

Why Aren't There More U.S. Robots?

Automation is key to creating wealth—and jobs—economists say, and the U.S. is falling behind



Robot Reality Check: They Create Wealth—and Jobs

The Wall Street Journal

Nov 30, 2018

CHRISTOPHER MIMS

Robots may be coming for our jobs. But a growing body of evidence suggests that workers have everything to gain from welcoming them.

The more robots a country has, the higher its gross domestic product and, on average, the richer its citizens. On the other hand, a country that resists automation loses out not just on wealth creation but on new jobs as well.

This might seem bonkers given the reasonable fear that computers, robots and AI could wipe out half of all jobs in the next 20 years. It also might seem foolhardy from the perspective of a company's leaders, since not all robots are suited for all jobs, and underused robots are costlier than a seasonal or on-demand human workforce.

The bulk of economists argue that automation ultimately creates more jobs. That might be of little comfort to a Detroit assembly-line worker. Automation does eliminate jobs in the short term, with often painful and even permanent consequences. For the economy as a whole, however, automation drives down prices of goods and services. Humans have so far proved endlessly inventive about how to spend extra money, leading to new businesses—and more jobs.

Yet a just-released report from the Information Technology and Innovation Foundation, one of the world's leading science and technology think tanks, argues that the U.S. is falling behind in adoption of robots. Its new index compares the rate of adoption of industrial robots in manufacturing in different countries, while controlling for average wages of workers in those countries and industries. The ITIF found the U.S. is adopting industrial robots well behind the "expected" rate of adoption, compared with other rich countries.

China, on the other hand, is adopting robots so much faster than everyone else that, within a decade, it could lead the world in use of robots, when controlling for wages.

Robots benefiting individual workers feels counterintuitive because they do destroy jobs and the jobs that arise after automation is introduced are impossible to predict, let alone train workers for.

Who at the birth of the digital computer during World War II would ever have predicted that by 2022, North America would have 265,000 more cybersecurity jobs than skilled cybersecurity workers, or that a single e-commerce company, Amazon, would be so big it could create a new shopping holiday?

Some, like the founder of Sinovation Ventures and former head of Google China, Kai-Fu Lee, argue that there is no historical

precedent for the current wave of automation, as it will be as big as the arrival of electricity or steam but will happen much more quickly.

Robot Power

Automation takes many forms, but robots are a useful focus, because they directly displace low-skilled workers in manufacturing and other blue-collar professions. One recent study of the adoption of robots in 17 countries found that increased use of robots accounted for 0.36% of the annual growth in hourly worker productivity.

A seemingly small increase, it amounts to a substantial 15% of overall productivity growth. Not surprisingly, adopting robots also lowered prices of the goods they helped produce.

This has led some to call for the U.S., in particular, to increase the rate at which it adopts robots. "You either adopt automation or you see jobs go overseas to the countries that do," says Robert Atkinson, ITIF founder and president.

Overall, the U.S. ranks seventh in the world in its ratio of robots to manufacturing workers, but that only translates to two industrial robots per 100 workers.

In South Korea, there are seven.

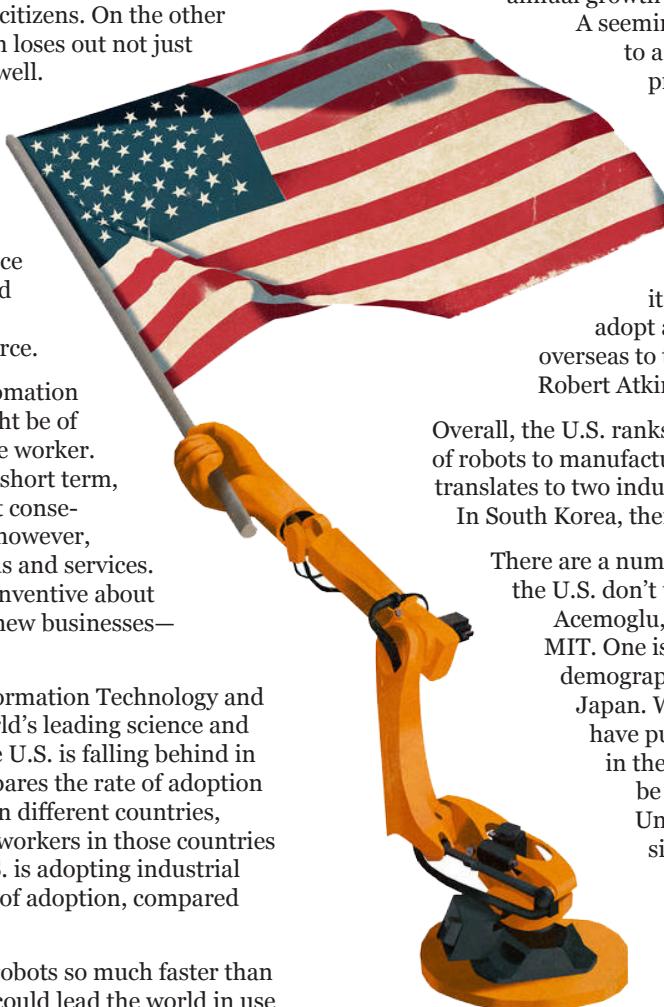
There are a number of reasons companies in the U.S. don't use more robots, says Daron Acemoglu, a professor of economics at MIT. One is that the U.S. hasn't had the same demographic pressures as Germany and Japan. Worker shortages and high wages have pushed those nations to be leaders in the use of robots. That could be changing in the U.S., however: Unemployment hasn't been this low since 1969.

Who Benefits?

While ITIF correlates GDP growth with robot adoption, the way that wealth increase is distributed depends on how the country adopts those technologies, says Irmgard Nübler, a senior economist at the International Labour Organization in Geneva.

Typically, she says, adoption of automation goes through two initial phases: worker displacement then job growth. Prof. Nübler believes that the record inequality in the U.S. seen in 2018 suggests we're at the turning point between these two phases. Without policies in place to deal with these impacts, the inequality that arises in the first phase might persist.

The last time we saw a technological transition like this was in the 1920s and '30s, when electricity and the automobile



created a third industrial revolution in the U.S. What came next were “new institutions and new social movements,” she says, as society adjusted to changes in the nature of work.

One result was the “high school movement,” as secondary education became both free and compulsory, preparing an entire generation of Americans to move off the farm and become factory, clerical and service workers. This era also saw the rise of labor unions and the introduction of social security.

Prof. Acemoglu also studies what happens to workers in the U.S. after they lose their jobs to automation. The result, in the auto-manufacturing Michigan towns of Detroit, Defiance and Wilmington, was economic suffering for the surrounding communities.

A similar study, done by other researchers, found that robots didn’t hurt net employment in Germany, as workers found jobs in other industries. Prof. Acemoglu thinks this might be due to Germany’s stronger safety net. This includes a collaboration between the government and industry, dubbed Industry 4.0, which encourages both the adoption of new manufacturing technologies and the training of workers in the skills they require.

What's Next?

The current wave of robotization may require economic planning the U.S. hasn’t had much taste for since deregulation took hold in the 1970s, argues John Spoehr, director of the Australian Industrial Transformation Institute at Flinders University in Adelaide.

Expanding the U.S. safety net in the face of short-term job disruption has led to all sorts of proposals. Microsoft co-founder and philanthropist Bill Gates has suggested a tax on robots. Many in Silicon Valley favor a Universal Basic Income. Stockton, Calif., will be the first city in America to attempt a UBI—a no-strings \$500-a month-grant to its poorest citizens.

These proposals are controversial, to say the least. It took the Great Depression to bring about a New Deal. It isn’t clear how much disruption will be required to change policy in the 21st century.

One thing we can do in the meantime, argues Prof. Acemoglu, is to change what we’re teaching students, though we’ve only begun to consider what the “high school movement” equivalent is for the age of AI, Big Data and robotics.

“Not many people have thought about what are the skills we’re going to need in the future,” he says.

Write to Christopher Mims at christopher.mims@wsj.com

Corrections & Amplifications

The U.S. has two robots for every 100 manufacturing workers.
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Corporate

650 North State Street, York, PA 17403



Robotics Lab

15 Flour Mill Road West, York, PA 17406



325 S Main St, Pittsburgh, PA 15220