

How to jump-start America

Gruber, Jonathan; Johnson, Simon . Boston Globe (Online) ; Boston [Boston]15 Apr 2019.

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FULL TEXT

In the decades that followed World War II, the United States led the world in innovation, creating entirely new sectors such as jet aircraft, life-saving drugs and vaccines, microelectronics, satellites, and digital computers. Widespread innovation boosted productivity. Household income increased faster than ever before, while inequality declined.

In recent decades, however, US economic growth has slowed, with growth rates now –and in the foreseeable future –running at only half what they were before 1973.

What went wrong? Policy makers forgot one of the most important lessons of the post-1945 period: Research and development drives productivity, which in turns leads to better jobs and higher incomes. And modern private enterprise is most effective when government provides strong underlying support for science and for the commercialization of inventions. Government support for science can create an economic tide that lifts all boats. We are both strong supporters of private enterprise, but firms are interested in innovation only to the extent that it improves their own bottom line –and not if creating new ideas and products leads to benefits for someone else. However, spillovers from discovery are incredibly important, creating both basic scientific knowledge and the more applied ideas that help determine how fast our economy can grow.

The innovation that led to rapid growth after World War II was the direct result of a fruitful partnership between the private sector, federal government, and universities that allowed us to generate and benefit from these spillovers as a country. Almost every major innovation in this era relied in an important way on federal government support, provided by both Democratic and Republican administrations. Public spending on research and development peaked at nearly 2 percent of our entire economy in 1964.

Federal support for R&D today amounts to no more than 0.7 percent of GDP. This is equivalent to spending at least \$250 billion per year less than we did during the post-war boom. Lower public investment in science has contributed to the slowdown in productivity growth. Across almost every dimension of technology today, America faces the imminent prospect of falling behind other nations.

This is not just a history lesson. Walter Gilbert, Nobel Prize laureate and cofounder of Biogen, tried to start a private company to sequence the human genome, but venture capital was not interested in providing startup funding –because no one company could capture enough of the benefits from this investment. Fortunately, the federal government established the Human Genome Project which, for a cost of \$3 billion, fully sequenced the genome in 2003.

The result is an enormously successful America genomics industry which has yielded more than \$1 trillion of economic output –and which each year pays \$6 billion in taxes. This amazing rate of return on public R&D dollars has been matched by stunning numbers in terms of follow-on private-sector job creation: roughly 280,000 jobs, with an average salary of \$70,000.

The United States needs once again to boost its leadership role in science. To do so we should recognize a fact that may be uncomfortable for some: More government spending on R&D will not fly politically if it all goes to the existing technology hubs of today. The best technology jobs that we have today are concentrated disproportionately in a small number of superstar cities primarily on the East and West coasts: Boston, New York, Washington, Seattle, San Francisco, and Los Angeles.

People in the rest of the country increasingly –and correctly –feel that they are being left behind. This is unfortunate because there is so much talent in all corners of our country.

We have identified more than 100 urban communities that are plausible next-generation tech hubs, all with large populations, highly educated workforces, and a low cost of living. These communities are home to more than 80 million Americans in 36 states, across all regions of the country. For example, seven potential new hub locations each in Florida, Michigan, and Ohio; six each in Alabama and Indiana; five each in New York, Pennsylvania, Tennessee, and Texas.

Despite their potential, these communities lag behind the coastal superstar cities. The problem is what is known in the jargon as agglomeration –meaning simply that in today's high tech economy, skilled employees earn the highest wages where there are other skilled people already working. When Amazon announced its intention to build an HQ2 somewhere in North America, 238 cities responded with incentives, yet the winning bidders were two of the most economically successful places in recent decades. The private sector, left to its own devices, will not close the income and opportunity gaps in America.

In contrast, geographically concentrated federal investments can be truly transformative, attracting companies and helping to generate more local private-sector employment. A good example is a main hub for the US computer microsimulation industry: Orlando. Government funding of military simulations, along with research funding for the local university, created the foundation for what has become the 10,000-employee Central Florida Research Park. East Orange County –45 minutes from Disney World –has added 100,000 jobs in the last 30 years, and the University of Central Florida is now one of the country's largest universities.

Scaled-up and deployed strategically across most states, we estimate that an investment of \$100 billion per year in public research and development could help create 4 million good new jobs.

Cities and alliances of smaller urban areas should bid in an Amazon-style competition –but without the tax breaks –to show that they can become an effective home for tech development. Potential hubs should also aim to increase the supply of skilled workers by making higher education more affordable, by providing appropriate practical and technical training, and by linking to locally available employment opportunities that pay good wages. At the same time, we must ensure that everyone benefits from innovation. The massive flood of research dollars into Boston has created some good jobs, along with a lot of wealth for real estate developers. In next-generation technology hubs, the government should own some of the real estate around the hubs, and should use the resulting rise in property values to fund an annual cash dividend for all citizens –so that everyone benefits from the growing success of this initiative.

Around the world, including in China, government-supported research initiatives are helping to create the technologies of tomorrow, along with jobs that will pay well far into the future. Our competitors have studied post-1945 American history carefully and are applying the lessons in a way that works for the modern global economy. We should do the same. The growth engine for all Americans needs to be jump-started.

Jonathan Gruber is a professor in the economics department at MIT. Simon Johnson is a professor at MIT's Sloan School of Management. They are coauthors of "Jump-Starting America."

Caption:

Globe Staff; Adobe

DETAILS

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People:	Johnson, Simon
Company / organization:	Name: Walt Disney World; NAICS: 713110; Name: Massachusetts Institute of Technology; NAICS: 611310; Name: University of Central Florida; NAICS: 611310
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