



MANUFACTURING POLICY INITIATIVE AT O'NEILL

INSIGHT INTO MANUFACTURING POLICY

Policies To Grow US Manufacturing

Stephen Ezell

US manufacturing packs a powerful economic punch. In 2018, approximately 250,000 firms contributed \$2.3 trillion to the national economy, accounted for \$1.4 trillion in exports, and employed 12.7 percent of the US workforce. And despite only directly accounting for 11 percent of GDP, the broader manufacturing value chain supports one-third of GDP and employment. Moreover, manufacturing accounts for two-thirds of total US business investment in research and development (R&D) and employs 33 percent of the country's scientists and engineers.

Nevertheless, across a number of metrics—output, employment, and the trade balance—America's manufacturing economy underperforms. Real manufacturing value added declined 13 percent from 2006 to 2019 (from 13 percent of GDP to 11.5 percent) (see Table 1). The number of US manufacturing jobs decreased by 25.5 percent from 2000 to the start of 2020. (And since the start of 2020, US manufacturing has lost 1.36 million jobs.) In advanced technology products, the United States ran an all-time high trade deficit of \$132 billion in 2019.

To enhance America's manufacturing potential, policies have been proposed under six types of governmental action: develop a national strategy, subsidize advanced technology, enhance financing of innovation, reform the tax code, invest in workforce skill development, and fund competitiveness programs. Specific policies—described below—are drawn from other nations, individual states, and legislative proposals currently before Congress.

Develop a National Strategy

A number of countries have articulated coherent national manufacturing strategies. Recent examples include Germany's High-tech Strategy 2025, Sweden's Smart Industrialization Strategy, the United Kingdom's Industrial Strategy, and China's Made in China 2025 Strategy.

The Trump and Obama Administrations have developed advanced manufacturing strategies, but Congress should formalize this practice by requiring a quadrennial review and update. Senators Coons (D-DE), Merkley (D-OR), Rubio (R-FL), and Young (R-IN) have called for this as part of their Global Economic Security Strategy Act of 2019. The goal of such a strategy would be to comprehensively assess the strengths and weaknesses of

US manufacturing industries and holistically develop, coordinate, and implement a diverse range of policy

interventions to create the most competitive environment for manufacturing firms of all sizes.

Industry	Percent GDP 2006 Q1	Percent GDP 2019 Q3	2019 Share of 2006
Manufacturing	13.0%	11.5%	88%
Durable goods	6.2%	6.5%	105%
Wood products	0.2%	0.2%	96%
Nonmetallic mineral products	0.3%	0.3%	74%
Primary metals	0.4%	0.4%	111%
Fabricated metal products	1.0%	0.7%	75%
Machinery	0.9%	0.7%	77%
Computer and electronic products	0.9%	1.8%	194%
Electrical equipment, appliances, and components	0.4%	0.3%	84%
Motor vehicles, bodies and trailers, and parts	0.9%	0.7%	87%
Other transportation equipment	0.7%	0.8%	112%
Furniture and related products	0.3%	0.1%	50%
Miscellaneous manufacturing	0.5%	0.5%	101%
Nondurable goods	7.0%	5.0%	71%
Food and beverage and tobacco products	1.6%	1.3%	81%
Textile mills and textile product mills	0.2%	0.1%	55%
Apparel and leather and allied products	0.1%	0.0%	49%
Paper products	0.5%	0.3%	55%
Printing and related support activities	0.3%	0.2%	71%
Petroleum and coal products	1.9%	1.0%	56%
Chemical products	2.2%	1.7%	76%
Plastics and rubber products	0.5%	0.4%	81%

Subsidize Advanced Technology

Federal policy plays a vital role in promoting the development and diffusion of advanced manufacturing technologies, particularly to small and medium-sized enterprises (SMEs). Relevant institutions and programs include Manufacturing USA, the Manufacturing Extension Partnership (MEP) program at the National Institutes of Standards and Technology (NIST), and the National Science Foundation's (NSF) Engineering Research Center (ERC) and Industry/University Cooperative Research Center (I/UCRC) programs.

However, the United States substantially underinvests in such programs. For example, as a share of GDP, the United States invested almost twice as much in the MEP program in 1998 as it did in 2019. As a share of GDP, Japan invests 30 times more in its Kohsetsushi centers; Germany invests approximately 20 times as much overall in its Fraunhofer centers; and Canada invests almost 10 times as much in its Industrial Research Assistance Program (IRAP).

Enhance Financing of Innovation

Policymakers can play a supportive role with creative financial mechanisms to stimulate manufacturing innovation.

Innovation vouchers are one approach deployed by some US states—including Connecticut, New Mexico, Rhode Island, and Tennessee. Innovation vouchers are grants—generally redeemable at local universities, community colleges, or research institutions—that help SMEs purchase the expertise needed to develop a new product or process.

Another approach suggested by ITIF is for Congress to create a “US Manufacturing Digitalization Investment Fund,” run out of NIST, that would provide repayable, low-interest loans to American SMEs to help finance upfront investment in digital manufacturing technologies and solutions.

Senator Cory Booker (D-NJ) has proposed a Scale-Up Manufacturing Investment Company (SUMIC) Act, modeled on the SBA's Small Business Investment Company program, to allow participating investment firms to invest in securities and issue debentures to raise capital that would then be used by manufacturers to finance their scale up of prototypes to commercial-scale facilities in the United States.

Refine the Tax Code

The United States has made some strides in recent years toward implementing a more globally competitive corporate tax code, including by lowering the corporate tax rate from 35 to 21 percent and by moving toward a territorial system for corporate taxation as part of the Tax Cuts and Jobs Act of 2017. However, more can be done.

Over the last two decades, firms have increased their collaborations with institutions, particularly universities, to lower the cost of research and increase its effectiveness. At least a dozen nations have established collaborative R&D tax credits to incentivize industry investment in collaborative research, especially at universities. The United States also has a collaborative R&D credit, but it's limited to energy research. Congress should allow firms to

take a flat credit of 20 percent for all collaborative research undertaken in conjunction with universities, research institutes, federal laboratories, or multi-firm consortia. Several bills have been proposed to make all research consortia eligible for a 20 percent credit.

Invest in Workforce Skill Development

The United States should strengthen education and skills development for its manufacturing workforce. For example, the United States significantly underinvests in workforce training programs. Just 0.1 percent of GDP is invested in active labor market programs, as compared to the OECD average of 0.6 percent of GDP. To be sure, both the public and private sector need to commit to greater investments in workforce training. One way would be for Congress to enhance Section 127, which provides tax benefits for employer-provided tuition assistance, especially because the eligible amount (\$5,250 per year) has not increased since 1996. Congress should increase Section 127 to at least \$8,700 (accounting for the rate of inflation since 1996) and index the amount to the annual rate of inflation going forward.

Fund Competitiveness Programs

These governmental actions would require significant investments. Where would funding come from? ITIF has long argued for the United States to more aggressively confront Chinese innovation mercantilism, favoring a doctrine of alliance-based constructive confrontation with China over one reliant on tariffs on Chinese imports to create negotiating leverage. Nevertheless, between February 2018

and December 2019, multiple rounds of US tariffs on Chinese imports generated more than \$50 billion in revenues to the US Treasury. The Tax Foundation estimated tariff collections from duties on Chinese goods will ultimately reach \$80 billion.

The United States should take the opportunity to reinvest a considerable share of those sums toward financing a comprehensive US innovation and competitiveness agenda, which would include funding for many of the policies outlined here. ITIF suggests Congress work with the next administration to develop a comprehensive \$2.5 billion US innovation and competitiveness package. Of note, many of the recommendations previously mentioned are included in the bipartisan, \$100 billion Endless Frontiers legislation introduced by Senators Schumer (D-NY) and Young (R-IN) that calls for a broader reorganization of the US science and technology system.

Conclusion

A vibrant, innovative, high-value-added manufacturing sector is vital to the strength and competitiveness of the US economy. But the health of US manufacturing cannot be taken for granted, especially in the face of ever-more-intense international competition and the rapid pace of technological change. Public policy plays an important role in creating the environment in which US manufacturing can flourish. These policy recommendations chart the course toward a revitalized manufacturing sector.

For Further Reading:

Executive Office of the President of the United States, Subcommittee on Advanced Manufacturing Technology, Technology Committee, National Science and Technology Council (NSTC), “Strategy for American Leadership in Advanced Manufacturing” (NSTC, October 2018).

Stephen J. Ezell and Robert D. Atkinson, 2011. “The Case for a National Manufacturing Strategy,” ITIF, April 2011

Stephen Ezell is Vice President, Global Innovation Policy, at the Information Technology and Innovation Foundation. This issue is excerpted from a paper prepared for a spring 2020 conference, “Policies to Improve the Competitiveness of US Manufacturing,” organized by Indiana University and the Hudson Institute.

Peer reviewers: Stephen Gold, President and CEO, Manufacturers Alliance for Productivity and Innovation, and KC Morris, ASME Congressional Fellow (from National Institute of Standards and Technology)