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The New Industrial Policy and Its Critics

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BERKELEY – Industrial policy has surged to the top of the national agenda in the United States and other advanced industrial economies. This represents a radical departure from recent economic history, and it has revived an older debate in which we both participated more than 30 years ago.

In the US, the CHIPS and Science Act, the Inflation Reduction Act (IRA), and the Bipartisan Infrastructure Act have set significant national-security and climate goals. Each leverages subsidies, tax credits, loan guarantees, and other standard industrial-policy tools to foster research, production, and employment by the private sector in key areas of the economy.

These instruments are being used today under very different conditions than 30 years ago. National self-sufficiency – often with mercantilist objectives – was the goal of industrial policy in the past. Now, as a result of the rise of complex global supply chains and China’s emergence as a formidable geopolitical and economic competitor, national sovereignty, understood as a vertically integrated domestic capacity by nationally-owned firms in targeted sectors, is simply infeasible.

Instead, the new industrial policy for the twenty-first century must account for new global realities by focusing on two goals: ensuring an adequate and competitive supply of the products and technologies needed to achieve economic prosperity and security; and securing a position in the development and deployment of the next-generation technologies that are expected to be essential both to national security and to the transition to a carbon-neutral economy. Since a fully vertically integrated national supply system is a fantasy, these goals require the US and other advanced economies to use industrial policy to achieve significant positions of leverage in markets for specific products and technologies of strategic economic and geopolitical significance.

What Industrial Policy Is For

Industrial policy is usually criticized by economists as a costly form of protectionism that distorts markets and undermines the allocation of scarce resources to their most efficient and profitable uses. But context matters. In the presence of externalities, industrial policy can be market correcting rather than market distorting. And in an environment of concentrated global market power and rapid technological change, industrial policy can be a positive sum, both accelerating technological innovation and deployment, and expanding global competition and markets.

Industrial policy is protectionist or zero-sum if it is designed to restrict trade and cross-border investment to shield domestic producers – “national champions” – from foreign competitors. It is preferential rather than protectionist if it promotes domestic production instead of foreign production. It is essential to distinguish between domestic, in the sense of location, and domestic, in the sense of company ownership. By design, US industrial policy benefits both domestic and foreign companies investing and producing in the US. The CHIPS and IRA incentives, for

example, are available to foreign companies that site their production in the US, provided they are not designated as “foreign entities of concern” (meaning owned or controlled by the Chinese, Russian, North Korean, or Iranian governments).

In the presence of negative externalities, markets fail to reflect the complete economic costs and benefits of private actions. Decisions driven by market logic and business profitability alone do not account for national-security concerns or the economic, social, and health-related costs of climate change. Private businesses cannot be expected to provide public goods or address negative externalities such as planet-heating greenhouse-gas emissions. These tasks properly fall to governments, which have strong externality rationales for industrial policy both in semiconductors and other dual-use foundational technologies, and in green technologies, products, and services.

We believe that industrial policy can serve two essential purposes: first, to incorporate national security and climate-change externalities into market decisions; and, second, to expand market competition and innovation to nurture resilient, secure, and sustainable global supplies of critical products and technologies. In fact, when it comes to ensuring competitive global markets, industrial policies by the advanced economies are increasingly needed to offset efforts by China and other countries to achieve a dominant position in global markets in critical sectors.

Weighing the Benefits

Far from harming markets, industrial policy can expand them, while also promoting trade and resilient, secure, and sustainable supplies. It does so by fostering competition, research, and innovation in targeted sectors where progress otherwise would be delayed or lacking altogether.

For example, it was EU industrial policy that drove the development of Airbus, spurring competition and innovation in a global civilian aircraft market that had long been dominated by a single US supplier (Boeing), itself the beneficiary of significant industrial-policy support. Likewise, many examples of a market-expanding and market-creating industrial policy can be found in the biotech industry, which has received generous support in the US, both from significant public funding for research and development and from an absence of drug-price regulation. This policy mix has created a high-profitability market for biotech products and made the US the center of medical and pharmaceutical innovation globally.

These kinds of market-expanding industrial policies should provide a country with leverage and a strong foothold in the development and deployment of next-generation technologies. But such policies’ success requires adequate funding for basic scientific research, applied R&D, and talent.

Both CHIPS and the IRA provide such support. An often-overlooked feature of CHIPS is that about 70% of its funding – \$200 billion over the next decade – is specifically for research, workforce development, and the commercialization of leading-edge technologies, not only in semiconductors but also in other dual-use areas such as 5G, quantum computing, clean energy, and artificial intelligence.

The new US industrial policy also illustrates how international collaboration on the development of next-generation technologies can dampen fears that such strategies are inherently protectionist. For example, CHIPS provides the funding for the recently announced Microelectronics Commons, a network of innovation hubs that brings together researchers from academia, government labs, and business to advance microelectronics discovery, innovation, prototyping, and eventual commercialization. Crucially, any foreign company not on the “concern” list can participate.

Moreover, the drafters of CHIPS recognized that achieving competitive, resilient, secure, and sustainable supplies requires investment not just in physical and knowledge capital but also in people. If industrial policy is to play its proper role – expanding market competition and innovation – it must provide for workforce development. TSMC (Taiwan Semiconductor Manufacturing Company), the leading global producer of advanced semiconductor chips, recently

warned that a shortage of qualified talent is delaying the opening of its new fabrication facility (“fab”) in Arizona, as well as adding substantially to its costs. The Semiconductor Industry Association predicts that, over the next decade, nearly half of the positions for technicians, computer scientists, and engineers risk going unfilled, owing to a lack of qualified workers.

To address this shortfall, the US National Science Foundation, long respected for its merit-based decisions, has been designated to disburse the CHIPS funding for workforce development. For example, the NSF recently announced a \$45 million public-private partnership that includes foreign companies (Ericsson and Samsung), to provide competitive research and education awards.

The Global Picture

When we say industrial policies can promote competition, we do not mean only domestically. The effect is global. Like Airbus in Europe, TSMC is a product of Taiwan’s own economic strategy. These examples show that one state’s efforts to increase supply, foster innovation, and build strong national companies in targeted sectors often induce others to develop their own policies to “level the playing field.”

In fact, US and EU industrial policies targeting semiconductors and climate-related technologies are themselves a response to China’s state-supported efforts to achieve market and geopolitical power in strategic sectors. OPEC illustrates the risks and costs of global market power by a group of countries over a key input like oil. Semiconductors, critical minerals, and batteries – all industries targeted for market dominance by China – are critical inputs for digital and green industries in the US and the other advanced economies. The US and its allies are right to respond with policies to keep global markets competitive, resilient, and secure for these key products and technologies.

As matters stand, market forces and private decisions have left the US economy dangerously dependent on advanced semiconductors produced by a single company (TSMC) in a single location (Taiwan) that is fraught with geopolitical risk. Moreover, the US and its European allies are no less dependent on China for batteries, as well as for the key minerals and rare earth elements used in wind turbines, solar panels, electric-vehicle batteries, and much else.

Chinese market power in these sectors poses a significant threat to the resilience and security of supply chains, as well as to US and European national and economic security. In early July, China’s Ministry of Commerce announced new restrictions on exports of germanium and gallium – minerals used in semiconductors and EV batteries – in the name of protecting its own “national security and interests.” A leading global producer of both metals (including 94% of the world’s gallium), China has now demonstrated its ability to disrupt critical supplies to the US and Europe.

Managing Costs and Risks

While there is a strong economic and geopolitical case to be made for market-expanding industrial policies, they come with dangers that must be considered. US National Security Adviser Jake Sullivan may think that the matter is as simple as building a “high fence” around a “small yard,” but a catchy metaphor doesn’t tell us which technologies and sectors belong within the yard, how the yard will be kept small, or who will decide on such matters.

The problems of political capture by special interests and crony capitalism are real and must be acknowledged. The risk is especially high in the US, where business spending on lobbying topped \$4 billion in 2022, up from around \$1.5 billion in 2000. With the Supreme Court having blessed unlimited political donations by firms and wealthy individuals, there are very few remaining limits on influence peddling. At the same time, years of outsourcing and “starving the beast” have left the US government with a lack of administrative capacity for designing and implementing industrial policy. As a result, it now must rebuild those muscles from scratch.

In doing so, the federal government should consider a public-partnership approach to investing in key sectors, as this would allow it to leverage the unparalleled strengths of US financial markets. Specifically, a US federal government investment fund, run by a politically shielded professional management team, could oversee the allocation of industrial-policy subsidies among competing companies and technologies.

Many other countries with significant industrial policies already have sovereign wealth funds, and some US states, including Alaska, New Mexico, and Oregon, also have funds set aside for various purposes. As the owner of the new federal investment fund, the US government would share in both the gains and the losses of its portfolio. This would be a welcome departure from the current approach, where the government has no share in the returns earned by private companies or investors that result from public subsidies, tax credits, and other federal industrial policies.

As the partner providing the funds, it is only reasonable that the government – and thus the American people – should share some of the benefits. That would free up even more resources with which to promote competition, innovation, and resilience in the twenty-first-century economy.

LAURA TYSON

Laura Tyson, a former chair of the President’s Council of Economic Advisers during the Clinton administration, is a professor at the Haas School of Business at the University of California, Berkeley, and a member of the Board of Advisers at Angeleno Group.

JOHN ZYSMAN

John Zysman, Professor Emeritus of Political Science at the University of California, Berkeley, is Co-Founder of the Berkeley Roundtable on the International Economy.

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