

Ultimate Confusion

The economics of Julian Simon

by Herman E. Daly

"... scribbling nonsense and dispensing hollow verbiage that fundamentally and forever rots people's brains"

¶ Schopenhauer, referring to Hegel

Julian Simon frequently exaggerates and makes mistakes, and he has frequently been caught at it (see references). Yet he persists. Why? No doubt because he thinks he is right. However, by making mistakes faster than his critics can correct them, he also maintains a permanent debating advantage, at least in the media. In spite of the frustration of falling further behind in the thankless clean-up job, critics have no choice but to keep on exposing his errors and exaggerations. We cannot just ignore him because the Reagan administration takes him very seriously, as evidenced by his influence on the position taken by the USA at the United Nations Conference on Population held in Mexico City.

Simon's belief in unlimited growth along with his antipathy to government (except when it subsidizes nuclear power) is exactly what Reagan and his many supporters want to hear ¶ "keep

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the government off the people's backs while they accumulate wealth." Perhaps that was a reasonable view for a country engaged in settling an empty continent (forget the Indians). It is not a reasonable view for a crowded continent in which one man's production is another man's pollution, and someone else's depletion. So, in the spirit of perseverance in a worthy cause I list below a number of mistakes and exaggerations, which, once reflected on by thoughtful people, should diminish the baleful influence of Mr. Simon's popular ideas.

Simon's Denial of Resource Finitude

This is the linchpin of Simon's position. In support of his view that "resources are not meaningfully finite," he offers two arguments, one theoretical (largely semantic), and the other empirical.

The theoretical argument is that just as there are infinitely many points on a one-inch line segment, so too there are infinitely many lines of division separating copper from non-copper in the earth. Therefore, copper is not countable. Therefore, copper is infinite. Simon reasons from infinite divisibility to infinite amount. But the infinite divisibility of a line segment does not imply infinite length. Infinitely many possible boundaries separating copper from non-copper does not imply an infinite amount of copper. It is a replay of Zeno's paradox of

Achilles never catching up with the tortoise that had a finite head start. Simon would clearly have bet on the tortoise. Understandably some readers will think it unlikely that anyone would make that mistake, and will therefore suspect me of setting up a straw man. I beg such readers to turn to pages 47-49 of *The Ultimate Resource* and read them carefully.

The empirical argument is drawn largely from a study by Weinberg and Goeller, *The Age of Substitutability*, which Simon cites in support of his infinite substitutability premise. Even if copper were finite it could be thought of as if it were infinite because there are infinite possibilities of substituting other resources for copper. Of course, if the set of all resources is finite, then infinite substitutability among resources does not render the set infinite. But more important than this logical glitch is what Simon omits to tell us, namely that Weinberg and Goeller's *Age of Substitutability* is a steady state. It assumes a constant population at 2.5 times the existing population with constant world energy use at 12 times present levels, implying a per capita world energy use of only 70 percent of current US per capita use. The scenario assumes a low-cost, abundant energy source. Moreover this high consumption steady state is the maximum that Weinberg and Goeller consider

technically feasible, and they caution that it would require planning on an unprecedented scale.

In other words, the very study that Simon appeals to for empirical support of his unlimited growth via the free market position specifically rejects the notion of unlimited growth, and further cautions that such a maximum consumption steady state could not be a creature of *laissez faire*, but would require extensive planning. Such selective omissions of contrary evidence from the testimony of his own expert witnesses do not inspire confidence in Mr. Simon's eagerness to tell the whole truth.

In sum, both the theoretical and empirical arguments against finitude fail utterly. Since everything else in Simon's position depends on abolishing finitude, the game is effectively over. But other issues less central to his position beg for attention.

Entropy Doesn't Exist

If environmental sources of raw material and sinks for waste were infinite then it would not matter that the flow between them was entropic. Nor, if there were no such thing as entropy, would it matter if sources and sinks were finite, because recycling could be 100 percent. Once Simon has abolished finitude he logically does not need to deny the Second Law of Thermodynamics. But he does so anyway, for good measure:

Let us work mainly with energy, the hardest case from my standpoint because it (almost alone among generic resources) cannot be

totally recycled. (In Defense ... page 57).

The clear implication is that most non-energy resources can be totally recycled, while energy can be recycled but not totally. This is wrong. No resource can be totally recycled, and energy cannot be recycled at all (except by expending more energy than the amount recycled). Simon considers the entropy constraint irrelevant because he does not understand it. He identifies entropy only with the ultimate heat death of the universe, not with the qualitative difference between equal quantities of raw material and waste. Entropy is a

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measure of that irreversible qualitative difference and is relevant to economics on a day-to-day basis, regardless of the ultimate heat death which we agree with Simon in not worrying about.

Ecology Doesn't Exist

Not a single chapter in *The Resourceful Earth* was written by an ecologist. Simon sees the natural world mainly as a source of vexations, not services. In an interview with Simon by William F. Buckley, Jr., we find the following

exchange:

Simon: ...as you get greater population density, you get better transportation systems...

Buckley: You wipe out disease enclaves, too, don't you?

Simon: Pardon?

Buckley: You wipe out disease enclaves in malarial forests and that kind of stuff.

Simon: Absolutely. Thank you for mentioning it...

It would seem that the only consequence of habitat destruction is to rid the world of malaria. (Actually cutting forests, at least initially, increases the incidence of malaria since it forces mosquitoes out of the high canopy down to the ground where man is.) But the very idea that we may lose a valuable natural service is absent. In a similar vein, Simon observes that environ-mentalists speak of "wetlands lost," which he considers an example of persuasive labeling, whereas previously the same phenomenon was referred to, more objectively in Simon's view, as "swamps drained" (*The Ultimate Resource*, p. 312).

Further evidence of the absence of biological understanding is provided by a stunning non sequitur. After citing the reasonable estimate that one billion species have probably become extinct over the past 3.5 billion years, he says, "If genetic extinction doomed mankind, presumably it would have died a billion deaths by now!" Again some reader probably suspects me of quoting out of context. Please read page 180 of *The Resourceful Earth*, and maybe you can make

sense of it.

Population Limits Don't Exist

Again, from the interview with Buckley (p. 208):

Buckley: All right. Now, probably the most controversial part of your thesis has to do of course with population. You find yourself asserting in effect that inasmuch as that which an individual creates is almost always more than that which he consumes, the greater the number of people who inhabit the globe, the greater the per capita production. Did I get it right?

Simon: Yes.

The question is, did Simon get it right? Not by a long shot. To begin with, even if everyone produces more than he consumes, it simply does not follow that more people will raise per capita production. But that is straining out gnats. The camel we are expected to swallow is the old infinite resources claim, which of course settles the issue. How could there be limits to population size, or anything else, if resources are infinite? Since Simon's arguments against finitude of resources have already been shown to be fallacious we need not waste time proving that unlimited population growth is a bad policy. What is worth our time is to inquire why Simon believes unlimited population growth is *desirable*, as well as possible.

Misanthropy, Double Maximization and Genius

Simon values human life, and

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thinks of neoMalthusians as misanthropists. But most neoMalthusians would agree with Simon that ten billion people are better than two billion n as long as they are not all alive at the same time! NeoMalthusians want to maximize the cumulative total of lives ever to be lived over time at a sufficient per capita standard for a good life. Simon wants to maximize the number of people simultaneously alive. But too many people alive at once overshoots and lowers carrying capacity leading to fewer people in subsequent time periods and a lower cumulative total over time. Of course, for Simon these issues do not arise because he has simply declared carrying capacity to be infinite.

Not content to maximize population, Simon further advocates Bentham's "greatest good for the greatest number," seemingly unaware of the mathematical impossibility of double maximization. Is there no trade-off between per capita consumption and number of people? If there is you can't maximize for both. But if resources are infinite then at least both can grow faster.

Nor for Simon is there any

trade-off between present and future generations: "Because we can expect future generations to be richer than we are, no matter what we do about resources, asking us to refrain from using resources now so that future generations can have them is like asking the poor to make gifts to the rich" (*The Ultimate Resource*, p. 15). And while the poor should not be expected to make gifts to the rich, neither it would seem in a world of infinite resources, is there any reason for the rich to make gifts to the poor. Note the axiomatic nature of the belief that future generations must necessarily be richer. That, of course, presupposes the answer to the whole growth debate.

A further reason adduced by Simon for population growth is the "genius argument." With 4,000 births there is a better chance of getting an Einstein or a Mozart than with only 40 births. Inept as this argument is in ignoring the unique combination of nature and nurture underlying genius, it should at least have occurred to Simon that the chances of getting another Hitler or Caligula likewise increase.

Some Exaggerations

It is not entirely farfetched to compare this operation [use of U.S. public funds for population control at home and abroad] to the CIA attempts to assassinate leaders and other persons in countries with which the U.S. is at peace, without explicit approval of the American voters and taxpayers (The Ultimate Resource, p. 297).

How about 'mostly' farfetched?

The availability of energy has been increasing, and meaningful cost has been decreasing, over the entire span of humankind's history. We expect this benign trend to continue at least until our sun ceases to shine in perhaps 7 billion years, and until the exhaustion of the supply of elemental inputs for fission (and perhaps for fusion) (The Resourceful Earth, p. 25).

This from one who accuses *Global 2000* of making sweeping extrapolations!

You see, in the end, copper and oil come out of our minds. That's really where they are (Buckley interview, p. 207).

One does not belittle the enormous capacities of the human mind by insisting that copper and oil are simply not ideas and really do come out of the ground. Indeed, to the extent that the human mind comes to conceive of itself as generating copper and oil out of itself, then we may legitimately claim that the mind has been depleted and polluted by "hollow verbiage that fundamentally and forever rots people's brains."

Optimal Allocations vs

Optimal Scale

The Resourceful Earth is Simon's attack on *Global 2000*. The fundamental difference between the two concerns the importance of the physical scale of the economy relative to the overall ecosystem. The economy, guided by a competitive market, theoretically will attain a Pareto-optimum allocation of resources (a condition in which no one can be made better off without someone being made worse off). That is the best we can hope for from the market. But optimal allocation of resources within the economy is one thing, and optimal physical scale of the entire economy relative to the ecosystem is something else. Nothing in the market system guarantees the latter. The scale of population and per capita resource use can be doubled or halved and the market will still find an optimal allocation. The inherent growth bias of the market, especially as supplemented by Keynesian policies, will push us beyond optimal sustainable scale. But the market will keep on optimally allocating resources. The market will always be making the best of an increasingly bad situation. Relative scarcities (one resource relative to

another) will always be properly measured by prices, but absolute scarcity (of all resources in general

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relative to the ecosystem) will increase without being registered in relative prices. For *Global 2000* this was the issue. As we grow beyond optimal scale, absolute scarcity increases, but the price system cannot, by itself, reflect the absolute dimension of scarcity.

For Simon, of course, absolute scarcity doesn't exist since resources are infinite. For Simon the economic optimum coincides with a physical maximum. This by itself is very surprising and should make us skeptical. When we are also told that the physical maximum can approach infinity, our skepticism should harden into rejection. •