

Trump's growthism: its roots in neoclassical economic theory

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I. Introduction

By Trumpism, or “Trumponomics”, I mean an unrestrained commitment to growth – deregulated markets with little attention to monopoly or distributive equity, high government spending on military and infrastructure, low taxes on the rich, low interest rates, policies of drill it, pump it, burn it, cut it down, dig it up, pave it over, buy it, consume it, and if it threatens to slow growth, then run over it or bomb it. One hopes it will not be that bad, but if it is not, it will not be due to any restraining influence from neoclassical economics, nor from the Democratic Party.

In fact it is the multiple, long-standing errors of the neoclassical-Keynesian growth synthesis that have encouraged growthmania in general and Trumpism in particular. My purpose in this essay is to identify the main neoclassical errors, and show their connection to the general growthism that Trump has raised to a higher power.

II. Paradigm error

The foundational error occurs in the first chapter of the standard economics textbooks: the diagram representing the economy as a circular flow of exchange value between firms and households. Firms supply goods and services to satisfy the demands of households. Households supply factors of production to satisfy the demands of the firms, who use them to produce the goods and services demanded by the households, etc. This circular merry-go-round has its virtues. It unites in one diagram the microeconomics of markets and price determination by supply and demand in the goods market, and in the factors market, with the macroeconomics of aggregate national product of goods, and aggregate national income to factors of production. The value of national income equals the value of national product thanks to the residual definition of profit as the difference between the value of product and cost of factors. We can also include the financial sub-circuits of Government Expenditure and Taxes, Savings and Investment, and Exports and Imports. But the total flow of exchange value remains circular. That is a lot to bring together in one picture, so it is not hard to see why it has been so influential as a representation of the economic process as a whole, and has served as what Schumpeter called a “preanalytic vision”, and philosopher Thomas Kuhn later referred to as a “paradigm”. I confess that I used to teach this vision to sophomores, with considerable conviction and satisfaction.

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But the vision embodies an astonishing omission, a critical flaw: nothing enters from the outside, nothing exits to the outside. The economy is seen as an isolated system – it has no outside, no environment, much less any dependence on its non-existent environment. It is a perpetual motion machine that, contrary to the entropy law, just recycles matter and energy forever to generate a continuing, nay *growing*, circular flow of exchange value, *somehow* embodied in physical goods and factors, with no need of replenishment from outside. What is absent from this preanalytic vision, namely the metabolic, entropic throughput from the environment as natural resource inputs and waste outputs, cannot be introduced by subsequent analysis. You have to alter the preanalytic vision itself, reform the paradigm, go back to the beginning, to give analysis something to work on. Starting over from the beginning requires some recantation and reworking. Later we will indicate the major consequences of this flawed vision for current theories of macroeconomics and microeconomics, as well as for monetary and international trade theories.

It does not take a genius to re-imagine this preanalytic vision. First draw a larger circle around the original diagram of the economy and label it “ecosphere” or “environment”. Then give it an input of solar energy from space, and an output of heat back to space. Give the economic subsystem inputs of useful matter and energy from the ecosphere, and outputs of waste matter and energy back to the ecosphere. Not hard at all. Some of us have been doing this for many years. Most economists resist it.

I remember vividly trying to do it in the World Bank’s *1992 World Development Report on Sustainable Development*. An early draft contained a diagram of the economy with no environment. As an internal reviewer I suggested enclosing it in the ecosphere in the manner suggested above. The team of traditional World Bank economists writing the Report could not argue against my suggestion, since it was so obvious and simple, but neither could they face the difficult questions it would require us to address – namely, how big is the economy relative to the containing ecosphere? How big can it be? How big should it be? How much do the resource inputs deplete the ecosphere? How much do the waste outputs pollute the ecosphere? What are the consequences for the environment and economy of the entropic nature of the metabolic throughput from depletion to pollution? What is the optimal scale of the economic subsystem relative to the ecosphere? And most challenging: how do we cure poverty without growth? Explicitly drawing the containing ecosphere with matter/energy throughput flows, an innocent and simple correction, implicitly said that the ecosphere is finite, that the economy depends on it, and that sharing, more than growth, is the ultimate solution for poverty.

Yet the World Bank was very much committed to growth, if not forever, at least for a very long time, and by a very large amount. The Bank economists knew that any recognition of limits to growth would not fly with the higher-ups. Their resolution was simply to abandon any attempt to represent the relation of economy and ecosphere in a diagram. Too much clarity can be inconvenient! Whatever “sustainable development” (the new buzzword) meant, it could not be allowed to compromise growth. Better to keep the old vision of the economy as an isolated system, that presumably grows into the void, than to risk raising questions that would embarrass the World Bank’s commitment to growth.

Trumpism in 2017 is even more committed to this growth paradigm than was the World Bank in 1992.

There are many specific neoclassical errors that derive from this faulty preanalytic vision. Let us trace out some of them in the fields of macroeconomics, microeconomics, money, and international trade.

III. Macroeconomic errors

In macroeconomics, National Income counts only “value added”, that is to say, value added by labor and capital to a presumably valueless flow of matter (“free gifts of nature”) whose existence was not even recognized in the preanalytic vision, but somehow must be smuggled in, if the circular flow of money is to have a real counterpart in terms of physical commodities. Natural resources are just background “stuff”, valued at their labor and capital cost of extraction. True, royalties are sometimes paid for resources *in situ* if they are easier to extract relative to marginal mines or wells. But the royalty is simply the savings in labor and capital costs relative to the marginal mine. No independent value is attributed to the resource throughput in our national accounts. Yet that entropic metabolic flow is the source of our life and wealth! As physicist Erwin Schrodinger put it in his classic “*What is Life?*”, we live by “sucking low entropy from the environment”. A paradigm that totally abstracts from natural resource flows prevents neoclassical economists from registering the very sap of life and wealth, the most basic of all biophysical facts. As a consequence the category of “externalities”, things left out of the theory but too obvious to completely ignore, has expanded enormously. When destruction of the very capacity of the earth to support life has to be classed as an “externality”, it is past time to make our theory more inclusive!

Economists mesmerized by the circular flow of value, as measured by GDP, naturally have difficulty imagining how growth in GDP, measured in value units, could affect anything outside the isolated circular flow – including the climate. Trump and his advisors have the same difficulty and think climate change is a hoax.

Whether they consider climate change a hoax or not, neoclassical economists think it cannot be economically important. Consider the following three examples.

1. Reporting on a National Academy of Science study on climate change and greenhouse adaptation, *Science* magazine quotes Yale economist William Nordhaus (1991) as saying the following:¹

“Agriculture, the part of the economy that is sensitive to climate change, accounts for just 3 percent of national output. That means there is no way to get a very large effect on the US economy” (p. 1206).

2. Oxford economist Wilfred Beckerman, in his 1995 book, *Small is Stupid*, also tells us that greenhouse-gas-induced climate change is no worry because it affects only agriculture, and agriculture is only 3 percent of GNP. Beckerman elaborates,²

“Even if net output of agriculture fell by 50 percent by the end of the next century this is only a 1.5 percent cut in GNP” (p. 91).

¹ Nordhaus, W., 1991 *Science*, Sept. 1991, 1206.

² Beckerman, W., 1997. *Small is Stupid*. Duckworth, London

3. In the November/December 1997 issue of *Foreign Affairs*, former president of the American Economic Association (and subsequent 2005 Nobel Laureate in Economics), Thomas C. Schelling, elaborates a bit more:³

“In the developed world hardly any component of the national income is affected by climate. Agriculture is practically the only sector of the economy affected by climate and it contributes only a small percentage – 3 percent in the United States – of national income. If agricultural productivity were drastically reduced by climate change, the cost of living would rise by 1 or 2 percent, and at a time when per capita income will likely have doubled” (p. 9).

What is wrong with these three statements? First, it is simply not true that agriculture is the only climate-sensitive sector of the economy – just ask the insurance firms (and the citizens of New Orleans after Katrina!). Second, it is not at all clear what makes Schelling think that per capita income is likely to double in spite of a drastic reduction in agriculture. But those are not the errors that most concern me.

The error that concerns me here is to treat the importance of agriculture as if it were measured by its percentage of GDP – its contribution to the presumed macro bottom line. These distinguished economists know all about the law of diminishing marginal utility, consumer surplus, and the fact that exchange value (price) reflects *marginal* use value, not total use value. They know that GDP is measured in units of exchange value. They surely know that other economists have long referred to agriculture as *primary* production and understand the reason for that designation. They also know that the demand for food in the aggregate is famously *inelastic*. Probably they have even explained the famous “diamonds-water paradox” to their Econ 101 students in something like the following words:

Imagine an economy in which GDP consisted of only two commodities, water and diamonds, with water so abundant that its price was almost zero, while diamonds were scarce and very expensive. GDP might consist, say, of 99% value of diamonds and 1% value of water. Imagine that climate change causes a severe drought. The marginal utility of water and its price become very high, and the terms of trade of diamonds for water moves drastically against diamonds – people would trade all their diamonds for just a glass of life-sustaining water. Now GDP might well be 99% value of water and 1% value of diamonds. You see how important marginal utility is to price and GDP, and what a bad indicator it is of total utility and welfare!

With that familiar pedagogical parable in mind it should be evident that in the event of a climate-induced collapse of agriculture the relative price of food would skyrocket and the percentage of GDP accounted for by agriculture, which is not a constant of nature, could rise from 3 percent to 90 percent. No doubt, adaptation would be possible, since in the past agriculture did account for 90 percent of national product and we (many fewer of us, consuming much less per capita) survived. Clearly, the percentage of the GDP derived from agriculture is a measure of the importance only of marginal (very small) changes in current agricultural output – certainly not Beckerman’s (1995) “50 percent fall”, or Schelling’s (1997) “drastic reduction”, or Nordhaus’ (1991) unqualified “no way”. One way of looking at the error

³ Schelling, T.C., 1997 “The Cost of Combating Global Warming”, *Foreign Affairs*, November/December, p. 9.

is therefore that it represents an elementary failure to distinguish marginal from infra-marginal utility – to ignore consumer surplus.

A less elementary dimension of the error is neglect of the structural interdependence of GDP. These economists are surely familiar with Leontief's input – output matrix showing the amount of input that each sector of the economy requires from all other sectors in order to produce its output. And each input used by each sector is itself an output of another sector that also required inputs from nearly every other sector – likewise for the inputs to those inputs, and so on. All these technical interdependencies of production are abstracted from in GDP, which leaves out intermediate production, counting only what goes to the final consumer. But the economy functions as an integrated whole, not a loose collection of final consumption goods. What happens to the output of non-agricultural sectors when agricultural inputs to them are drastically reduced? Well, they decline, and their reduced output results in lower inputs to other sectors, etc.

Yet another related dimension of the error is that it treats all parts of GDP as substitutable. If GDP declines by 3 percent due to disruption of agriculture that will presumably be no problem if GDP simultaneously increases by 3 percent due to growth in information services. A dollar's worth of anything is assumed to be indifferently substitutable for a dollar's worth of anything else. Likewise for a hundred billion dollars' worth. Although money is indeed fungible, real GDP is not. We measure GDP in units of "dollar's worth", not "dollars". A dollar is a piece of paper or a book-keeping entry; a dollar's worth of something is a physical quantity. GDP is a price-weighted index of aggregate quantity of final production. The part of that aggregate quantity accounted for by agriculture is something necessary to support not only other sectors, but life itself. The fungibility of dollars does not imply the fungibility of food and, say, information services. Unless we first have enough food, we just will not be interested in information services. If I am hungry, I want a meal, not a recipe, not even a lot of recipes. That is why economists traditionally have called agriculture "primary" and services "tertiary".

True, agriculture accounts for only 3 percent of GDP, but it is precisely the specific 3 percent on which the other 97 percent is based! It is not an indifferently fungible 3 percent. The foundation of a building may be only 3 percent of its height, but that does not mean that we can subtract the foundation if only we add 3 percent to the flagpole on top of the building. Like a building, GDP has a structure – neither is just a pile of fungible stuff.

In addition to technical interdependence, this structure reflects objective valuation by consumers, a kind of "lexicographic ordering" of wants. No amount of information services will substitute for food until basic food needs are met – just as the second letter of words is irrelevant to the alphabetical order of a dictionary unless the first letter is the same.

It is hard to understand how such distinguished economists could ignore these fundamental principles of their own discipline. In all three cases, the mistake was part of a larger defense of economic growth. Maybe the conclusion in favor of growth, the undoubted *summum bonum*, lent credence to the faulty reasoning leading to it. I do not know. But I am sure that the error cannot be attributed to ignorance or stupidity of these three economists – people whom I know and respect. If these economists were ignorant or dumb, their error would be of little interest. *It is precisely because of their legitimately high prestige that one suspects that the error is to be found in the presuppositions of the dominant "Keynesian-neoclassical growth synthesis", to which all three firmly adhere, along with the majority of modern economists.* This is not to say that no economists have ever criticized GDP. Many have.

Kenneth Boulding even suggested, tongue only partly in cheek, that it should be re-labeled Gross Domestic *Cost*. But the stonewalling mainstream⁴ has simply ignored any argument that casts doubt on growthism. And that is why the repeated error is important and needs repeated correction.⁵

IV. Microeconomic errors

In admirable consistency with omitting natural resources from national income accounting, the neoclassical economists also omit natural resources from their basic microeconomic production function, $Y = f(K, L)$, where Y is product, K is capital and L is labor. The form of the function is nearly always multiplicative, as in the usual Cobb-Douglas. Sometimes to avoid embarrassment at obviously violating the first law of thermodynamics, neoclassical economists will insert an R in the function to represent natural resource inputs to provide the material basis of physical product Y . But since the function is multiplicative the math allows any given Y to be produced, even as R approaches zero, as long as K or L is increased in a compensatory fashion. Thus we can bake a ten pound cake with only a few ounces of ingredients, as long as we use more ovens and cooks – still violating the first law! It is as if a “product” resulted from the multiplication of “factors” (as in mathematics), rather than from the physical transformation of natural resources by the agency of labor and capital (as in actual production). Georgescu-Roegen made this criticism years ago in his fund-flow model of production,⁶ and has never been answered.

At this point the growthists will appeal to technological progress. But improved technology is a qualitatively new production function, not just substitution of factors in a given production function. In the empty world technological progress has aimed at increasing productivity of the limiting factor (capital or labor), by transforming a greater flow of natural resources which were considered non limiting. In today’s full world natural resources are limiting, and raising resource prices by severance taxes, a carbon tax, or cap-auction-trade would help induce new resource-saving technology. But these policies are usually opposed by the growthists, although increasingly advocated by some mainstream economists.

⁴ For more on “stonewalling”, see H. Daly, *From Uneconomic Growth to a Steady-State Economy*, Edward Elgar Publishing Co., Cheltenham, U. K., 2014. pp. 59-62.

⁵ The earliest of the three quoted statements was made in 1991, and the error was soon pointed out in a letter to *Science* (18 October, 1991, p. 358) where Nordhaus’ statement had been published. No reply from Nordhaus. Since the error was subsequently repeated by Beckerman in 1995, and by Schelling in 1997, I thought it worth a further correction and commentary in 2000 (“When Smart People Make Dumb Mistakes”, *Ecological Economics*, July, 2000, Vol. 34, No. 1, pp. 1-3). To my knowledge there has been no response, defense, or recantation by any of the three distinguished economists, or by their many disciples. Nobody enjoys having their mistakes pointed out – I certainly do not. It would be churlish to harp on old mistakes if they had been corrected, or if they were not important. But neither is the case. The egregious statement was thrice delivered by prestigious economists, *ex cathedra* from the National Academy of Sciences, Yale University, Oxford University, the American Economic Association, and the Nobel Prize for economics. Trump’s growthist advisors and climate deniers can claim encouragement from neoclassical economists. Scientific claims delivered from such high platforms merit (indeed demand) serious consideration, but still are required to withstand and respond to criticism. Conjecture and refutation form the very definition of scientific method, as famously argued by Karl Popper (*Conjectures and Refutations: the growth of scientific knowledge*, Routledge Classics, 1963). But since growthism is more ideology than science, the conjectures (and errors) of growthists are given a free pass. Indeed, mainstream economists, along with Trumpists, consider it bad manners to refute them!

⁶ *The Entropy Law and the Economic Process*, Harvard University Press, Cambridge, MA, 1971.

The mistake is to treat *all* factors of production as substitutes. Labor and capital are to a large degree substitutes because they are both agents of transformation of the resource flow from raw material to finished product and waste (waste is also absent from the neoclassical production function). Likewise, one natural resource ingredient can often substitute for another. But natural resource flows are complements to, not substitutes for, the transforming fund agents of labor and capital. Nothing could be clearer than that capital and labor are not at all embodied in the final product, while natural resources are entirely embodied in the product (and waste). Natural resources are the material cause of production, capital and labor are efficient causes. Capital and natural resources are not substitutes; they are complements.

Yet prominent neoclassical economists maintain the opposite. Nordhaus and Tobin⁷ are specific on this point:

“The prevailing standard model of growth assumes that there are no limits on the feasibility of expanding the supplies of nonhuman agents of production. It is basically a two factor model in which production depends only on labor and reproducible capital” (1970, p. 14).

How is this neglect of resource flows justified? According to Nordhaus and Tobin,

“the tacit justification has been that reproducible capital is a near perfect substitute for land and other exhaustible resources”.⁸

When factors are complements the one in short supply is *limiting*. In the empty world capital was limiting and natural resources abundant. Capital's controlling social power came from the fact that it was the limiting factor. But thanks to growth we now live in a full world in which remaining natural resources have become limiting, while capital is relatively abundant. For example, the fish catch is no longer limited by the number of fishing boats, but by remaining fish and their capacity to reproduce. Cut timber is not limited by the number of chain saws or lumberjacks, but by remaining forests and their growth rates. Pumped crude oil is not limited by number of drilling rigs, but by remaining accessible deposits, and the capacity of the atmosphere to absorb CO₂. Economic logic says invest in the limiting factor and maximize its productivity. The logic stays the same, but the limiting factor has changed. As natural resources became limiting we should have seen an increase in fallowing-type investments in increased regeneration and productivity of natural resources. But instead neoclassicals denied that resources were the limiting factor.

They claimed that there was no limiting factor, because capital and natural resources were really substitutes, in fact nearly perfect substitutes.

In the empty world these economists saw man as dominating nature because manmade capital was limiting. In the full world, rather than accommodating to the new fact that natural capital and resources have become limiting, they abandoned the very idea of limiting factor by declaring that capital and natural resources are substitutes, not complements. Yet they must have previously considered capital and natural resources to be complements or they could not have claimed that capital was the limiting factor. Both cases illustrate the neoclassical

⁷ Nordhaus, W. and J. Tobin (1970), *Is growth obsolete?* National Bureau of Economic Research, Colloquium, San Francisco, December 10, 1970.

⁸ Ibid.

animus against the importance of nature, emphasizing the dominance of man. So they continue to advocate investing in manmade capital, the non-limiting factor, in the false belief that it is a substitute for the limiting factor of natural capital. This is wrong for reasons just given; but consider one more. If manmade capital were a substitute for natural capital then natural capital would also be a substitute for manmade capital. Substitution is reversible. But then why would we have gone to the trouble to make and accumulate capital if nature had already endowed us with a good substitute?

In reply to these criticisms growth economists often point to modern agriculture, which they consider the prime historical example of substitution of capital for resources. But modern, mechanized agriculture has simply substituted one set of resource flows for another, and one set of funds (capital) for another. The old resource flows (soil, sunlight, rain, manure) were to a significant degree replaced by new resource flows (chemical fertilizer, fossil fuels, irrigation water), not by “capital”! The old fund factors of labor, draft animals, and hand tools were replaced by new fund factors of tractors, harvesters, and so on. In other words new fund factors substituted for old fund factors, and new resource flows substituted for old resource flows. Modern agriculture involved the substitution of capital for labor (both funds), and the substitution of nonrenewable resources for renewable resources (both flows). In energy terms it was largely the substitution of fossil fuels for solar energy, a move with short-term benefits and long-term costs. But there was no substitution of capital funds for resource flows. The case of mechanization of agriculture does not contradict the complementarity of fund and flow factors in production, nor the new role of natural resources as limiting factor.

A production function is often aptly compared to a recipe. But unlike the neoclassical production function, real recipes in real cookbooks always begin with a list of ingredients. Trump's economic cooks are at least more realistic than neoclassical economists – they know they need limiting natural resources as ingredients, but rather than economize on them, are quite prepared to tear the world apart to get ever more of them. But then, for the neoclassicals, there is no world outside their isolated system, so what happens in the unrecognized biophysical world doesn't count in GDP, and doesn't enter into production functions. It is an “externality”.

V. Monetary errors

Neoclassical economics considers money as a veil, or a *numeraire*, a kind of common denominator for expressing prices in comparable units, thereby facilitating trade, and avoiding the inconvenience of barter. It is that, but has become much more with the development of fiat money and fractional reserve banking. The close connection of fractional reserve banking with alchemy was recently emphasized by Mervyn King, former head of the Bank of England, in the very title of his recent book, *The End of Alchemy: Money, Banking, and the Failure of the Global Economy*. He refers to the more thorough development of this connection by Swiss ecological economist H. C. Binswanger in his brilliant study, *Money and Magic*. Given this connection to alchemy, it is more than a coincidence that the earliest and most thorough critique of fractional reserve banking came, not from an alchemist, but from a real chemist, Nobel Laureate Frederick Soddy.⁹ Soddy's advocacy of full reserve banking was later picked up by Irving Fisher, and by Frank Knight and others of the early Chicago School. The

⁹ See H. Daly, “The Economic Thought of Frederick Soddy”, *History of Political Economy*, 1980, 12:4.

proposal seemed to die with the Great Depression, because it was correctly perceived to limit growth, the new panacea. Mervyn King stops short of advocating full reserve banking, but clearly is unhappy with the fractional reserve system.

Most Central Banks, however, seem to favor the alchemy of fractional reserves as a key part of their hyper-Keynesianism: the quest to stimulate real growth by increasing monetary growth, first by low, then by zero, and now by negative interest rates. Why hasn't it worked? Because real growth today is constrained by real resource shortages – those same resources that were absent in the pre-analytic vision, and the national accounts, and the production function. In the 1930s traditional Keynesianism's assumption of unemployed resources was reasonable. Now there is still unemployed labor to be sure, but not unemployed natural resources, which have become the limiting factor in today's full world. As growth converts more of nature into economy we see that these newly appropriated natural resources were not unemployed at all, but were providing ecological services that often were more valuable than the extra production resulting from their enclosure into the economy. But this fact is invisible to those whose preanalytic vision denies any importance to natural resource throughput, much less to natural services. In the real world aggregate growth in wealthy countries has become *uneconomic* – a condition unrecognized by economists long fixated on growth as panacea in their circular isolated system.

It is time to reconsider the proposal of full reserve banking. What are its advantages?

1. The private banking system could no longer live the alchemist's dream of creating fiat money out of nothing, pocketing the seigniorage, and lending the created money at interest. These enormous privileges would be transferred to the public treasury. Money would be a public utility – a medium of exchange, a unit of account, a store of value. The idea is to nationalize money, not banks <http://steadystate.org/nationalize-money-not-banks/>.
2. Every dollar borrowed would be a dollar saved, and unavailable to the saver for the life of the loan. This restores the classical discipline of balancing investing and saving, rather analogous to chemistry's law of conservation of matter- energy. Savers and Investors cannot both claim the same dollar at the same time. Banks would be intermediaries, charging interest to borrowers and paying interest to savers. The interest rate exists as a price equating savings with investment, but not as a price paid to the banks for their unnecessary and expensive "service" of creating money as private interest-bearing debt. That the public utility of money should be the by-product of the private activity of lending and borrowing is no better than when it was the by-product of the private activity of gold mining.
3. With full reserve banking there would be no possibility of bank failure due to a run on the bank by depositors, and therefore no need for deposit insurance and its consequent moral hazard. The entire debt pyramid would no longer collapse with the failure of a few big banks, bringing down the basic system of payments with it. The bargaining power of the banking system to extort large bailouts by taxpayers would be lost.
4. No longer would the money supply expand during a boom and contract during a slump, reinforcing the cyclical tendency of the economy. And the reserve ratio could be raised gradually. Also, under fractional reserves the money supply is always threatening to decline as bank loans are repaid, unless new loans compensate. New loans are made in

the expectation of growth, so unless those expectations are met, new loans will cease and the money supply diminish. So fractional reserve banking imparts a growth bias to the economy that is absent with 100% reserves.

5. Money would be issued by the Treasury, and spent into existence for public goods and services. *The amount of money issued should be limited by the amount of money that people are voluntarily willing to hold instead of exchanging it for real wealth.* If the Treasury issues more than that amount people will spend it on real goods, driving up the price level. That is the signal to the treasury to print less money and/or raise taxes. The Treasury's policy target is a constant price index, not the interest rate, which is left to market forces, and would thus never be negative (<http://steadystate.org/the-negative-natural-interest-rate-and-uneconomic-growth/>). The internal value of the currency is determined by maintaining a constant price index, and thus the dollar ceases to be a "rubber yardstick" of value. The external value of the currency would be determined by freely fluctuating exchange rates.

Trump's growthmania is financed by money creation and cheap credit from the big banks. Banks hate the idea of 100% reserve requirements on demand deposits the way 17th-century counterfeiters hated Sir Isaac Newton, who, in his extra job as Controller of the Mint, had many of them hanged.

VI. Trade errors: globalization versus internationalization

Finally we come to a place where we must give some credit to Trumponomics for having opposed neoclassical economics rather than blindly following it. Whether this was out of conviction, or devious political expediency, or both, is a question I will leave to the reader. Free trade, off-shoring, capital mobility, and uncontrolled immigration added up to the neoclassical cheap labor policy, nominal opposition to which gave Trump his big issue and political victory. Of course it was sold as "pro-growth" rather than "cheap labor". The Democrats, under the influence of neoclassical free traders and global corporations, were blind to the devastation and resentment their cheap labor policy had caused in working class and rural America. Bernie Sanders understood, and almost got the nomination, but Hillary Clinton and the Democratic establishment failed to learn the lesson.

The presidential election revealed a deep-seated discomfort with globalization and its costs, and as Donald Trump sets the agenda for his new administration, some fear he will move the United States towards isolationism and nationalism. There is another alternative open to him that served the country well for over fifty years, neither globalization nor nationalism, but internationalism.

Globalization is frequently conflated with internationalism but is something quite different. Globalization refers to the global integration of many formerly national economies into one global economy. "Integration" derives from "integer", meaning one or whole, and when we integrate, we combine into one the previous parts. Since there can only be one whole, the disintegration of the national economy is necessary to reintegrate its pieces into the new global economy.

As the saying goes, “To make an omelette you have to break some eggs”. Under globalization the disintegration of a nation’s economic boundaries is achieved through globally integrated capital markets, labor pools and trade agreements.

Internationalism refers to international trade, treaties, protocols, alliances and other structures where nations rely on each other and work together towards common goals. “Inter-national” means between or among nations, and under internationalism the basic unit of policy and decision-making remains the nation. Internationalism was the post-WWII goal of the Bretton Woods institutions; globalism has become the goal with the WTO, TPP and transnational corporations. As nations outgrow their domestic resource base they expand, via globalization, into the global commons, and into the ecological space of other nations.

In internationalization, trade is conducted between nations with their own self-interests in mind. Countries determine what they are best at doing, specialize in those goods or services, and trade with each other on that basis. In the classic example, England trades its wool and textiles for Portugal’s wine and vice versa. It would be unproductive for English investors or workers to attempt large scale winemaking in the English climate, and England’s resources are better put to use in sheep farming and wool-making. Through trade based on comparative advantage, both England and Portugal benefit.

In a globalized economy with free capital mobility, nations no longer specialize in their own “comparative advantage”, but instead global capitalists and corporations follow “absolute advantage” – allocating their resources to maximize global productivity and global profit. They function as components of an integrated global economy. U.S. corporations or investors shift capital to China to produce goods with less expensive Chinese labor for sale back into the U.S. By doing so, the same investment generates more product at lower cost, thereby growing the global economy. However, these global gains can inflict enormous cost at the national level.

While the global economy may grow more with globalization, each nation no longer necessarily benefits. With globalization the nation loses its ability to enforce its own laws and standards. The U.S. has national policies, for example, governing workers’ rights and workplace standards – minimum wages, non-discrimination, fair pay, child labor laws, and environmental and safety regulations. These agreements have been reached through generations of national debate, elections, strikes, lockouts, court decisions, and, at times, violent conflict. They affirm national values and strike a balance between how the economic pie is split between “capital” and “labor”. These policies become meaningless in a globally integrated economy.

If a U.S. corporation run by U.S. executives closes a plant in Michigan, lays off its workers and opens a new one in Mexico facing much less stringent compliance standards, staffs it with lower salaried Mexican workers who do not require health insurance or unemployment benefits, and then ships products back to sell to U.S. consumers at a much higher profit, the result is not what most Americans think of as “free trade”. It is instead freedom from regulation and responsibility done under the cover of globalization.

The restoration of internationalism re-establishes the nation as the locus of policy and reasserts the principle of interdependence – not integration – as the basis for international collaboration. Interdependence is to integration as friendship is to marriage. Strong

friendships lead to a long and happy life, but few people attempt or survive a multi-lateral marriage.

Trump has recognized the distributive flaws of globalization, but it remains to be seen if he will limit capital mobility in order to make the world safe for trade based on comparative advantage. Or will he opt to maintain capital mobility and accept the consequence of substituting absolute advantage for comparative advantage in the quest for global growth? Probably, like neoclassical economists, he is not aware that the logic of comparative advantage is based on the assumption of internationally immobile capital, as explicitly stated by David Ricardo in his famous comparative argument. Probably global growthism will win out in the Trump regime, since it is in the interests of the billionaire US elite, from which he has entirely drawn his cabinet of advisors.

VII. Conclusion

Many of the excesses of Trumpism are firmly rooted in the neoclassical growth paradigm that is still taught in the economics departments of all major universities, to the near exclusion of other views. The discipline of neoclassical economics itself requires a good dose of the “creative destruction” that it so often advocates for businesses. A friend told me how, at an individual level, he is helping this creative destruction of mainstream economics. In reply to letters from his alma mater dunning the alumni for contributions, he says, “When your Economics Department stops advocating infinite growth on a finite planet, I will donate. Until then save the postage.”

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