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Should the U.S. Government Subsidize Domestic Chip Production? Two Advocates Square Off

Some see an urgent need for help, others no need at all
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The U.S. share of global semiconductor-manufacturing capacity has declined sharply over the past three decades, fueling concerns about American reliance on imports for chips that are crucial to the economy and national security.

In an effort to reverse that decline, Congress passed the CHIPS for America Act last year and the legislation was signed into law. It's designed to provide government subsidies to encourage chip production in the U.S., as well as support for semiconductor research and development. But it was only earlier this month that the House of Representatives approved \$52 billion of funding for the CHIPS act, matching the amount approved by the Senate last June. Now the separate legislation containing the House and Senate funding will have to go through a negotiation process to produce a single bill that will need new approval from both houses of Congress.

While that process plays out, the question remains: Should the government subsidize chip production in the U.S.? Some see an urgent need for government help to address a deficiency with far-reaching potential consequences. Others say the government should stay out of the semiconductor business and let market forces resolve the global imbalance in chip production.

Will Hunt, a research analyst leading semiconductor-policy research at Georgetown University's Center for Security and Emerging Technology, argues in favor of subsidies. Scott Lincicome, director of general economics and trade at the Cato Institute, argues against them.

Yes: Economic and national security demand it

By Will Hunt

The funding authorized by the CHIPS for America Act, if carefully targeted, could have multiple powerful effects: It could level the playing field with East Asia in semiconductor manufacturing, supercharge the entire U.S. semiconductor industry and greatly increase U.S. resilience to potential disruptions in what is arguably the world's most important supply chain.

As the current global semiconductor shortage has revealed, vast swaths of the global economy depend on consistent access to a wide variety of semiconductors. Unfortunately, while the U.S. is dominant in many parts of the semiconductor supply chain, such as chip-manufacturing equipment and chip design, East Asia has become the center of chip manufacturing itself.

Both leading-edge microprocessors and dynamic random-access memory, or DRAM, chips face severe risks of supply disruptions over the next decade. These devices power everything from cars and laptops to supercomputers and weapons systems. And most of them are made in East Asian countries subject to significant geopolitical risks.

Consider: If China were to invade Taiwan, the U.S. and the world could lose access to 85% of all leading-edge microprocessors, almost two-thirds of more-mature microprocessors, and half of all DRAM chips. The economic and security implications are difficult to fathom. The U.S. would simultaneously face a major foreign-policy crisis, shortages in the chips that power intelligence and military applications as well as critical infrastructure, and a global and domestic economic crisis far more severe than the turmoil resulting from the current semiconductor shortage.

Skeptics of government incentives argue that, despite these risks, the U.S. should not be in the business of offering government subsidies, which are often ineffective or even counterproductive. But in this case, carefully targeted subsidies can be profoundly beneficial to U.S. national and economic security, for two key reasons.

First, subsidies are necessary to level the playing field with South Korea and Taiwan, where decades of government support have resulted in lower operating costs. This cost differential makes it hard for the U.S. to attract and retain chip makers, despite natural advantages such as ample land, a talented workforce and strong intellectual-property protection. For contract chip makers like Taiwan's TSMC, locating in the U.S. also affords greater proximity to their biggest customers—firms like Apple and Nvidia, which hire chip makers to manufacture their chip designs—as well as reduced exposure to risks of geopolitical crises in East Asia. By offsetting the costs of building in the U.S., subsidies can align chip makers' private incentives with the imperatives of U.S. national security.

Second, investments today could have long-term impacts. Semiconductor talent in development, design and production tends to cluster into self-perpetuating hubs. Establishing leading-edge semiconductor manufacturing plants in the U.S. is the single best way to ensure that these hubs are started, and remain, in the U.S.—benefiting U.S. competitiveness across the semiconductor supply chain.

Some opponents of subsidies also point to the expansion of chip making in the U.S. in recent years, arguing that such expansion shows that subsidies aren't needed. But, with the exception of a handful of low-volume R&D facilities, none of the manufacturing plants currently under construction in the U.S. will be capable of producing leading-edge microprocessors or DRAM chips upon their completion. Without incentives, the U.S. will continue to depend on East Asia for these chips.

Other objections to subsidies include the possibility that they will trigger trade frictions, but the importance of domestic chip-making capacity to U.S. economic and national security outweighs

that risk. The prospect of a possible glut of chips also should be no impediment to subsidies. Chip makers will decide how much capacity to build and what kind of chips to make without regard to subsidies. The subsidies will simply encourage them to base a greater share of their production in the U.S.

The window of opportunity to shift the center of gravity of global chip-making capacity back to the U.S. is rapidly closing, as the cost of building advanced semiconductor manufacturing facilities is rising exponentially. By 2030, a single plant may cost more than \$50 billion. In the absence of CHIPS Act incentives, the U.S. may find itself in 2030 in a similar position to China today: spending tens of billions of dollars a year in a likely doomed effort to remain competitive in the most strategically important industry in the world.

Action is urgently needed. Congress should fully fund the CHIPS for America Act incentives.

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No: The U.S. industry is doing just fine

By Scott Lincicome

Broad, strings-free subsidization of U.S. semiconductor manufacturing is costly, unnecessary and perhaps even harmful to the industry itself.

First, the U.S. semiconductor industry is healthy and expanding. While the U.S. share of global chip production has fallen since the 1990s, the industry's research-and-development spending, capital expenditures and inflation-adjusted output—in terms of value and wafer capacity—have increased substantially over the same period. American semiconductor firms also still produce 44% of their wafer supply domestically and lead the world in chip design and innovation.

The most advanced chips are today imported from East Asia, but U.S. powerhouse Intel and other semiconductor manufacturers—enjoying astronomical profits due to intense global demand—are planning future investments in production of advanced and legacy chips in the U.S., with or without subsidies. They have gone on a spending spree in the U.S. and other locations outside of China or Taiwan.

TSMC's Arizona facility will open in 2024, and it will be the most advanced in the country. Samsung is expanding in Texas, as is Intel in Arizona, Oregon and Ohio. Around \$80 billion of private investment in American chip manufacturing is forecast through 2024, and experts agree it will happen regardless of federal support, because chip makers covet the U.S. workforce and proximity to specialized equipment manufacturers. These are simply not companies that need taxpayer help or the government's encouragement to produce far more in the U.S.

Second, China-related foreign-policy concerns are overblown. Multinational sourcing decisions always consider geopolitical risks, and this is certainly the case for semiconductors. Many large chip-consuming companies are already adjusting their supply chains to account for geopolitical tensions. Semiconductor manufacturers are doing the same: Expansion plans of Samsung, Intel, TSMC, GlobalFoundries and others are all motivated, at least in part, by geopolitics. If giant multinationals deem Taiwan or even Asia to be too risky and want chip production elsewhere, they can pay for it—and that’s exactly what they’re doing.

Besides, the federal subsidies under consideration are in no way sufficient to replace supplies from Taiwan if a Chinese invasion removed those chips from the global market, nor would they act quickly to have any effect. Any new subsidized U.S. production would at best be online in 2025 and more likely in 2026-27. Fortunately, the worst-case scenario of a Chinese invasion is a remote risk.

Subsidies, on the other hand, present far likelier risks—as China itself shows. Its industry remains years behind top chip makers and riddled with problems despite the Chinese government spending decades and billions of dollars to achieve national semiconductor greatness. U.S. subsidies, rather than producing an efficient, competitive domestic industry, could instead make it bloated, dependent on federal assistance and globally uncompetitive.

They could also contribute to a global semiconductor glut and create new and costly trade conflicts.

Chip making is notoriously cyclical, with a history of strong capital spending followed by overcapacity, price crashes and struggling firms. Current investment is, by some accounts, already at levels that typically lead to oversupply, and previous demand forecasts may have been too optimistic. Many analysts are thus worried about a global glut in 2023 that would put U.S. and foreign chip companies in financial distress. U.S. subsidies would exacerbate these unstable market dynamics.

Subsidies would also foment trade disputes as nations move to protect struggling domestic chip makers from subsidized import competition—precisely what happened decades ago when U.S. tariffs targeted Japanese and Korean memory chips, harming American computer companies and consumers in the process.

Other common justifications for subsidies also fall flat. They won’t alleviate the current chip shortage, which should end long before subsidized U.S. production arrives. Furthermore, the proposed funds aren’t limited to supporting the most advanced semiconductors or national-security-related ones, undermining arguments that these subsidies are needed because free markets can’t fully address risky R&D or national-security concerns. Indeed, the House and Senate bills earmark billions for older commercial chips because Detroit auto makers use them.

Subsidies for today's leading technologies might not solve tomorrow's problems, either, as attention and resources are already shifting from even the most advanced current technologies to different models like quantum and neuromorphic computing.

Ultimately, the economic and national-security justifications for throwing taxpayer billions at domestic chip makers are weak. Self-interested semiconductor firms may claim that their situation is dire and that only subsidies can save them and the country. But Congress shouldn't play along.

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