America’s Must-Win Semiconductor War

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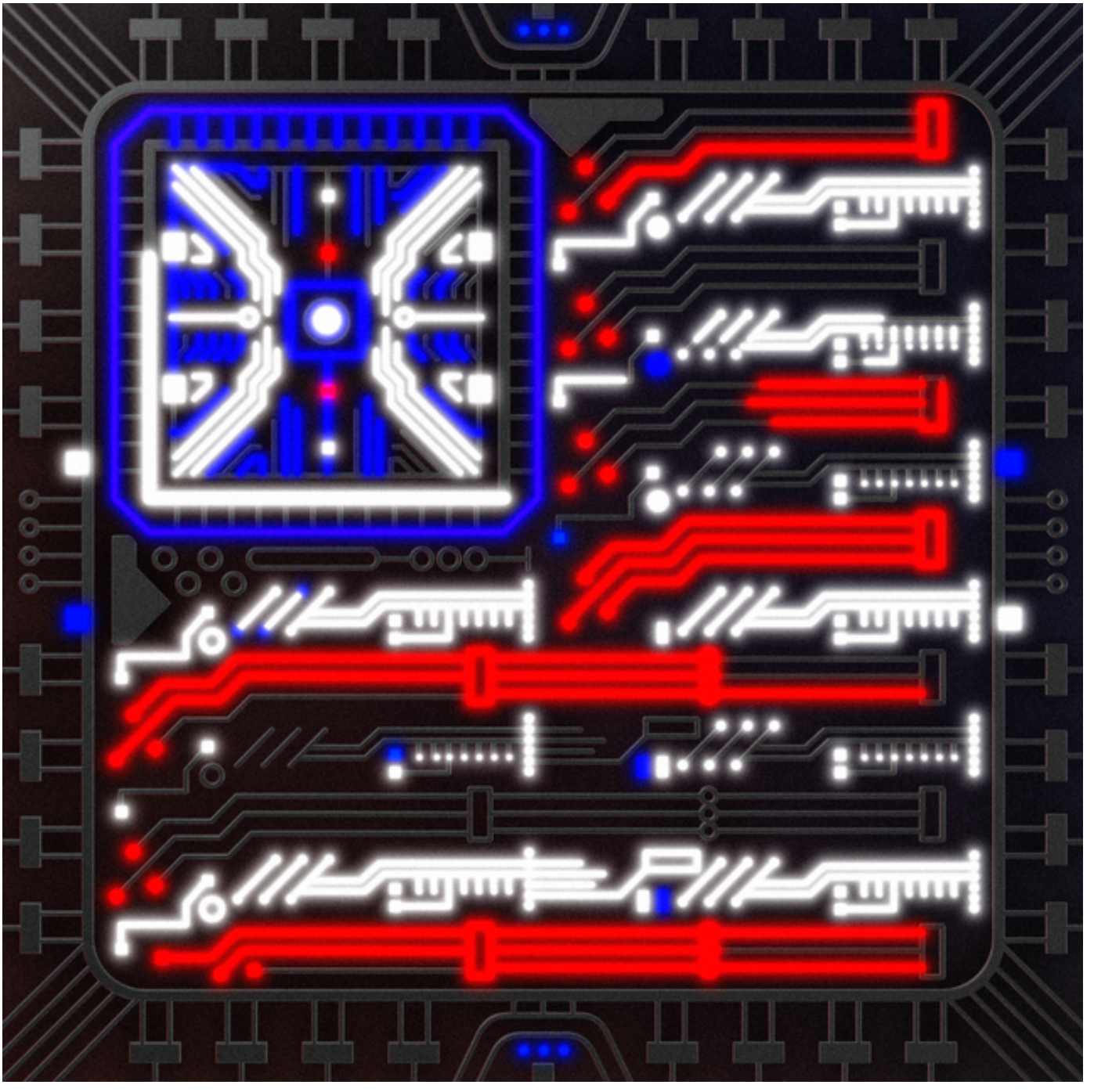

By Shira Inbar

By Steven Rattner

Mr. Rattner was a counselor to the Treasury secretary in the Obama administration.

Intent on reversing America's decline in the world's production of cutting-edge semiconductors, the federal government has begun what is arguably the government's largest foray into the private sector since World War II.

That's just one piece of a larger, more muscular approach to industrial policy. It's a road filled with hope but also pockmarked with risks. On balance, the record of government trying to improve the functioning of the private sector is poor, and particularly in complex sectors like semiconductors, the challenges are great.

Nonetheless, for the first time in memory, even many free-market conservatives seem to recognize that unfettered capitalism can lead to imperfect results.

Put chips high on that list. American scientists invented transistors, the key component in chips, shortly after World War II, and for decades we dominated the design and production of semiconductors as they quickly became smaller and more powerful.

Then companies in Asia, particularly in Taiwan, entered the industry, and America began to lose to cheaper labor, strong

local governmental support and better corporate management. Worse, today the United States does not manufacture any of the highest-performing chips; 92 percent of those are produced by the Taiwan Semiconductor Manufacturing Company, 100 miles from mainland China. (The rest are manufactured in South Korea.)

This presents enormous economic and national security risks for the United States and the rest of the world. If China took control of Taiwan and cut off our chip supply, that would be economically devastating, akin to (or worse than) the loss of oil exports from a major Middle Eastern producer.

In that context, we should be heartened that Congress passed the CHIPS and Science Act, which, among other things, will provide $52 billion for investment in facilities, as well as for more research and development.

In part as a result, Taiwan Semiconductor Manufacturing Company, the world's biggest maker of advanced computer chips, has broken ground on a major plant in Phoenix and announced that it will increase its investment there to $40 billion; Intel has announced plans for a $20 billion facility outside Columbus, Ohio; Micron is building a fab (as chip factories are known) complex in Syracuse, N.Y.; GlobalFoundries is expanding in New York and Vermont; and Samsung is considering the construction of 11 facilities in Texas.

That's all great, but let's not be blind to the challenges. For one thing, these new facilities are just a tiny first step. The output of the Phoenix facility will amount to only a single-digit percentage of TSMC's total output. For another, TSMC has historically insisted on producing its most cutting-edge chips in Taiwan, at least partly to ensure that the United States, whose official policy toward Taiwan is one of strategic ambiguity, will nonetheless protect the island against any mainland aggression.

Our ability to truly compete with Asia remains uncertain. In a recent submission to the Commerce Department, TSMC complained that the cost of the Phoenix facility would be much greater than its equivalent in Taiwan (partly because of regulatory requirements), wage costs substantially higher, productivity lower, construction delays more likely and taxes higher.

In a podcast interview, Morris Chang, the 91-year-old founder of TSMC, who was born in China and made his early career in the United States, acknowledged the national security considerations while calling America's semiconductor efforts "a wasteful and expensive exercise in futility." He noted that his company has had a smaller facility in Oregon for 25 years and chips produced there cost 50 percent more than those it manufactures in Taiwan.

Europe is marching forward with its own set of chip

subsidies, and Asian countries have been providing aid to their semiconductor makers for decades. The result is a financial version of an arms race.

The quest for an industrial policy in America goes back to our earliest days. George Washington wore a suit of American-woven broadcloth to his first inauguration to emphasize the importance of domestic production. Alexander Hamilton's Report on Manufactures advocated tariffs and trade restrictions to encourage domestic industry.

Over the ensuing 230 years, we've had both successes (transportation facilities like the Erie Canal and the interstate highways) and failures (pretty much everything we've tried to do to retain manufacturing jobs).

Those failures include chips. In 1987, alarmed by Japan's growing dominance of the semiconductor industry, the federal government created Sematech, a public-private partnership that was intended to restore American prowess in the sector.

According to a study by the Peterson Institute for International Economics, the $1 billion spent by the federal government over a decade succeeded in temporarily — emphasis on "temporarily" — stanching the loss of market share and American jobs but at a yearly cost of about $29,000 per job, roughly the same as the then-average

annual wage in the sector, $27,000.

As the head of President Barack Obama's auto task force, I saw the positives and the risks of industrial policy. Importantly, we did not try to protect old, inefficient factories or to create uncompetitive jobs. We insisted that the companies produce viability plans as a condition of receiving government assistance and left the companies to run their businesses.

So I believe government can pursue an industrial policy — but we need to put substantial guardrails around that effort.

The most successful governmental interventions are often around research and development, such as the funding of the creation of the internet by the Department of Defense and Operation Warp Speed, the emergency program to develop Covid vaccines. In that context, I applaud the inclusion of $11 billion for semiconductor research and development in the CHIPS and Science Act.

In some cases, like semiconductors, government grants may be necessary to accomplish our goals. But whenever feasible, we should favor market-based incentives, like tax credits, in order to lessen the government's role in picking winners.

Finally, let's remember that we have other means of

promoting our economic interests. As part of its increased spending in Phoenix, TSMC also announced that the facility would be making more advanced chips than previously planned. That reportedly occurred at the behest of Apple, TSMC's largest customer. When public and private interests align, leveraging the influence of the corporate sector should very much be a part of a wise industrial policy.

With the dangers of overdoing industrial policy evident, President Biden should ask his staff to put together clearer and narrower rules of the road to govern when and how the United States should undertake adventures in industrial policy.

In that regard, a recent speech by Brian Deese, the able director of the National Economic Council, provided a good beginning — though he was a bit overly enthusiastic about the merits of industrial policy and a bit disingenuous about the dangers.

While Mr. Deese contended that the Biden industrial policy was not about picking winners and losers, any policy that includes awarding federal funds to some applicants and not to others is obviously a process of picking winners and losers. That will be the case in the dispensing of $28 billion of direct aid for semiconductor facilities as states, localities and companies jockey to be selected.

This approach to industrial policy — in contrast to approaches like tax incentives that allow the market to pick the winners — would benefit by being removed as much as practicable from politics, much as we have used an independent commission to choose which military bases in the U.S. should close.

And as we did in the auto rescue, subsidies should be, to the maximum extent feasible, as close to commercial terms as possible, potentially including equity participation in the recipient.

I agree that in today's more globally competitive and insecure world, a more robust industrial policy is called for. I just hope that logic and prudence will prevail in the ongoing debate.

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