

Automation Is Coming for American Jobs

By BRENDA WALKER

Automation, including robots and advanced software, is the most important issue threatening America's future that isn't being discussed.

Smart machines are much debated within the tech universe, of course, but the public discourse accompanying the Presidential campaign has not mentioned automation's job threat at all. Meanwhile, economic pundits scratch their heads in confusion about the jobless recovery. A *Wall Street Journal* report in late July called the Great Recession's recovery the "weakest of any since 1949." Certainly the highly increased level of regulation from the Obama administration is partially responsible for the lack of economic and employment growth, but automation is an increasing factor, though it is rarely mentioned as such.

Employment is down, as indicated by a record high 94,708,000 people out of the workforce in May 2016. Nevertheless, manufacturing has been bubbling along at near record levels this year, even though the sector has lost millions of jobs. (The Economic Policy Institute estimated in 2015 that the manufacturing sector employed 12.0 million workers in 2013 or 8.8 percent of total U.S. employment.) The upshot is that plenty of stuff is getting made, but far fewer humans are needed to make that production happen.

In 2013, the Associated Press produced a series of three articles to explain how automation had been utilized by business during the recession to survive: many companies found smart machines to be a cheaper alternative to human workers and invested accordingly. AP observed that "Millions of middle-class jobs have been lost in developed countries the world over," and most will never return because of the rapid improvements in the capabilities of the machines. MIT researcher

Andrew McAfee and co-author of *Race Against the Machine* remarked in 2013, "I have never seen a period where computers demonstrated as many skills and abilities as they have over the past seven years."

Here's one measure of the power of machines to upend the economy of work, from the book *Rise of the Robots: Technology and the Threat of a Jobless Future* by Martin Ford:

In 2012, Google, for example, generated a profit of nearly \$14 billion while employing fewer than 38,000 people. Contrast that with the automotive industry. At peak employment in 1979, General Motors alone had nearly 840,000 workers but earned only about \$11 billion—20 percent less than what Google raked in. And, yes, that's after adjusting for inflation.

Experts paint a sobering picture. Oxford researchers estimated in 2013 that nearly half of U.S. jobs were vulnerable to automation within 20 years, and the progress of the intervening years has done little to refute that idea. The Gartner technology consultants predicted in 2014 that one-third of U.S. jobs will be done by a computer or robot by 2025.

According to a recent report from the consulting firm McKinsey & Company, "While automation will eliminate very few occupations entirely in the next decade, it will affect portions of almost all jobs to a greater or lesser degree." That assessment seems accurate overall and corresponds to how the technology has played out so far. But things get dicier a little further out in time.

Professor Moshe Vardi of Rice University estimates that machines will be capable of doing almost any job that a human can within 30 years. Furthermore, the computer scientist believes that automation is humanity's "greatest challenge ever." At the February meeting of the American Association for the Advancement of Science, he remarked, "I do not find this a promising future, as I do not find the prospect of leisure-only life appealing.

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That seems to me a dystopia. I believe that work is essential to human well-being.”

Forget the future for a second: automation is happening now. Look around and you will see it. ATMs — Automatic Teller Machines — have been around since 1969. Surveillance robots, built like tall R2-D2s, are showing up in parking lots and schools, eliminating watchman jobs. Airline check-ins have been automated with DIY kiosks for years to speed the process and save labor costs. More supermarkets are set up for customer self-checkout. Restaurants are installing kiosks for food ordering, a modernization hastened by worker demands for \$15 per hour. Various state Motor Vehicle bureaus have self-serve kiosks for vehicle registration payment and renewals. It’s easy to overlook these minor changes that occur incrementally, but the total effect on employment is beginning to be felt. A one-time CEO of McDonald’s, Ed Rensi, appeared on a Fox Business show last May and explained the financial facts about automation in the fast-food industry:

If the \$15 minimum wage goes across the country, you’re going to see job loss like you can’t believe. I was at the National Restaurant Show yesterday and if you look at the robotic devices that are coming into the restaurant industry — it’s cheaper to buy a \$35,000 robotic arm than it is to hire an employee who’s inefficient making \$15 an hour bagging French fries — it’s nonsense and it’s very destructive and it’s inflationary and it’s going to cause a job loss across this country like you’re not going to believe.

It’s easy to see the change on production lines, particularly automotive, where robots are doing the assembling instead of humans. In fact, one report says that 80 percent of car and truck manufacturing is now done by machines. That’s a huge loss to blue-collar workers, in a country where once a young person could go from high school graduation to a decent-paying job at the local auto plant.

Unfortunately for workers, the new technology comes on top of years of harmful economic globalization in the form of outsourcing and mass immigration. Outsourcing sent millions of manufacturing jobs overseas starting a few decades ago, a trend that has continued. Pat Buchanan reported in 2012 that “the United States since 2000 has lost six million manufacturing jobs and 55,000 factories.”

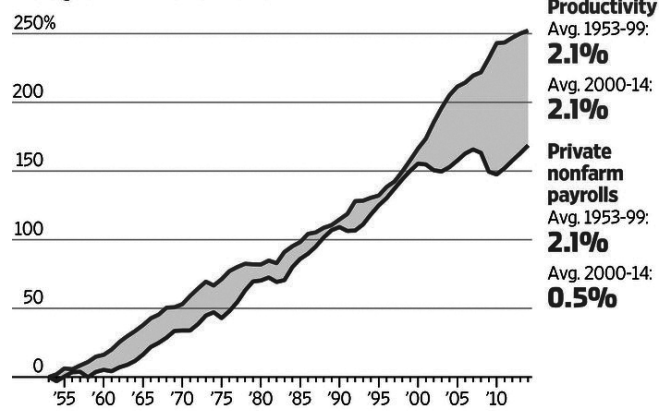
Plus, natural population growth and new immigration have greatly exceeded employment growth from 2000 to 2015, according to March 2016 testimony to Congress from the Center for Immigration Studies. Even so, the 2013 Senate bill 744 mandated increased numbers of immigrants above what we already have.

This nation once had a sizable blue-collar middle class, fueled by jobs in manufacturing, until government-promoted policies of economic globalization largely destroyed it.

A Pew Research study (“The American Middle Class Is Losing Ground”) released on December 9, 2015, found that the number of Americans living in a middle-class household had fallen to below half. That’s a major event, because America is supposed to be a middle-class nation, not like backward countries such as Brazil where the great majority of people are poor and are ruled by a powerful rich oligarchy. Now America is looking more and more like a banana republic.

More Work, Less Labor

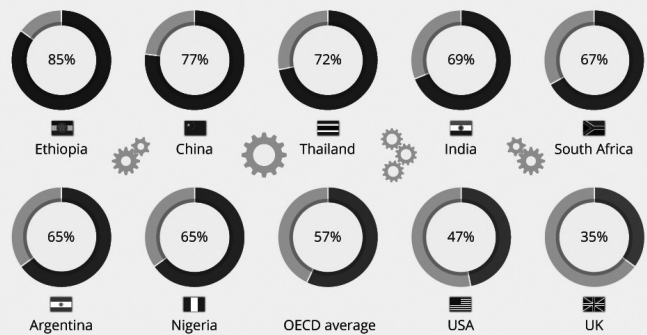
In the post-war economy, U.S. productivity and jobs grew roughly in tandem until 2000. Economists account for the change because of globalization and new automation, which allows the economy to produce more goods with fewer workers.



Note: 2014 productivity for first three quarters
Source: Labor Department THE WALL STREET JOURNAL.

Risk of Being Replaced by Automation

Percent of workforce possibly affected in various countries



@StatistaCharts Source: Citigroup / World Bank statista

Interestingly, some manufacturing has returned to the U.S. because automation has reduced labor costs overall and transportation then becomes more of an issue. So workers are needed, but fewer. A 2014 *Los Angeles Times* story (“After decades of exodus, companies returning production to the U.S.”) observed, “The company can now produce an alternator with one worker in the time it took four workers in China.” That

efficiency is achieved through automation.

However it's wrong to think only of blue-collar work that is being remade by technological change. Advanced software is having a similar effect in many offices. In a 2015 article titled "The New Bookkeeper Is a Robot," the *Wall Street Journal* reported:

Robots are taking over corporate finance departments, performing work that often required whole teams of people...

Businesses use these programs to save time and staffing costs. Since 2004, the median number of full-time employees in the finance department at big companies has declined 40 percent to about 71 people for every \$1 billion of revenue, down from 119, according to Hackett Group, a consulting firm.

Rise of the Robots author Martin Ford described his own experience in starting a Silicon Valley software production business in the early 1990s. At that time, it was a labor-intensive process including physically shipping out the software on disks to buyers. As his business grew, he hired some workers in Berkeley to do the shipping. But in a short time, "most of that work just evaporated." Starting then and going forward, most software has been delivered over the Internet or hosted in the cloud. So the developments in technology dictated changes in Ford's business that caused jobs to disappear. He also saw similar disruptions in the music business and elsewhere, and began to understand these changes as a preview of what would happen more widely in the entire economy, realizations that led to his award-winning book.

The business community's spin on the automation trend is to say that robots would be "helping" human workers function more efficiently. The term "cobot" has been tried but hasn't really caught on. One example from the *National Geographic* — "Meet the Cobots: Humans and Robots Together on the Factory Floor." It sounds so friendly and collaborative, but businesses are not buying technology to make workers' lives easier.

Meanwhile, there's a mini-industry of public relations flacks at work, telling concerned workers not to worry about a robot replacing them. It's reminiscent of business elites telling Americans not to fret over millions of jobs being outsourced to Asia because everyone would be retrained to do tech work. Then the Internet was invented and location became irrelevant. Plus, patriots who complained of cheapie foreigners being imported to do U.S. jobs are still routinely called racist.

Another denial cadre has formed up using the buggy-whip argument: yes, the carriage builders were put out of work by the automobile, but lots of new jobs were produced in the emerging automotive industry to replace them.

Martin Ford rejects that viewpoint, as he explained during a radio interview (September 3, 2015):

There's no doubt that technology has been a very positive force and I think that it can continue to be a very positive force, but I do think this time is different.

Today's technology, the machines and the algorithms and the robots are, to some degree, becoming intelligent. It's not just about doing manual labor as it was in the past.

Now we've got robots and machines and algorithms that are taking over brain-power and it's much more broad based. It's ubiquitous, these technologies are everywhere.

They're going to invade every industry across the board.

The difference with the new machines is the intelligence, as Ford says. It also matters that the robots are becoming cheaper: if a machine that costs \$25,000 can load widgets from a production line into a box 24/7 all year long with a few squirts of oil, then it looks like a good investment to a business owner.

The automation future portends a huge transformation in society, but it isn't getting the attention due. Just how is the all-important economy supposed to work when half or more of the adult population is jobless? No shoppers mean the market will shrivel. Do politicians have any idea what's coming? Or are they in deep denial because there's no easy fix?

One possibility is that Silicon Valley loves the idea of more smart machines and has little reason to warn the senators and congressmen (who are beholden to SV campaign donations) of any large social problems associated with technological unemployment.

So we live in an odd time where a rather large problem is creeping up on the nation, but the important people are apparently unaware it. The citizens can only make such noise as our diminishing freedoms allow and hope for some attention from Washington. At the very least, the government should end immigration, because America won't require foreign workers for the mythical "jobs Americans won't do" — citizens will need those jobs. ■