

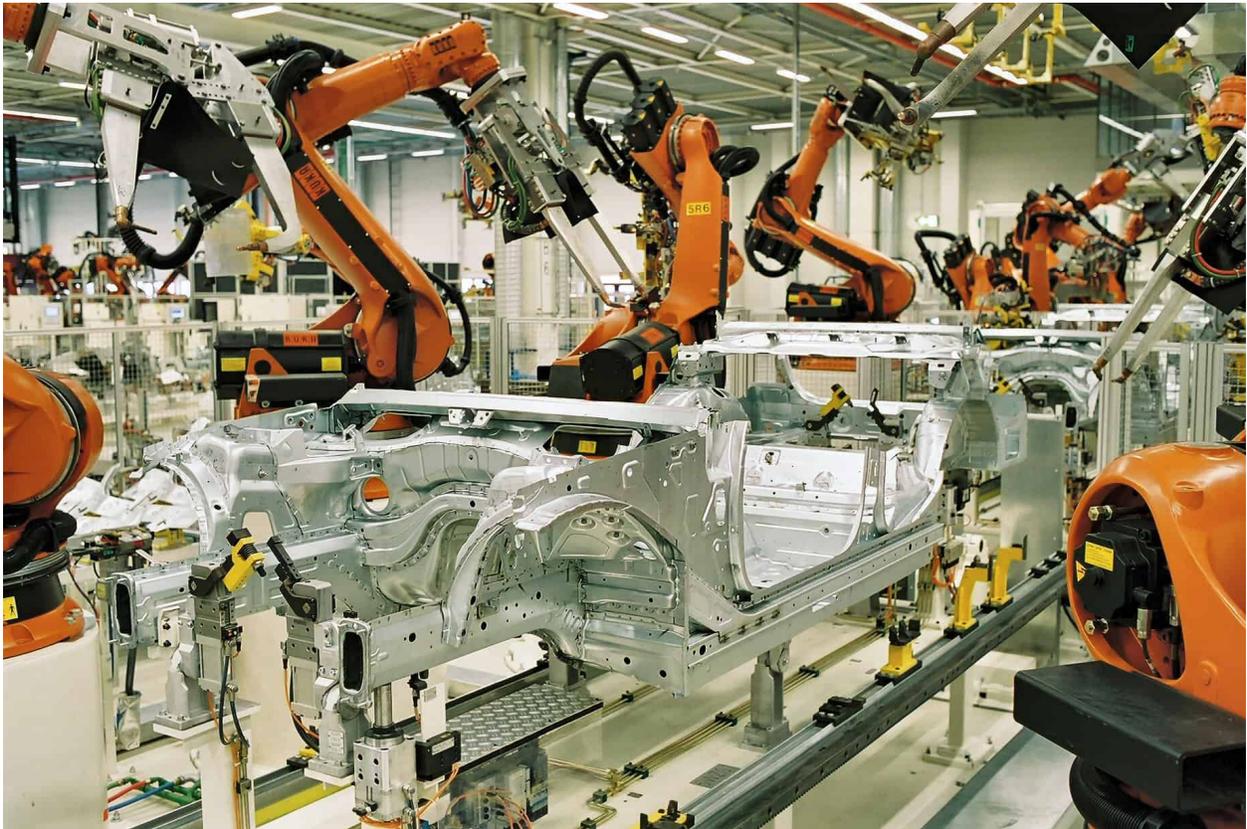
The Wire China

NEWS AND ANALYSIS

Made In China — By Machines

China is a global leader in automation, leading to fears that millions of workers, particularly in the manufacturing sector, are set to lose their jobs to robots.

BY ANASTASIIA CARRIER — JULY 18, 2021



Credit: BMW/Wikipedia

The march of the robots stalled globally last year — except, that is, in China.

Sales of industrial robots in the world's second-largest economy jumped 19 percent in 2020, according to [recent data](#) from the International Federation of Robotics, compared with a slight 2 percent decline in overall global sales. The sharp rise has consolidated China's position as a global leader in automation: even in 2019, before the Covid-19 pandemic hit, the country installed more robots than the next four countries — the U.S., Japan, South Korea and Germany — combined, the IFR [data shows](#).

Such figures may intensify fears that millions of Chinese workers are set to lose their jobs to robots, particularly in the manufacturing sector. In fact, using robots is becoming a necessity for many manufacturers dealing with the effects of China's declining working population and rising wages. The greater challenge for Chinese policy makers may instead be to ensure the country has

enough educated workers in the future that are able to work in a more hi-tech, service sector-driven economy.

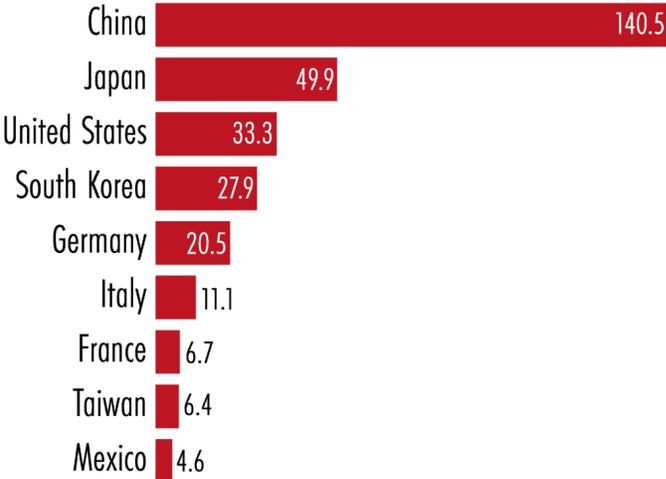
“The whole movement [towards robotics] is cost-driven,” says Hongbin Li, co-director of the Stanford Center on China’s Economy and Institutions and a co-author of a study entitled [The Rise of Robots in China](#). “The labor cost has been rising real fast, which pushes factory owners to use machines and robots. Given the demand for labor and shortage of supply, there is a place for robots to replace workers.”

A seemingly unending movement of low-wage workers from rural to urban areas fueled China’s global dominance in manufacturing, particularly after it joined the World Trade Organization in 2001. But China’s working-age population has been in decline since 2011 — when it was at 925 million — and could fall to 700 million by 2050, [according to government](#) estimates, partly as a lingering result of the country’s former one-child policy. Such trends have put upward pressure on wages in China, a key reason why many manufacturers have shifted production to lower-cost countries like Vietnam and Bangladesh in recent years.

Spare Parts

In 2019, China installed more industrial robots than any other country.

Annual installations of industrial robots in ‘000s of units



Data: [International Federation of Robotics](#)

China, in line with several other major economies, has also been suffering from low productivity growth, while the country’s leaders have been keen to assert its position as a global leader in technology. The combination of these factors led the Chinese government to place automation, artificial intelligence and robotics among the main priorities of its ‘Made in China 2025’ strategic plan: Last year alone, the country was predicted to spend nearly [\\$47 billion](#) on the production and adoption of robotics — more than a third of the world’s spending.

This focus on robotics has put China at the center of a global debate over the impact greater automation will have on societies.

Lynn Wu, an associate professor at the Wharton School who co-authored a study titled [*The Robot Revolution: Managerial and Employment Consequences for Firms*](#), says using robots can make companies more productive, in turn giving them the capacity to hire more people for other roles — although this can have a negative effect on employment elsewhere.

“Because [such firms] are so good at what they do, they’re killing their competition,” she says. “So their competitors in the same industry layoff workers.”

Despite the advantages the use of robots gives to companies that adopt them, experts predict that humans will still be needed for some manufacturing jobs.

“Humans are much better than machines at assembling delicate components,” said Ya-Wen Lei, associate professor of Sociology at Harvard University and the author of a study titled [*Upgrading China through Automation: Manufacturers, Workers and the Techno-Developmental State*](#).

Such variables make predicting the overall effect on employment from automation hard to estimate. [In a 2018 report](#), the professional services firm PwC forecast that greater use of artificial intelligence in China, along with related technologies such as robots, drones and electric vehicles, could lead to the loss of 204 million jobs from 2017 out to 2037 — but could also create 297 million more.



Chinese workers with limited education may find it hardest to adapt to growing automation in the workplace. *Credit: Pxfuel*

Its argument rests on the idea that firms using robotics can make and sell products at lower prices, helping consumers to save money. Those consumers can then spend more on other

products and services, in turn creating enough jobs to more than compensate for manufacturing jobs made redundant by the robots.

The PwC report predicted most of the new jobs created by new technologies will emerge in the services sector. That fits with a trend observed by Harvard's Lei, who says younger migrant workers tend not to be interested in manufacturing sector work but are more interested in so-called "gig" economy jobs working for various online delivery platforms like [Meituan](#).

One of the key issues facing Chinese workers as automation proceeds is gaining the skills necessary for well-paying jobs in sectors like technology — a problem recently highlighted by [Scott Rozelle](#), a development economist at Stanford University who has spent years studying China's rural areas as director of the Rural Education Action Plan. Rozelle cites the fact that only 30 percent of China's population have the equivalent of a high school education as a major structural issue for the economy, as poorly-educated people generally find it hard to adapt to the new types of work in high-income economies.

"Job training for undereducated people almost never works," he says. "To successfully retrain workers, the government or employer need to heavily subsidize them so they can continue to support their family while studying for one or two years. Then, there is a question of whether low-skilled workers have the human capital skills to get retrained."

The impact of robotics isn't only felt in low-skilled jobs. More automation has the potential to reduce the need for middle managers in factories, as there will be fewer workers to supervise. Such trends threaten the traditional career ladders for low-level employees.

"How do you keep these workers from losing hope? There's no career advancement — you will probably get stuck at the entry-level job forever," says Wharton's Lynn Wu.

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