Why Robots Will Not Decimate Human Jobs

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Slow economic growth is the mantra of political campaigns and economic angst. Growth in economic output per hour ("labor productivity") achieved an annual pace of 3 percent for a full half-century between 1920 and 1970. Since 1970 that rate has slowed to about 1.5 percent, and in the last six years productivity growth has slowed further to a lamentable 0.5 percent annual rate.

My book *The Rise and Fall of American Growth* attributes this enormous contrast between rapid growth in 1920-70 and slow growth after 1970 to the basic nature of inventions. Growth in the middle of the 20th century was propelled by the invention in the late 19th century of electricity, the internal combustion engine, the telephone, chemicals and plastics, and the diffusion to every urban household of clear running water and waste removal. America made a transition from 50 percent of the working population on farms to a largely urban nation, and the drudgery of household work – carrying water in and out, doing laundry on a scrub board – made a transition to modern bathrooms and kitchens by the 1950s.

The digital revolution associated with computers has since 1960 dominated the sphere of innovation, as office work transitioned from the typewriter and old-fashioned calculator to the new world of personal computers, spreadsheet and word processing software, the internet, and search engines. But the impact of this revolution in boosting productivity growth lasted only one decade (1995-2005), a much shorter impetus than
occurred earlier in the century when productivity growth achieved its 3 percent annual pace for five decades from 1920 to 1970.

Why? The computer revolution altered office work but did not extend into everyday life as had the earlier inventions that brought us electricity, motor vehicles, and the modern kitchen and bathroom. Smart phones were introduced by Blackberry in 2003 and by Apple in 2007, but their uses are primarily to boost consumer enjoyment through social networks and game-playing, not a part of the market economy that creates jobs and pays wages.

Why has productivity growth been so mediocre, a 0.5 percent annual pace since 2010? In my view this has occurred because most of the benefits of the digital revolution were over by 2005. Everywhere you look, from corporate offices to check-in desks at doctor, dentist, and veterinarian offices, the equipment on the desks is the same as in 2005, as is most of the software.

This slackening of the pace of economic growth due to the minor impact of new innovations has both a pessimistic and an optimistic aspect. Slow productivity growth dampens the ability of business firms to provide wage increases to their workers. But slow productivity growth also means that steadily growing output continues to provide new jobs, 15.5 million of which have been created in the U.S. since early 2010.

But how can so many jobs be created in a world of technological hype of robots taking over the economy? Aren’t robots about to decimate jobs, throwing half the population out of work as has been predicted to occur over the next decade by the two Oxford economists in 2013, Carl Frey and Michael Osborne?

Robots are nothing new; the first industrial robot was introduced by General Motors in 1961, and by the mid-1990s robots had a major role in automobile factories, welding together body parts and freeing human workers from the noxious fumes of the auto paint shop. But robots have made little impact outside of manufacturing. Even Amazon’s high-tech warehouses use robots just to move shelves to human workers, who hand-select the items to be shipped as well as the packing material, and pack the shipments by hand.

But outside of manufacturing and wholesale warehouses, robots are hard to find. I play a game called “find the robot.” In my daily strolls in and out of supermarkets, restaurants, doctor and dentist offices, my nearby hospital, offices in my own university, and the vast amount of employment involving elementary and secondary teachers, personal trainers, and old age caretakers, I have yet to find a robot.

In my journeys, the closest thing I have found to the introduction of a robot in the service sector is that in a local casual dining restaurant, there are kiosks on the tables to allow patrons to pay their bills without human intervention. But offsetting that is the fact that my local supermarket recently removed its self-checkout electronic kiosks to
be replaced by human express checkout agents, apparently due to excessive fraud as customers slid expensive items by the dumb credulity of the self-checkout kiosks.

The Frey and Osborne pessimism about jobs is total fiction. They predict over the next decade that 55 percent of airline pilot jobs will be eliminated. Sorry, but government regulations require two pilots in a commercial aircraft, and a switch to one pilot per aircraft is nowhere in sight. They predict that 92 percent of retail checkout clerk jobs will be eliminated, but there is no robot-like replacement of retail clerks in sight beyond the 30-year-old invention of bar-code scanning.

Surely multiple-function robots will be developed, but it will be a long and gradual process before robots outside of manufacturing and wholesaling become a significant factor in replacing human jobs in the service, transportation or construction sectors. And it is in those sectors that the slowness of productivity growth is dragging down the economy’s overall performance.

My book concludes that the rapid economic growth of the mid-20th century cannot be repeated. Those “Great Inventions” were too important and too pervasive to happen again anytime soon. But let us not forget, the corollary of slow productivity growth is the rapid creation of jobs, as we have witnessed in the last six years and will enjoy for the foreseeable future.

Robert J. Gordon is professor in social sciences at Northwestern University and the author of *The Rise and Fall of American Growth*, one of six books on the shortlist for the 2016 Financial Times and McKinsey Business Book of the Year Award, to be announced Nov. 22.