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Brittle Versus Robust Reindustrialization

Report

Stephen Miran

Adjunct Fellow
Manhattan Institute

Executive Summary

Policymakers across the political spectrum have embraced reindustrialization as an economic priority. But the current administration's approach to reindustrialization—which includes generous subsidies to politically favored sectors of the economy for which there would be little demand at market prices, as well as counterproductive incentives for unionization and special environmental restrictions—will, at best, lead to a brittle form of reindustrialization that will leave us vulnerable to a second wave of deindustrialization once subsidies inevitably stop flowing.

There is, however, a better way to achieve robust reindustrialization. First, in order to make the U.S. the most attractive place to do business, we should pursue aggressive supply-side reform, lowering rather than raising the cost of production. Regulations serve as barriers to entry, reducing competition and raising prices. Environmental rules, labor laws, product regulations, zoning restrictions, and more can all be streamlined and updated for an era of reindustrialization.

Second, investments in science and technology education can help train a workforce capable of accelerating reindustrialization.

Finally, reindustrialization can be aided through demand support from defense-driven procurement. Unlike the current approach—which requires government to identify what future demand will be for green-energy technology or consumer products, such as electric vehicles—a defense driven approach is likely to have much higher success rates, because it requires only that the military be able to identify what it will need to defend Americans at home and abroad. The military is likely to be better at picking defense winners and losers than political activists and bureaucrats are at picking consumer winners and losers.

Defense-driven industrial policies generate particularly strong positive economic spillovers in technological progress, research and development, and investment; and they are "dual-use"—they simultaneously boost efforts in national security and reindustrialization. Furthermore, national security spending will never disappear.

The combination of structural supply liberalization and boosting demand through defense-driven industrial policy can be a potent mix for accelerating investment in industry.

Introduction

A free people ought not only to be armed, but disciplined; to which end a uniform and well-digested plan is requisite; and their safety and interest require that they should promote such manufactories as tend to render them independent of others for essential, particularly military, supplies.

—George Washington, first State of the Union Address to Congress, 1790[1]

Reindustrialization of the American economy is an explicit goal of many politicians and policymakers of both major parties, though the proposed means vary widely. The Biden administration has taken a spending-and-subsidies approach toward reindustrialization in a series of pieces of legislation—particularly the CHIPS Act, the Infrastructure Investment and Jobs Act, and, above all, the climate-focused Inflation Reduction Act.

But this approach, sometimes referred to as "Bidenomics," creates a brittle form of reindustrialization. Bidenomics not only imposes onerous costs on industry in various ways—from incentives for unionization to special environmental restrictions—that raise the cost of production and work against the stated goal of expanding our industrial plant; it does so while targeting sectors of the economy for which there would be very little demand, absent government support to artificially lower prices.

Given our nation's significant long-term fiscal sustainability problems and looming entitlements crises, we cannot afford to keep trillions of dollars of industrial subsidies flowing indefinitely. Without the subsidies, the Bidenomics-fostered industrial base will be vulnerable, operating at expensive and uncompetitive levels in the international context. In particular, IRA helped create a manufacturing base whose product demand is likely to evaporate when the subsidies end. Given a finite horizon for subsidies, America will be vulnerable to a second wave of deindustrialization, leaving the taxpayer saddled with trillions of dollars of additional debt and little to show for it.

A more robust form of reindustrialization would instead combine aggressive supply-side reform with demand support from defense-driven procurement, which would produce enormous positive economic spillovers.

The regulatory state is one of the greatest obstacles to reindustrialization, as regulations contribute substantially to the cost of doing business. Because regulatory burdens fall disproportionately on smaller firms, which have a harder time paying the fixed costs of compliance, they also transform market structure and raise price levels. By erecting severe barriers to entry, regulations favor large incumbents and reduce competition, encouraging mergers and consolidation and stymieing innovation. The result is accreted market power and higher prices.

Fortunately, the government can take many steps to make it cheaper to do business in the United States. Environmental rules, labor laws, product regulations, zoning restrictions, and more can all be streamlined and updated for an era of reindustrialization. Boosting our investments in and incentives for science and technology education can help train a workforce capable of accelerating reindustrialization.

Unlike the subsidy-driven approach, robust reindustrialization improves fiscal sustainability. Supply-side reforms and regulatory reforms will incentivize investment, boosting the number of firms and competition, the capital stock, productivity growth, and wages. These reforms will help accelerate economic growth and thus tax revenue.

In addition, reindustrialization can and should be accelerated by creating incentives to move supply chains to address the changing national security landscape. We are already engaged in cold and proxy wars against a rising China and a revanchist Russia. Because these wars could turn into hot wars at any moment, we need an industrial base capable of quickly meeting our military needs and keeping our soldiers and citizenry safe, without relying on the goodwill of geopolitical adversaries like China. We cannot defend ourselves against China if our weapons producers have thousands of supply-chain inputs in China and those inputs get cut off.[2] Furthermore, the normal benefits of free trade ought not to apply to hostile countries against whom we are waging a cold war.

To advance decoupling from China, the principal tools available to the U.S. government are to tighten Buy American requirements and exemptions in sectors critical for defense and national security and to levy tariffs against strategic adversaries like China.

Abundant economic evidence shows that defense-driven industrial policies generate particularly strong positive economic spillovers in technological progress, research and development, and investment. These policies are "dual-use"—they simultaneously boost efforts in national security and reindustrialization.

The critical difference between manufacturing support for defense and the Bidenomics programs is the degree of success that the government can have in picking winners and losers. Bidenomics programs require legislators and bureaucrats to correctly identify which products will be in demand in the future—for instance, they have staked vast sums on electric vehicles (EVs). But there is little certainty that consumers will want EVs at market prices when subsidies end, and there is already accumulating evidence that EV demand is not sustainable even with heavy subsidization. Used EV prices have declined by 32% over the last year, about three times as fast as overall used vehicle prices,[3] and fleet owners like the rental firm Hertz Global Holdings have experienced buyer's remorse and are taking steps to liquidate significant shares of their EV holdings and switch back to gas-powered vehicles.[4]

By contrast, using the defense procurement budget to stimulate manufacturing in sectors critical for national security requires the military to tell government what it needs to defend Americans at home and abroad. Simply put, the military is likely to be better at selecting combat winners than legislators or bureaucrats are at selecting consumer winners. And unlike IRA subsidies, national security spending will never disappear.

Three themes run throughout this report. First, the most important thing we can do to aid reindustrialization is to make American inputs of production—labor and capital—more attractive, relative to foreign inputs. Second, national security is the most important public good that government can provide, and it affords plenty of scope for dual-use policies that simultaneously boost demand for domestic industry and make us safer. Third, attempts to move supply chains across national borders can be disruptive, so some programs and policies should be ramped up gradually to give firms credible forward guidance; precommitments can help provide clarity about future demand patterns, thus allowing firms to invest today for production tomorrow.

Reindustrialization will not happen overnight; firms require time and foresight to move supply chains and open facilities stateside. Fortunately, government can take a broad array of steps to accelerate the process.

Brittle Reindustrialization: Building an Inefficient Industrial Plant

Several pillars of so-called Bidenomics aim at reindustrializing the economy. The CHIPS Act, the Infrastructure Investment and Jobs Act (IIJA), and the Inflation Reduction Act (IRA) all seek to generate investment in production in the U.S. of semiconductors, infrastructure, and climate transition technology, respectively, theoretically contributing to a revitalized industrial base. Of these, the largest and most significant by far is IRA, the climate and energy provisions of which are now expected to exceed $1 trillion, according to analysts at Wharton and Goldman Sachs.[5] IIJA cost approximately $550 billion beyond Congress's regular authorizations, and the much smaller CHIPS Act cost roughly $50 billion.

Two major problems with the administration's approach limit its utility and ultimately undermine the contributions that it makes to reindustrialization. First, the programs encourage investment in sectors of the economy that cannot stand on their own without subsidies, meaning that these sectors are vulnerable to another wave of deindustrialization as soon as the subsidies diminish. This problem is especially acute for IRA but less so for infrastructure. It might also apply to semiconductors, but because semiconductors will continue to be important for national security reasons, these subsidies will likely persist for longer than those for green energy—and, at 5% the cost of IRA, CHIPS subsidies will be easier to sustain.

Second, the programs come with aggressive regulatory requirements that raise the cost of domestic factories and labor relative to foreign factories and labor, providing longer-term incentives for our remaining industrial base to move offshore in pursuit of cheaper means of production. Sincere efforts for reindustrialization should aim to make it cheaper—not more expensive—to use domestic capital and labor.

By building an industrial base disconnected from market prices and underlying consumer demand, we are making America vulnerable to another wave of deindustrialization. If a factory produces goods bought with subsidies and demand disappears with the subsidies, the factory is apt to close.

Subsidizing Inefficient Sectors of the Economy

Left to its own devices, the economy will invest in sectors that produce goods and services demanded by consumers. Generally speaking, government direction of resources toward specific sectors is likely to build a capital structure invested in less efficient production, since policymakers are rarely skilled at predicting which goods consumers will want and to what extent industry can drive down prices. Unless the economy is in a significant downturn with abundant unused resources, government direction of resources into any particular sector necessarily reduces activity elsewhere. Thus, industrial policy simultaneously boosts inefficient sectors while holding back efficient sectors.

The industrial policy embodied in IRA focuses on climate-transition technology such as EVs. EVs are clearly not sufficiently economical to sustain current demand levels on their own, or they would not need government subsidies. The government subsidies exist because the Biden administration has made it a priority to reduce carbon emissions associated with internal combustion engines. (Lowering carbon emissions is unambiguously a good thing, but I will address some cost-benefit considerations of this approach to carbon emissions later in this report, in the broader context of environmental regulations.)

If manufacturers thought it profitable to make investments in EV production facilities without government subsidies, they would have done so before subsidization. However, producers know that customers have limited interest in purchasing EVs without the $7,500 credits from the government. The subsidies divert firms from undertaking activities that would be more profitable in the subsidies' absence, resulting in less efficient investments.

Recent research by the Texas Public Policy Foundation suggests that the total value of all federal and state subsidies and regulatory credits for EVs is about $50,000 per vehicle.[6] According to the researchers, spreading this cost out over the average life of a vehicle implies a break-even fueling cost of $17.33 per gallon of gasoline. Obviously, demand for these products would be very limited if consumers had to pay those market prices.

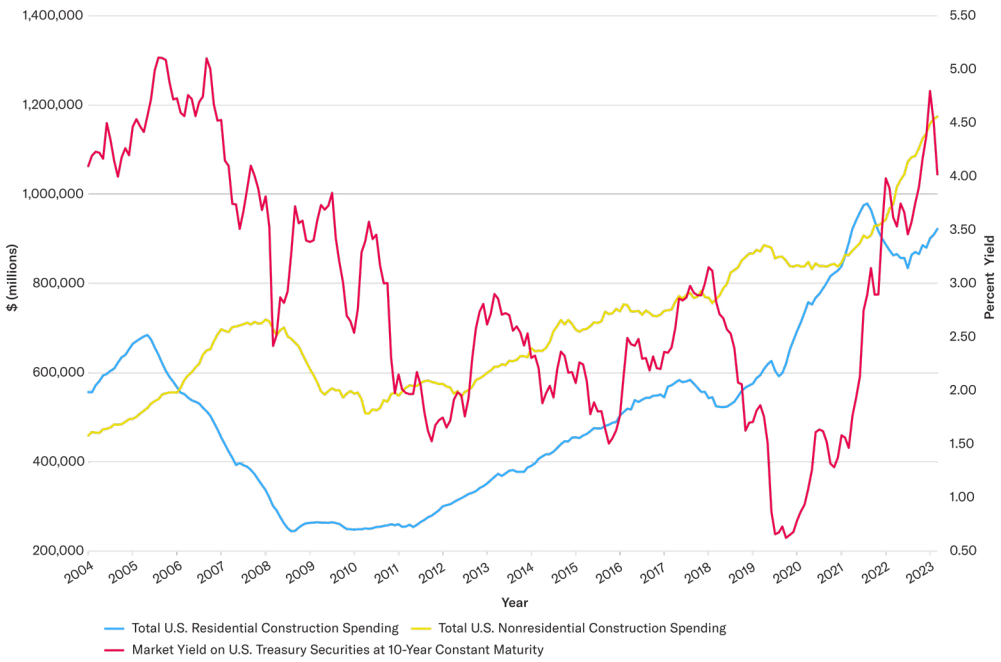
IRA proponents hope that over time and with subsidization, the costs of producing EVs will decline to levels where strong consumer demand will be sustainable. But there is evidence that, even at current heavily subsidized prices, consumers' demand for EVs is waning; and dealers' inability to sell EVs has led to unsold inventory accumulating on lots at nearly twice the rate of conventional vehicles.[7] In other words, government subsidies are likely creating a substantial capital stock built around products for which consumers will have little demand after the subsidies disappear.

When the government pays industry to build factories for IRA-favored activities, such factories will be built; indeed, nonresidential construction activity has increased by over $100 billion in the last year (**Figure 1**). However, absent a major recession, significant idle resources are not sitting around waiting to be used, so that construction has necessarily come from reduced economic activity elsewhere, a process known as "crowding out." Government borrowing to fuel this building bonanza has helped push interest rates to the highest levels since 2007, making it difficult for anyone not receiving government subsidies to borrow and invest.

The most obvious example: mortgage applications hit 28-year-low levels as mortgage rates exceeded 8%.[8] Since home affordability declined steeply, residential investment fell for nine straight quarters,[9] despite a clear need for families to move and invest in new homes. This is classic crowding out: activity that households and firms think is profitable is made prohibitively expensive by the investment crowded in by IRA.

Figure 1

Construction Spending and Interest Rates



Source: Federal Reserve; government subsidies have created a nonresidential investment boom that has, in turn, increased interest rates and crowded out residential investment.

This phenomenon is not limited to mortgage rates and housing. Interest rates paid by small businesses on short-term loans rose to nearly 10%,[10] and bank lending for commercial and industrial activity has stagnated for nearly three years.[11] The net result is that if entrepreneurs and businesses see a viable opportunity for investing, a new market in which to innovate and conquer, they will have a much more difficult time obtaining funding for expanding, experimentation, and growth. Venture capitalists have experienced fundraising declines (down 60% in 2023 from the peak in 2022, and the lowest level since 2017)[12] larger than those that were seen after the global financial crisis, resulting in a halving of the amount of investment in startups.[13]

The result of subsidies is to direct economic activity from sectors that firms and households see as lucrative to sectors that they do not, because the lower-quality sectors become relatively more attractive with government subsidies. As long as subsidies keep flowing, the arrangement seems stable; but if the subsidies ever dry up, the IRA economy is vulnerable to collapse in a new wave of deindustrialization. Moreover, innovation in the subsidized sector will come at the expense of innovation in nonsubsidized sectors, creating even more vulnerability.[14]

If subsidies ever stop, the investments undertaken for the sake of IRA subsidies will be uneconomic, and those factories and jobs will move abroad. Meanwhile, we will have underinvested in production that does not require government support. The only way the IRA economy can become permanent is if the government pays subsidies forever or outlaws cheaper alternatives such as combustion-engine cars. Given our long-term fiscal sustainability problems, there is little chance that we will be able to keep IRA subsidies indefinitely.

These risks are already being realized. For example, solar-equipment manufacturer Enphase Energy, a darling of the green energy investing world, recently announced that it is laying off 10% of its workforce and closing two factories. The closures follow declining sales after California's

regulations reduced the amount that homeowners can earn from selling excess energy produced by their solar panels back to the electric grid. Without the subsidies, consumers do not want as many solar panels, and Enphase does not need as much industrial plant. Consequentially, factories close and workers get laid off.[15]

Notably, the CHIPS Act is substantively different from IRA because semiconductors—unlike climate-transition technology—are an essential input into the national security supply chain for advanced weaponry and defense systems. As discussed below, defense-driven industrial policy is a superior way of creating demand stimulus for reindustrialization. Nevertheless, CHIPS suffers from many stipulations that make it needlessly expensive to make semiconductors onshore, which I will discuss in the next section.

Making Production Costlier, on Purpose

The other harmful component of the Bidenomics reindustrialization agenda is the purposeful crippling of the supply side, through legislative and regulatory requirements that significantly raise the cost of production.

Although the goals of many of these requirements might be laudable, the regulations themselves are not necessarily the best way of achieving those goals; often, their undesirable consequences outweigh the marginal benefit of the regulation. For example, IIJA will require automobile manufacturers to install technology that will automatically turn off the car if it is idling, in order to reduce emissions. It is good to reduce pollution, but requirements like these will raise the cost of cars, raise the cost of production, and necessitate a costly compliance and monitoring regime for manufacturers, all of which are counterproductive to the goal of reindustrialization. Insofar as these regulations help push manufacturing toward less regulated jurisdictions such as China, they might result in *more* global emissions, not less, demonstrating the critical importance of carefully weighing the costs and benefits of the vast array of regulations imposed on the economy.

More requirements in IIJA: car manufacturers will be forced to include Breathalyzer equipment to prevent drunk individuals from driving their cars; climate technology for preventing children or pets from being left in vehicles on hot days; safety technology for automatic emergency braking and crash-avoidance systems; lane-departure warnings and corrections; specialized rear guards on certain types of vehicles; and automatic shutoff systems. IIJA instructs the transportation secretary to update regulations covering car seats, vehicle headlights, hoods, and bumpers, and to provide more stringent enforcement of auto regulations. The National Transportation Safety Board recently recommended requiring auto manufacturers to install technology that forcibly prevents cars from exceeding 130 miles per hour.[16] These features are not only expensive but will require an extensive business apparatus built around complying with the regulations.[17]

Producing semiconductors domestically might be a critical goal for national security, but the CHIPS Act imposes extensive labor requirements on fabrication facilities to be eligible for funding. Employers are required to provide additional perks for workers, such as "affordable, accessible, reliable and high quality" child care not only for semiconductor workers but also for construction crews.[18] Access to child care is unquestionably good, but requiring firms to provide it to employees serves as a tax on labor and raises the cost of production. Depending on local supply-and-demand dynamics, the consequence of this new labor tax will be lower equilibrium cash wages for workers, as firms seek to make up the cost of child-care provision—or, likelier, higher costs of production and, thus, of goods sold.

Regulations implementing the CHIPS Act also include "skilled and diverse workforce" regulations that impose racial, sexual, or other goals on employers, who are required to maintain and implement "robust plans" for recruiting workers from particular communities and to create politically favored

workforces "in coordination with on-the-ground stakeholders"—code for special-interest groups. Firms must develop elaborate recruitment and retainment systems to employ engineers with governmentally favored biological features.

Once again, these rules will necessitate a strict monitoring and compliance program. Commitments that firms make in their applications "will be codified in the terms of an award and subject to detailed reporting requirements … [and] must include metrics and processes to measure, track, and report publicly on these goals and commitments." Grant recipients are "expected to collect granular data" to evaluate their workforce efforts and to make those data publicly available. If firms fail to live up to their commitments, then the government may demand repayment, even after the money is spent.

All this makes manufacturing semiconductors in the U.S. more expensive than it needs to be, and it cedes an important strategic advantage to China and other jurisdictions with less burdensome regulatory environments. From a national security perspective, it might be imperative to be self-sufficient in semiconductors, but such restrictions are not the way to achieve that goal.

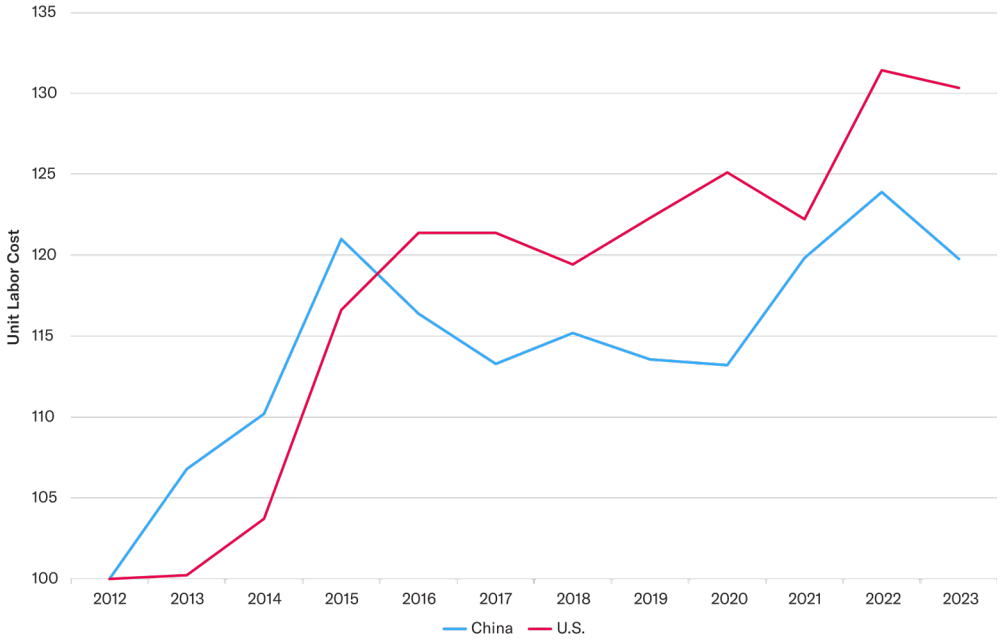
Nor are these issues merely theoretical. Samsung Electronics Co. has followed the semiconductor giant Taiwan Semiconductor Manufacturing Co. in postponing production of semiconductors at new American facilities to 2025. Such a delay implies a four-year lag between project announcement and production. *Bloomberg* reported that "US environmental permit issues and the Biden Administration's slowness in delivering financial support have been plaguing domestic chip projects."[19]

Explicit efforts to raise costs persist throughout other Bidenomics programs. For instance, they include "prevailing wage requirements," which force firms receiving subsidies to pay wages at or above the median wage for the type of work in their region, as calculated by the Labor Department.[20] The requirements prevent firms from competing to lessen their labor costs and effectively turn unions into wage setters.[21] Some IRA funding programs explicitly state that applicants that agree to use unionized labor will be more likely to receive funding and receive larger packages.[22]

These extra costs will exacerbate the problems that can be seen in **Figure 2**, which compares unit labor costs—how much labor a unit of GDP costs to produce—in America and China. In the last 10 years, the currency-adjusted amount of American labor required to produce a given amount of goods and services has gone up by about 29%, while the amount of Chinese labor required has gone up by only 12%. Manufacturers derive significant cost savings from producing in China, where labor costs were already lower at the beginning of this period and have not risen nearly as much.

Figure 2

Competitiveness Indicators: Relative Unit Labor Costs in the Overall Economy



Source: OECD Economic Outlook and *Bloomberg*

The Bidenomics agenda to boost unionization will politicize the industrial base. Because unions concentrate political power in the hands of union leadership and play powerful roles in democratic outcomes, there are significant political economy consequences to subsidizing unionization. Once an industrial base exists around inefficient production, unions serve as a powerful lobby to create political pressure for continued subsidization even if and after it becomes clear that subsidies do not provide net positive value to the taxpayer.

To the extent that industrial policy has a place in the toolkit, it must aim at making production cheaper, in order to maximize demand for American goods and services. Policy that goes out of its way to make production more expensive is not going to do much in the long run for American industry. Firms are happy to pay up for expensive production if the federal government is footing the bill; but when those subsidies disappear, the investments that have been organized around too-expensive labor and fixed costs will be economically uncompetitive. This approach paves the way for a second wave of deindustrialization, unless we intend to keep the subsidies up forever or to block out competition altogether—both of which are terrible approaches.

Robust Reindustrialization: Make America the Cheapest and Best Place in the World to Invest and Hire

Rather than drive up costs of production, the best thing that government can do to facilitate reindustrialization is to make production in the U.S. as cheap as possible, thus encouraging firms to choose to hire and invest here. Policy should aim at making American capital and labor easier and cheaper to employ and more efficient relative to capital and labor from abroad, so that demand for them increases and firms invest in production capacity and workers in America.

Such reindustrialization will be robust because it is not dependent on subsidies and is not in danger of sudden withdrawal of government support and a resulting price shock. Rather than exacerbate fiscal sustainability problems by saddling the taxpayer with debt used to finance subsidies, resilient reindustrialization will improve our long-term fiscal path by boosting potential economic growth and tax revenue. Reindustrialization brought on by regulatory streamlining is more resilient because it does not require government to pick winners and losers. All sectors of the economy, not just those receiving targeted subsidies, will benefit from curbing excessive regulation, efficient infrastructure investment, and tax reform.

Robust reindustrialization requires aggressive reform to the regulatory state—not only by undoing the most recent requirements of the Bidenomics programs but also regulations that have been steadily accumulating for decades. Regulations increase costs of production not only by making products more complicated and expensive to build but also by making firms devote significant resources to ensure that they are up to code with the mandates. The increased burdens can serve as a significant barrier to entry, reducing competition and pushing costs up further. If it takes highly technical personnel and equipment to comply with a regulation, then fewer firms, and likely only larger firms, will be able to afford to pay those fixed costs to operate.

Precisely measuring the costs of regulatory compliance is a hopeless task, given the volume, variability, and inconsistent enforcement of regulations; nevertheless, economists have made attempts to do so. Recent research finds that 1.3%–3.3% of all direct labor expenditures by firms go toward regulatory compliance.[23] However, this is likely a severe underestimate because it only counts ongoing labor expenses and ignores the costs of outsourced compliance, nonlabor expenditures, and setup expenses.

The estimate also suffers from survivorship bias: firms unable to bear the expense of regulations go out of business and drop from the sample. If compliance creates enormous economies of scale so that smaller firms drop out of the sample, these numbers will reflect only the larger firms. These numbers might therefore be thought of as a lower bound on overall costs to the economy and cannot be used as the hypothetical gain to the economy of abolishing all regulations; this is an instance in which the "economic cost" is greater than the "accounting cost."

Research by the National Association of Manufacturers estimates that the cost of complying with regulations is about 12% of GDP.[24] NAM finds that the regulatory burden on manufacturing firms is twice the economy-wide average, and smaller manufacturing firms spend over three times as much per employee as an average firm.

The result is a barrier to entry, which undermines competition, fosters larger firms with more market power, and burdens Americans with higher prices. Research by Gutiérrez and Philippon provides evidence that regulatory complexity and, crucially, lobbying for that complexity by established firms drive out smaller firms. American policies create incentives that cause our industrial capacity to flee these regulations to geographies with less stringent requirements.[25]

Environmental Reform

Regulations designed to protect the environment can have adverse effects on investment and economic activity. Ample empirical research has shown that environmental regulations can be detrimental to trade, employment, and productivity.[26] Critically, they deter investment and firm entry, leading to less competition, less innovation, and higher costs.[27]

Researchers have estimated that air-pollution regulations have cost about 9% of both manufacturing profits[28] and employment;[29] and that regulations that affect electricity prices strongly influence where manufacturing plants are located,[30] with high prices significantly deterring investment.[31] An exhaustive survey of the literature on the economic consequences of environmental regulations is available in Dechezleprêtre and Sato.[32]

Environmental quality is critical to the well-being of the nation, but regulations can be streamlined and more sensibly implemented in order to minimize their consequences for building and investment. All regulations have costs in addition to benefits.

For instance, the Environmental Protection Agency (EPA) has established an additional regulatory program for semiconductor manufacturing, on top of other pollution regulations.[33] The statutory authority that EPA claims for this program is 42 U.S. Code §7401,[34] which concerns generalized air pollution (and specificially pollutants listed in §7412) but contains no specific instructions to the executive branch regarding semiconductors; the choice to establish additional compliance burdens that single out semiconductor manufacturing is purely one of executive discretion but nevertheless raises the price of making semiconductors domestically and hampers attempts to build out a robust semiconductor ecology.

One of the most problematic consequences of environmental regulation is increased energy costs. Manufacturing and industry require power to build and create. A higher cost of energy makes it significantly more expensive to produce goods in America and contributes to the erosion of our competitiveness.

The Department of Energy describes the energy secretary's primary role as "leading DOE's work to advance the cutting-edge technologies that will help America achieve President Biden's goal of net-zero carbon emissions."[35] Such policies often restrict production of new fossil fuels and aim for higher general energy prices as a key mechanism to incentivize the adoption of cleaner energy sources.

The consequence is a much higher cost of production across the board. China, our key geostrategic adversary, is happy to continue increasing its coal consumption, making abundant and cheap energy a key plank of its export powerhouse. The success of China's BYD auto manufacturing firm has allowed it to overtake Japan as the world's largest car exporter, when just a few years ago China was an insignificant player in the global auto export industry. BYD creates extremely cheap EVs while exploiting abundant dirty coal energy, undercuts EV prices in Europe, and is creating severe stress in the German auto industry.[36] European leaders are extremely concerned that BYD is flooding the market by undercutting European auto manufacturer prices, and they are exploring raising trade barriers in response.[37]

While streamlining and cutting environmental regulations are essential to reindustrializing, the top environmental priority should be creating abundant and cheap energy. We should facilitate as much energy production—including fossil fuels—as possible to make it as cheap as possible to produce in America.

Environmental protection is certainly important in both the near and long term. But climate change is a function of the global stock in emissions, not local flows. It does not matter where the emissions occur; a reduction in U.S. emissions that does not also roll back Chinese emissions will have no effect. Asian carbon emissions increase by about 0.6 billion metric tons per year, the vast majority of which are Chinese. The Biden administration's Department of Energy estimates that IRA and IIJA combined will reduce U.S. emissions by 1 billion metric tons.[38] Given the ongoing explosion of Asian emissions growth, the U.S reduction would represent less than 20 months' worth of offset of Asian emissions expansion (see **Figures 3** and **4**).

Even if the U.S. could cut its emissions all the way to zero, it would take only eight years for Asian emissions growth to offset our reductions.

Hamstringing the American economy to reduce emissions will not yield any lasting climate improvement. Many analysts focus on potential climate disasters occurring around the turn of the next century. In that context, the combined effect of IRA and IIJA will be, at best, to push off a climate disaster from 2100 to 2102, but in the meantime will severely disadvantage American productive capacity while yielding enormous geostrategic advantage to China. Moreover, to the extent that U.S. climate regulations push production toward less regulated jurisdictions like China, they might actually *increase* global emissions.

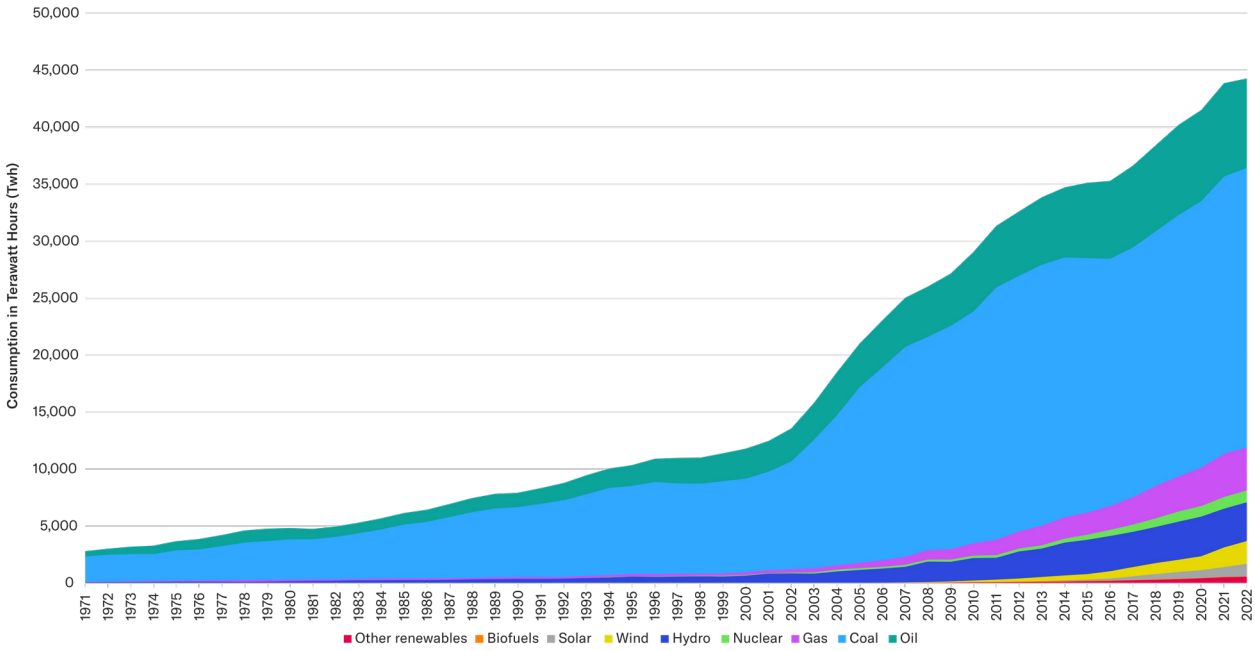
Any so-called climate policy that lacks teeth to rein in Asian emissions and merely reduces American emissions is not a serious policy and will not move the needle on climate.

IRA proponents argue that if the U.S. takes a first step toward aggressively curbing carbon emissions, China will surely follow and that China has promised to reduce its emissions in the near future. But China has repeatedly promised many things and failed to follow through. China has promised to float its currency, open its markets, stop exporting fentanyl inputs, protect Hong Kong's independence, stop stealing intellectual property, and more, without ever delivering. Our expectation should therefore be that China will continue to pursue energy independence by increasing its use of dirty fuels until we get hard evidence that its emissions are steeply declining.

Instead, we should get the U.S. economy booming by harnessing abundant cheap energy of all forms, accepting that global emissions will continue increasing, and use some of the increased tax revenue from a soaring economy to invest in moonshot energy technologies, such as carbon capture, climate mitigation, and terraforming. Without dramatically curtailing Asian carbon emissions, any prevention strategy is doomed to fail; it is simply too late. Rather than distort and maim the economy to prevent emissions, the better approach is to allow unfettered prosperity and then invest in ways to mitigate the effect of carbon on the environment or reabsorb it.

Figure 3

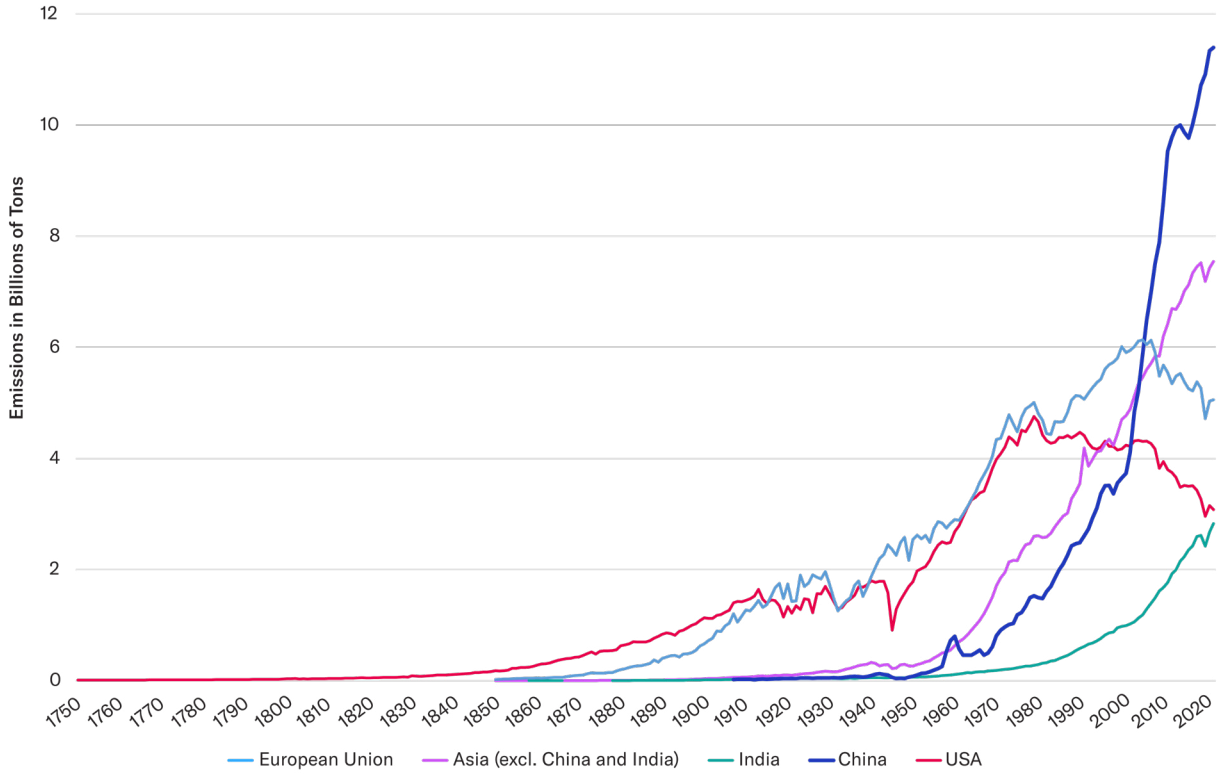
Chinese Energy Consumption by Fuel Source, 1998–2022



Source: Statista, https://www.statista.com/statistics/265491/chinese-coal-consumption-in-oil-equivalent

Figure 4

Annual CO_2 Emissions



Source: Our world in data, https://ourworldindata.org/co2/country/china?country=~CHN#what-are-the-country-s-annual-co2-emissions

Workforce Reform

Artificially expensive labor is another barrier to reindustrialization. Anything that serves to make American labor more expensive will incentivize the use of alternative inputs to production—such as foreign labor or robots. The best approach to helping workers is to create robust labor demand by making America the best place to do business, not artificially expensive.

One factor driving U.S. labor costs is unionization, which purports to support workers but unfortunately has the effect of making American labor more expensive relative to other inputs, largely by restricting labor supply and leaving out numerous workers. Since unions drive wages above market-clearing prices, they disincentivize the use of local labor and encourage firms to produce elsewhere. Union membership tends to play a larger role in firms in the manufacturing sector and related industries such as transportation than it does in service industries, with exceptions like government and related sectors such as education.[39]

To help make American manufacturing more competitive, Congress should pass a national right-to-work law allowing employees around the country to choose whether to join a union (of the type sponsored by Senator Rand Paul).[40] The president already has authority to restrict federal unionization in areas critical to national security and should use it to facilitate building out the defense industrial base, but this authority has been used only sparingly.[41]

Congress should also repeal the Davis-Bacon Act and its prevailing wage requirements for government-sponsored work and investments (such as infrastructure and national security projects), which empower unions as wage setters and hamper firms from competing on price. Finally, Congress can significantly narrow the scope of the National Labor Relations Act's monopoly representation powers granted to unions.[42]

Occupational license rules restrain and calcify the labor force.[43] Anything that imposes a barrier to workers flexibly switching sectors and professions can slow the ability of manufacturers to recruit and employ labor. Moreover, government is very unlikely to have a better sense of the skills and learning needed to perform work than employers and entrepreneurs, so significant time invested toward attaining a license can be unnecessary.

The Occupational Safety and Health Administration (OSHA) regulatory apparatus can go overboard. Everyone agrees that protecting workers from bodily harm is important, but the proliferation of regulations, reporting requirements, and enforcement actions increases costs dramatically. At times, OSHA's regulatory overreach has been stunning, such as its attempts to mandate Covid-19 vaccinations or invasive screening procedures at worksites.[44] Because physical injuries are more likely to occur in production activities than in service activities, OSHA regulations tend to disproportionately affect manufacturing firms relative to service firms; researchers have found that OSHA compliance costs in manufacturing establishments are, on average, 15 times what they are in other establishments (except construction).[45]

Evidence shows that workers' compensation programs provide much more significant and effective incentives for firms to improve workplace safety than do OSHA regulations,[46] since insurance premiums increase steeply if workers get hurt. And evidence that regulations are effective in preventing injuries has always been lackluster.[47] There is also an effective price signal that comes in the form of workers demanding higher wages for increased injury risk, a well-established concept in economics known as "compensating differentials."[48]

If firms effectively regulate their risks via workers' compensation premiums and workers can choose to take risk in exchange for higher wages in the form of compensating differentials, OSHA regulations are likely not worth the red tape. Rather than force an aggressive compliance and inspections apparatus on the country's firms, OSHA should provide accurate and prominent

information on risks to workers, so that they can better set the wages that they require for taking risk.[49] Such price signals will do a better job at incentivizing firms to provide for the safety of their workers than do OSHA regulations.

Land Use Restrictions

Zoning restrictions limit the ability to build, thus raising the cost of erecting and installing new industrial plant. Such restrictions can include limitations on residential versus commercial property, minimum lot sizes, design requirements, material requirements, environmental restrictions, and more. In some locations, economists estimate the effects of zoning on housing prices to be about 50% of the cost of a home.[50] The magnitude of zoning effects on nonresidential construction will certainly not be exactly the same; but undoubtedly, the direction of the effect is similar. Zoning restrictions vary across states and counties, but easing restrictions or at least increasing the amount of land zoned for light and heavy manufacturing will make it easier to build the industrial system that we desire.

Obviously, reindustrializing will require building an enormous amount of physical plant. Anything that restricts the ability to build that plant—or the ability of skilled and unskilled workers to live and work near that plant—will raise the cost of reindustrializing and thus reduce the competitiveness of new products. Relaxing zoning restrictions can help reduce building costs.

Tax Reform

The reductions in business taxes in 2017's Tax Cuts and Jobs Act (TCJA) led to a significant increase in the competitiveness of domestic manufacturing, but there is still much room to improve the value proposition of producing in America versus in other nations.

Because the vast majority of trade is in goods, not services, attention to international trade is important for manufacturing. In particular, converting the corporate income tax to a destination-based cash-flow tax with border adjustments and labor deductions—as House Republicans proposed in 2016 prior to the evolution of TCJA—would be a step in the right direction.[51]

At present, the tax code contains incentives to locate revenue, production, or capital abroad, despite the lower differential in tax rates relative to pre-TCJA. For one thing, companies often have incentives to shift production and profits to jurisdictions with lower corporate tax rates. The tax code also encourages some companies to locate intellectual property in low-tax jurisdictions. Companies aggressively engage in these and other base erosion strategies to minimize their tax obligations, which transfer tax revenue away from the U.S.

By contrast, a border adjustment on a destination-based cash-flow tax avoids taxing gross profits and instead taxes cash flows intended for domestic use. It thus applies a tax to imports while allowing deductions for exports, providing an incentive to locate supply chains domestically instead of abroad.

Two common objections to this approach: first, it is a form of protectionism and is against World Trade Organization rules. But in fact, such a tax would simply be a type of value-added tax (VAT), which is commonplace throughout the world; many VATs contain border adjustments. America is unique in not using its tax code to its advantage. Moreover, given continued erosion of WTO norms by China and others, it is not clear that we should allow criticisms or threats from WTO to interfere with setting domestic tax policy and bind ourselves by rules ignored by our geostrategic adversaries.

Second, critics contend that since imports and exports must balance in the long run, any reduction in imports will lead to a reduction in exports. That argument does not apply in this case because the U.S. offers the world its reserve currency, which requires running a persistent current-account deficit, due to a phenomenon known as the Triffin dilemma. Until and unless the U.S. loses its status as the premier reserve currency, trade is unlikely to balance for very long, and such an event could be decades away or longer.

There might be some appreciation of the dollar to offset the gains in competitiveness from a destination-based cash-flow tax, but currency markets tend to be driven more by investment and capital flows than by trade flows, so a perfect offset is unlikely. To the extent that competitiveness gains are offset by a stronger dollar, it would mean that revenue obligations are transferred to foreigners, as purchasing power increases for America and decreases for the rest of the world, so that the tax is paid for largely by the foreign sector. A nation providing reserve assets to the world will necessarily run persistent current-account deficits; we should at least collect some revenue in exchange for doing so, effectively increasing the value that we get for producing reserve assets.[52]

Alternatively, the tax code can contribute to improved reindustrialization and competitiveness by changing the mix of tax revenues from taxes on inputs (labor and capital) to taxes on consumption. A tax on income and a tax on consumption are equivalent in an economy with long-term balanced international trade, but not in one that suffers persistent trade deficits because of the production of reserve assets. However, such a change would be a fundamental overhaul of the entire tax system and would require finding offsets to the decline in progressivity, which is beyond the scope of this report.

Science, Technology, and Education Policy

To build manufacturing capacity with 21st-century technology, we need to make aggressive investments in both human capital and innovation. The technology intensity of manufacturing has only grown over time. We use advanced computers and machinery to reduce the number of humans in a manufacturing facility; as a result, manufacturing workers need to be higher-skilled than in the past. Taxpayer subsidies for education should be directed away from fields that are unlikely to lead to sufficient productivity to recoup those subsidies, and toward fields that will train the skilled manufacturing workforce that we need. Increased development of manufacturing apprenticeship programs and vocational schools can help provide the increased human capital needed. We need fewer special-interest "studies" students and more technically equipped doers.

We must aggressively invest in science, technology, engineering, and mathematics education. In 2011, the number of engineering degrees granted was the same as in 1985.[53] Since 2011, we have succeeded in lifting those numbers, but most new engineering students are quite likely international students,[54] over a third of whom leave the U.S. shortly after their studies are completed.

Reconfiguring the tax subsidies implicit in our education system can play an important role in encouraging students to pursue STEM education. Further subsidies for these fields might be worth considering, as larger numbers of engineers and scientists likely will create stronger levels of economic growth, which will ultimately help pay for the expense.

While subsidizing STEM education imposes distortions on the economy through taxation, investing in science and technology skills for the workforce is a public good that creates material positive spillovers for economic growth, for reindustrializing the economy, and for national security.

Defense-Driven Industrial Policy

Reindustrialization is necessary for national security. Given the possibility that we might one day engage in kinetic conflict with China, we cannot rely for defense components on supply chains in China, or even on supply chains in countries that might choose China over America.

Defense-driven industrial policy will boost demand, and thus help make reindustrialization happen more quickly, while tackling critical national security vulnerabilities. Defense procurement, national security tariffs, and defense research and development have long played a critical role not only in national security and geostrategy but in the American and global economies. These are dual-use policies that achieve both security and economic aims.

The economist David Goldman argues convincingly that the combination of privately funded corporate labs and Defense Department funding led to the breakthrough inventions that allowed the U.S. to win the cold war and dominate the global economy.[55] The U.S. made investments that kept it on the technological cutting edge militarily and economically, which hampered the Soviet economy as it unsuccessfully struggled to keep up. Goldman argues forcefully that similar policies can help us in our competition with China.

Important recent research by economists at Duke University attempts to quantify the longer-run effects of defense R&D, finding that a doubling of World War II–era defense patents in a county-technology cluster funded by the Office of Scientific Research and Development led to a 30% increase in patents in that cluster three decades later. Because these results are per geography-industry cluster, they likely understate the real magnitude: in reality, there are probably substantial positive cross-county and cross-industry spillovers.[56]

Technologies critical to the contemporary economy—such as computer-to-computer communication, radar, satellite positioning systems, plasma and LED displays—were developed directly by defense industrial policy. Initially, these technologies were developed to give the military the upper hand in a conflict, but they have shaped our world in far broader ways. Businesses have repeatedly found new ways to profit from government-funded science and procurement, growing technologies in profound and unexpected ways. Defense and defense research not only help secure our borders and people, but they generate significant positive spillovers into the economy, often in unexpected and unpredictable ways.

Knowledge spillovers are as important as building physical plant. To innovate, we need skilled workers familiar with production processes; it is difficult to figure out how to make weapons and defense systems and inputs better and more cheaply than current practice if we do not know how to make them at all. In other words, innovation occurs where production occurs.

Are there distortions in the economy associated with avenues of defense industrial policy such as the Defense Advanced Research Projects Agency (DARPA), as there are in the IRA economy? To some extent, yes. The taxes that fund defense industrial policy can discourage work and distort economic production. And directing economic resources toward defense industrial policy means that other economically viable activity might be left undone. Additional government borrowing can also crowd out private-sector borrowing.

Nevertheless, important distinctions exist between defense-driven industrial policy and the environmental industrial policy of IRA. First, defense procurement policies have a better chance of accomplishing their goals. Producing more defense inputs and equipment in the U.S. and reducing

our reliance on vulnerable supply chains are achievable aims; by contrast and as discussed above, reducing American carbon emissions to zero would delay climate disasters by only eight years, unless Asia also reduces its emissions overwhelmingly.

Second, the need to defend ourselves is eternal, so there is no risk that underlying demand will disappear. By contrast, IRA subsidies have expiry dates, and we are fiscally incapable of maintaining them in perpetuity without making enormous adjustments elsewhere in the economy, meaning that IRA economy is vulnerable to deindustrialization when subsidies end.

Third, significant differences are likely in the government's success rate at picking winners or losers in defense versus in other areas. Nondefense industrial policy requires prescient government officials capable of identifying key sectors and technologies that will be demanded by consumers and firms in the future. That might have been possible with Operation Warp Speed, since there would naturally be nationwide demand for a successful Covid-19 vaccine. But it is more difficult to guess what kind of cars consumers will want. By contrast, defense industrial policy requires the military to identify the technologies and products that it needs for combat, not consumer, purposes. Because the military has a better idea of its own near future than government officials do of consumers' and firms' preferences, defense industrial policy is likely to be significantly more successful over time than nondefense industrial policy.

Although procurement and tariffs are distortionary and will, like any other industrial policy, impose efficiency costs, this is true of everything we do to enhance national security. Relying on the private sector for soldiers might be efficient, but instead we pay them to protect us because we must do so. Economists accept that when financing essential public goods like national security, economic distortions are necessary and efficiency concerns can be superseded.

Because sharp changes to many of these policies can be extremely disruptive to industry and adjusting supply chains requires time, these changes should be implemented gradually over time with credible forward guidance.

Procurement, Subsidies, and Buy American

The federal procurement process spends almost $700 billion annually,[57] of which almost 60% is defense procurement. Procurement is the most economically powerful demand tool available to boost domestic industrial capacity in the national security sector and, through it, other sectors.

Buy American requirements for domestic content apply to government-funded goods produced for domestic use, but there are numerous exemptions. For example, inputs from nations with which we have a free trade agreement, or that are party to the WTO general procurement agreement, can be considered domestic inputs for purposes of these requirements. However, many of these nations free-ride on our defense umbrella, are of questionable reliability in a conflict, and even fail to meet spending commitments for mutual defense agreements such as NATO.

It is therefore reasonable for America to start gradually tightening these exceptions based on the extent to which other countries are living up to their alliance commitments and on their expected reliability in a hot conflict with China or Russia. If kinetic war were to break out, we clearly do not want to rely on China for our supply chains. But will we really want to rely on countries whose economies are more economically integrated with China's than with ours? Should such a conflict erupt, some of our allies cannot be trusted to choose the correct side, and imports from those nations might prove little more dependable than imports from China.

Because these modifications might be expensive and disruptive, it is best to focus on defense procurement and inputs rather than all government procurement. We do not need to distort our capital base by using Buy American requirements to stimulate production of, say, safety vests for construction workers on government-subsidized infrastructure.

Buy American requirements can also be waived if parts are unavailable or prices would be prohibitively high. These, too, can be tightened for defense sectors and products—once again, subject to a gradualist approach.

The narrowing of exemptions should be targeted at sectors that military analysts deem strategically significant for national security—for example, aerospace, satellites, semiconductors, telecom, and some pharmaceuticals. We must tighten enforcement across the board to avoid any components originating in China; too often, Chinese imports are processed in a third country and then reexported to America. The U.S. government should not trust computer equipment with Chinese-origin parts.

Critics might contend that almost all federal procurement already consists of U.S.-made goods; a 2019 study from the Government Accountability Office found that 94% of the goods and services procured by the federal government originated in the United States.[58] But a good need not be entirely produced in the U.S. to count as being of domestic origin. In the regulations governing defense procurement—for which the strongest Buy American rationale exists—a good is considered to be of domestic origin as long as some final assembly occurs domestically and "its U.S. and qualifying country components exceed 55 percent of the cost of all its components."[59]

In other words, a good can avoid restriction under the Buy American Act as long as a little over half of its components by value come from either the U.S. or from qualifying countries with which we have a reciprocal defense procurement memorandum of understanding or international agreement. There are 28 such countries on five continents, including some on which we might not be able to rely in a war and that already work at cross-purposes to our national security goals.[60]

Furthermore, because regulations treat final assembly as transformative, the government does a poor job in tracking the origin of components and can end up labeling a product as from a given country merely because it was assembled there, even if no components originate there. Some goods, like certain categories of commercial off-the-shelf technology, are automatically treated as domestic, regardless of origin.

These exceptions to Buy American requirements should be tightened for defense products; but industry will need time to adapt to that change. Supply chains cannot be moved, or productive capacity created, overnight. Therefore, the federal government should provide clear schedules and guidance over time with respect to the tightening of definitions and exemptions. Clarity over future demand patterns will give firms the confidence that they need to make investments in adjusting their supply chains.

For example, we might announce that the 55% threshold will be raised by 4 percentage points per year, until it reaches 95%. Other enforcement procedures can be similarly tightened over time; for instance, we can slowly reduce the share of qualifying country components that count as domestic. By narrowing exceptions to Buy American requirements in strategic sectors associated with national security, we will improve our industrial base for inputs to defense technology and in new higher-tech frontiers of war making.

A modest version of this phase-in approach has been adopted by the Biden administration with respect to nondefense procurement. Buy American requirements in domestic civilian and construction goods will gradually ramp up from 55% to 75% in 2029 (the changes affect only domestic content thresholds and not exemptions like counting qualifying country components as domestic).[61] However, many of the same broad criticisms of Bidenomics apply to increased

Buy American requirements in nondefense sectors. Stimulating the domestic manufacture of windows or paint for subway cars is of questionable economic merit, but stimulating the domestic manufacture of defense inputs is a clear national security advantage.

Congress has extended this approach to major defense acquisition programs (i.e., those above several billion dollars of procurement) in the FY24 National Defense Authorization Act.[62] This is a good start, but simply raising the domestic content threshold to 75% is not enough if we do not also tighten the definition of domestic content to ensure that production actually occurs in the U.S. and not in Europe, Asia, or Africa.

Procurement is a potent weapon because the budget is so large. Tightening Buy American requirements will likely require an even larger procurement budget. That is why it will be important to simultaneously reform the procurement process and carefully evaluate existing priorities. Many of the largest defense procurement projects are on weapons and systems that might not be very helpful in a contemporary conflict with China and Russia, which have developed weapons and systems designed to evade the U.S. military's traditional strengths. We cannot afford an infinite budget, so defense and procurement experts will have to work hard to trim fat and refocus our expenditures on weapons and vessels designed explicitly for conflict with today's China and Russia, not those of 30 years ago. The military-industrial complex will have to transfer its efforts away from equipment and vessels that are not well matched with our current adversaries and onto equipment and vessels that are well matched. Balancing the increased cost of Buy American requirements and the increased value of domestic production of weapons and other defensive goods will be a continual and unavoidable struggle.

Some will object that narrowing Buy American exemptions would violate our WTO obligations. Those concerns are not unfounded; but again, we cannot let WTO obligations force us to jeopardize national security because we sourced key inputs into our weapons from unreliable partners. The lives of our people and soldiers are more important than WTO compliance. We cannot avoid the tension between the desire for free trade with partners and national security in a fragmenting world order.

Nevertheless, we might wish to tailor any modification of exemptions for trading partners in order to avoid alienating allies and driving them into China's arms. Phasing out exemptions for trade partners could be conditioned on the policies of those trade partners. If a nation fails to join an important sanctions regime, or if it sells weaponry or advanced technology to a strategic adversary, we have strong grounds for phasing out its exemptions. But if the nation is a faithful ally, pays its commitments to NATO, and aids us in pursuing our foreign policy objectives, we might wish to keep some or all of that country's Buy American exemptions. The scale of the exemptions can be tailored toward the importance of the ally and the strength of the alliance.

Trade and Tariff Policy

As in procurement, credible forward guidance can be used used in trade and tariff policy to provide clarity for firms on future demand patterns so that they can begin adjusting their supply chains. If it is problematic for our supply chains to be entwined with a strategic adversary, like China, with whom we might fight a war, we need to provide incentives to firms to relocate their supply chains quickly. Moreover, China's long and well-documented abuse of international trade norms, currency manipulation, and theft of international property, combined with its sheer market size, have led to massive distortions in U.S. and global economies.[63] Trade policy is a powerful means of addressing these concerns.

Further, severe political economy problems arise from our continued entanglement with China, adding additional urgency to the use of tariffs. Because many of our major corporations depend on China for their supply chains or customer bases, they create significant lobbying pressure for

the U.S. government to adopt policies designed to avoid Chinese retribution against them. This lobbying pressure can hobble the responsiveness of the government in both cold and proxy wars and, more dangerously, during a hot war. A revolving door between major corporations and top political appointments can become a significant national security threat when those corporations rely on China for their inputs or sales.

While free trade is highly advantageous when conducted with other countries that play by the rules, it can be deeply pernicious when conducted with cheaters. Fortunately, the U.S. government can use tariffs to make foreign capital and labor more expensive in key national security sectors and accelerate our decoupling from China.

For example, the Commerce Department can announce under Section 232 of the Trade Expansion Act, which allows for tariffs to protect national security, a schedule for future increases in tariffs against China, including the tightening of current exemptions and exclusions. Tariffs might go up by, say, 2% per month indefinitely, with exemptions phased out along the way. Alternatively, a list of demands on Chinese economic or geopolitical reform might be enumerated to avert the tariff increases. The speed of increases can be flexibly set, based on political imperatives.

Total decoupling from China might be impossible—it is too tightly entwined with the global economy, as well as the economies of many of our allies, to totally extricate ourselves. However, we should work to minimize our economic intermingling with China and its economic (and thereby political) influence on our allies. While moving defense supply chains out of China is imperative, there will be certain sectors where we want to bring the entire supply chain home because even production in allied countries is too risky. For these more limited cases, we can apply tariffs to all imports, not just to those from China, to encourage firms to produce in the U.S. instead of abroad. And if firms know that it will become more expensive every single month to import from China, over time they will move toward more, rather than less, decoupling.

No matter what the objective of a tariff, employing a gradual ramp and clear guidance for the future is essential. Moving supply chains is costly, and firms do not undertake it lightly; the Commerce Department must give firms time to evaluate their supply chains and begin to rearrange them. Our experience with existing tariffs on China indicates that exemptions, uncertainty, and one-time chunky tariffs can impede supply-chain adjustments. Tariffs that increase perpetually at a gradual rate will likely be more effective than a one-time change in tariffs introduced with material uncertainty.

Credible forward guidance on ramping tariff rates can be a more powerful incentive to adjust production; because the tariff rates can theoretically increase in perpetuity at a gradual pace, they will be more likely to induce the desired responses from firms. However, the Commerce Department must couple these tariffs with aggressive enforcement action in order to avoid evasion via reexport. If an import comes from a third country but originated in China, it must still be subject to the tariff. Recent research from the Bank of England found that as of 2018, while just over 60% of manufacturing intermediates imported into the U.S. came directly from China, incorporating the value-added of goods that originated in China but were imported from other trade partners brought that number above 90%.[64] Other loopholes, like the de minimis exemption for imports worth less than $800 and shipped to individuals, must also be closed.

While tariffs, like all taxes, are distortionary, tariffs against China address preexisting distortions caused by China's subsidies to its producers, which allow them to undercut international competitors and gain export share. Tariffs might counterintuitively enhance economic efficiency rather than detract from it because they ameliorate this preexisting distortion. China's competitive advantages are not a result of natural endowments but a result of subsidies, state support, and intellectual property theft. Tariffs can help redress these issues.

Defense R&D

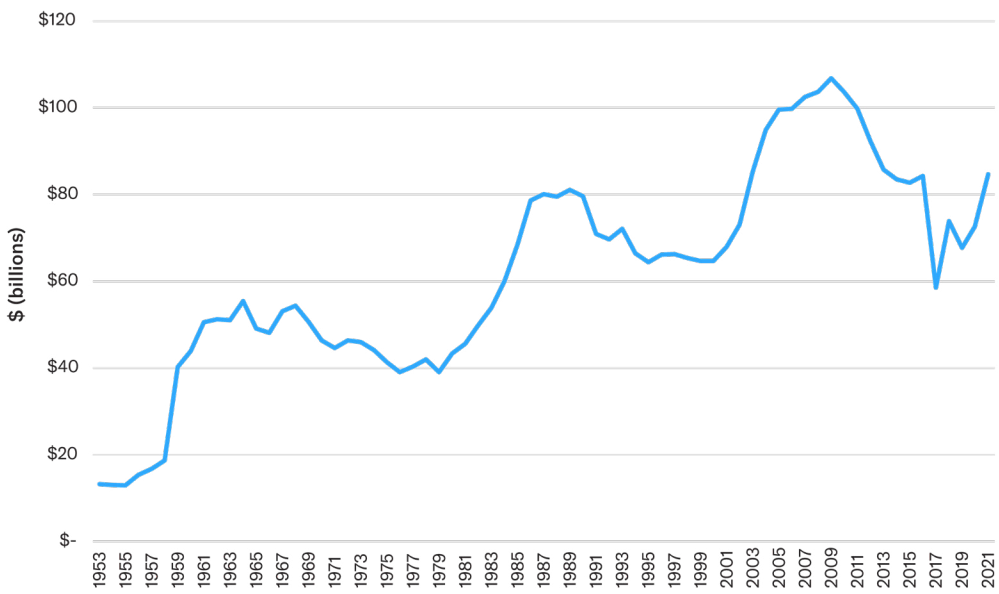
Policies to aggressively boost defense-driven research and development will create significant positive spillovers that can help drive the development of a robust industrial base. Many technological innovations that shaped the 20th (and thus far, the 21st) century were the result of defense-driven research and development. The Internet, as is well known, was a form of military communication whose early users had no conception that it would dominate today's economy. The returns to defense R&D have been immeasurable.

Significant empirical evidence exists for strong spillovers from defense R&D to private-sector R&D, wages, and employment. Work by Moretti, Steinwender, and Van Reenen finds that a 10% boost to defense R&D increases private-sector R&D by an additional 4.3%, or that private business activity gets crowded *in*, not crowded out.[65]

Yet, as of 2021, total expenditures on defense R&D were barely higher than they were in the 1980s in real terms, despite the economy being almost 2.5 times the size (**Figure 5**). Our expenditures as a share of GDP have plummeted.[66] Defense R&D's share of the federal budget has declined by about 75% since the 1960s,[67] and overall government R&D has declined from almost 2% of GDP to about 0.6% over the same period.[68]

Figure 5

Defense R&D Expenditures 1953–2021



Source: American Academy of Arts and Sciences

Bringing our defense R&D budget back up to levels of the 1980s, as a share of GDP, should be a minimal first step in attempting to produce the innovations and knowledge workers necessary to use and maintain new technologies to reindustrialize the economy.

Conclusion

While reindustrialization is an economic and political goal for many, it is a national security imperative for all, and economists can make important contributions. Economists should help develop policies that make American labor and capital much more attractive to employ than foreign labor and capital, thus boosting demand for production and hiring in America. Anything that makes America more competitive will help.

First, economic policy should avoid exacerbating the problems that led to deindustrialization. Our policies should stop tilting at windmills to boost politically favored sectors that can survive only with permanent subsidization. And they should stop introducing new regulations around the utilization of labor and production of goods.

Second, our policies should take an aggressive approach to reforming and limiting the regulatory state, especially when it restricts investment generally and manufacturing specifically. Regulations make our goods more expensive to produce, and they create significant barriers to entry because compliance is very expensive. Those barriers to entry lead to reduced competition, industry consolidation, and higher prices for consumers and end-users. We can make significant strides in easing regulations in environmental policy, occupational licensing, health and safety policy, and land use restrictions. More competition means lower prices and more production.

Third, we can use demand-side industrial policy for national security purposes to convince firms that there will be demand for certain products made in America. The most powerful tool at our disposal is the federal procurement budget, which deploys almost $700 billion annually. By tightening Buy American requirements for sectors and goods necessary for national security, we can ensure that those procurement funds create demand for investment in industrial plant in America.

Fourth, we can use tariff policy to incentivize firms to bring their supply chains back home, away from our strategic adversaries. Both tariffs and expanded Buy American requirements should be phased in gradually, with credible pre-commitments, to give firms the time and necessary planning horizon for reconfiguring their supply chains. To the extent that these policies simultaneously improve our security and reindustrialize the economy, they are dual-use.

Finally, we need an aggressive commitment to science and human capital policy. We must make strong investments in providing our workers with the skills necessary to build our new industrial plant. We need to boost defense-related research and development funding in basic science and technological innovation up to levels from the cold war.

Reindustrialization is a tall order and will require a significant overhaul of government policy to achieve. But there are steps we can take to make it possible.

About the Author

Stephen Miran is an adjunct fellow at the Manhattan Institute and works at the intersection of economic policy and investing. Previously, Miran was senior advisor for economic policy at the U.S. Department of the Treasury, where he assisted with fiscal support to the economy during the pandemic recession. During his time with Treasury, Miran contributed to the implementation and evaluation of several CARES Act programs. He also contributed to the analysis and formulation of economic support programs, negotiations with Congress, the economic outlook, and appropriate policy. Prior to Treasury, he was portfolio manager at Sovarnum Capital and an economist at Fidelity Investments.

Miran's academic work on fiscal policy has been published in the American Economic Journal, and his opinion writing on fiscal policy, monetary policy, economics, and markets has been published in the Wall Street Journal, Barron's, Bloomberg, National Review, and elsewhere. He received his Ph.D. in economics from Harvard University, where he was a student of Marty Feldstein. He received a B.A. from Boston University, where he studied economics, philosophy, and mathematics.

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