

23rd May 2018

How the U.S. explains its problem of lessened productivity amid a technology revolution.

"We can see innovation everywhere but in the productivity statistics." This sentence that paraphrases economist Robert Solow, is by now a common observation in Washington, D.C.

In the United States, policymakers worry about the fall in their national productivity.

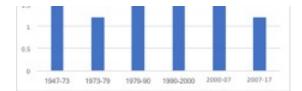
Despite its recovery in 2017, it is still performing well under par by historical standards.

Productivity change in the nonfarm business sector, 1947-2017



http://latintrade.com/why-do-developed-nations-fail/

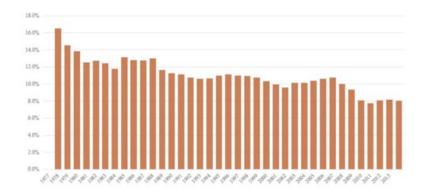
"Millennials are The Least Entrepreneurial Generation Ever" | Latin Trade



Source: U.S. Bureau of Labor Statistics

The government has an explanation. They claim that invention has grown at a speedy pace, but it has not diffused to firms. This disconnect, in turn, is related to with the lack of entrepreneurial spirit. New firms are not being created fast enough.

Share of New Firms As Percent of Total Firms 1977-2014



Source: Census Bureau Business Dynamics Statistics

The Administration blames Millennials for the slow diffusion. "Millennials are the least entrepreneurial generation ever," said at a conference last December, the chairman of the White House Council of Economic Advisors, Kevin Hassett.

Small Business Administration data does support this view. "At age 30, less than four percent of Millennials reported self-employment as their primary job, compared to 5.4 percent at that age for Generation Xers and 6.7 percent for Baby Boomers," reads a testimony before The Committee on Small Business and Entrepreneurship or the United States Senate[i]. "Furthermore, research by the Kauffman Foundation shows that young people were responsible for half the share of startup launches in 2014 as they were in 1996," the report goes on.

There are many reasons for a lessened entrepreneurial drive. Millennials stay longer in school, accumulating debt in the form of student loans; youth unemployment is on the rise; home ownership has declined and hence access to capital is more difficult.

This view has it that lower productivity has been brewed over a long-term period rather than being a recently developed phenomenon.

Other economists, led by Northwestern University professor, Robert J. Gordon, believe that the problem of productivity lies on the weak impact that the Information and Communication Technologies (ICT) have had on the economy.







This group sees three major waves of productive innovation over the history of civilization, tied to industrial revolutions. The first, with its main inventions between 1750 and 1830, created steam engines, cotton spinning, and railroads. The second, which to Gordon is the most important, had three central inventions: electricity, the internal combustion engine, and running water with indoor plumbing, in the relatively short interval of 1870 to 1900[ii]. Other economists add inventions to this period. The development of oil-based chemistry and pharmaceuticals, and the development of communication and information products like telephones, radio and cinema.

The first two revolutions required 100 years for their full effects to percolate through the economy. "During the two decades 1950-70 the benefits of the second Industrial Revolution were still transforming the economy, including air conditioning, home appliances, and the interstate highway system," Gordon said. After 1970 productivity growth slowed, because the main ideas of the revolution had, by and large, been implemented by then. The second industrial revolution "created an unbroken chain of 81 years in which productivity grew fast enough to double every 29 years."

The chain of related effects is long. Not only through electricity and its spinoffs or running water and sewers. Motor vehicles brought about many complementary inventions such as highways, airplanes, personal travel, supermarkets, public health and reduced mortality. Gordon also mentions institutional changes like the change in working conditions "that eliminated child labor and utterly changed life on the job from brutal and short to less physically demanding and more comfortable work."

The third Industrial revolution evolved from the invention of the computer and Internet. It, began around 1960 and reached an eight-year peak around the dot-com era, between 1996 and 2004. The main impact on productivity associated with the invention of the internet, web, and ecommerce withered away after that, Gordon states.

Peak productivity was reached by conditions that are hard to replicate. "An unprecedented and neverrepeated rate of decline in the price of computer speed and memory, and a never-since matched surge in the share of GDP devoted to ICT investment.[iii]"

The full impact of the ICT revolution has yet to be seen. It takes time to incorporate it in existing organizations. Gordon offers one of many examples of this lag, on the installation of electronic check-in kiosks in airports. It uses a development of the 1990s, which was only implemented until 2001-04, and used widely in the 2010s.

Computers were particularly useful replacing clerical labor in tedious and repetitive tasks. Computers were used to make bank statements and phone bills in the 1960s and airline reservations in the 1970s. Personal computers, ATMs, and barcode scanners were adopted in the 1980s. There is also a limit to the number of practical tasks that ICT can perform in an organization. In periods of productivity slumps, like in 1972-1996, computers did not come to the rescue because they had been already deployed to the productive uses limit of the time.

Be the cause the decline of entrepreneurship or the absence of enough ICT spinoffs, the fact is that United States policy makers are right in worrying about the country's sustained productivity decrease. It is not a new problem, nor will it fade away soon, but it is vital for growth in a nation in the technological frontier. Replacement of old technologies and firms by new ones, the Schumpeterian creative destruction idea, is critical in these economies. It is also crucial to see that the channel from innovation to productivity breaks down at the firm level. It is not a matter of having ideas, but having firms that satisfy consumer needs with them, in a meaningful way.

The Woodrow Wilson Center and the Vidanta Foundation are sponsors of this series on innovation.

Why it matters?

The United States is the undisputed leader on innovation. The country is considered as the leading powerhouse in Information and Communication Technologies.

It is interesting to see that the channel from innovation to productivity breaks down at the firm level in developed nations just as in developing economies.

Solutions to lessened productivity will probably have to be different in the United States, than in countries placed far from the technological frontier like those in Latin America, but keeping a close eye on the debate seems necessary to understand the developments of policy, innovation, and firm action.

Both views on the problem seem to place a cap on the enthusiasm of the ICT-optimists bandwagon. They might have to wait for technology to be as socially transformative as they say (unless it just transforms the lives of a few).

[i] Lettieri, John W. (2016) "America Without Entrepreneurs: The Consequences of Dwindling Startup Activity" Testimony before The Committee on Small Business and Entrepreneurship United States Senate June 29

[ii] Gordon, Robert J. (2012) "Is U.S. Economic Growth Over? Faltering Innovation Confronts the Six Headwinds." National Bureau of Economic Research. Working Paper 18315.

[iii] Gordon, Robert J. (2014) "The Demise Of U.S. Economic Growth: Restatement, Rebuttal, and Reflections" NBER Working Paper 19895

http://www.nber.org/papers/w19895





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