

Growthism: its ecological, economic and ethical limits

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We have many problems – poverty, unemployment, environmental destruction, climate change, financial instability, etc. – but only one solution for everything, namely economic growth. We believe that growth is the costless, win-win solution to all problems, or at least the necessary precondition for any solution. This is growthism. It now creates more problems than it solves.

A journey of no return, not a circular economy

The economic process is not a mechanical analog that can be run forward and backward, nor a circular process that can return to any previous state. Rather it is an irreversible and irrevocable process moving in the direction of time's arrow of increasing entropy.¹ Finitude and entropy guarantee that the economic life of our species will be a journey of no return. Therefore even a stationary economy, in the classical sense of constant population and constant capital stock, is ultimately a journey of no return, because the metabolic throughput of matter and energy required to maintain constant stocks of people and physical capital, in the face of depreciation and death, is an entropic flow from ever less concentrated sources to ever filling sinks – and both sources and sinks are finite. Consequently, technology must change qualitatively to adapt to entropy increase, to depletion and pollution of the environment, even in the stationary, or "steady-state economy" as it has been more recently called. Relative to the growth economy the steady-state economy is a *slower* journey of no return, one that values longevity with sufficiency, and seeks qualitative improvement rather than quantitative increase. The many advantages of a slower journey were emphasized by John Stuart Mill², the champion of the classical stationary state:

"I know not why it should be a matter of congratulation that persons who are already richer than anyone needs to be, should have doubled their means of consuming things which give little or no pleasure except as representative of wealth...."

"The density of population necessary to enable mankind to obtain in the greatest degree, all the advantages both of cooperation and of social intercourse, has, in all the most populous countries been attained...."

"It is scarcely necessary to remark that a stationary condition of capital and population implies no stationary state of human improvement. There would be as much scope as ever for all kinds of mental culture, and moral and social progress; as much room for improving the Art of Living and much more likelihood of its being improved, when minds cease to be engrossed by the art of getting on."

¹ Nicholas Georgescu-Roegen (1972) *The Entropy Law and the Economic Process*, Harvard University Press.

² John Stuart Mill (1857) *Principles of Political Economy*, vol. 2 (London: John W. Parker), pp. 320-326, with omissions.

In contrast to Mill's vision of the steady state, the reality of today's growthist economy is one of harried drivenness, of frantic adaptation to the unforeseen, unwilled, and out of control consequences of maximized, subsidized growth, pushed by ever larger scale and more dangerous technologies. Such growth is now threatening the capacity of earth to support life.

Many are not content with a slower more careful journey of no return. They want a so-called "circular economy" that can presumably live, and continue to grow, by ingesting only its own waste products. They assume that what they consider desirable must therefore be possible.

For anyone who has taken the first course in economics the recently revived term "circular economy" calls to mind the famous diagram of the circular flow of exchange value between firms and households found in the first pages of the standard textbooks. That diagram shows goods and factors of production flowing in a closed circle between firms and households with money flowing in the opposite direction. The economy is represented as an *isolated system* – nothing enters from the outside, nothing exits to the outside. There are no natural resources entering from the ecosphere, no wastes exiting back to the ecosphere. Indeed there is no ecosphere, no containing and constraining environment of any kind. This abstract vision is useful for studying exchange (supply, demand, prices, and national income), but worthless for studying environmental costs of economic growth because there is no finite environment to constrain growth.

This picture however is *not* what most advocates today mean by "circular economy", but it has a similar name of long standing, and is a source of confusion. By "circular economy" they mean an economy that recycles material natural resources to a high degree, and increases product lifetimes, and uses mainly renewable resources – all good policies, but destined to fall short of their goal of "sustainable growth". It might better have been called a "recycling economy" or an economy that maximizes natural resource productivity rather than labor or capital productivity. Increased resource efficiency is also referred to as "decoupling" as in disconnecting the output of goods and services from the throughput of resources. In the limit a totally "decoupled economy" would take us back to the neo classical circular flow representation of the economy as an isolated system. For this reason I prefer to avoid this reborn notion of "circular economy," and the related term "decoupling" because they greatly overstate the degree of separability of production from resource throughput, further encouraging the unrealistic quest for "sustainable growth" in physical scale of the economic subsystem relative to the biosphere.

The heavy emphasis on circularity casts a deep shadow over the more basic fact that the metabolic throughput is fundamentally a linear one-way entropic flow. Yes, the overall linear flow can contain important countercurrents and reverse eddies of recycling, and it is important to take advantage of that. But the river itself flows from the mountains to the sea, and never backwards True, the hydrologic cycle powered by the sun, can evaporate the water to rain again in the mountains, but that happens in the ecosphere, *outside the economy*. If the "circular economy" relies on *natural* biophysical cycles powered by the sun, and does not grow in scale beyond the regenerative and absorptive capacities of the containing biosphere, then it approximates a steady-state economy – not a sustainable growth economy. In addition to a circulatory subsystem (recognized since the Physiocrats' analogy with blood circulation) the economy also has a digestive tract that ties it to its environment at both ends. That second more basic metabolic analogy has been neglected in economic theory.

Recycling is limited, first because it costs energy to carry out the recycle of materials; and second because energy itself is not subject to recycling (entropy means that it always takes more energy to effect the recycle than the amount of energy recycled – regardless of the price of energy!). The extra energy for the recycling also requires material instruments, trucks etc. So materials can be reduced, but at the cost of an increase in energy (and material) throughput, which after some number of cycles (how many?) becomes prohibitive, as remaining materials are ever more dispersed. Even expensive metals like gold, silver, and copper are currently only about one-third recycled and two-thirds newly depleted. Writers who expound the circular economy seem to be aware of this fact, but do not give it sufficient emphasis. Also it is important to distinguish prompt materials recycling that is internal to the economic subsystem, from long run external recycling through the containing ecosphere. While increased reliance on renewable resources is a good feature of the “circular economy”, one must remember that, when exploited beyond sustainable yield, renewable resources effectively become nonrenewable. There is always a scale limit to a sustainable economic subsystem, beyond which growth, even in a “circular” economy, breaks down and sustainability requires a steady-state economy.

The basic issue of limits to growth that the Club of Rome did so much to emphasize in the early 1970s needs to remain front and center, with recycling considered as a useful accommodation to that limit, but not a path by which the growth economy can continue. Well before becoming physically impossible the growth of the economic subsystem becomes *uneconomic* in the sense that it costs more in terms of sacrificed ecosystem services than it is worth in terms of extra production. That richer is better than poorer is a truism. No dispute there. But is growth in GDP in wealthy countries really making us richer by any inclusive measure of wealth? That is the question. I think it is likely making us poorer by increasing unmeasured “illth” faster than measured wealth. Even a steady-state economy can be too big relative to the ecosphere. The neoclassical circular flow picture can never be too big by virtue of its being an isolated system. However, neoclassical economists do recognize that the economy can grow *too fast* (over-allocation of resources to investment relative to consumption), even though its scale can never be *too big*.

Inevitably national growth economies reach a point where many citizens begin to suspect that growth is no longer worth the cost of excessively rapid adaptation to an accelerating economy of no return – that so-called *economic* growth has in reality become *uneconomic* growth. John Stuart Mill recognized that long ago. Why have not more recognized it? Why is growth still the *summum bonum* of economists and politicians? Probably because growth is our substitute for sharing as a cure for poverty. And because our national accounts (GDP) are incapable of even registering uneconomic growth because they count only value added by labor and capital, and omit entirely the cost of using up that to which value is added, namely the entropic flow of natural resources, the very sap of life and wealth.

Globalization as an extension of growthism

Those of us old enough to remember the Cold War know that it was basically a contest between Socialism and Capitalism to see who could grow faster, and thereby accumulate more wealth and military power. The audience was the uncommitted countries of the world who would supposedly adopt the economic system of the winner of the growth race. What happened? Basically, Socialism collapsed, and Capitalism won by default. The losers (Russia, China, Eastern Europe) got back in the growth race by adopting State Capitalism,

and China has become the growth champion. The present system of world growthism, in the broadly capitalist mode, is triumphant. But growthism itself has turned out to be a false god because growth in our finite and entropic world now increases ecological and social costs faster than production benefits, making us poorer, not richer (except for the top few percent). Recognition of this reversal is obscured by the fact that our national accounts (GDP), do not subtract the costs of growth, but effectively add them by counting the expenditures incurred to defend ourselves from the un-subtracted costs of growth. Even more egregiously, GDP counts the consumption of natural capital as income. Growthism is consuming the life support capacity of the biosphere for the benefit of a small minority of the present generation, while shifting the real but uncounted costs on to the poor, future generations, and other species.³

As national economies confront limits to their growth aspirations imposed by the carrying capacity of their territory and the extent of their national markets, they strive, by globalization, to grow into the ecological and economic space of all other countries, as well as into the remaining global commons. While this certainly provides extra degrees of freedom for individual nations to continue growing for a while, it does not remove global limits. It simply ensures that those limits will be met more simultaneously and less sequentially. Consequently there will be less opportunity for one country to learn from the experience of others in adapting to limits. Furthermore, the ability of nations to enact independent policies for coming to terms with limits is undercut, because the net result of globalization is to convert many difficult, but tractable, national problems into one simultaneous intractable global problem, by speeding up and generalizing the economic journey of no return. At the same time, however, increasing energy costs will raise the cost of transport which acts as a general tariff on international trade and will promote national and local production, thereby weakening somewhat long distance trade and globalization.

The key to understanding globalization, I believe, is to clearly distinguish it from internationalization:

Internationalization refers to the increasing importance of relations between nations: international trade, international treaties, alliances, protocols, etc. The basic unit of community and policy remains the nation, even as relations among nations, and among individuals in different nations, become increasingly necessary and important.

Globalization refers to global economic integration of many formerly national economies into one global economy, by free trade, especially by free capital mobility, and also more recently by easy or uncontrolled migration. *Globalization is the effective erasure of national boundaries for economic purposes.* National boundaries become totally porous with respect to goods and capital, and increasingly porous with respect to people, viewed in this context as cheap labor, or in some cases cheap human capital.

In sum, globalization is the economic integration of the globe. But exactly what is “integration”? The word derives from “integer”, meaning one, complete, or whole. Integration means much more than “interdependence” – it is the act of combining separate albeit related units into a single whole. Interdependence is to integration as friendship is to marriage. Since there can be only one whole, only one unity with reference to which parts are integrated, it follows that global economic integration logically implies national economic *d*isintegration – parts are torn out of their national context (dis-integrated), presumably to be re-integrated into the new whole, the globalized economy. As the saying goes, to make an omelette you have to

³ For more see www.greattransition.org/publication/economics-for-a-full-world.

break some eggs. The disintegration of the national egg is necessary to integrate the global omelette. The benefits of global integration are extolled while the costs of national disintegration are neglected.

Of course globalization is far from complete, but the tendency is well advanced. What we have now is a collection of disintegrating national economies whose policies regarding international trade, capital mobility, and migration are taken over by monopoly global corporations, giant international banks, and a free-for-all of illegal migration of both cheap labor and human capital.

All that I have just said was expressed with admirable clarity, honesty, and brevity by Renato Ruggiero⁴, former director-general of WTO: “We are no longer writing the rules of interaction among separate national economies. We are writing the constitution of a single global economy.” This is a clear affirmation of globalization and rejection of internationalization as just defined. It is also a radical subversion of the Bretton Woods Charter. Internationalization is what the Bretton Woods Institutions were designed for, not globalization.

Everyone recognizes the desirability of community for the world as a whole-- but we have two very different models of world community: (1) a federated community of real national communities (internationalization), versus (2) a cosmopolitan direct membership of individuals in a single global abstract community (globalization).

If the IMF-WB-WTO are no longer serving the interests of their member nations as per their charter, then whose interests are they serving? The interests of the integrated “global economy” we are told. But what concrete reality lies behind that grand abstraction? Not real individual workers, peasants, or small businessmen, but rather giant pseudo-individuals, the transnational corporations.

Consequences of growth-driven globalization

Consider a few pattern-changing consequences of globalization, of the erasure of national boundaries for economic purposes. Briefly, they include: (1) standards-lowering competition to externalize social and environmental costs to achieve a competitive price advantage--a race to the bottom in terms of both efficiency in cost accounting and equity in income distribution; (2) increased tolerance of mergers and monopoly power in domestic markets in order to be big enough to compete internationally; (3) more intense national (regional) specialization according to the dictates of competitive advantage, with the consequence of reducing the range of choice of ways to earn a livelihood, and increasing dependence on other countries. Free trade and intense specialization negate the freedom not to trade; (4) world-wide enforcement of a muddled and self-serving doctrine of “trade-related intellectual property rights” in direct contradiction to Thomas Jefferson’s dictum that “knowledge is the common property of mankind”. Let us look at each of these in a bit more detail.

1. Standards lowering competition

The country that does the poorest job of internalizing all social and environmental costs of production into its prices gets a competitive advantage in international trade. More of world

⁴ From a speech to the United Nations Conference on Trade and Development (UNCTAD) October, 1996.

production shifts to countries that do the poorest job of counting costs-- a sure recipe for reducing the efficiency of global production. As uncounted, externalized costs increase, the positive correlation between GDP growth and welfare disappears, or even becomes negative.

Another dimension of the race to the bottom is the increasing inequality in the distribution of income in high-wage countries, such as the US, fostered by globalization. In the US there has been an implicit social contract established to ameliorate industrial strife between labor and capital. Specifically, a just distribution of income between labor and capital has been taken to be one that is more equal within the US than it is for the world as a whole. Global integration of markets necessarily abrogates that social contract. US wages will fall drastically because labor is relatively much more abundant globally than nationally. It also means that returns to capital in the US will increase because capital is relatively scarcer globally than nationally. US distribution of income then tends to the more unequal global distribution, thus breaking the implicit social contract.

Free trade, and by extension globalization, is often defended by appeal to Ricardian comparative advantage. The logic of comparative advantage assumes that factors of production, especially capital, are immobile between nations. Only products are traded.⁵ With capital mobility now the major defining feature of globalization we have left the world of *comparative* advantage and entered a regime of *absolute* advantage, which guarantees gains from trade *to the world as a whole*, but does not guarantee that *each nation* will share in those gains, as was the case under comparative advantage. Global gains under absolute advantage are theoretically greater than under comparative advantage, but there is no reason to expect these gains to be shared by all trading partners. Mutual gain could be restored under absolute advantage by redistributing some of the global gains from trade. But I have never heard that idea discussed by globalization advocates. Often they appeal, quite illogically, to the doctrine of comparative advantage as a guarantee of mutual benefit, conveniently forgetting that the logic of comparative advantage requires immobile capital, and that capital is not immobile.⁶ Indeed, some even argue for free capital mobility by extension of the comparative advantage argument – if free trade in goods is mutually beneficial then why not also have free trade in capital? However, one cannot use the conclusion of an argument to abolish one of the premises upon which the argument is based! Similar illogical arguments are made in defense of free labor mobility between nations.

2. Tolerance of corporate power

Fostering global competitive advantage is used as an excuse for tolerance of corporate mergers and monopoly in national markets so that domestic firms are big enough to compete globally (we now depend on international trade as a substitute for domestic trust busting to maintain competition). It is ironic that this is done in name of deregulation and the free market. Chicago School economist and Nobel laureate Ronald Coase⁷ said “ – *Firms are islands of central planning in a sea of market relationships*”. The islands of central planning become larger and larger relative to the remaining sea of market relationships as a result of merger. More and more resources are allocated by within-firm central planning, and less by between-firm market relationships. And this is hailed as a victory for markets! It is no such thing. It is a

⁵ For a discussion see Chapter 18 in H. Daly and J. Farley (2011) *Ecological Economics*, Second Edition, Island Press, Washington D. C.

⁶ To be clear, this refers primarily to the financial sense of capital; capital in the sense of already existing produced means of production can be highly immobile and is often destroyed by mobile “capital” (as the problems of the American rustbelt illustrate).

⁷ Ronald Coase (1937) “The Nature of the Firm”, *Economica*, 4(16), pp. 386-405.

victory for corporations relative to national governments, which are no longer strong enough to regulate corporate capital and maintain competitive markets in the public interest. Of the 100 largest economic organizations roughly 52 are corporations and 48 are nations. Approximately one-third of the commerce that crosses national boundaries does not cross a corporate boundary, i.e. is an intra-firm, non-market transfer. The distribution of income within these centrally planned corporations has become much more concentrated. The ratio of salary of the Chief Executive Officer to low-level employees has passed 500 on its way to infinity--what else can we expect when central planners set their own salaries!

3. Intensified specialization

Free trade and free capital mobility increase pressures for specialization according to both comparative and absolute advantage. Therefore the range of choice of ways to earn a livelihood becomes greatly narrowed. In Uruguay, for example, everyone would have to be either a shepherd or a cowboy in conformity with the specialization dictated by competitive advantage in the global market. Everything else should be imported in exchange for beef, mutton, wool, and leather. Any Uruguayan who wants to play in a symphony orchestra or be an airline pilot should emigrate. Uruguayans have sensibly resisted such excessive specialization.

Most people derive as much satisfaction from how they earn their income as from how they spend it. Narrowing that range of choice is a welfare loss uncouneted by trade theorists. Globalization assumes either that emigration and immigration are costless, or that narrowing the range of occupational choice within a nation is costless. Both assumptions are false.

While trade theorists ignore the range of choice in *earning* one's income, the range of choice in *spending* one's income receives exaggerated emphasis. For example, the US imports Danish butter cookies and Denmark imports US butter cookies. The cookies cross each other somewhere over the North Atlantic. Although the gains from trading such similar commodities cannot be great, trade theorists insist that expanding the range of consumer choice to the limit increases the welfare of cookie connoisseurs. Perhaps, but could not those gains be had more cheaply by simply trading recipes? One might think so, but *recipes* (trade related intellectual property rights) are the thing that free traders most want to protect.

4. The inconsistencies of intellectual property

Of all things knowledge is that which should be most freely shared, because in sharing it is multiplied rather than divided. Knowledge is a non-rival good and should be also non-excludable. Yet, as already noted, our trade theorists have rejected Thomas Jefferson's dictum that "*Knowledge is the common property of mankind*" in exchange for a muddled doctrine of "trade related intellectual property rights" by which they are willing to grant private corporations monopoly ownership of the very basis of life itself--patents to seeds (including the patent-protecting, life-denying terminator gene) and to knowledge of basic genetic structures.

The argument offered to support this enclosure of the knowledge commons is that, unless we provide the economic incentive of monopoly ownership for a significant period of time, little new knowledge and innovation will be forthcoming. Yet, as far as I know, James Watson and Francis Crick, who discovered the structure of DNA, do not share in the patent royalties reaped by the second rate gene-jockeys who are profiting from their monumental discovery.

Nor of course did Gregor Mendel get any royalties – but then he was a monk motivated by mere curiosity about how Creation works! Nor did Jonas Salk try to patent the polio vaccine. He thought it would be like trying to patent the sun.

Once knowledge exists, its proper allocative price is the marginal opportunity cost of sharing it, which is close to zero, since nothing is lost by sharing it. Yes, of course you do lose the *monopoly* on the knowledge, but then economists have traditionally argued that monopoly is inefficient as well as unjust because it creates an artificial scarcity of the monopolized item. Furthermore, the main input to the production of new knowledge is existing knowledge, and keeping the latter artificially expensive is bound to slow down the production of the former.

Of course the cost of production of new knowledge is not zero, even though the cost of sharing it is. This allows biotech corporations to claim that they deserve a fifteen or twenty year monopoly for the expenses they incur in research and development, even though they spend more on advertising than research. Of course they deserve a profit on their efforts, but not on Watson and Crick's contribution without which they could do nothing, nor on the contributions of Gregor Mendel, and all the great scientists of the past who made the fundamental discoveries.⁸ As economist Joseph Schumpeter emphasized, being the first with an innovation already gives one a temporary monopoly. In his view these recurring temporary monopolies were the source of profit in a competitive economy whose theoretical tendency is to compete excess profits down to zero.

As the great Swiss economist, Sismondi, argued long ago, not all new knowledge is a benefit to mankind. We need a social and ethical filter to select out the beneficial knowledge. Motivating the search for knowledge by the purpose of benefiting mankind rather than by securing monopoly profit provides a better filter. Perhaps the greatest virtue of the steady-state economy is that because it is a slow rather than a fast journey of no return, we would have time to evaluate and experiment with new technologies, rather than blindly accepting anything in order to keep growth from slowing.

This is not to say that we should abolish all intellectual property rights – that would create more problems than it would solve. But we should certainly begin restricting the domain and length of patent monopolies rather than increasing them so rapidly and recklessly. And we should become much more willing to share knowledge. Shared knowledge increases the productivity of all labor, capital, and resources. International development aid should consist far more of freely shared knowledge, and far less of foreign investment and interest-bearing loans.

John Maynard Keynes,⁹ one of the founders of the recently subverted Bretton Woods Institutions, recommended the following pattern for our international economy:

“I sympathize therefore, with those who would minimize, rather than those who would maximize, economic entanglement between nations. Ideas, knowledge, art, hospitality, travel – these are the things which should of their

⁸ Similarly, it radically under-estimates the role of the state; its many contributions become invisible in much of mainstream economic theory; see the *Real-World Economics Review* special issue number 84: “The public economy and a new public economics”
<http://www.paecon.net/PAEReview/issue84/whole84.pdf>

⁹ J. M. Keynes (1933) “National Self-Sufficiency”, in D. Muggenridge, ed., *The Collected Writings of John Maynard Keynes*, vol. 21, London: Macmillan and Cambridge University Press.

nature be international. But let goods be homespun whenever it is reasonably and conveniently possible; and, above all, let finance be primarily national.”

Growth-driven globalization will maximize economic entanglement between nations in pursuit of trading advantage, of monopoly power, of privatizing the remaining commons, especially that of knowledge, and of concentrating income to an extreme degree. These are the patterns that growthism solves for by way of globalization. Globalism is not the realization of world community. Rather it is individualism writ large – corporate feudalism in a global open-access commons.

On the importance of boundaries in life and logic

John Lennon asked us to imagine a world without boundaries, singing wistfully “imagine there’s no countries”, and we all know what he meant – a world of human solidarity, peace, and cooperation. Conflicts and war usually involve disputes over borders. So why not just get rid of these troublesome boundaries? Let’s have globalization – deregulated trade, capital mobility, and migration – only let’s bless them each with the adjective “free” rather than “deregulated”.

Neoclassical economists assure us that this will lead to peace and prosperity among rational utility-maximizing individuals, minimally governed by a benevolent World Democracy, dedicated to the post-modern values of scientific materialism, eloquently communicated in Esperanto. This vision has its serious appeal to many, but not so much to me, as the reader will by now have guessed.

Economic and political boundaries are necessary to achieve both national community, and a global federation of national communities living in peace and ecological sustainability. Boundaries are both biologically and logically necessary. Skin and membranes are organic boundaries. Within-skin versus outside-skin is a basic boundary condition for life. The skin boundary must be permeable, but not too permeable. If nothing enters or exits the organism it will soon die. If everything enters and exits, then the organism is already dead and decaying. Life requires boundaries that are neither completely closed nor completely open. A nation’s borders are in many ways very different from the skin of an organism, yet neither permits complete closure or complete openness. Both must be qualitatively and quantitatively selective in what they admit and expel, if their separate existence is to continue rather than be dissolved into entropic equilibrium with its environment.

Logically boundaries imply both inclusion and exclusion. A world without boundaries includes everything and is often therefore thought to be warm and friendly. But “everything” must include the cold and the unfriendly as well, or it is not everything. Also, without boundaries, B can be both A and non-A, which makes definition, contradiction, and analytical reasoning impossible. So both life and logical thinking require boundaries. While “a world without boundaries” may be a poetic expression of a desired unity, and while it is possible to reason dialectically with overlapping boundaries, it is a major delusion to think that boundaries are not necessary.

It is understandable, yet ironic, that the most fundamental and dramatic boundary of all – that separating the earth from outer space – made clear in the iconic photo of the earth from the moon – seems to have led to a reaction against the very concept of boundaries on our

spherical planet, since it is so obviously one whole and unified thing. Yet that beautiful and powerful vision of overall unity hides a world of diversity and difference. And we live on the earth, within that complex living diversity, not on the dead moon with no need for life-defining boundaries.

The illth of nations and the weakness of policy

Our traditional economic problems (poverty, overpopulation, unemployment, unjust distribution) have all been thought to have a common solution – namely an increase in wealth. All problems are easier if we are richer. The way to get richer has been thought to be by economic growth, usually as measured by GDP. I do not here question the first proposition that richer is better than poorer, other things equal. But I do question whether what we persuasively label “economic growth” is any longer making us richer. I suggest that physical throughput growth is, at the present margin and in the aggregate, increasing illth faster than wealth, thus making us poorer rather than richer. Consequently our traditional economic problems become more difficult with further growth. The correlation between throughput growth and GDP growth is sufficiently strong historically so that in the absence of countervailing policies even GDP growth increases illth faster than wealth.

What we conventionally call “economic growth” in the sense of “growth of the economy” has ironically become “uneconomic growth” in the literal sense of growth that increases costs by more than it increases benefits. I am thinking here of the North rather than the South, because in many poor countries where the majority lives close to subsistence the benefits of production growth, even if badly distributed, justify incurring large costs. But since the South is striving, with encouragement from the IMF and World Bank, to become like the North, I am not really neglecting the South by focusing on the North, but rather raising a caution for the South.

One will surely ask how do I know that growth has become uneconomic for many Northern countries? Some empirical evidence is referenced below.¹⁰ But more convincing to me is the simple argument that as the scale of the human subsystem (the economy) expands relative to the fixed dimensions of the containing and sustaining ecosphere, we necessarily encroach upon that system and must pay the opportunity cost of lost ecosystem services as we enjoy the extra benefit of increased human scale. As rational beings we presumably satisfy our most pressing wants first, so that each increase in scale yields a diminishing marginal benefit. Likewise, we presumably would sequence our takeovers of the ecosystem so as to sacrifice first the least important natural services. Obviously we have not yet begun to do this because we are just now recognizing that natural services are scarce. But let me credit us with

¹⁰ For critical discussion and the latest revision of the ISEW, see, Clifford W. Cobb and John B. Cobb, Jr., et al., *The Green National Product*, University Press of America, New York, 1994. For a presentation of the ISEW see Appendix of *For the Common Good*, H. Daly and J. Cobb, Boston: Beacon Press, 1989; second edition 1994. See also Clifford W. Cobb, et al., “If the GDP is Up, Why is America Down?”, *Atlantic Monthly*, October, 1995. See also Manfred Max-Neef, Economic Growth and Quality of Life: A Threshold Hypothesis, *Ecological Economics*, 15, (1995), pp. 115-118. More recently the Lancet medical journal (NYT, Oct. 19, 2017) finds that the financial costs from pollution are some \$4.6 trillion annually, about 6.2% of the global economy. If annual growth in Gross World Product is around 2.2%, and cost due to pollution is 6.2%, then with reasonable accounting we would have a net financial decline of some 4% annually. If that financial decline represents welfare loss, and it surely does since we are talking about reduced health and life expectancy, then the benefits of production growth are being more than cancelled out by the costs of the pollution generated by that growth. In other words, so-called “economic” growth has become uneconomic. That seems to have escaped the notice of economists.

capacity to learn. Even so, that means that increasing marginal costs and decreasing marginal benefits will accompany increasing human scale. The optimum scale, from the human perspective, occurs when marginal cost equals marginal benefit. Beyond that point growth becomes uneconomic in the literal sense of costing more than it is worth.

It is interesting to know empirically if we have reached that point (I think we have, both globally and in many countries), but even if we have not, it is obvious that continued growth of a dependent subsystem relative to a finite sustaining total system will inevitably reach such an optimal scale. If we add to the limit of finitude of the total system the additional limits of entropy and complexity of ecological interdependence, then it is clear that the optimal scale will be encountered sooner rather than later. Additionally, if we expand our anthropocentric view of the optimum scale to a more biocentric view, by which I mean one that attributes not only instrumental but also intrinsic value to other species, then it is clear that the scale of the human presence should be further limited by the duty to reserve a place in the sun for other species, even beyond what they “pay for” in terms of their instrumental value to us. And of course the whole idea of “sustainability” is that the optimal scale should exist for a very long time, not just a few generations. Clearly a sustainable scale will be smaller than an unsustainable scale. For all these reasons I think that for policy purposes we do not need exact empirical measures of the optimal scale. If one jumps from an airplane it may be nice to have an altimeter, but what one really needs is a parachute.

So what policies constitute a parachute? Briefly, they are policies that limit aggregate throughput, while allowing the market to allocate that limited throughput – assuming the market is competitive and confined to some limited degree of inequality in the distribution of wealth and income. Such policy instruments are evolving now – e.g., cap-auction-trade systems for extraction rights, pollution emission rights, fishing rights, etc. Also ecological tax reform limits throughput by making it more expensive. It shifts the tax base from value added (something we want more of) on to “that to which value is added”, namely the resource throughput (something we want to use less of). In differing ways each of the above “parachutes” would limit throughput and expansion of the scale of the economy into the ecosystem, and also provide public revenue. I will not discuss their relative merits, having to do with price versus quantity interventions in the market, but rather emphasize the advantage that both have over the currently favored strategy. The currently favored strategy might be called “efficiency first” in distinction to the “frugality first” principle embodied in both of the throughput-limiting mechanisms mentioned above, but more stringently in the second.

“Efficiency first” sounds good, especially when referred to as “win-win” strategies, or more picturesquely as “picking the low-hanging fruit”. But the problem of “efficiency first” is with what comes second. An improvement in efficiency by itself is equivalent to having a larger supply of the factor whose efficiency increased. The price of that factor will decline. More uses for the now cheaper factor will be found. We may end up consuming more of the resource than before, albeit more efficiently. Scale continues to grow. This is sometimes called the “Jevons effect”. A policy of “frugality first”, however, induces efficiency as a secondary consequence; “efficiency first” does not induce frugality – it makes frugality less necessary, nor does it give rise to a scarcity rent that can be captured and redistributed by tax or auction.

So far I have briefly outlined what I take to be the problem of the “illth of nations” (apologies to both Adam Smith and John Ruskin), and indicated some policy guidelines for avoiding the uneconomic growth that increases illth faster than wealth. These views do not find favor with mainstream economists. The concepts of throughput, of entropy, and even of optimal scale of

the macroeconomy are foreign to them. The last is especially odd since in microeconomics the concept of the optimal scale of each micro activity is central. Yet the sum of all micro activities, the macro economy, is not thought to have an optimal scale relative to its sustaining ecosystem. Probably this is because macroeconomists think of the macroeconomy as the Whole, not as a Part of some larger Whole. For them nature is not a containing envelope, but just a sector of the macroeconomy – mines, wells, croplands, pastures, and fisheries. When the Whole grows it expands into the Void encroaching on nothing and incurring no opportunity cost. But of course the real economy is a Part and it grows not into the Void, but into the rest of the biosphere, and really does incur opportunity costs. I have long considered this Whole versus Part difference to reflect different pre-analytic visions (Schumpeter) or different paradigms (Kuhn). Different pre-analytic visions cannot, of course, be reconciled by further analysis, and they have different policy implications.

Presuppositions of policy

Even if we could agree on the right pre-analytic vision of the basic way the world is, would we then be able to enact and follow effective policies? So far, our capacity to enact policies of “frugality first” seems very weak. Indeed, even “efficiency first” policies are still resisted. So let us turn our attention to the question of policy in general, and policy fecklessness in particular.

What are the presuppositions we must make before we can reasonably and seriously discuss policy – policy of any kind? There are two that I can see.

First we must believe that there are real alternatives among which to choose. If there are no alternatives, if everything is determined, then it hardly makes sense to discuss policy--what will be will be. No options, no responsibility, no need to think.

Second, even if there were real alternatives, policy dialogue would still make no sense unless there was a real criterion of value by which to choose from among the alternatives. Unless we can distinguish better from worse states of the world then it makes no sense to try to achieve one state of the world rather than another. No value criterion, no responsibility, no need to think.

In sum, serious policy must presuppose: (1) *nondeterminism* – that the world is not totally determined, that there is an element of freedom which offers us real alternatives; and (2) *nonnihilism* – that there is a real criterion of value to guide our choices, however vaguely we may perceive it.

To be sure, not every conceivable alternative is a real alternative. Many things really are impossible. But the number of viable possibilities permitted by physical law and past history is seldom reduced to only one. Through our choices, value and purpose lure the physical world in one direction rather than the other. *Purpose is independently causative in the world.*

This seems pretty obvious to common sense – so what is the point of stating the obvious? The point is that many members of the intelligentsia deny one or both presuppositions, and yet want to engage in policy dialogue. I don’t mean that we disagree on exactly what our alternatives are in a particular instance, or about just what our value criterion implies for a concrete case. That is part of the reasonable policy dialogue. I mean that determinists who deny the effective existence of alternatives, and nihilists or relativists who deny the existence of value beyond the level of subjective personal tastes, have no right to engage in policy

dialogue – and yet they do! This is my cordial invitation to them to shut up – at least about policy.

Who are these people? In the sciences I am thinking about the materialist neo-Darwinists and socio-biologists; in the humanities, the post-modern deconstructionists; and in the social sciences, those economists who reduce value to subjective individual tastes any one of which is as good as another.

No one can in practice live by the creed of determinism or nihilism. In this sense no one takes them seriously, so we tend to discount any effect on policy of these doctrines. We tend to dismiss them as academic posturings. However, we may halfway suspect that the many learned people who publicly proclaim these frequently unopposed views might be right--and that is sometimes enough to enfeeble policy. For example, many people tell me that globalization is inevitable; any attempt to counter global economic integration is futile, or “on the wrong side of history”, etc. If I manage to convince them that globalization is the result of past policy choices, and therefore might not be inevitable, the next line of defense is, how do we know that globalization will be any worse than the alternative? We cannot tell, we don't really know that globalization won't be good for us (because we don't know what is good in the first place), so there is no point in opposing it. Either it is inevitable, or if not then we can have no reason to believe that any alternative would be better. Forget policy, go back to sleep.

Perhaps I can clarify this controversial point by distinguishing four categories based on acceptance or non-acceptance of each of the two presuppositions identified.

- (1) **The traditional Judeo-Christian view** – there exist real alternatives from which to choose by reference to objective criteria of value.
- (2) **Criterionless choice** – alternatives are real options, but there is no objective criterion for choosing among them. (Existentialist angst)
- (3) **Providential determinism** – there are no real options, but there is an objective criterion of value by which to choose, if only we had a choice. Fortunately providence has chosen for us according to the objective criterion, which we would not be wise or good enough to have followed on our own. (Theological predestination; technological providentialism)
- (4) **Criterionless determinism** – there are no real alternatives to choose from, and even if there were, there is no objective criterion of value by which to choose. All is mechanism – random variation and natural selection, as claimed by the neo-Darwinist materialists.

People engaged in policy, yet holding to positions (2), (3), or (4) are in the grip of a severe and debilitating inconsistency. Their participation in policy dialogue should be subject to the injunction of “estoppel” – a legal restraint to prevent witnesses from contradicting their own testimony. It should be applied in academia as well as in the courtroom!

Some conclusions

Avoiding the uneconomic growth that is increasing the illth of nations will require clear and forceful policy to limit growth. All policy, especially such a radical one, requires a belief in both objective value and real alternatives. The fact that many people engaged in discussing and making policy reject one or both of these presuppositions is, in A. N. Whitehead's term,¹¹ "the lurking inconsistency", a contradiction at the basis of the modern worldview which enfeebles thought and renders action feckless. If we even halfway believe that purpose is an illusion foisted on us by our genes to somehow make us more efficient at procreation, or that one state of the world is, for all we can tell, as good as another, then it is hard to get serious about policy. Whitehead noted, "Scientists animated by the purpose of proving that they are purposeless constitute an interesting subject for study". He went on to say that, "It is not popular to dwell on the absolute contradiction here involved".

I think, 85 years later, that it is high time we dwelt on this absolute contradiction. We pay a price for ignoring contradictions – in this case the price is feebleness of purpose and half-heartedness in policy. Citizens really must affirm that the world offers more than one possibility to choose from, and that some choices really are better than others. Determinists and nihilists have a right to exist, but an obligation to remain silent on policy!

This willful neglect has allowed the lurking inconsistency to metastasize into the marrow of modernity. The Enlightenment, with its rejection of teleology, certainly illuminated some hidden recesses of superstition in the so-called Dark Ages. But the angle of its cold light has also cast a deep shadow forward into the modern world, obscuring the reality of purpose. To conserve Creation we will first have to reclaim purpose from that darkness. I say Creation with a capital "C" advisedly, and certainly not in denial of the established facts of evolution. If our world and our lives are not in some sense a Creation, but just a purposeless happenstance – a random statistical fluke of multiplying infinitesimal probabilities by an infinite number of trials – then it is hard to see from where we will get the will and inspiration to care for it.

Indeed, our decision-making elites may already tacitly understand that growth has become uneconomic. But apparently they have also figured out how to keep the dwindling extra benefits for themselves, while "sharing" the exploding extra costs with the poor, the future, and other species. Why not, if it is all just a purposeless happenstance? The elite-owned media, the corporate-funded think tanks, the kept economists of high academia, and the World Bank – not to mention Goldman-Sachs and Wall Street – all sing hymns to growth in harmony with class interest and greed. The public is bamboozled by technical obfuscation, and by the false promise of growthism that one day we will all be rich. Intellectual confusion is real, but moral nihilism, abetted by naturalistic scientism, is the more basic problem. Such nihilism is hard to counter without strong appeal to the idea of purpose, of telos, and without raising its cosmic and religious implications. Many policies are being offered. But until the presuppositions of policy have been met they will remain just academic exercises.

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¹¹ A.N. Whitehead, *The Function of Reason*, Princeton, N.J.: Princeton University Press, 1929, p.12.