Is Innovation Over?

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By many measures, the U.S. economy is performing quite well. Since the Great Recession ended in the summer of 2009, the unemployment rate has been cut in half, the economy has created more than 12 million jobs, and GDP growth has averaged a solid 2.1 percent annually.

Yet it's possible to paint a less rosy picture. Productivity growth has been slow, and the number of Americans working has declined significantly in recent years, due to both slowing population growth and a decline in the share of the population that is working. The current rate of GDP growth is well below the average annual rate of 3.4 percent we experienced between 1947 and 2007—and it appears unlikely to return to the previous trend any time soon. But does that mean we should be pessimistic about our economy's future?

Aaron Steelman and John Weinberg address this important question in this year's feature essay, "A 'New Normal'? The Prospects for Long-Term Growth in the United States." In particular, they review two prominent arguments that the U.S. economy is likely to continue to grow substantially more slowly than in previous decades.

One adherent to this view is Tyler Cowen of George Mason University. In a 2011 book, he argues that the United States has largely picked the "low-hanging fruit" that fueled rapid growth in previous eras. One such piece of fruit, according to Cowen, was the abundant supply of free land and natural resources, which attracted smart and ambitious workers from Europe. Another was the opportunity to dramatically raise the education level of the workforce. For much of the 20th century, the rapid increase in the number of Americans with high school and college degrees contributed to high productivity growth. But educational attainment appears to have stalled in recent years.

Cowen also believes that the pace of innovation has slowed in recent decades, an argument that features prominently in research by Robert Gordon of Northwestern University as well. Gordon describes the years between 1920 and 1970 as the "Second Industrial Revolution," a period of dramatic changes in technology and living standards. Electricity, indoor plumbing, and antibiotics, among other innovations, revolutionized both home and work life and led to rapid productivity gains. But the recent computer revolution, in Gordon's view, has a more limited effect on how we live and work.

Gordon also points to four significant headwinds facing the U.S. economy. Like Cowen, he views the slowdown in educational attainment as a

major drag on GDP and productivity growth. In addition, Gordon argues that rising income inequality, demographic changes such as the retirement of the baby boom generation, and rising public debt are likely to inhibit increases in living standards.

Steelman and Weinberg offer the reader an overview of the economics of growth, which provides a framework for evaluating these ideas. The key takeaway is that long-run economic growth is driven primarily by technological change, which itself depends on the growth of knowledge and ideas. To put it more concretely, an economy can grow in the short term by adding more workers or more machines (or, in economic terms, more labor or more capital). But long-term growth depends on people developing new machines, and on workers learning new skills to operate those machines.

What does this imply about the United States' long-term prospects? On the one hand, if it is indeed true that the pace of innovation has slowed, then those prospects might be gloomy. But on the other hand, as Steelman and Weinberg note, there is plenty of reason for optimism. First, innovation is notoriously difficult, if not impossible, to predict; the fact that a future innovation on the scale of electric light is not immediately apparent does not mean that such an innovation won't occur. Moreover, we shouldn't discount the improvements in our quality of life that recent technological changes have afforded us, even if those improvements aren't well captured by national statistics.

Steelman and Weinberg also discuss several implications for policymakers, including trade policy and immigration reform. But the one that strikes me as most urgent is education, because data on wages and educational attainment suggest that we are failing to keep up with the economy's demand for skilled workers.

What can we do to ensure our workforce has the skills necessary to perpetuate the United States' economic growth? A full discussion of this issue is beyond the scope of Steelman and Weinberg's essay, but the Richmond Fed's review of the available research suggests several key strategies. First, we must do a better job of informing middle and high school students about what is required for success in college (as well as ensure that the K–12 education system is capable of providing them with those skills, although I know this is easier said than done). We can also do a better job of providing these students with information about multiple postsecondary educational options, so that students who are not prepared for or do not wish to attend college can take advantage of other opportunities to acquire valuable skills.

At the same time, there is evidence that some students who are well-qualified for college overestimate the costs of attending; providing such students with targeted information could improve their decision-making. Finally, and perhaps most crucially, investment in high-quality early childhood education would yield exceptional returns and would help broaden opportunities for students of all backgrounds. I believe these strategies aimed at strengthening growth in human capital can not only bolster our nation's prosperity over time but also can equip a broader range of our citizens with the skills they need to share in that prosperity.

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