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# The Quest for Quality Jobs

US unemployment is low, but so are salaries and job security. The nation needs to address the need for better jobs.

The United States lost one-third of its manufacturing jobs—5.8 million positions—between 2000 and 2010. Although the economy has strengthened significantly since then, only about 12% of these jobs have returned. Their disappearance has resulted in painful social disruption: manufacturing had been a critical route to the middle class for those with high school educations or less. Nationwide, the median income of men without high school diplomas dropped 20% between 1990 and 2013; for men with high school diplomas or some college it fell 13%. For the same period, the number of people dropping out of the workforce ran at a historic high. Full-year employment of men with a high school diploma but without a college degree dropped from 76% in 1990 to 68% in 2013; the share of these men who did not work at all rose from 11% to 18%. During this period the income of those with college degrees went up, with the result that the nation's workforce is increasingly polarized. Income inequality is growing, and the middle class has been in decline. With unemployment now below 4%, the workforce is working, but those on the lower economic tiers tend to be stuck in lower-end services work without benefits. Manufacturing and retail are examples of industries that have been in decline. Increased competition from manufacturers in other countries appears to be the primary cause of the decline in US manufacturing jobs. Automation hasn't been the major factor—yet. In retail, the underlying problem is that the United States built too much retail space and has had to reduce the number of outlets, but online commerce is also reshaping the flow of goods, replacing store jobs with warehouse jobs. In warehouses, meanwhile, robots and automation are taking on significant roles.

## The skills upgrading

Manufacturing is a particularly good example of what is happening in the economy because of its historic role in leading productivity gains. Factories are no longer “dark Satanic mills”; the latest now look more like clean labs. Production jobs are upskilling. Data from the Bureau of Labor Statistics (BLS) reveal the evolution of what is meant by manufacturing worker. The number of lower-skill production workers is decreasing, while the number of high-skill workers such as machinists and welders and of very-high-skill workers such as engineers and scientists is increasing. Production-level workers now make up less than 40% of manufacturing jobs.

This is part of a general trend in US labor markets: required skills are moving steadily upscale. If high-skill jobs are defined as those requiring some college education, BLS found these jobs now include 37.7 million workers, rising from 28.7% of the workforce population in 2006 to 33.4% in 2012. At the same time, the proportion of lower-skill workers declined 7.5%.

A recent study by the Georgetown University Center on Education and the Workforce shows that in the period from 2007 to 2016—the Great Recession and its recovery—8.6 million jobs were filled with persons with a bachelor's degree or higher; 1.3 million jobs by those with an associate degree or some college; and in a decline, 5.5 million jobs by those with high school degrees or below. Nearly all the new jobs postrecession—11.5 million out of 11.6 million—went to those with at least some postsecondary education. In other words, most of the new jobs this century will require skills held by only a minority of the current workforce.

Upskilling is not a new story. A nineteenth century workforce would be hopelessly lost trying to operate twenty-first

century industries; technological advances have pushed demand for increasingly skilled labor since the industrial revolution. And now this need may be accelerating. Upgraded skills appear to be a prerequisite for the new “advanced manufacturing” and “Industry 4.0” dynamics that countries such as the United States, Germany, and China are moving to implement.

## The education divide

The economists Claudia Goldin and Lawrence Katz have shown through a study of college education and income that when there is advancing technology and corresponding rising demand for skills, those individuals who have the requisite skills can command a wage premium. US real median family income was \$32,101 in 1954, and by the end of 2015 it had grown to \$70,697. But the median had been \$69,822 in 2000 and was relatively stagnant for a decade and a half. However, during the period since 1954, the share of income going to the top 1% and top 10% of earners increased from 9.4% and 32.1% to 18.4% and 47.8%, respectively. As the average income for the bottom 90% of earners grew from \$21,852 to \$33,218, the top 10% saw their average income increase from \$93,095 to \$273,843. The upper and upper middle classes are thriving; the rest are not. Goldin and Katz found that a college education was the hallmark of those who experienced the largest increase in income.

The economist David Autor likens the current trend in income distribution to a barbell. One side represents a prosperous and growing upper middle class, the other the growing and poorly paid lower class, often in lower-end services jobs. The connecting bar in the middle is thinning out, with many people sliding toward the lower class. Those who are being left behind are stuck behind the curve of lower job skills. Some observers suggest that the advent of this workforce polarization, with the growth of low-skill, often manual, service work, means that the link that Goldin and Katz make between higher education and technological change has come to a halt. Not so; it means the opposite. Education is becoming more necessary to avoid falling behind the advancing technological curve. The education and work polarization is creating a sharpening class divide that in turn is creating a sharpening political divide. Society’s historical ability to arrive at political consensus is breaking up across this fault line.

Large segments of the US working class face geographic as well as educational challenges. Displaced manufacturing and retail workers are largely from communities where signs of distress—closed plants and storefronts—are visible manifestations of the statistics on income decline. A home is usually a family’s largest asset, so when home values collapse after a major plant closing, it is hard for these workers, particularly older workers, to pack up and leave. Unemployment levels are low, but many formerly

well-paid manufacturing workers are now in lower-paid service jobs or have left the workforce and are therefore not counted as unemployed. This isn’t just a white working class phenomenon; 10% of the manufacturing workforce is African American and 16% is Hispanic. These communities have had an important door to the middle class closed to them. The decline of retail closes more doors. If work is upskilling, is there a way to provide effective training to the groups that are increasingly left behind?

## The training dilemma

The economist Gary Becker in his noted work on human capital argued that US labor markets generally supply suboptimal levels of skills training. Labor market competition between firms tends to create an underinvestment in skill training because the gains from such training can’t be adequately appropriated by the firm providing the training. In other words, companies aren’t willing to invest in worker skills because competitor companies frequently hire away these trained employees and reap the benefits of their improved skills. Employers, then, to the extent they provide training, have tended to build their programs around narrowly defined firm-specific skills that will be of less value in other firms.

A 2016 Economic Report of the President, produced by the Council of Economic Advisers, found that the number of employees who received employer-sponsored training dropped 42% between 1996 and 2008. In turn, corporate spending on training as a share of gross domestic product (GDP) declined from more than one-half of a percent in 2000 to one-third of a percent in 2013. Although there is much talk and growing interest from large employers about implementing apprenticeship programs, there are only about half a million workers currently in registered programs, and these are dominated by the construction trades. Over 30% of US workers report they have never received training of any kind. The government also significantly underinvests in workforce training programs, dedicating just 0.1% of GDP in active labor market programs compared with the Organisation for Economic Development (OECD) average of 0.6% of GDP. Moreover, the United States now invests less than half of what it did on such programs 30 years ago, as a share of GDP. This means that US workers are increasingly on their own in obtaining the training they need.

## Blame the robots?

One often-mentioned villain in this drama is technological progress. Alarming scenarios about the advance of artificial intelligence, robotics, and the internet of things are leading to dire predictions about the future of work. But let’s step back for a minute. Roboticists tell us that they aren’t close to substituting robots for humans; they’re just learning to take industrial robots out of their protective cages and developing the sensors so they won’t hurt workers. They say that we may

actually be on the verge of “cobotics,” that is, voice-commanded assistive robots that help people with more standardized tasks.

Predictions of the imminent end of work and corresponding societal dystopia seem premature. Although many tasks may be susceptible to automation, higher-skill jobs generally require a more tacit mix of perception, reasoning, judgment, and analysis that is not readily machine replaceable. Machines historically have led to new symbiotic relations with their operators, not outright displacement. That is certainly the way that computing has played out to date. In economic terms, there are complementarities between people and their machines. Yes, some jobs will be lost, but more will be changed and—to build, program, repair, update, and manage robots and other new technologies—some will be added.

Where does automation stand? Current productivity and investment rates are at very low levels, which is reflected in the low productivity growth rate of about 1%. Even if the productivity growth could be increased to 3%—a rate not seen since the information technology (IT) wave of the 1990s—it would take three decades to achieve a 75% improvement in productivity. An OECD study indicates that new IT technologies would likely substantially replace the jobs of only 6% to 12% of the workforces in OECD nations over an extended period. A McKinsey study suggests 14%. In both cases, the studies note that the portion of jobs where a large portion of tasks would be affected by IT technologies is much larger than those that could be mostly replaced by automation. Past innovation waves have taken several decades to work their way from initial introduction to full implementation. Work will not end tomorrow, so we have some time to make adjustments in the workforce. Make no mistake about it, workplaces will change, requiring workers to acquire digital technology computer skills that they lack. But the sky is not falling. Besides, the reality is that the workforce has already been disrupted by trade displacement, and an upskilling is now under way.

We need to be aware of which types of jobs will be most affected. The retail sector, for example, is already feeling the pressure to change. Americans might like to shop till they drop, but it does not make sense for the United States to have six times more square footage of retail space per capita than any other nation. This sector has overbuilt, and we can see that older, lower-end shopping malls are failing. And although 90% of retail sales are still face-to-face, online ordering is growing steadily. Unlike manufacturing, which is concentrated in a few areas, retail outlets are everywhere. Whereas manufacturing job decline has been visible and regional, retail job loss is less so, which makes it harder to offset. What will happen to clerical retail workers if they lose their jobs? Like manufacturing workers, they face a labor market that is demanding a different mix of skills.

With deep societal challenges around quality-job creation, a general upskilling already under way, and the entry of new digital technologies, there is a growing consensus on the need for improved workforce education. Congress recently passed a bipartisan reauthorization of the Perkins Act, which supports the federal training programs. The president has issued a new executive order to promote apprenticeships. The Chamber of Commerce has launched a new workforce education program built around regional consortia of employers. Community colleges are developing new certificate programs, online training providers are expanding their offerings, and the secretary of labor’s Workforce Education Council has proposed a major revamping of the information systems behind the problematic labor markets. In a period of profound political divide, it is very difficult to reach a political consensus around any issue, but an exception is workforce education. The public, the private sector, and even the political system appear ready for change.

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#### Recommended reading

- Robert D. Atkinson, “How to Reform Worker Training and Adjustment Policies for an Era of Technological Change,” Information Technology & Innovation Foundation (February 21, 2018).
- David Autor, “Why Are There Still So Many Jobs? The History and Future of Workplace Automation,” *Journal of Economic Perspectives* 29, no. 3 (2015): 3-30.
- David Autor, David Dorn, Gordon Hanson, “The China Shock: Learning from Labor Market Adjustment to Large Changes in Trade,” NBER Working Paper 21906, National Bureau of Economic Research (January 2016).
- William B. Bonvillian and Peter L. Singer, *Advanced Manufacturing: The New American Innovation Policies* (Cambridge, MA: MIT Press, 2018).
- Anthony P. Carnevale, Tamara Jayasundera, and Artem Gulish, “America’s Divided Recovery: College Haves and Have-Nots,” Georgetown University Center for Education and Workforce (2016).
- Claudia Goldin and Lawrence F. Katz, *The Race Between Education and Technology* (Cambridge, MA: Harvard University Press, 2008).
- David Mindell, *Our Robots, Ourselves: Robotics and the Myths of Autonomy* (New York, NY: Viking, 2015).