

Going, Going, Gone? To Stay Competitive in Biopharma, America Must Learn From Its Semiconductor Mistakes

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EXECUTIVE SUMMARY

The Issue

U.S. leadership in advanced-technology industries is never guaranteed. America once held dominant market shares in a long list of industries—including consumer electronics, machine tools and robotics, telecommunications equipment, and solar panels—only to see those leads significantly erode, and in some cases evaporate entirely. And because process and product innovation are so often joined at the hip, losing production capacity to overseas competitors often leads to loss of U.S. innovation capacity. Some contend it's acceptable to cede leadership in innovation industries because America will just create new ones. But intensifying global competition, notably from China, now makes such indifference untenable.

America's loss of semiconductor manufacturing capacity (which has fallen from 37 to 12 percent of global production over the past three decades) and its lag in cutting-edge chip development both are due in significant part to policy inattentiveness. This should serve as a warning for policymakers: Failing to maintain a policy environment that nurtures both innovation and domestic production capability risks sacrificing U.S. leadership in other advanced-technology industries, such as biopharmaceuticals.

ITIF's Analysis and Findings

America's experience with the semiconductor industry is especially telling because it's an industry the United States wholly created and led, yet it lost leadership to Japanese competitors in the late 1970s. The industry recovered competitiveness in the 1980s, in part through effective policies like SEMATECH and research and development (R&D) tax credits, but once again allowed that position to erode over the subsequent three decades, to such an extent that policymakers are now calling for a \$50 billion investment in the form of CHIPS Act to restore domestic semiconductor manufacturing capacity and innovation capability.

The tenuous nature of U.S. leadership in advanced-technology industries is also illustrated by America's experience with biopharmaceuticals. Until the latter half of the 1970s, Europe led in this industry, creating more than twice as many new-to-the-world drugs. But by the 2000s, that had shifted, and the United States led the world. This shift was not due principally to differences in firm performance, but to a suite of policies that made Europe less competitive: Stringent regulations on biotechnology made Europe less attractive for biotech drug developers. European regulations also significantly limited drug company mergers, making it difficult for European firms to gain needed scale as the industry started to globalize after the 1970s. Finally, and most importantly, Europe began to impose stringent drug-price controls that meant the U.S. competitors could earn and reinvest more in R&D.

It also helped that the United States adopted an array of favorable policies, including increased funding for National Institutes of Health; tax incentives to encourage biomedical investment; policies like the Bayh-Dole Act to encourage biopharma technology transfer from universities to companies. And unlike Europe, U.S. policymakers did not impose draconian price controls, so innovators could earn sufficient revenues to continue investing in future biomedical innovations.

By the 1990s, most experts in Europe were bemoaning the loss of EU biopharma competitiveness to the United States. But competitive advantage can be fleeting, and from 2003 to 2017 the United States lost at least 22 percent of its drug manufacturing capacity. The COVID-19 pandemic revealed increasing U.S. dependence on foreign suppliers, especially for many active pharmaceutical ingredients. And while the United States is still the global leader in biopharma innovation—as evidenced by the fact that the two most effective COVID-19 vaccines are American—other nations, especially China, are beginning to challenge that leadership. On top of this, many of the policies that enabled the United States to wrest leadership from the EU are now under serious threat—including the threats of stringent drug-price controls, weaker intellectual property rights, and fewer tax incentives for new drug development.

U.S. policymakers did not learn from a half-century of innovating and then losing a host of advanced industries to foreign nations. But the loss of competitive advantage in semiconductors can serve as a wake-up call. The lesson should be that policymakers can never take the health of America’s advanced-technology industries for granted, or even worse, impose policies that weaken that advantage. If they do, then the all-too-real risk is that they will find themselves a decade later having to contemplate a similar \$50 billion package to restore the biopharmaceutical industry.

Summary of Policy Recommendations

- For the semiconductor industry, pass the \$52 billion CHIPS Act, which includes \$39 billion in incentives for new fabs, \$10 billion for R&D, and investment tax credits.
- For the biopharmaceuticals sector, refrain from introducing drug price controls schemes, such as HR3, Build Back Better, or international reference-based price controls.
- Increase NIH funding to at least \$50 billion annually and expand R&D investments in biopharma process innovations at programs like Manufacturing USA and NSF agencies.
- Restore biopharmaceutical manufacturing-stimulating tax credits like Section 936, expand the R&D tax credit, and establish an investment tax credit for new manufacturing plant and equipment, including for pharmaceuticals.

Read the Full Report

Stephen J. Ezell, “Going, Going, Gone? To Stay Competitive in Biopharmaceuticals, America Must Learn From Its Semiconductor Mistakes” (ITIF, November 2021), itif.org/losing-biopharma.

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