

The Unsustainability of Economism

Economism is not feasible economically

by John Attarian

Once upon a time, when I was a graduate student, I found some graffiti in the basement of the (now nonexistent) University of Michigan Economics Building that epitomizes the trouble with the mainstream approach to economic growth and sustainability: An astronomer, a chemical engineer, and an economist are lost at sea on a life raft with one can of food and no way to open it. They decide to pool their ideas for opening the can and adopt the best one. Astronomer: “Take our glasses apart, make a system of lenses, focus the sun’s rays, and heat the can until it bursts.” Chemical engineer: “Suspend the can in the sea water until the salt softens it enough so we can rip it open with our bare hands.” Economist: “Assume a can opener.”

Outlandish as the first two scientists’ ideas are, they are grounded in reality, invoking scientific facts and employing materials actually on hand. The economist’s approach, by contrast, is a respectable first step in economic model building, is rigorous, and is amenable to mathematical expression (“Let ‘x’ be our can opener,” one can hear the economist saying) — but is divorced from reality.

Herman Daly’s Dissent from Economism

Earlier, in *The Social Contract* (Vol. X, No. 2, Winter 1999-2000), I criticized the ideology of economism, the notion that human beings reduce to

economic “animals” and that life reduces to consumption, by citing non-economic values and arguments. But *even in economic terms*, economism is fatally wrong, because it ignores the implications of a finite reality. Economism’s touts are telling us that there are no limits, that new technology will bring sustained fabulous prosperity, propounding such extravagant futures as a twenty-five-year “long boom,” whereby humanity will attain universal affluence without environmental devastation.¹ Alas for the human race, which is being dragged at economism’s chariot wheels, it just isn’t so.

Economites have forgotten fundamental economics: Utility maximization is subject to a budget constraint — the consumer has a finite sum of money for his wants and needs; a firm’s or economy’s possibilities are limited by existing technology and resources. In short, reality has limits, which constrain what humans can do. You can’t get something for nothing. Ever.

One economist, Herman Daly, has made it his business to remind us of this truth by exploring the economy’s relationship to the environment. Whereas mainstream economics treats the economy as independent of the environment, he points out that it is a subsystem of a finite and nongrowing ecosystem. Natural resources have finite, fixed quantities. Mainstream analysis either ignores natural resources and treats production as a function of capital (plant, equipment, etc.) and labor inputs only, or treats natural resources and capital as substitutes — if the supply of one input (resources) decreases, we can use more of the other (capital) to get the same output.

In reality, Daly observes, resources and capital are complements: the two inputs must be used together, and one is no good without the other. (In building a house, for example, hammers and saws are useless without woods, and if the supply of wood decreases, we can’t offset this by simply adding more tools and still build the house.) From this he propounds a key insight: *If factors are*

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complements, then the one in shortest supply will be the limiting factor” (original italics) — i.e., the factor that determines how much output can be produced. In previous eras, he argues, when the economy was small relative to the ecosystem, capital was scarce while natural resources were abundant, so capital was the limiting factor. Since then, however, the economy has grown within the finite ecosystem, depleting many resources and reversing the inputs’ roles. Now capital is abundant, and natural resources are the limiting factor. Therefore, sustained, unlimited growth is impossible.²

Obviously, Daly’s “ecological economics” are simply reality and common sense. Unfortunately, economites, like our economist in the life raft, are oblivious to reality and common sense. They refuse to admit any limits such as scarcity, and proclaim a future of unlimited growth. They say, “Yes, Virginia, there *is* such a thing as a free lunch. Why? Because we say so, over and over and over and over again.”

Unrealism and Incompetence

This new hubris first emerged in the “supply-side” school, which inspired the Reagan Administration. George Gilder, a key supply-sider, wrote in his much-celebrated *Wealth and Poverty* (1981) that “The United States must overcome the materialistic fallacy: the illusion that resources and capital are essentially things which can run out, rather than products of the human will and imagination which in freedom are inexhaustible.”³

Since then economites have become ever more strident. The most exuberant — and celebrated — voice was the late Julian Simon. In material terms, he asserted, the human condition was improving and would do so indefinitely. Vigorously dissenting from prophets of scarcity, Simon argued in his famous *The Ultimate Resource* (1981) that our “ultimate resource is people,” whose intelligence would solve our problems. Not only that, “our supplies of natural resources are not finite in any economic sense,” nor is our energy supply. People would find new sources of them, or substitutes for them, or new technologies for extracting or more efficiently using them. He concluded that “There is no meaningful physical limit,” not even the earth’s weight, “to our capacity to keep growing forever.”⁴ Over time Simon’s claims became fantastic. In 1994 he asserted that we then had “the technology to feed, clothe and supply energy to an ever-growing population for the next seven billion years.” Even with no new knowledge, “we would

be able to go on increasing forever,” while improving living standards and environmental quality.⁵

Simon’s method, as he admitted, was to examine historical data from extremely long periods showing, say, declining energy prices, and then simply extrapolate it into the future.⁶ He would follow with sheer bluster, endlessly offering to bet that any measure of well-being one picked would show improvement; endlessly asserting, as if chanting an incantation, that “There is no reason why this downward trend [in energy prices, say] could not go on forever,” that “there is no persuasive reason to believe”

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that trends of improvement “will not continue indefinitely,” and so on.⁷

Seizing on Simon’s optimism, other economites cited him routinely in their words; when he died in 1998, they eulogized him as “a beacon of cheer,” “an unheralded hero.”⁸ Some made their own expansive claims. David Boaz asserted that as more product value springs from mental products “embedded in digital bits,” “natural resources will become less relevant” human capital will become far more important to wealth creation.⁹ In a speech titled “There Are No Limits to Growth,” William O’Keefe, executive vice president of the American Petroleum Institute, scorned “the bogus finite resources argument” and concluded by anticipating “frontiers without limits.”¹⁰

These extravagant pronouncements cannot be reconciled with realism, rationality, or even sanity. Tell a drought-stricken farmer that water is a “product of the human will and imagination.” Gilder’s claim is, essentially, that the mind can create external reality *ex nihilo* — that is, one can be God. Like presumption informs Simon’s “seven billion years” claim. Since we are physical entities

who need to consume physical resources in order to live, natural resources can *never* become “less relevant.” Does Boaz think we rise from virtual beds, don virtual clothes, eat virtual food, drive virtual cars to virtual offices, and create this wealth at virtual workstations? We can do many clever things with “digital bits,” but we cannot eat, drink, or wear them.

Not only the unrealism but also the sheer incompetence of argument by the unlimited growth camp is startling. Predictably, it was most vividly illustrated by Julian Simon. Dismissing concern over soil erosion as a fraud, “**Expressing productivity in value terms unfortunately obscures the truth that productivity is ultimately grounded in physical reality.**”¹⁰ The condition of cropland has been improving rather than worsening.” Annual rates of soil erosion have been falling since the thirties, he observed, therefore erosion is lessening rather than worsening. “**Soil on our farms is becoming less eroded rather than more eroded.**”¹¹ Simon’s glib assertions mask an incredible howler: he confused the *annual* rate of erosion with *total* erosion. What the data indicate is that *erosion is increasing*, but at a *decreasing* rate. The soil’s condition indeed is worsening — just more slowly, that’s all.

Kentucky farmer and agrarian Wendell Berry, who *does* know what he is talking about, has lamented soil erosion for years, pointing out that in the mid-eighties, topsoil loss outweighed the grain harvested by five times in Iowa; twenty times in eastern Washington. In 1999 Berry observed that the topsoil erosion is outrunning replacement on ninety percent of our cropland.¹² Vindicating Berry, preliminary data from the Department of Agriculture’s 1997 National Resources Inventory indicate that 112 million acres of cropland, thirty percent of the total, is excessively eroding, losing 1.3 billion tons of soil annually.¹³

Ever pontificating through his hat, Simon made a flippant, ignorant exercise in denial about soil exhaustion: “We go on year after year using the same farmland. Yet the farmland becomes ever richer, produces ever more; the state of the environment in those farms, by every measure we have, gets better and better and better. So the notion that there must be some bad things going on there — well, maybe there must be, but we never seem to be able to see them.”¹⁴

Had Simon read his Berry he might have seen better. Berry made the important point that as soil fertility

A Selection of Web Sites on Herman Daly

Readers interested in more information on Herman Daly and his path-breaking “ecological economics” will find the following web sites useful:

- <http://iee.umces.edu/miiee.html> This is the web site of the University of Maryland’s Institute for Ecological Economics where Daly is on faculty. Using <http://iee.umces.edu/miiee/HERMANCV>html> will get his University of Maryland address, telephone and fax numbers, e-mail address, a selective list of his publications, etc.

- <http://www.ecoethics.net/bib/1997/enca-006.htm>

Lists Daly’s major works, with title links to on-site bookseller information.

- <http://www.newdream.org/bulletin/daly.html>

The Center for a New American Dream website has a capsule biography and brief interview with Daly.

- <http://www.igc.org/envreview/daly.html>

Text of a conversation with Daly on sustainability.

- <http://iisd.ca/didigest/special/daly.htm>

Text of major *Developing Ideas* interview with Daly about conventional economics, ecological economics, trade, sustainability, etc. A good introduction to Daly’s thought.

- http://www.law.ufl.edu/cgr/envirotrade_seminar/Herman.htm

Text of Daly’s November 1993 *Scientific American* article, “The Perils of Free Trade.”

- <http://www.ap.harvard.edu/papers/T&E/Daly/Daly.html>

Daly’s scholarly but quite readable paper “Against Free Trade: Neoclassical and Steady-State Perspectives,” prepared for 1994 conference on trade and the environment, Pacific Basin Research Center, JFK School of Government, Harvard. Includes good short discussions of the relation of economy to environment, and growth vs. development.

- <http://www.jps.net/zpg/dalysimon.htm>

Daly’s January 1982 *Bulletin of the Atomic Scientists* review of Julian Simon’s *The Ultimate Resource* (1981).

has fallen, we have compensated with heavy doses of chemical fertilizers. “These have effectively disguised the loss of natural fertility, but it is important to emphasize that they *are* a disguise. They delay some of the consequences of failure, but cannot prevent them.”¹⁵

Limits to Productivity Growth and Resource Savings

The truth is, unlimited growth is impossible. Two bodies cannot occupy the same point at the same time; the law of gravity operates; no successful perpetual motion machine exists. These truths hint that reality does constrain us and is not infinitely malleable. There is, finally, our inescapable destiny: death. Death, indeed, is *the* unanswerable proof of creaturehood, of reality’s inexorable limits on human possibilities.

Yes, human ingenuity can do many things. But we cannot manipulate reality *forever, without limit*. To see this, let us examine two phenomena that Daly does not address but that economists cite to support their optimistic claims: productivity growth and material input savings.

A lot of “new economy” optimism flows from the much-touted recent productivity boom due to new technology, especially computers.¹⁶ Economists’ practice of expressing productivity in value terms unfortunately obscures the truth that productivity is ultimately grounded in physical reality: output per man-hour of goods and services, which entails a process of work by a physical being. Work necessarily means a series of physical motions by a human or equipment or both. Productivity is really a measure of the speed of this process — that is, of how quickly these motions are being completed. Productivity *growth* means that the process is being completed more quickly per time period, i.e., that the motions involved have speeded up. *Steady* productivity growth means that they keep on accelerating. Unlimited productivity growth, taken to its ultimate conclusion, means that eventually we will produce goods and services instantaneously — which is obviously absurd.

Why? Because, as reflection on reality should make clear, there are physical limits on how quickly motions can be completed. Some runners have broken Roger Bannister’s four-minute-mile record. But nobody has run a mile in a minute or less, and nobody ever will. The body just simply can’t move that fast. Productivity growth of, say, 1.5 percent a year implies that output per man-hour

will be twice as high in roughly forty-eight years as it is now. But is it seriously possible that in 2049 auto workers will assemble cars twice as quickly as they do now, keyboard operators perform twice as many keystrokes a minute, barbers cut twice as many heads per hour, a doctor see twice as many patients? And even if it were possible, can these doubled speeds be doubled again? And again? Obviously not. The conclusion is inescapable: eventually, productivity growth will hit a ceiling, then stagnate.

As for savings in material inputs, this turnip too holds only so much blood. True, innovations have brought radical material saving in many items; libertarian Virginia Postrel brags that the weight of a twelve-ounce can of soft drink fell by eighty percent in 1961-1996.¹⁷ But material content can be reduced only to a point, beyond which the items will be too flimsy to function. In many cases we have already hit this limit. As any observant consumer knows, index cards and manila folders have become thinner and thinner, staples flimsier (often bending rather than penetrating if even a few pages are being stapled), T-shirts less substantial (and falling apart faster). The plastic ketchup bottles I bought at Sam’s Club were so thin-walled they bore warning labels cautioning the consumer not to drop them, presumably because they would break apart. Arguing that material content can be reduced without limit necessarily implies that eventually items will be produced out of almost nothing — another absurdity.

So reality imposes limits after all, and when they are reached, economic growth will stagnate. The conclusion is clear: Herman Daly is right.

Reality Check: Daly Passes, Simon Flunks

If the foregoing exercises in commonsensical thinking do not convince, reality is the final court of appeal. Evidence is piling up rapidly that natural resources have indeed become the limiting factor for economic growth, vindicating Daly and discrediting Simon.

Africa’s situation proves that soil exhaustion is indeed possible, with disastrous consequences. A UN-World Bank study reports that 850,000 square miles of African land is degraded and that if current trends continue, Africa will be unable to feed two-thirds of its population by 2025.¹⁸ In February 2000 Federal Reserve chairman Alan Greenspan told the Senate Banking

Committee that since America consumes less than half its agricultural output, we depend on exports to sustain production. Hence, “the more we can open up markets abroad” the better for sustaining “a viable, very productive agriculture.”¹⁹ Greenspan did not grasp that we are in effect exporting our topsoil, and that following his counsel would necessarily accelerate its degradation. Far from sustaining a viable agriculture, export growth is a recipe for ruining it.

In their March 1998 *Scientific American* article “The End of Cheap Oil,” Colin J. Campbell and Jean Laherrère point out that about half the earth’s supply of conventional (i.e., readily accessible) crude oil has already been extracted and consumed, and they argue that “within the next decade, the supply of conventional oil will be unable to keep up with demand” and that production will begin falling before 2010. Intensified exploration for new oil fields is unlikely to help much. “There is only so much crude oil in the world, and the industry has found about ninety percent of it.” While abundant unconventional oil reserves exist, extracting them will be financially and environmentally costly.²⁰

Developments since then support this gloomy analysis. Campbell points out that Western estimates of Caspian Sea oil reserves have been exaggerated. So far, the Kashagan East well in the north Caspian has found about seven billion barrels of oil, leading two major companies to withdraw from the project. Worldwide oil discovery in 2000 was 11.2 billion barrels, less than half of total consumption. Potential reserves of deepwater oil are some eighty-five billion barrels — enough to supply the world for less than four years. Oil production in the lower forty-eight American states peaked in 1972 and has fallen ever since; having already used up most of its own oil, America now imports over half the oil it consumes. But several foreign sources other than the Middle East are at or approaching peak production; the North Sea oil fields are currently peaking with British production already falling. Campbell warns that America must find a way to cut its demand for oil by at least five percent annually.²¹ With not only transportation and home heating but also agriculture extremely dependent on

petrochemicals (for fertilizers, energy, and pesticides), the drying-up of cheap oil will have grim repercussions.

Still another limiting factor is water. Only one percent of the world’s fresh water is readily available. Water depletion in Chinese and Indonesian urbanized areas is already serious: Beijing’s water table has fallen sixty feet in the past decade; Jakarta’s depleted aquifers are polluted with seawater. China’s government has repeatedly cited water as the biggest constraint on China’s economic growth and

development, and over four hundred Chinese cities face water shortages. Chinese experts on water warn that by 2030, when China’s population is projected to hit 1.6 billion, the water crisis will be serious, with per capita shares of water estimated at 1,760 cubic meters, barely above the international “alarm level” of 1,700. Per capita water availability in India is now 1,950 cubic meters, and is likely to go below 1,000 cubic meters in the next decade.²² “The rise of Asia... simply can’t be stopped,” chirped “long boom” touts Peter Schwartz and Peter Leyden in *Wired* magazine in 1997, making an “informed [sic] projection” (water shortages are totally unmentioned) of “torrid economic growth in China” by 2004.²³ What planet do economites live on?

Here at home, the Colorado River disappears by the time it reaches Mexico due to excessive water removal by California, Arizona, and Colorado. The Tucson area is draining its aquifers twice as fast as they are replenished, and relies on water from the Colorado. Pumping for irrigation from the huge Ogallala aquifer, which supplies one of our most important agricultural areas, nearly quadrupled in 1949-1990, causing significant declines in the water table. Water removal from the aquifer has been exceeding replacement by some 130-160 percent; if this continues, in roughly forty years the aquifer is projected to be non-productive. Droughts and soaring Western population (thanks to immigration) have recently accelerated the drain. According to the Texas Water Development Board, in 1997 6,231,000 acre-feet of water were removed from the Ogallala while it was recharged with only 438,910 acre-feet, and some of the other aquifers supplying Texas are also experiencing

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drainage above replenishment.²⁴

The worldwide collapse of fish stocks from over-fishing is an especially vivid confirmation of Daly's position. Once abundant, cod have all but disappeared from the Grand Banks off Canada and New England, ruining the local fishing industry. According to the United Nations' Food and Agricultural Organization, almost seventy percent of fish stocks worldwide are fully exploited, over exploited, or badly depleted. Of sixty commercial fish stocks in the northeast Atlantic, forty suffer from unsustainable fishing. In the North Sea, stocks of most species of commercial fish are exhausted. In desperation, the European Union banned fishing in the cod's main spawning grounds for this year's spawning season. Simon cited the substitutability of resources to argue that resources are non-finite. The fishing situation disproves him; substitution of one limited resource for another can simply exhaust both. When France's black bream fishery collapsed, for example, French fishermen switched to bass off England's west coast and depleted the bass, too, prompting the British to impose catch limits.²⁵

It stands to reason that a worldview reducing human fulfillment to a matter of envy, avarice, and gluttony, to goading and gratifying insatiable appetites, is lethally wrongheaded in a limited world. Some time in the next few decades, economism will shatter against reality's limits. Indeed, the foregoing evidence suggests that in some places the collision is already happening. Wrenching adjustments are inevitable. These will entail far more modest living standards, enforce respect for the world's carrying capacity, and silence the impious vaunting babble of unlimited growth.

NOTES:

1. See, e.g., Richard D. McKenzie, *The Paradox of Progress: Can Americans Regain their Confidence in a Prosperous Future?* (New York: Oxford University Press, 1997), pp. viii, 21, 229; David Boaz, *Libertarianism: A Primer* (New York: The Free Press, 1997), p. 288; David Elias, *Dow, 40,000* (New York: McGraw-Hill, 1999); Peter Schwartz and Peter Leyden, "The Long Boom: A History of the Future 1980-2020," *Wired*, July 1997, pp. 115-129, 168-173; Peter Schwartz and Peter Leyden, *The Long Boom* (Reading, MA: Perseus Books, 1999).

2. Herman E. Daly, *Beyond Growth: The Economics of Sustainable Development* (Boston: Beacon Press, 1996), pp. 47-50, 76-78.

3. George Gilder, *Wealth and Poverty* (New York: Basic

Books, 1981), p. 232.

4. Julian L. Simon, *The Ultimate Resource* (Princeton, NJ: Princeton University Press, 1981), pp. 348, 5, 6, 38-41, 43-53, 346.

5. Norman Myers and Julian Simon, *Scarcity or Abundance? A Debate on the Environment* (New York: W. W. Norton, 1994), p. 65.

6. *Ibid.*, p. 148.

7. *Ibid.*, pp. 11,12, 20-21, 115, 119, 132-133, 140-141, 151, 188-189, et al.

8. See, e.g., Warren Brookes, *The Economy in Mind* (New York: Universe Books, 1982), pp. 15, 29-32, 37; Virginia Postrel, *The Future and Its Enemies: The Growing Conflict Over Creativity, Enterprise, and Progress* (New York: The Free Press, 1998), pp. 33, 51, 85; William F. O'Keefe, "There Are No Limits to Growth," *Vital Speeches of the Day*, January 1, 2000, p. 190. Obituaries: Brian Doherty, "In Memoriam: Julian Simon," *Reason*, May, 1998, p. 8; Steve Forbes, "Good Man Gone," *Forbes*, March 9, 1998, p. 28; Stephen Moore, "Julian Simon, RIP," *National Review*, March 9, 1998, pp. 22, 24.

9. Boaz, *Libertarianism*, p. 285.

10. O'Keefe, "There Are No Limits to Growth," pp. 189-192.

11. Myers and Simon, *Scarcity or Abundance?*, pp. 53-54, 132.

12. Wendell Berry, *Home Economics* (New York: North Point Press, 1987), p. 130; Wendell Berry, "Failing Our Farmers," *The New York Times*, July 6, 1999, A17.

13. United States Department of Agriculture, Natural Resources Conservation Service, "1997 National Resources Inventory: Highlights," printout (<http://www.nhq.nrcs.usda.gov>), p. 3-4.

14. Myers and Simon, *Scarcity of Abundance?*, p. 147.

15. Berry, *The Gift of Good Land*, p. 118.

16. See e.g., Mike McNamee, "An Economy on Steroids?" *Business Week*, July 7, 1997, pp. 126-127; Schwartz and Leyden, "The Long Boom," pp. 116, 118.

17. Postrel, *The Future and Its Enemies*, p. 62.

18. "Depleted Soil Threatens Africa," *The Detroit News*, October 19, 1999, 9A.

19. U.S., Senate, Banking, Housing and Urban Affairs Committee, Hearing, Humphrey-Hawkins Report on U.S. Monetary Policy, February 23, 2000. printout (Congressional Information Service), p. 17.

20. Colin J. Campbell and Jean H. LaHerrère, "The End of Cheap Oil," *Scientific American*, March 1998, pp. 78-83.

21. C. J. Campbell, "Oil Price and Depletion," June 6, 2000, iNet News Service, p. 2 (<http://www.oilcrisis.com/news>); C. J. Campbell, "Peak Oil: A Turning Point for Mankind," *Hubbert Center Newsletter*, #2001/2-1 (April 2001), pp. 2-3.

22. The Politics of Water, *World Press Review*, December 1999, p. 16; "Water crisis acute by 2030, says report," *South China Morning Post*, March 26, 2001; "The haunting spectre of water famine," *The Hindu*, Madras, February 27, 2001.

23. Schwartz and Leyden, "The Long Boom," pp. 118, 125.

24. William M. Alley, Thomas E. Reilly, O. Lehn Franke, "Sustainability of Water Resources," United State Geological Survey, Circular 1186 (Denver, CO: U.S. Geological Survey, 1999), pp. 26-27; "Just Deserts? Arizona's Rural Sprawl," *The Wall Street Journal*, January 30, 2001; David Pimentel and Mario Giampietro, "Food, Land, Population and the U.S. Economy," Carrying Capacity Network, 1994, printout (<http://dieoff.com>), p. 29, "For Texas, Water and Not Oil is Liquid Gold," *The New York Times*, April 16, 2001.

25. "There really aren't plenty more fish in the sea," *The Times* (London), January 8, 2000; "North Sea fish stocks on edge of collapse"; *The Times* (London), November 11, 2000; "Hurry, while stocks last," *The Times* (London), January 6, 2001; "EU orders fishing ban to save last of the cod," *The Times* (London), January 25, 2001.