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America's Flailing Industrial Policy Can Take Lessons From China

Beijing's experiences are a road map for both opportunities and traps.

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By Bob Davis

The Biden White House has put together the most ambitious industrial policy program in decades, hoping to revive strategic industries that have withered at home because of foreign competition. The goal: to stay ahead of China by pumping up the United States' industrial and technological might through a focus on clean energy and semiconductor manufacturing.

But in its push to confront Beijing, Washington has ignored lessons China learned through trial and lots of errors over its own decades of industrial policy aimed at catching up with the West. As different as the two countries' political systems are, there's still a lot Washington could learn—if it wants to.

The U.S. has led since at least World War II in one area of industrial policy: fostering new technologies. Federal dollars and support, often via the Pentagon, played an essential role in developing technologies that revolutionized the global economy, from jet aircraft to supercomputers to communications satellites to the internet. But since the early 1980s, when the United States started obsessing about losing out to foreign competitors such as Japan, the government has failed miserably in reshoring vital industries.

Not that the government hasn't tried. Former U.S. President Ronald Reagan sought to revive domestic small-car manufacturing; George H.W. Bush targeted flat-screen televisions; Bill Clinton had another go at small cars; and Barack Obama pushed for solar panels. Donald Trump pressed for telecommunications equipment. None succeeded, largely because offshore manufacturing remains far less expensive than manufacturing at home, even with subsidies.

That doesn't mean the effort from President Joe Biden is doomed, but it does point out the scope of the challenge—and the need to look at the experiences of others. Although China has had its share of industrial-policy flops, it has used government policy to build powerful

industries at home that outcompeted Western rivals in sectors as diverse as textiles, tires, electronics manufacturing, solar energy, wind power, batteries, and high-speed trains. Over the past 45 years, those successes helped turn impoverished China into the world's no. 2 economy.

“To the best of my knowledge, there were efforts to study Chinese industrial policy” in the Biden White House, said Peter Harrell, the White House's former senior director for international economics. “But the goal was to figure out how we can retaliate or mitigate the harm from China rather than to see if there were positive lessons for us.”

First, a definition. Industrial policy is the use of government policy to try to produce an outcome that's different—hopefully, more positive—than what the market alone is likely to produce. Essentially, governments invest to develop industries or advance technologies that underlie economic growth.

Comparing China's industrial policies to America's is difficult. China has generally focused on catching up to the West, while the United States has sought to stay ahead of the pack. China is steered by an autocratic government headed by the all-powerful (but often invisible) Communist Party. In Washington, power shifts between two parties that have very different views of the role of government in the economy.

There is also no clear handbook explaining Chinese industrial policy. It's a confusing mixture of central control (but recalcitrant localities), massive subsidies (but ferocious competition), and protectionism (but courting foreign investment). But there are still parts of the system the United States can learn from.

China is the global subsidy champion. It dominates subsidy spending the way the U.S. dominates global military spending. As a percentage of GDP, China spent 12 times as much as the U.S. on subsidies in 2019, estimates Scott Kennedy, a China scholar at the Center for Strategic and International Studies (CSIS). Those subsidies included R&D dollars and tax credits, cheap financing, cut-rate land prices, government purchasing preferences, and various investment fund payouts.

The Biden tax credits and subsidies may reach \$600 billion over a number of years, according to a former Biden official. But Kennedy doubts that will do much to close the gap with China, which he called “an outlier that has no peers in the industrialized world.”

China scholars say the secret to China's success isn't just spending but, surprisingly, competition. While the party and the central government set industrial policy priorities, it's up to localities to implement the plans and finance most of the spending. On the local level, competition is fierce, as local party officials jockey for promotion by carrying out Beijing's wishes.

Chang-Tai Hsieh, a University of Chicago economist, said that the competition is rarely planned. The central government would rather try to create state champions than unleash competition beyond its control. But money floods into areas that Beijing designates as priorities because they are seen as politically safe. "The secret sauce of China's industrial policy is competition among local governments," he said. "In city after city, officials are doing things that make no sense (economically), but they want to please people in the party hierarchy."

After electric vehicles (EVs) became a priority, some 400 companies across the country jumped into different parts of the EV business by 2020, according to a [CSIS study](#). The same process occurred in solar energy, where competition at the local level was so fierce that the price for solar panels plummeted, and Chinese firms relied on government lenders to keep them afloat while they turned to exports to pump up revenue.

All this created a juggernaut that forced foreign competitors out of the market. China now produces three times as many solar panels as global demand, the *Financial Times* [reported](#). Last year, Chinese exports of solar panels, batteries, and EVs nearly equaled its exports of steel and related items—an industry that has long been awash in Chinese overproduction, [said](#) Ilaria Mazzocco, a CSIS researcher.

U.S. Treasury Secretary Janet Yellen said she pressed her Chinese counterparts during a recent trip to China to end super-cheap exports of clean-energy products. "Excess capacity poses risks not only to American workers and firms and to the global economy, but also to productivity and growth in the Chinese economy," she [said](#) in a recent speech.

Chinese prices are so low, some U.S. domestic solar companies argue that the subsidies in the Inflation Reduction Act (IRA) won't be enough to create an alternative to China. Chinese companies account for about one-quarter of the new solar-panel production announced in the United States since the IRA passed, putting them in line for as much as \$1.4 billion in subsidies, the *Wall Street Journal* [calculated](#).

"There is great risk that the largest beneficiary of the IRA's solar energy tax credits may be China," Mark Widmar, CEO of First Solar Inc., the largest U.S.-headquartered solar manufacturer, [told](#) a Senate committee.

Still, subsidies haven't guaranteed success for China. Despite spending many billions of dollars subsidizing semiconductor design and manufacturing, China is at least five years behind the market leader, Taiwan Semiconductor Manufacturing Co. (TSMC), in making advanced computer chips, estimated Dan Wang, a technology analyst at Gavekal Dragonomics, a market research firm that focuses on China.

The flood of money also invites corruption. Last year, Zhao Weiguo, whose Tsinghua Unigroup Inc. was a major recipient of chip grants, was locked up after allegations by China's anticorruption agency that he "took the state-owned company he managed as his private fiefdom."

There are several lessons here for the United States. First, subsidies alone aren't sufficient to carry out industrial policy. Second, competing with China in industries that it has prioritized is enormously expensive and probably requires a level of protectionism that the United States rarely provides.

Michael Carr, executive director of the Solar Energy Manufacturers for America Coalition, a trade association of domestic firms, said the government should look at the sugar industry as an example of what's needed. There, the U.S. accepts sugar to pay off loans when the price falls below a certain level, supporting a bizarre system where sugar is grown in Michigan, Minnesota, and other places that hardly boast a Caribbean climate.

But most importantly, perhaps, China's example shows the importance of assuring that industrial policy encourages competition. "As we think about industrial policy," Harrell said, "we need to think about ensuring our grant and tax subsidies don't entrench a small number of companies that become flabby incumbents."

Brian Deese, Biden's former director of the National Economic Council, said that relying on tax credits more than cash subsidies, as the Biden plan does, should encourage competition—and avoid China's pervasive overproduction. Before tax credits are awarded, investors must assess a market, decide whether it's profitable, and put down money. The government isn't making the decision; profit-driven companies are.

"Subsidies improve the return," Deese said. "But ultimately, someone has to put significant capital at risk. If there isn't a return capability, you'll see less take-up."

Perhaps, but it's also possible that if investors don't see enough return, they will instead press Washington to boost the subsidies, a la sugar. "Will they lobby for the government to be more generous? There's a risk," Deese said.

China's industrial policy goals have shifted since its economy opened to the world in the late 1970s. Initially, it used its huge, meagerly paid workforce to lure textile, apparel, and electronics manufacturing to China. Over the years, Beijing became more ambitious and now aims at leadership in technologies of the future such as robotics, semiconductors, clean energy, and artificial intelligence.

China focuses especially on what it calls “short board” technologies—areas where a Western blockade could cripple China, said Barry Naughton, a University of California at San Diego economist. Since the Trump years, for instance, China has focused on strengthening its domestic semiconductor design and manufacturing equipment makers so China's computer industry can survive U.S.-led export controls.

Depending too heavily on industrial policy has downsides, too, including sticking with projects that are clear losers far longer than is sensible—including, for example, pouring money into a failed effort to develop internationally competitive gasoline-powered cars, fuel cells, and hydrogen power. Often, though, China has made necessary adjustments despite setbacks. In the auto sector, gasoline-powered cars are now out in China industrial policy plans; EVs are in. No one is urging the U.S. to ape China's fetish for five-year plans or a system where the leader doesn't have to worry about the next election, but commitment and longer-range planning are American weaknesses—perhaps inevitably in a democratic system.

Already, U.S. textile makers complain that the Biden administration hasn't made good on purchasing American-made face masks, gowns, and other personal protective equipment, as required by a 2021 law initially proposed during the pandemic, or funded the Defense Production Act sufficiently to be of much use. U.S. companies geared up for the promised orders, but federal agencies continue to buy cheaper Chinese imports, said Kimberly Glas, president of the National Council of Textile Organizations.

A White House official said the Department of Veterans Affairs has identified 129 American-made items and has begun purchasing them, while other agencies are starting to do the same. But Glas said her group's members haven't seen any made-in-America orders.

Given America's fractured politics, it's also far from clear how much of Biden's clean-energy plans would survive a second Trump presidency. Trump now rails against EVs as job losers, claiming the auto industry is being “assassinated” by government policies promoting the cars. And the IRA, which contains most of the subsidies and tax incentives for clean energy, passed without a single Republican vote. The CHIPS and Science Act, which provides \$39 billion in subsidies as well as tax credits for semiconductor manufacturing, seems safer

because it had bipartisan support and it began as a proposal in the Trump administration.

In the past, Republican administrations have put the kibosh on Democratic industrial policy efforts. President George W. Bush, for instance, quickly ended the Clinton administration effort to develop a super-efficient gas-powered car. Congressional Republicans cut back Obama programs to develop solar panels.

Deese figures that clean-energy subsidies would survive a change in administration because of local politics. About 75 percent of the clean-energy investments made after passage of the IRA have been in Republican congressional districts. “There’s more continuity for the basic proposition that we need to invest more in industrial capability, and in a more energetic way,” he said.

There’s no way the United States will ever come close to the control that the Chinese leadership has over the economy—should it ever want to. China has a parallel system where small Communist Party leadership groups oversee a massive government planning system that is awash in lobbying by different agencies and state-owned firms to get their priorities approved.

The U.S. approach to industrial policy is splintered among different agencies, without any body such as China’s National Development and Reform Commission—the successor to the state planning agency—to pull things together. The Commerce Department runs the semiconductor program, while the Energy Department, Treasury, Internal Revenue Service, and other agencies have a say in clean-energy incentives, and the Pentagon manages other programs involving chips and communications technology. An obscure White House agency, the Office of Science and Technology Policy (OSTP), could be tapped to play a coordinating role, but it rarely has much influence.

To coordinate oversight of industrial policy, the White House had to name Jason Matheny, a prominent technologist, to three different jobs simultaneously: deputy assistant to the president for technology and national security, National Security Council (NSC) coordinator for technology and national security, and OSTP deputy director for national security. With national security increasingly dependent on technological advances, the White House wanted to ensure its policies were “in sync,” Matheny said. After he left in 2022 to become president of Rand Corp., a defense think tank, his jobs were split among several people.

“There’s no one who sees the whole picture,” said Christine Turner, a former Obama NSC official, now at the political consulting firm Boundary Stone Partners. “We don’t have a

cabinet-level person in charge of pulling all the strings for making industry policy work across the board.” Over the years, there have been proposals to make the Commerce secretary or a new competitiveness agency the industrial policy czar, but they have gone nowhere because of rivalries among cabinet agencies and congressional committees.

A White House official countered that the U.S. system has its plusses because it requires so many different agencies to have a stake in the industrial policy effort. “It’s a whole-of-government approach,” the official said, which is coordinated by White House deputy chief of staff Natalie Quillian.

In one way, the United States has begun to ape how China approaches industrial policy. For years, the U.S. sought to present itself as a free-market model for Beijing, figuring that China would see the advantages of following the U.S. economic model and would fear a cut-off of trade if it remained protectionist. No longer. Now, Washington is just as likely as Beijing to cite “reciprocity” as a reason for taking actions to pump up domestic industry and disadvantage its rival.

When Biden announced a proposal for an executive order that could ban Chinese EVs from the U.S. because they transmit data that could be scooped up by Chinese agencies, he was clear about his thinking. “China imposes restrictions on American autos and other foreign autos operating in China,” the president said. “Why should connected vehicles from China be allowed to operate in our country without safeguards?”

Probably the toughest issue for Washington presented by the China example is how heavily to lean into protectionism like this. A crucial part of China’s success has been walling off its huge domestic market in areas such as telecommunications manufacturing. That gave Huawei Technologies Co. and ZTE Corp. a guaranteed revenue base to pay for the R&D and automation necessary to compete internationally. China repeated the formula in internet services, allowing Baidu to grow free from competition from Google and others.

But China has also encouraged foreign investment in many industries. It has used joint ventures, regulations, review committees—and outright theft—to learn technology secrets it could exploit. Examples are legion. As a condition for doing business in China, Japanese and European bullet-train makers transferred knowhow to China’s Railways Ministry and Chinese companies. Soon, Chinese companies became powerful competitors. When China was developing its EV market, foreign carmakers were required to buy batteries from local firms to help them upgrade. Meanwhile, Chinese-owned Volvo Car Group could buy more advanced batteries from Korea, so it could compete better in EVs.

The Trump administration tried its hand at protecting the U.S. market by imposing tariffs on three-quarters of everything China shipped to the U.S. But that didn't have much impact as Chinese companies rejiggered their supply chain so they could ship to the U.S. via operations in Vietnam and Mexico. Biden retained the tariffs and doubled down on protection by making it nearly impossible for Chinese firms to pass national security reviews to buy U.S. companies, say lawyers involved in the reviews. Chinese investment in the U.S. plummeted from \$54 billion in 2016 to about \$1.5 billion in 2022, according to Rhodium Group, a market research firm. Even a deal where Ford would license advanced battery technology from China's Contemporary Amperex Technology Co., so it could better compete in EVs, drew flak from Congress and Virginia's governor.

The bias against foreign investment applies only to China and a handful of other adversaries. U.S. industrial policy plans generally lean heavily on foreign investment. The CHIPS Act subsidies for semiconductor manufacturers largely began as a way to convince Taiwan-based TSMC to build an advanced factory in this country. Recently, the administration approved a \$6.6 billion grant to TSMC to support a TSMC investment of \$65 billion in three new Arizona chip factories, although work on the projects is behind schedule. That is in addition to grants to Intel Corp and other U.S.-owned manufacturers.

When it comes to China, the U.S. approach is ambivalent. With the administration pushing to increase solar installations, new Chinese-owned solar panel factories in the U.S. could be eligible for tax credits. But Chinese battery makers and chip companies generally aren't. There the U.S. is looking to shut out Chinese firms and count on American ones to leapfrog them in technology.

Kennedy, the CSIS China expert, said that Chinese investment is needed in areas like batteries, EVs, and other green technologies where Chinese firms are the leaders in the same way that Chinese firms upgraded by learning from American market leaders.

"We have an approach of heads-you-win, tails-we-lose," Kennedy said. "If we're ahead technologically, we don't want Chinese investment because we don't want to give technology to them. If we're behind, we feel that they are a national security risk, or we don't want to be dependent on China."

Rather than a blanket ban on Chinese firms receiving investment incentives, an approach that weighs risks and rewards makes more sense. That's the technique the Chinese use. When China wanted to encourage Tesla to build a plant in Shanghai as a way to boost its high-end EV capacity, it provided a range of tax breaks and cut-rate financing.

Similarly, encouraging Chinese investment in batteries, where the U.S. is clearly a laggard,

would mean entitling Chinese companies producing here to the same breaks non-Chinese companies receive. In solar, all companies—Chinese or non-Chinese—producing in the U.S. should get more benefits if the materials they use come from non-Chinese sources, as a way to diversify the supply chain.

The United States could also try another approach that China has used so successfully—demanding access to technology in exchange for approval of investments in the U.S. The problems facing TikTok in the U.S., where the House passed a measure to ban the app unless it is sold to U.S.-friendly buyers, should be read as a signal to Beijing. Essentially, the measure requires the technology underlying TikTok be shifted to Western control.

Technology exchanges could be the price China pays for doing business in the U.S. “There’s an irony here,” said Michael Davidson, a University of California at San Diego energy expert. “The U.S. has long complained about Chinese protectionist policies that forced technology transfer. We have a chance to reverse that and get technology from China on favorable terms.”

Using pressure tactics of this kind could be tough in a democratic system where the aggrieved have access to top lawyers and an independent judiciary. Still, Americans would do well to study the Chinese experience for ideas about what will work and what won’t.

Bob Davis is a reporter who covered U.S.-China economic relations for decades for the *Wall Street Journal*. He is the co-author of *Superpower Showdown: How the Battle Between Trump and Xi Threatens a New Cold War*.

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