A new paradigm for a humane and ecological civilization

If it seems like everything is falling apart at once, there’s a good reason: since the whole of society is greater than the sum of its parts, when the system-as-a-whole starts to dissolve, the parts collapse even faster. A pandemic sets off an economic meltdown which combusts when a particularly brutal example of police violence is videotaped, all while the most incompetent and tyrannical president in American history inhabits the White House, and all the festering problems in the various sectors of American life become more evident.

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 was the main subject of the philosopher Thomas Kuhn’s groundbreaking book, “The Structure of Scientific Revolutions”, in which he unleashed upon the world the now much misused term ‘paradigm’. There are many definitions of this term, but I saw him give a lecture in which he explained it to mean something akin to a systematic network of ideas that have an internal coherence. Most people stick with particular paradigms, even when there are ‘anomalies’, as Kuhn calls them, which usually leads to what Feffer referred to as ‘tweaking’.

But we can’t tweak our way out of the current situation. John Kenneth Galbraith, writing during the same time as Kuhn, penned a classic essay ‘on conventional wisdom’, in which he noted that it took major crises to convince enough people that the comfortable and socially shared understanding of the world would need a fundamental change, that is, a new paradigm. Perhaps we have enough crises, including the biggest one of all, climate change, to set off a search for a new way of organizing economies.

To be successful, a paradigm has to accomplish two things. First, it must be a useful way to explain a particular domain of reality. Second, it must be useful in providing a plan of action. Neoclassical economics has accomplished both ends, if you subscribe to its teachings: it explains how the economy works from the perspective that the market knows best, and that, to quote Ronald Reagan, ‘the government is the problem, not the solution’. Of course, there are economists who often disagree: Paul Krugman and Joseph Stiglitz come to mind. But even they do not give the government a large role in the economy, because to do so would be to turn their back on the canon of neoclassical economics, which counsels for the course of action, most famously, to ‘laissez-faire’, which roughly translates as ‘let do’, as in let business do whatever it wants to do.

The other main ideological pillar of neoclassical economics is the idea that, roughly speaking, people receive income according to their benefit to the economy. The Columbia University Professor John Bates Clark, around the turn of the last century, argued for this point of view as a response to Karl Marx’s claim that “**From each according to his ability, to each according to his** needs”. That is, there is no need for revolution because everything is working because the market is self-correcting.

Except that it obviously wasn’t. We could go through the grisly history of the ups and downs of economy in the 20th century, but it would be more illuminating to take a look at how economies throughout history actually worked. Here we see that the government, or more generally the state, has always had a crucial role to play, not only by setting down the rules for how the market should operate, but also by building the public works that help to generate the wealth that the rest of the economy produces. The first civilizations, after all, created the irrigation, grain storage, and road systems that enabled them to generate a surplus. This surplus is necessary to create the conditions for investment, by using resources to construct generators of wealth that do not exist before the investment is made.

Public works have been the way states have always invested in an economy, which either directly created this surplus, such as with irrigation and granaries, or indirectly, with ports and roads. As technology progresses, the need for these infrastructure systems increase: first trains became critical for an industrial economy, then electricity, among others, and most recently, the internet.

There are two other sources of surplus, one that can lead to disaster and the other is the key to a new economic paradigm. On the one hand, often economic growth has meant the extraction of value from ecosystems, by mining, deforestation, being paved over, polluted and befouled. This kind of growth is related to the other source of surplus, what we now call manufacturing, or the use of tools and machinery to create either more tools and machinery or the goods and services that we eventually consume. Throughout history and even more so today, manufacturing is creating the devastating ecological damage that could lead to a global civilizational collapse, the first of its kind, even while it creates, at least for the time being, an enormous global middle class. We can also use the state to transform manufacturing, and the rest of the economy, to mimic the ecosystems we depend on, instead of destroying them, if we understand that the economy is an ecosystem.

An ecosystem is a fundamentally different *kind* of system than the one that neoclassical economics uses. In the neoclassical world, the economy is composed of a myriad of identical firms, basically a static grouping, much like the gases and liquids that the math of economics is based on. This makes it impossible to differentiate the economy in such a way as to determine if some sectors are more important than others. If a country makes money from tourism, it’s the same as making money from manufacturing complex machinery.

But in an ecosystem, each sector, or niche, has a particular *function*. Each ecosystem needs to have a full complement of these functions in order to thrive. The simplest explanation is to look at what are called *trophic* levels: plants use the sun, water and soil to *produce* life; herbivores eat the plants and are considered *consumers*; carnivores keep herbivores in check so that not all plants are consumed, and are considered *secondary consumers*. So, say, grass, deer, bears. The critical part to understand for human ecosystems, however, is the fourth, and least cuddly part of an ecosystem: the detrivores. Somehow, worms, fungi and mold is not as ‘charismatic’. These decomposers are a critical part of any ecosystem, because they recycle the nutrients and matter back to the first level, the plants. Unfortunately, modern human ecosystems generally don’t do this, with disastrous results.

Ironically, coal, the single greatest source of the carbon emissions leading to climate change, is the result of the absence of detritivores about 360 million years ago that could not decompose the new trees that had formed. So when the trees died, they formed deep layers of dead wood that the Earth eventually crushed into coal. Eventually fungi developed that could eat the dead wood and order was restored, just as we need to close the circle of production so that we don’t destroy the ecosystems we depend on for life.

A human economic ecosystem has three main levels, similar to a natural one, but they operate very differently. In natural ecosystems, reproduction takes place at all levels. In an economy, reproduction actually takes place at the innermost level, although this is not generally understood. That is, there are sets of industrial machinery that collectively, with the help of skilled workers, engineers and operational managers, create the energy, materials and parts to make more of themselves. Humans have always used tools to make other tools – what distinguishes humans from all other animals, not just the use of tools – and now, with industrial technology, this capacity has exploded, mathematically speaking, to propel much of what we call economic growth.

These special kinds of industrial machinery, like machine tools, create the machinery and equipment used at the second level, the factory and construction level, that are then used to create the goods and services that consumers use. When technological innovation occurs at the first and second level, it makes it possible for the technological innovations at the consumer level to take place. Thus changes in the class of semiconductor-making equipment, which hardly anyone knows about, takes place, we are able to have iPhones and internets and desktop computers more powerful than the biggest computers of 50 years ago.

This view of the economy, that it is an ecosystem, has more explanatory power for the economy and can help lead us to better outcomes than the current paradigm, the neoclassical one. Unlike neoclassical economics, it can explain economic growth and the way to do it in such a way that ecosystems are not destroyed. It is a production-centered view of the economy, unlike the exchange-centered view of neoclassical economics.

While it might seem absurd to claim that the field of economics can’t explain economic growth, it is in fact it’s Achilles heel. The reigning theory can only explain about 25% of growth, and even that can be questioned. The main problem is that the only theory of production that is used is called diminishing returns, a concept you may have heard of. But if you think about it, you can’t explain how something increases, that is, growth, if your only tool is explaining why things diminish.

So an entire book shelf of attempts to tweak this anomaly have been developed, but mostly, as one observer noted a while back, the field is considered a ‘backwater’. Since economic growth is the single most important economic event of the last 200 years, it is as if physics could not explain the motion of the planets but considered itself a science.

But armed with our theory, we know that if economic growth occurs by simply stripping the life out of ecosystems, it will collapse. So we have to create a recycling sector to our economy, or at least construct a system that does not destroy more than it creates. So for instance, like a natural ecosystem, we need an energy system that directly uses solar energy (or wind energy) that is not destructive, as is coal, natural gas or oil. Manufacturing needs to replace its machinery so that it does not pollute, emit greenhouse gases, and most importantly, produces goods that can be reused or recycled so that we don’t need to extract.

Agriculture is at the direct intersection of the environment and the economy, and is a catastrophe on many (trophic) levels. In order to expand the production of herbivores – cattle, pigs, chickens – the plant foundation of ecosystems is being deforested and desertified, and the herbivores are being raised in pandemic-friendly conditions. Much of the grains produced are for said herbivores, blanketed with ecosystem destroying pesticides and killing the soil with artificial fertilizers. Clearly, this all needs to be converted to what is called agroecology and regenerative agriculture.

One of the most important causes of the pandemic has been the incursion on ecosystem caused by agriculture, and also by sprawl, and sprawl has made the automobile a required part of modern life, which in turn becomes a major cause of climate change, gives undue influence to countries with oil, and becomes a major cause of ill health.

So could the market change this in a good direction? Only if short-term profit was possible, and not just any profit, but profit large enough to interest the rich and powerful who monopolize most of the investment capital of the world. Since the transformations I have been proposing return profit levels that are very long-term and not particularly high, the neoclassical response has been to propose plowing trillions of dollars at such power centers in the hopes that the proper response would be forthcoming.

Instead, the state could simply plan a network of these systems, as a holistic supersystem, that would be much more efficient and cheaper than anything that the market, no matter how incentivized, could provide. Think of the state as an active steward of the economy, in the same way that the park service is the active steward of the parks it oversees. For instance, when wolves were reintroduced into Yellowstone, they scared off the elk from certain areas, plant life returned, and with it, an entire ecosystem sprang to life. In the same way, the government can rebuild various infrastructure systems, thereby providing a source of demand for a rebuilt manufacturing system, which will allow all the other parts of the economy to thrive, such as the service sectors that directly use manufactured goods, like wholesale and retail, but including many other parts as well.

In fact, if we look at the economy as an ecosystem, we can see that, far from paring down the number of industries according to the dictates of comparative advantage, when all niches of the economy are present in the same geographic area, they complement and strengthen each other. It would be absurd to put the bears in one area, the deer in another, and the grass in yet another. Yet that is what we have done with globalization. Instead, what we need might be called ‘continentalization’ (or something shorter), that is, each continent/subcontinent should have within its borders a full complement of industries, because each niche needs the services of all of the other niches. That is why there has always been an ‘American economy’, a ‘Chinese’ economy, a ‘European economy’. Africa needs a fully-integrated ‘African economy’ (which is why African economists have inveighed against what they call ‘disarticulation’), but so does the Middle East, Latin America, any region of the world. The idea of regional trading blocks has been anathema to even the likes of Stiglitz and Krugman, but once you understand the advantages, it appears less threatening.

Ironically Alfred Marshall, who is credited with the synthesis we call neoclassical economics, later developed the idea of ‘industrial districts’, a similar conception of the positive syncronicities you encounter when there is a diversity of industries in one geographic area. Paul Krugman was awarded a Nobel prize for talking about the importance of proximity, but as Erik Reinert has pointed out, Krugman never used his insites to try to construct a new economic paradigm.

So the government, or even a regional set of governments, must plan and implement a transition to a production-centered, environmentally sustainable set of infrastructure that also transitions production – manufacturing and agriculture – to a recyclable, closed-loop economic system. We have to shift from hoping that a large number of private firms will, collectively, do the right thing without planning, to allowing the government to do so on a system-wide basis.

The advantage the economists have is that they claim that their best-of-all-possible-worlds is the result of an ‘automatic’, self-organizing capacity of markets. I would argue that in the long-term the uncontrolled nature of markets will lead to global collapse. But how do you guarantee that the government will do the right thing. Didn’t we learn from the Vietnam War that the Federal government can’t be trusted? Haven’t we seen how police often make things worse?

Unlike depending on market mechanisms, there is no way to get around the need for making the correct consciously chosen choice when the government makes a decision. The whole reason for democracy is to give most people an opportunity to effect that conscious choice. The answer, I think, is to build up the involvement of the public to such an extent that the government cannot but put the needs and rights of the public to the fore, instead of in the background as is now the case.