A new paradigm for a humane and ecological civilization

“We have it in our power to begin the world over again”, as Thomas Paine wrote in 1776, but we also have it our power to kill the planet. Which one will we choose? Much of our choice depends on what kind of economy we have – one that is ecologically sustainable into the indefinite future, vs. the one we have now that gives profit-obsessed corporations the most decision-making power.

As John Feffer wrote recently:

“The global economy remains market-centered, even though the evidence has been mounting that these markets are failing us and the planet. Tweaking this model isn’t good enough. We need a new Copernicus who will provide a new theory that fits our unfolding reality, a new environment-centered economics that can maximize not profit but the well-being of living things.”

Copernicus, the 16th century astronomer who first proposed a framework for understanding that the planets revolve around the sun, was the main subject of the philosopher Thomas Kuhn’s groundbreaking book, “The Structure of Scientific Revolutions”, in which he elaborated the idea of a ‘paradigm’. A paradigm is a set of interconnected ideas that have a logical cohesion, so that even losing some of its parts does not invalidate the whole. There may be many ‘anomalies’, as Kuhn called them, which can be covered up by ‘tweaking’.

Kuhn’s focus of study, scientific revolutions, centered around the process of moving from an accepted paradigm to a new one. In fact, as he argued, people don’t move off of their world view – or give up on conventional wisdom, as John Kenneth Galbraith referred to it – unless there is an alternative that they perceive to be better. That is why it is crucial that we find a better alternative to today’s dominant economic paradigm, neoclassical economics.

Any economic paradigm will inevitably have a political agenda. In the case of neoclassical economics that agenda is hiding in plain sight: its overwhelming motivation is to argue that the less the government intervenes in the economy, the better (Keynes created an exception to this rule). In addition, it generally seeks to justify the current distribution of wealth and income. In other words, it is the intellectual core of modern day conservatism, both conventional and neoliberal.

Instead, I would like to propose that we look at how economies and civilizations actually rise and fall, and use some of the insights of thinkers over the centuries that did not agree with the neoclassical consensus. While the neoclassicals focus on how goods and services are exchanged, it is much more empowering if we focus on production; and what this means ultimately is that we put manufacturing back in the center of policy-making. But unlike previous eras, we do what ecosystems do: we turn the production system, including agriculture, into a *circular* system, using the output as the input for future production. Instead of letting the market, that is, big multinational corporations, make the most important economic decisions, the government must consciously plan a transformation to an ecologically sustainable civilization. The main means for state-led, equitable economic growth will be to reconstruct the society-wide infrastructure systems, a function that states have always had. By controlling up to one quarter of economic activity, the state will be able to create an economy that provides everyone a good job, with a comfortable standard of living, leading to the disappearance of poverty and the insecurity of the current world. Another consequence that will *emerge* from this new paradigm is to radically increase the level of health of the entire population.

I call this paradigm ‘economy-is-an-ecosystem’. Social science conceptions of how society works are very dependent on the kind of system that the particular paradigm is based on. For neoclassical economics, the exciting scientific inquiry of the late 19th century was a field of physics called statistical mechanics. This suited the goal of enshrining the centrality of the market because the market could be modeled on things like containers of gas or systems of plumbing, systems which contained an uncountable number of similar elements – like competitive firms – that automatically returned to some state of stability, even if they were temporarily disturbed – like in a recession or depression.

But this conception of a system cannot explain how growth occurs, even though much of the public debate over economic policy involves arguing that things like free trade, deregulation, or lower taxes leads to more economic growth. The Achilles heel of neoclassical economics, in fact, is that they can’t explain the single most important process of modern economies, economic growth. It is as if the field of physics claimed to be a science, but could not explain how the planets move – which is why we call Copernicus’ insight the start of a ‘revolution’.

If we use ecosystems as our theoretical foundation, it becomes very easy to understand how economic growth works, and even more important, how economic growth can be ecologically sustainable and equitably distributed. While the Catholic Church has been able to generate some interesting ideas by equating society with the human body, that is really much too hierarchical when describing something like an economy, while using a system of pipes, in neoclassical style, is too chaotic. Ecosystems have a certain structure, there is some automatic stabilization, but they are more dynamic and critically, humans can change them fairly easily, for better and for worse.

The critical advantage of using ecosystems as a model is the fact that they are made up of sets of different *functions* that interact to form a whole that is greater than the sum of its parts. That’s a fancy way of saying something like ‘the grass makes food for the deer who are food for the bears and when they all die worms turn them all back into soil to make more grass and so on and so on’. To continue with this example, we see here what is referred to as ‘trophic levels’, that is, grass (plants) are the *primary producers* for the deer (or herbivores) who are the *primary consumers*, eaten by the bears (or carnivores) who are the *secondary consumers*, and everyone is recycled by the worms (*detritivores*).

A human ecosystem also has the equivalent of trophic levels, but it is done in a different way. The *primary producers* are composed of a certain kind of industrial machinery, one example being machine tools, that collectively with the help of humans can either make more of themselves – that is, they reproduce – and that also make the *secondary producers*, that is, the machinery in the factories and on construction sites that make the goods and services that *consumers* use. Much, if not most, of the ecological problems of our time is that there is effectively not much of the equivalent of a detritivore level, recycling and reusing the output of this *production system* for the input of the producers.

This can’t happen if the market is the central factor in an economy because this recycling will almost never be as profitable as simply creating pollution and waste as part of the output. Huge profits can be made from extracting from the earth or from forests that which the earth has poured trillions of dollars of resources into -- stretched over hundreds of millions of years, in the case of fossil fuels. However, in the long run, it is much more profitable for society as a whole to create a circular economy. This contradiction – the pursuit of short-term profit leads to long-term loss for society as a whole, and the long-term greatest profit for society as a whole is less profitable over the short term – is driving the collapse of the biosphere, and even the immiseration of most of the population. Renewable energy is profitable, but not profitable enough for global investors, just as manufacturing in the United States has always been profitable, but not as profitable as outsourcing.

Only the state can overcome this contradiction and invest for the long-term. This is in fact how civilization got going in the first place – the first states created the irrigation, storage and transportation systems that were necessary to create large-scale agriculture, which in turn created the surpluses that made a complex state possible. Unfortunately, without the advantage of modern science, most civilizations destroyed the ecological foundation of their success, and they tended to collapse with great regularity – often as a result of pandemics.

But now we have the wonders of modern science and engineering – and we are still destroying ecosystems at a historically rapid rate. That is because the production system I described above is very efficient and is fairly easy to improve technologically at a fairly rapid rate. The late Professor Seymour Melman, one of the great industrial engineers of the 20th century, calculated that industrial machinery in the 20th century increases in productivity by about 3% per year – just by the efforts of workers on the factory floor, engineers, and applying advances in science. That is, we can increase the efficiency of a factory, either in terms of human labor needed or resources needed, year after year just by letting manufacturing firms do what they normally do – and automation is just part of this long-term process, not some miraculous new jump.

But this doesn’t mean that we have to destroy the natural environment in order to reap the benefits of technological advance. We would need to do three things to fix the system: recycle and reuse the goods we produce; produce without polluting and without emitting the gases that cause global warming; and retreat from natural ecosystems instead of conquering every conceivable space. These goals would require the state helping firms to retool, and would require helping people to move to a denser form of habitation – globally.

Understanding how economic growth works also gives us clues about how to create a society that has a more equitable distribution of income. As Seymour Melman explained, when managers are competent at organizing production, they use better production machinery to bring down the costs of their products, which increases demand, which leads to greater income, which can lead to higher wages.

The classic case is Henry Ford’s new assembly line at the beginning of the 20th century, in which new machinery led to radically better productivity, but the resulting cars were so cheap that demand increased to such an extent that *more* workers were hired, and wages actually went *up*. But this dynamic doesn’t work if the labor is sent overseas, as with globalization, and if the income of the middle class thereby stagnates and can’t afford most of the new innovations. That is, globalization destroys the virtuous circle that led to constantly increasing income as the result of constantly increasing productivity of factories.

Further, since the economy is an ecosystem, it is critical that the various industries which fulfill the various functions, or niches, of an industrial ecosystem, be on the same continent or subcontinent, so that they are close enough together to accelerate technological innovations and provide for the close collaboration of engineers, managers and skilled workers that leads to thriving industrial systems. The reason Apple can’t bring iPhone production back to the U.S. is that it needs numerous other industries to come back at the same time. No industry is an island.

Only the government can put all the pieces back together, which is why governments have always used infrastructure building to build or rebuild their manufacturing sectors. The countries that are either growing the most, such as China, or that have the most stable middle classes, such as Germany and Japan, have very strong manufacturing sectors that have been led by their governments. But even the U.S. has used the Federal government to push production, including agriculture, at crucial points in U.S. history. Alexander Hamilton first wrote about what was called ‘the American System’ for encouraging manufacturing in the 19th century, including the efforts of the first Republicans to build infrastructure like rail and a university system that laid the foundation for the establishment of the U.S. as the manufacturing powerhouse of the 20th century. FDR and the New Deal then created much of the infrastructure we still use – much of which is now falling apart – leading to a pulse of manufacturing and middle class wealth that started to decline when infrastructure spending and manufacturing declined.

This decline hit communities of color first, since African-Americans and Latinos were the first to be fired when industry in cities declined. The loss of economic power led to the loss of political power and the rise of a police state that we are still dealing with. But this means that such communities, and all communities, now that much of the white working class is undergoing the same loss of power, need the government to create a program of economic reconstruction that would provide tens of millions of good jobs and reestablish a strong middle class.

For instance, I have been writing about what we are now calling a Green New Deal for many years, and I have proposed the reconstruction of much of the structure of the American economy, which in combination will lead to a society that does not emit greenhouse gases that lead to global warming, will eliminate pollution, most mining and encourage reforestation, makes housing affordable, and provides a good job to everyone who wants one. These outcomes *emerge* out of the interaction of the following systems, designed and owned by the Federal government: an Interstate Renewable Electricity System, which provides all electricity in the form of wind and solar; an Interstate High-Speed Rail System, that is built along the same routes as the Interstate Highway System; a huge housing program to create and expand walkable neighborhoods in city and town centers, along with extensive transit systems that such neighborhoods make possible; a Federally-supported transition to regenerative agricultural systems that do not use pesticides or artificial fertilizer, set up close to cities and towns; and a Federal system of replacing all industrial machinery so that the machinery does not pollute and generate emissions, and uses and generates recyclable or reusable goods. Along with a national health system, including a large public health system and a new Civilian Conservation Corps to revive ecosystems, better food, the encouragement of more exercise, the elimination of pollution and the decrease in stress, would lead to an increase in health for most people.

An agenda such as a Green New Deal, that would kick off a new era of Reconstruction, could create an atmosphere of national purpose that could engender the enthusiasm of most of the working class and middle class. Ira Katznelson, in ‘Fear Itself’, points out that FDR needed a program to compete with the temptations of fascism, just as we now need a program to compete with the likes of Donald Trump and Victor Orban.