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Preparing for the age of automation

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Robots carry an enormous influence in industries such as transportation, education, manufacturing, healthcare and even the military. Robots are able to execute tasks judged too "dirty, dangerous and dull" for humans, ranging from nuclear waste cleanup at the Windscale facility in Sellafield to operating car production lines in Slovakia. It is, indeed, difficult to argue against the use of robots in such fields. Robots need not be paid wages, can be programmed to perform certain tasks without training and are indefatigable and disposable. Though the benefits of robotic replacement are obviously clear, there remains the significant factor of a mass influx of unemployed workers — a factor which, if not prepared for, will have devastating effects on the American and world economy.

The industries of manufacturing, food and transportation are often depicted as industries most heavily impacted by automated replacement. This poses a significant issue to the American workforce; the May 2015 National Occupational Employment report released by the Bureau of Labor Statistics estimated that roughly 9.5 million Americans — nearly 7 percent of the U.S. workforce — are employed in the transportation industry. In addition, the United States' manufacturing and food sectors employ around 3.4 million and 12.6 million Americans, respectively. Combined, these three industries compose 25.5 million — or nearly 16 percent of the American workforce (for context, peak unemployment during the Great Depression was 25percent). The manufacturing industry, in particular, has already seen extensive replacement with robotic counterparts, with 237,400 industrial robots operating in North America in 2014. Robotic replacements in the form of self-driving cars or automated noodle-cutting machines will undoubtedly transform two of the United States' largest industries, with the unfortunate effect of endangering the jobs of tens of millions of workers.

The consequences of firing nearly 16 percent of the American workforce with no systems for compensation would, undoubtedly, be catastrophic. As stated by Darrell West of the Center for Technology Innovation at Brookings, "If advanced economies need fewer workers to complete needed tasks, and benefits are delivered mainly through full-time jobs, there is a danger that many people will have difficulties getting health care, pensions and the income maintenance they need to sustain their lives." It is unlikely state unemployment benefits would be able to keep up with the sheer influx of benefit-seekers; as noted by the Center on Budget and Policy Priorities, "a number of states' UI trust funds were inadequately prepared for the Great Recession, and most states had to borrow from the federal government to help pay benefits." The peak unemployment rate during the Great Recession was 10.8 percent, and multiple states, including California,

Kentucky and New York relied upon federal assistance to pay unemployment benefits during the Great Recession — there is little reason to believe states today will be able to provide unemployment benefits if the unemployment rate were to exceed the Great Recession's by more than 50 percent.

Of course, this does not mean robotic replacement in industry should be banned or artificially (i.e. through laws or regulations) slowed down; rather, it falls on the U.S. government to develop a plan for the rise of robotic workers — and the subsequent influx of unemployed workers. There are multiple ways for the United States to prepare, one of the most popular being the implementation of a universal basic income, or UBI. The Cato Institute has analyzed the potential benefits and concerns of a guaranteed national income, reporting that "a guaranteed national income would be simpler and far more transparent than the current welfare bureaucracy." Furthermore, such a system would "also allow recipients to develop life skills they will need when they get to the point where they are more independent." However, the Cato Institute noted that "unless we are prepared to significantly increase taxes, a pure universal basic income is unaffordable" and that a UBI would have "to address the regional variation in the cost of living."

Alternatively, the United States could focus on overhauling its education system to train students for future jobs, as argued by the economist Andrew McAfee: "our primary education system is doing a pretty good job at turning out the kinds of workers we need 50 years ago." Still, other methods exist; corporate profit sharing would spread the benefits of improved production to a greater amount of people, as argued by William Galston and Elaine Karmack. Implementing stronger pro-labor laws would also help alleviate some of the concerns robotics technology will inevitably bring.

Obviously, robotic replacement isn't going to overtake the entire U.S. economy by the next year, or even by the next decade. But it is undeniable that the ever-growing complexity and capabilities of robots will eventually have an irreversible impact on the United States' economy. Rather than denying reality, the United States must prepare — through a variety of methods — for the inevitable proliferation of robotic workers, in order to ensure a relatively peaceful transition from a human-majority workforce to a robotic workforce.