In most cases, all three will play off each other: many of the nation's most polluted areas are in very poor communities which don't have the political clout to fight the big corporations that choose to locate there—what has become known as “environmental racism” (Keller 2003). The tension between the three bottom lines is illustrated in a report to the California Waste Management Board by a private consulting firm on how to avoid political controversies regarding toxic industries. In this report, the authors cynically observe: “All socioeconomic groupings tend to resent the nearby siting of major [toxic waste] facilities, but middle and upper socioeconomic strata possess better resources to effectuate their opposition. Middle and higher socioeconomic strata neighborhoods should not fall within the one-mile and five-mile radius of the proposed site” (Cerrell Associates).

As we noted, the typical argument against internalizing externalities is that externalities may not be quantifiable. Yet this is no reason not to factor as many known costs into the price of the product as possible. Externalizing costs is inaccurate. In Hawken's words: “Economists of the status quo...assert that externalities are hard to measure, but they overlook the fact that trying to measure the costs is better than ignoring them altogether. Economic critics claim that any forced integration of cost and price would lower productivity, reduce economic output, cause greater costs to be passed on to the consumer, lower real income and slow economic growth, and insinuate government further into the economic arena” (83).

These concerns are misplaced, as Hawken remarks, because integrating the true costs of production does not increase the overall expenditure of consumers, but rather places the costs where they truly belong (*ibid.*). The internalization of externalities would help

people "...to fully understand what things truly cost [and] reexamine those activities in terms of accurate market information" (ibid., 172).

The challenge for responsible businesses is to make decisions which harmonize the complex intertensions between the sometimes consistent but often inconsistent elements of the triple bottom line. Only then may we say that economic policy is based on accurate information.

In short, mainstream growth economics is myopic to very real ecological and social costs of economic activity. The method of externalities is a public policy lens that distorts the true and full costs of economic activity.

As Hardin points out, our current economic system tempts, even mandates, that businesses push off as many costs onto the public at large. Along these same lines, Daly (Daly and Townsend, 34) cynically observes that while the "invisible hand" results in self-interested individuals furthering the common economic good (without contentiously intending to do so), the "invisible foot" proceeds to kick the common environmental good to shreds.

A workable solution to overcoming the tragedy of the commons is simply to internalize externalities in economic public policy. Through this corrective lens, economic policy can be set according to accurate information.

It should be clear that we have inherited an outmoded economic model. This is not to say that capitalism itself is necessarily outmoded—only that expansionism is.

### **Is "Sustainable Capitalism" an Oxymoron? Let's Hope Not**

In 1986, I stood at the Brandenburg Gate gazing at the Berlin Wall, thinking that it appeared permanent, immovable. With this image in mind, the rapid demise of Marxian-inspired governments and the nearly total triumph of capitalism and liberal democracy—two pillars of Western culture—is startling. These recent turns of events is so surprising that one political scientist has announced "the end of his-

tory” (Fukuyama). Even if this claim is hyperbolic, it seems probable that capitalism will remain the dominate economic system into the foreseeable future.

Common sense also suggests that if capitalism continues to sweep across the globe with tornadic ferocity, it will either destabilize geopolitical balances and collapse upon itself due to an over-exploitation of the world’s poor, or exhaust the natural resources which fuel its engine. The challenge is to tweak capitalism so it operates sustainably within the inescapable ecological limits of the biosphere.

Whether the resulting economic system is identifiable as “capitalism” is another question altogether. (In fact, entire books have been written on this issue.) For some social scientists, the term “sustainable capitalism” is an oxymoron, because capitalism must, by definition, be expanding. There is no profit in maintenance (O’Connor, 159). On this interpretation, capitalism is not ecologically sustainable (*ibid.*, ix, 2, 155). If capitalism were to be made sustainable, it would be “unrecognizable to bankers, money managers, venture capitalists, and CEOs” (*ibid.*, 158).

From a strictly economic point of view, the phrase “sustainable capitalism” means “sustaining profits.” But the term is ambiguous, for it is also used to refer to a free-market economy where the means of production are privately held but which degrades the function of ecological systems as little as possible.

Whether such a free-market “environmental economics”<sup>5</sup> is capitalism proper, or some other economic system altogether, is a semantic issue I will not pursue here. I share the hope with business writers John Elkington and Paul Hawken who argue that capitalism can be made (relatively) sustainable. Elkington, with his amusing title *Cannibals with Forks*, implies that if a cannibal using a fork can be called “progress,” then so can sustainable industrial capitalism.

Notwithstanding the contention that market economics ought to be abandoned altogether, as Marxians assert, a free market economy

is what we have inherited, for good or ill. My point-of-departure is that since capitalism is what history has handed us, we must do our best to modify capitalism to be as ecological as it is capable of being.

### **Non-Expansionary Economics: Mill**

Despite the near absolute hegemony of expansionary ideology in economic public policy, non-expansionary economics is well represented in the history of the discipline. The English philosopher John Stuart Mill was an early proponent of stationary, or steady-state, economics.<sup>6</sup> The argument was later taken up by contemporary economist Herman Daly.

Like his four predecessors (David Hume, Adam Smith, Thomas Malthus, and David Ricardo), Mill addressed the issue of growth, but he came to a very different conclusion than they did; a steady-state economy is not only possible, Mill argued, it is desirable. In *Principles of Political Economy*, he writes: “I cannot...regard the stationary state of capital and wealth with the unaffected aversion so generally manifested towards it by the political economists of the old school. I am inclined to believe that it would be, on the whole, a very considerable improvement on our present condition. I confess I am not charmed with the ideal held out by those who think that the normal state of human beings is that of struggling to get on; that the trampling, crushing, elbowing, and treading on each other’s heels...are the most desirable lot of human kind” (1965, 753-54).

Mill arrives at this conclusion from the observation that in a society constituted by laborers, landlords, and capitalists, an increase in population ultimately benefits only the landlord class through increasing rents (*ibid.*, 731-32). In short, as population increases, per capita income declines. Thus, as historian of economics Samuel Hollander writes, the “essence of Mill’s perspective...is that whether or not capital is growing, and at whatever rate, living standards of the masses will be high or low depending upon the relative growth of population; low standards were thus compatible with (aggregate) expansion, high standards were compatible with stationarity” (1985,

886). Stationarity "...becomes the means to the end of high per capita earnings rather than an end itself" (ibid., 887).

Mill argues that a more desirable situation is one in which population remains static. Mill's conception of a stationary-state economy does not imply, however, that there can be no improvements in the standard of living and the human condition in general: "It is scarcely necessary to remark that a stationary condition of capital and population implies no stationary state of human improvement" (1965, 756). Technological advancements could increase per capita income, as well as improvements in art, justice, and other social objectives.

This last point alludes to non-economic aesthetic and psychological benefits of a stationary-state economy:

There is room in the world, no doubt...for a great increase of population[.] But even if innocuous, I confess I see very little reason for it[.] It is not good for man to be kept perforce at all times in the presence of his species. A world from which solitude is extirpated, is a very poor ideal. Solitude...is essential to any depth of meditation or of character; and solitude in the presence of natural beauty and grandeur, is the cradle of thoughts and aspirations which are not only good for the individual, but which society could ill do without. Nor is there much satisfaction in contemplating the world with nothing left to spontaneous activity of nature; with every rood of land brought into cultivation, which is capable of growing food for human beings; every flowery waste or natural pasture ploughed up, all quadrupeds or birds which are not domesticated for man's use exterminated as his rivals for food, every hedgerow or superfluous tree rooted out, and scarcely a place left where a wild shrub or flower could grow without being eradicated as a weed in the name of improved agriculture (ibid.).

These remarks, as economist W. W. Rostow suggests, makes Mill "...the first major environmentalist" (117). Mill was not just concerned with what *will* happen, but, given favorable conditions and a strong collective will, what *can* happen (Hollander 2000, 223).

### **Non-Expansionary Economics: Daly**

Although Mill's economic theory has been dismissed out-of-hand by the pundits of neoclassical-Keynesian growth economics as "hopelessly dated" (Blaug, 220), Daly finds Mill "even more relevant today than in his own time" (Daly and Townsend, 28). For Daly (2003), steady-state economics is the attempt to give concreteness to the rather amorphous notion of sustainable development.

Daly and fellow economist Kenneth Townsend argue that economics involves three independent issues: allocation, distribution, and scale. Allocation is the relative division of limited resources (how much goes to the production of cloths or guns or butter); distribution is the relative division of resources between individuals; and scale is the physical magnitude of matter-energy from the environment, and back into the environment through the market (*loc. cit.*, 2). "A good scale in one that is at least sustainable, that does not erode environmental carrying capacity over time" (*ibid.*).

Traditional neo-classical macroeconomics has focused on the first two issues at the expense of the third. The issue of scale has been overlooked, or ignored, due to a presumption that natural resources and sinks are functionally inexhaustible (*ibid.*, 2-3), as we have noted. On the accepted model, natural systems are but one component in making decisions about the larger, all-encompassing economy. This has been the case for both communist and capitalist societies (*ibid.*, 7).

In contrast, on the steady-state model "the ecosystem contains the economy" (*ibid.*, 3).<sup>7</sup> Steady-state economics is consistent with the biological view of organisms and the biosphere as open, steady-state systems (Daly and Townsend, 17). Two categories of physical

objects—artifacts and people—exist within the larger natural system (Daly 1991, 15).

Artifacts and people share two common characteristics: they yield services (artifacts fulfill human needs, as do other humans) but require maintenance (ibid.). Maintenance requires a throughput coming from and returning to the biosphere. Input consists of low-entropy resources, and output consists of high-entropy waste (pollution). Throughput is characterized by two magnitudes: (1) the size, or stock of the throughput (artifacts and people), and (2) the durability of the stock, which determines the rate of the throughput.

The pool of natural resources from which and to which the throughput originates and returns is finite. Contrary to the orthodox growth economics of Boserup and Simon, who recognize the functional finitude of natural resources—in contrast to Smith—but not scarcity (Daly and Townsend, 21), steady-state economics recognizes the scarcity of natural resources as an inescapable problem (ibid., 19). In accordance with the second law of thermodynamics, as low entropy resources are converted into high-entropy waste, the pool of usable low-entropy resources is constantly diminishing. Recycling can slow throughput, but cannot eliminate it.

In direct opposition to the Keynesian-neoclassical “growthmania synthesis,” steady-state economics holds that the two magnitudes of artifacts and people should be kept as constant as possible: “By *steady state* is meant a constant stock of physical wealth (capital), and a constant stock of people (population). Naturally, these stocks do not remain constant by themselves. People die, and wealth is physically consumed, that is, worn out, depreciated. Therefore, the stocks must be maintained by a rate of inflow (birth, production), equal to the rate of outflow (death, consumption)” (ibid., 29).

Theoretically, equilibrium could be maintained with a very high throughput. But given scarcity, the throughput should be held as low as possible: “...lower rates of throughput lead to less depletion and pollution, higher rates to more. The limits regarding what rates of

depletion and pollution are tolerable must be supplied by ecology” (ibid.). Thus, steady-state economics diverges from the growth paradigm by asserting (1) that the stock of people and artifacts should be held constant, and (2) that the “physical flows of production and consumption must be *minimized*, not *maximized*, subject to some desirable population and standard of living” (ibid., 34).

A *physical* concept (Daly 1991, 17), steady-state economics does not hold that the *human condition* cannot improve. À la Mill, technological advances will increase the standard of living, and refinements in religion, art, and ethics will advance culture within the bounds of balance stocks and minimum throughput (ibid., 16-17).

### **Curing Affluenza: Hope for Sustainable Capitalism**

Money fetishism—or “affluenza” (KCTS/Seattle and Oregon Public Broadcasting)—is the biggest obstacle to achieving a relatively sustainable capitalism, since the majority opinion in our culture seems to be that happiness is further by wealth, and that the bigger the economy is, the more possessions we own, and the happier we will be.

Yet at the same time we all know this to be far from the case. We all know unhappy rich people, and happy poor people. So how did we come to equate happiness with material possessions? Political philosopher Herbert Marcuse provides a convincing answer.

In a consumer society like our own, the self is identified with products: “...people recognize themselves in their commodities; they find their soul in their automobile, hi-fi set, split-level home, kitchen equipment” (9). It is certainly obvious that we choose our cars according to the type of person we wish to be seen as (Jeep=youthful and carefree and adventurous, Mercedes=successful professional, Buick=socially and fiscally conservative). And more interestingly, we use products to misrepresent our socio-economic status (ibid., 8). If I make a poverty-level wage and live in a mobile-home park, but I take out a big loan and buy a late-model Cadillac, then I can appear to be middle-class (at least on the highway).

We are inculcated to be consumers from childhood. Every time you go grocery shopping, a child begs her or his mother to buy a toy or candy bar, and launches into a paroxysm if mom says no. We are trained to equate happiness with ownership, and to believe that our lives will be better if we have more cable channels, a new dishwasher, a bigger house, a newer boat. But, as Marcuse argues, these are really “false needs” in that they actually have nothing to do with happiness. “Most of the prevailing needs to relax, to have fun, to behave and consume in accordance to the advertisements, to love and hate what others love and hate, belong to this category of false needs” (ibid., 5). In fact, false needs are often impediments to happiness; the “freedom to choose” becomes the enslavement to buy (ibid., 4). As Mill warned, a means (money) to an end (happiness) can become an end in-and-of itself by sheer force of habit: “. . . in the case of habitual purpose, instead of willing the thing because we desire it, we often desire it only because we will it” (1979, 38-39). In consumer society, the goal of happiness has largely been lost to the end of consumption (the underpinning of what economist Thorstein Veblen dubbed near the end of the nineteenth century as “conspicuous consumption”).

Marcuse radicalizes Marx’s concept of alienation. For Marx, work gives life meaning, as when the mason identifies himself with the stone wall, as when the sculptor identifies herself with the sculpture, as when the carpenter identifies himself with the armoire. Alienation occurs when the worker is severed from sharing a sense of pride, of accomplishment in the final work. If the task is small and rote, like installing the valves in the head of an internal combustion engine all day, day after day, week after week, then the autoworker is unlikely to share a sense of pride in the fully assembled automobile. Marx writes in the *Economic and Philosophic Manuscripts of 1844*: “. . . the worker is related to the *product of his labour* as to an *alien* object. For on this premise it is clear that the more the worker spends himself, the more powerful becomes the alien world of objects which he creates over and against himself, the poorer he himself—his inner

world—becomes, the less belongs to him as his own[.] The worker puts his life onto the object; but now his life no longer belongs to him but to the object” (Marx and Engels 1975a, 272). We might call this “stage 1 alienation.” At this stage, repression of the proletariat by the bourgeoisie is external, and the proletariat is fully aware of their repression and alienation, and will want to revolt.

Yet for Marcuse (11), as for Michel Foucault (1995), there is a more invasive, or “stage 2,” form of alienation. Here, the ideology used by the bourgeois to create superstructures (laws, customs, religion), which justify differential power relations, infuses all classes. Here, as both Marcuse and Foucault suggest, the repressed are not fully aware of their repression, and are even implicated in it.

This more invasive form of alienation is consumerism. Ironically, tragically, the freedom, liberty, and individualism of consumer society have to a large degree become foils for conformity. In Marcuse’s words, when “this point is reached, domination—in the guise of affluence and liberty—extends to all spheres of private and public existence, integrates all authentic opposition, absorbs all alternatives” (op. cit., 18). We are locked into a social-political-economic system in which it is virtually impossible to opt out.

### **Environmental Policy Economy**

Fortunately, our malaise—affluenza—is curable. The economy is political, and anything political is changeable.

I was fortunate to be part of a series of discussions hosted by the Utah Humanities Council about how development in Salt Lake County could be more sustainable. Invariably a consensus was reached that what was needed was better land-use planning and stricter zoning laws. At that point, one of the interlocutors pointed out that there would be resistance by many to strengthen zoning laws, because such limitations would be seen as “socialistic” or “communitistic” and contrary to a free-market economy. It occurred to me that if all that was needed was to clarify to people that wise land-use planning is far from “socialistic” or “communitistic,” but would simply

improve the quality of life in the Salt Lake valley, then there might be some hope after all.

Therefore it is possible we can we can change the way we think about sane economic policy. An ever-expanding economy is necessary only to satisfy the growing materialistic desires of a growing population. But increasing consumption is not necessary nor desirable. We all know people who work over forty hours a week in order to make payments on a five bedroom/three bathroom house, several cars, boats, and other mechanized toys.

But does this amount to happiness? More often than not, no. Being more productive does not necessarily benefit the self or society. As philosopher Bertrand Russell (16) cynically points out: "Suppose that, at a given moment, a certain number of people are engaged in the manufacture of pins. They make as many pins as the world needs, working (say) eight hours a day. Someone makes an invention by which the same number of men can make twice as many pins as before. But the world does not need twice as many pins: pins are already so cheap that hardly any more will be bought at a lower price. In a sensible world, everybody concerned in the manufacture of pins would take to working four hours instead of eight, and everything else would go on as before."

In affluent countries, what is not needed are more goods, but more leisure time to enjoy the gifts of life. Europeans have begun to realize that once a certain level of wealth is reached, what is needed is not more things (that is, pins), but more leisure time to pursue projects and spend time with family and friends. According to a survey done by the Institute for German Economics in Cologne, former West Germans work 1,557 hours a year, the French 1,605 hours, Britons 1,693 hours, whereas Americans work upwards 1,900 hours annually (Bernstein). But between 1979 and 1999, the average American working year lengthened by fifty hours, but the average German working year shrank four times that amount (Ferguson).

Growth economists, of course, see the longer American work week as good insofar as economic health is measured in GNP.

However, for economist John Kenneth Galbraith, such “conventional wisdom” is regrettable, for

circumstance has marched beyond the conventional wisdom[.] The economist of impeccable credentials in the conventional wisdom, who believes that there is no goal in life of comparable urgency with the maximization of total and individual real income, would never think of applying such a standard to himself[.] He educates and indoctrinates his children with but one thing in mind. It is not that they should maximize their income. That is abhorrent. He wants above all that they will have an occupation that is interesting and rewarding. On this he hopes, that they will take their learned parent as their model (347-48).

### **Denouement: Rediscovering the Common Heritage of Ecology and Economics**

In contradistinction to “tornado economics,” environmental economics sees quality of life not only in terms of production and consumption, but, to evoke the thinking of American ecologist Aldo Leopold (224-25), the health, integrity, stability, flourishing, and sublime beauty of the larger biotic community.

All organisms impact the natural systems within which they dwell. Humans, too, unavoidably affect the biosphere through economic activity. The trick is to mitigate as much as possible the negative effects of this activity by achieving a balance between living well and living simply. *Homo sapiens* might be *Homo economicus*, yet if we are truly wise, we must also affirm our status as ecological citizens. As Daly says,

[W]e must recognize that the total stock (consisting of wealth and people) is variable both in total size and in composition. Since there is a direct relationship between

the size of the stock and the size of the throughput necessary to maintain the stock, we have a trade-off between size of total stock (viewed as benefit) and size of the flow of throughput (viewed as a cost); in other words, an increase in benefit implies an increase in cost[.] Within these limits this trade-off essentially represents the choice of a standard of living. Economics and ecology can at best specify the terms of this trade-off; the actual choice depends on ethical judgments (Daly and Townsend, 32).

Thus we have finally rediscovered the forgotten link between ecology and economics. *It is ethics!*

## Notes

1. In grossly oversimplified form, we might say that classical economic theory is based on the principles of free markets, competition, and the labor theory of value. Neoclassical economists sought to mathematize these principles and introduced the idea that value was not objective, in the sense of being the product of labor, but subjective, in the sense of want satisfaction. During the Great Depression, John Maynard Keynes was disturbed by the lack of resource utilization which on neoclassical micro-economic models should be fully utilized. Neoclassical-Keynesian economics seeks full employment and full natural resource utilization, measured by Gross National Product (GNP).

2. Of course, the argument is not quite that simple. Kant argues that everything in nature has some purpose, and therefore the faculty of reason must have a purpose. This purpose cannot be for preservation or for happiness, because this function could be better performed by instinct. Therefore, the purpose of reason must be for the cultivation of something good in-itself—a good will. The criterion for a will to be good is acting out of a sense of moral duty. Ethics is rational.

3. A favorable externality is an “external economy” and an unfavorable externality is an “external diseconomy.” See Samuelson (449).

4. Because of temperature inversions, the level of pollution is much higher in the winter. For the purposes of this discussion, I have abstracted this factor out of Figure 2.

5. I use the term “environmental economics” to refer to a methodology of cost/benefit analysis which internalizes “externalities,” or, to put it another way, includes environmental impacts in decisions about alternative economic activities. Although the term “ecological economics” is often used synonymously with “environmental economics,” I use the later term to avoid conveying the impression that economics could be based on the laws of scientific ecology—although I do think their common heritage should be rediscovered.

6. As noted by Daly, the former term is more common in economics and demography, while the latter term is more common in the physical sciences. Following Daly, I will use the terms synonymously. See Daly and Townsend (24).

7. Hawken et al. (7) make the same point when they write, “all economic activity...is embedded within the working of a particular planet.”

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