

Innovation Policies to Boost Productivity

A Hamilton Project proposal by John Van Reenen of MIT and the Sloan School of Management proposes an ambitious “Grand Innovation Challenge Fund” to increase U.S. spending on research and development (R&D). The fund will give a much-needed boost to innovation and productivity and tackle some of the most important challenges of our age. Specifically, Van Reenen’s proposal would:

- Create a Grand Innovation Challenge Fund that could be used to direct research toward central concerns such as pandemics, climate change, or other problems where science and technology are crucial.
- The Fund would be distributed across a portfolio of research-based innovation policies, including R&D grants, tax credits, STEM workforce investments, and policies that increase innovation among underrepresented groups.
- The Fund would increase federal funding for innovation by \$100 billion a year (half a percent of GDP.)

Issue Overview

- **Productivity growth has fallen flat, government R&D spending has fallen, and wage inequality has risen.** Sensible innovation policy design, aimed at faster technological progress, is a key part of the solution for revitalizing the U.S. economy.
- **The challenges facing the United States and the world are severe and numerous.** Environmental challenges, such as climate change, need large investments in innovation to shift us away from dependence on fossil fuels. Public health challenges, such as the COVID-19 pandemic, require massive research efforts.

The Challenge

We have seen lackluster productivity growth in the past few decades. Growth in total factor productivity—the portion of productivity that results from innovation and technology improvements, among other things—in the United States has slowed, from an average of 2.1 percent during 1948–1973 to an average of 0.7 percent during 1974–2015. Productivity growth is a necessary component of increased living standards and is crucial for boosting economic growth.

The United States continues to face innovation challenges in the environment, health care, and defense sectors. While significant innovation has emerged from private industry, the nation’s innovation needs cannot be met by industry alone. This is because the innovations that often derive great benefit to society can be very costly investments that private firms are not willing to make. Therefore, public R&D spending fills a crucial hole, can boost productivity, and can help solve society’s most pressing problems.

Yet, as a proportion of GDP, U.S. federal R&D spending has fallen from almost 1.9 percent in the mid-1960s to below 0.7 percent today. While the United States, in dollar terms, spends more than any other country (and accounts for roughly 28 percent of global R&D spending), it has lost its predominance in R&D spending in relative terms. The United States as a whole has consistently spent about 2.5 percent of GDP on R&D, but over time other countries have devoted increasing amounts of investment to R&D.

The Path Forward

Van Reenen proposes a large increase in federal R&D funding through the implementation of a permanent Grand Innovation Challenge Fund. Specifically, Van Reenen's proposal would ensure that:

- **Spending will be allocated to different, evidence-based innovation policies.** Out of the fund, 30 percent will go to direct R&D grants, 25 percent to tax credits, 20 percent to increase the STEM workforce, and 25 percent to policies that would promote innovation among underrepresented groups. In addition, relaxing skilled immigration rules could also have a rapid and large positive effect on innovation at very low cost.
- **Decisions on Fund dispersion will be made by independent experts.** Congress can set priorities such as climate change, but the responsibility for allocating funds will fall to a body similar to the Base Realignment and Closure commission that decided where and how to close military bases toward the end of the Cold War.
- **The funds will be used for breakthrough science.** A portion of the Fund should be focused on well-identified national missions—such as health care and climate change. The agency must be prepared to take risks and tolerate failures to find the next moonshot.
- **A variety of incentives and rewards can be used.** Direct grants, tax incentives, and training subsidies could all be part of the policy mix. Prizes and advance market commitments may also be appropriate in some circumstances, especially for mission-oriented R&D.
- **There will be an explicit set of criteria to make sure the resources are allocated geographically in a way that is both cost effective and productive.** Some funds will be dedicated to a competitive bidding process. Regional coalitions can come together to collaborate on competitive bids for these funds. Collaborations could unleash a wave of creative thinking about how to make the best use of the new innovation hubs, and this competition could result in 30 new innovation hubs created by the end of 10 years.
- **Spending will increase funding for innovation by half a percent of GDP—or about \$100 billion a year.** To get closer to the federal R&D historical spending peak, Van Reenen proposes roughly doubling the federal government's spending on R&D. Funding would scale up gradually to reach the proposed increase sustainably.

About the Author

John Van Reenen is the Gordon Y. Billard Professor in Management and Economics and is jointly appointed as Professor of Applied Economics at the MIT Sloan School of Management and in the Department of Economics.