**Headline:** The Coronavirus Pandemic Has Opened the Curtains on the World’s Next Economic Model

**Teaser:** COVID-19 has exposed flaws in the global supply chain model; advances in technology have rendered it obsolete.

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**[Article Body:]**

When the wealthiest country in the world is [unable to produce basic medical gear](https://www.nytimes.com/2020/03/25/opinion/coronavirus-face-mask.html) to cope with a rampaging pandemic, it is dealing with a strategic vulnerability by depending on multinational supply chains to produce manufactured goods. Absent sufficient redundancies and physical reserves of resources, “just-in-time” lean supply systems can’t cope with sudden disruptions. The global pandemic of 2020 is a case in point.

This pandemic continues to unfold, but it will serve as the D-Day equivalent of a new predominating economic model for the world, and which in many ways was beginning to take shape before COVID-19. At its core, developed and mixed market economies will factor in the health risk and growing military cost of sustaining international supply chains against investing in high-tech production closer to their markets, and increasingly export their goods to the rest of the world.

Dozens of economies that developed in the past 50 years by enmeshing themselves in the international supply chain on the basis of their labor price advantage will find themselves increasingly cut out of the new process. The contest for global power will increasingly pivot to the extraction and refinement of minerals and component materials that are critical to sustaining the high-tech economy model, away from carbon energy resources. We will be hearing much more about “national stockpiling” and “strategic reserves” beyond oil in the months and years ahead.

Not only has COVID-19 exposed potential health risks and costs involved (as globalized trade routes become vectors of contagion), but the champions of the offshoring phenomenon increasingly resort to myths and misconceptions that are irrelevant to a 21st-century economy. They are as obsolete as spending trillions annually on managing the supply and price of Middle East oil, which American foreign policy figures, including Martin Indyk, are beginning to openly say “[isn’t worth it](https://www.wsj.com/articles/the-middle-east-isnt-worth-it-anymore-11579277317).”

Before we get into the details on the future economy, let’s quickly review how the U.S. saw a massive decline in its industrial capacity. Bad ideas and pernicious orthodoxies grew like barnacles over the decades on what was once the world’s leading manufacturer. First was the idea that offshoring is essential to preserving profitability. Often this assertion has been more apparent than real. As far as profitability goes, many companies have made choices to move manufacturing offshore despite continuing domestic profits on home shores. For example, the five North American plants that General Motors (GM) shut down in 2019 [were still profitable](https://www.industryweek.com/leadership/article/22026732/gm-to-close-4-us-plants-1-in-canada), but the company, which had received a government bailout in 2009, chose to refocus on the higher-margin operations in China.

Of course, capitalism controlled by bankers and speculators gives free rein to companies to make profits on how they see fit. The consequences are that for decades, Detroit’s “Big Three” automakers have consistently underperformed their German and Japanese counterparts because of their decision to embrace a Wall Street-driven culture that has prioritized short-term quarterly earnings, massive dividend payouts and unprecedented spending on stock repurchases over productive investment in innovation. And as GM’s 2019 experience illustrates, the resultant profits did not go to spur domestic reinvestment, which in turn creates domestic employment, but abroad to expand China’s manufacturing base. GM is but one example of the hundreds of major corporate actors that have denuded the country’s industrial ecosystem, creating gaps in the U.S. workforce and shortages of vital skilled labor.

There are also multiple examples of companies acquiring smaller innovative companies “solely to discontinue the target's innovation projects and preempt future competition,” [according to](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3241707) researchers Colleen Cunningham, from London Business School, and Florian Ederer and Song Ma, both from Yale. A particularly poignant example of these “killer acquisitions,” given today’s ongoing ventilator shortage, is Covidien’s attempted 2012 purchase of California-based Newport Medical Instruments, a smaller competing medical device company that had secured a contract from the federal government in 2010 to produce up to 40,000 mobile ventilators. But as David Dayen of The American Prospect observed, the purported rationale for the acquisition was bogus: It had nothing to do with expanding Covidien’s product base and everything to do with destroying a competitor whose product “[could cut into its existing profits](https://prospect.org/coronavirus/unsanitized-covidien-story-corporate-america-ventilators/).”

For years, the political economist Seymour Melman argued that companies that embraced the soft option of downsizing/offshoring labor would ultimately create grave production weaknesses in the U.S. economy and stifle innovation. Higher domestic wages, by contrast, would induce competent managers to compensate by using and investing in more and better machinery, which in turn would lead to a virtuous cycle of production: higher profits, which can lead to higher wages, leading to better machinery and organization of work.

While American companies may think they are improving their individual competitiveness in the short term by shifting operations to low-cost labor economies, the current pandemic illustrates that they collectively undermined America’s (and their own) competitiveness over the long haul.

Intuitively, Melman’s forecasts make sense. A modern manufacturing “ecosystem” makes it much easier to redeploy and pivot to new priorities when there are shortages in vital areas. China, for example, has a sufficiently deep and robust industrial infrastructure to adjust production lines quickly, even as the U.S. continues to [struggle with ventilator shortages](https://www.nytimes.com/2020/03/29/business/coronavirus-us-ventilator-shortage.html?referringSource=articleShare&fbclid=IwAR2Px_g8FQmQgAVvvrZIp4IlK1VHJeX-Nh7cSlAQAD7s0WOOfECp2qWFbo0). And in Germany, a flagship company like Siemens, for example, [announced](https://www.automation.com/en-us/articles/2020/march-2020/siemens-additive-manufacturing-3d-printers-medical?listname=Automation%20&%20Control%20News%20&%20Articles) that it is “making its Additive Manufacturing (AM) Network along with its 3D printers, available to the global medical community to speed design and production of medical components … to enable faster and less complicated production of spare parts for machines like ventilators.”

**The Next Economy**

A combination of existing technologies and capacities that are already in business application and on the rise will enable the new era of production and global economic overhaul and develop in motion with Melman’s thinking. These include artificial intelligence computing, automated manufacturing and increasingly universal and portable manufacturing equipment, innovations in energy production and storage, high-speed data transfer, and nanotechnology. Some of these technologies are mature, profitable and business-ready. Others are still in an early phase but will be seen as more economically viable or worthy of state investment and subsidy in light of a growing awareness among policy planners that the consequences of running global supply chains are potentially more expensive.

All of these technologies are revolutionary. Their concomitant rise will create a new economic era dominated by the countries that fully integrate them into their economies:

* AI computing has the capacity to introduce game-changing efficiencies in the production process, quality control in terms of production and blueprints for new models of production and consumption. It can handle huge volumes of administration and management of automated systems. This industry is estimated to be growing at an annual rate of [over 45 percent](https://www.grandviewresearch.com/press-release/global-artificial-intelligence-ai-market).
* Automated manufacturing can be expensive and requires skilled labor to maintain, but it can produce goods at precision levels beyond what people can make, as well as at [increasing volumes](https://ifr.org/downloads/press2018/Executive%20Summary%20WR%202019%20Industrial%20Robots.pdf). 3D manufacturing is a universalizing process: one machine capable of producing a dizzying number of products that already competes with some products from global supply chains. Many companies are locating back in [deindustrialized New York](https://www.industryweek.com/technology-and-iiot/article/21119848/whats-ahead-for-3d-printing-in-2020) and other U.S. cities on the back of 3D manufacturing.
* Recent major advances in energy production—from solar and wind to geothermal and energy storage—are the holy grail of non-carbon energy sources, permitting solar and wind industries to compete on a 24-hour basis with carbon-based fuels, giving more weight for policy planners to minimize fuel imports and revisit dormant energy alternatives.
* High-speed data transfer—enabled through satellites and huge server farms—is necessary for the multi-location management and logistical coordination of the segments of the new supply chain: the means of information transfer and the capacity of one hand to know what the other is doing.
* The rise of nanotechnology—the capacity to engage in precision design and manufacture at a molecular scale—presents humanity with a new frontier of materials and products that have capabilities beyond what we currently know in terms of materials, products, medicines and much more. Products ranging from glass to suntan lotion are already vastly enhanced by nanotechnology production. Qualities of human-made materials such as those designed for fireproofing, bulletproofing, insulation and space travel are in the midst of being revolutionized. Medicines can be deployed through nanotechnology at the molecular level, vastly improving their effectiveness.

The collective strength of these technologies will diminish the appeal of finding cheaper labor outside a country’s borders or common market—and the costs they entail. Countries that are advanced along these lines and have access to the minerals required to engage in this form of production will prosper, plugging into their existing consumer market and building up a head of steam that will eventually lead to a new chain of international exports and imports. These trend lines will accelerate the decline of brick-and-mortar retail and service industries.

Export-led economies that grew on the back of a labor price advantage will find themselves in a role reversal of having the option of importing better goods from the markets they once exported to or paying intellectual property (IP) licensing fees to produce them domestically. The geopolitical advantages that went with offering a developing country a labor role in a global supply chain will be replaced with discounts on IP licenses or imports.

The past phases of industrialization saw an ongoing contest among wealthy countries for control of petroleum, minerals and shipping lanes, using all their available powers to obtain them. The historical pattern is that residents of the resource-rich and undeveloped countries suffer far more than prosper in the mineral extraction and export process to wealthy markets. Barring a major shift in attitudes to wealth distribution or successful political resistance to exploitation, the pattern will likely continue, with the wealthy countries’ preoccupations pivoting increasingly from carbon energy resources to the components of the new economy: cobalt, lithium and rare metals. Resources that sustain the present and future economies, like iron, copper and gold, will continue to retain their strategic value.

Much of Europe and Asian countries like China, South Korea and Japan are poised for the transition. Based on their traditions of rigid state-driven capitalism, these nations instinctively grasp how state capacity and direction can help drive further industrial development. It remains to be seen if the U.S. is fully capable of it. That is unlikely, if the prevailing neoliberal ideology persists, limiting the role of the U.S. government to be, at best, a neutral umpire that sustains efficient, rent-free markets able to supervise the delivery of an increasingly narrow set of public goods (as opposed to an active participant in industrial policy).

The U.S., with thousands of advanced research institutions, is certainly capable of the next stage of economic development. It has a developed market and a partial manufacturing base. But it also has a long history of wage-avoidance for its workforces and an utterly dysfunctional political process. You need nation-state competence and highly skilled labor in this new world, as well as a willingness to expand ownership and dividend models to workers and the governments that funded the research for this advanced economy.

The coronavirus pandemic will force the U.S. and other countries to stop making distinctions between low-tech business (supposedly fine to offshore) versus high value-added industry. Not only can production lines be altered to cope with shortages (as China is doing), but there is often a continuum in the industrial ecosystem.

Consider the case of surgical masks. Even though their production is ostensibly a low-tech commodified business, the critical inner filtration layer of a mask, which allows the wearer to breathe while reducing the inflow of possible infectious particles, is a high-end business: Costing “[upward of [$4.23 million] apiece](https://www.npr.org/sections/goatsandsoda/2020/03/16/814929294/covid-19-has-caused-a-shortage-of-face-masks-but-theyre-surprisingly-hard-to-mak), the machine that creates this fabric melts down plastic material and blows it out in strands, like cotton candy, into flat sheets of melt-blown fabric for face masks and other filtration products. A similar line of machines can create a related kind of fabric, called spun-bond fabric, also used in face masks and in medical protection suits worn by health-care workers,” according to a report carried by National Public Radio.

The point is that there is a continuum. One creates the demand for the other. Eliminate one industry and another potentially dies, much like a biological ecosystem. We now know that when forests are cut down, at some point if the surviving forest is too small, the whole ecosystem collapses. The ecosystem has to be large enough to encompass all of the niches that make it work.

If the machine tool industry is allocated in one country, the textile industry in another, the steel industry in another, the whole thing becomes much more delicate and inefficient, depending on a greater range of variables to succeed. Crucially, the speed with which innovations can ricochet around the system decreases significantly. When Japanese auto manufacturers have access to Japanese machine tool makers, they can get at the machine tool advances before GM and Ford. Proximity becomes a competitive advantage.

All of which helps to explain why the distinction between offshoring hardware while retaining software is not only fatuous but damaging to long-term economic welfare.

Offshoring left the U.S. unprepared for COVID-19. It has also occasioned a widespread reassessment of globalization: What was once seen as the heretical refuge of economic nationalists has now become respectable again. Even without this pandemic, the foundations of America’s economic model were failing and becoming rapidly obsolete.

The question is: As the world moves to a post-carbon future, can the U.S. economy take away the primacy of rent-extracting sectors like finance, insurance and real estate; Hollywood films, smartphone apps, or increasingly irrelevant sectors like oil and natural gas exports, and join the leaders of the pack? Or is coronavirus merely the pandemic that presages a more terminal disease?