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Editor's Journal

Overdetermined

Widespread anxiety about the future nature of work, the number of jobs that will be available, the skills that will be needed, and the salaries they will command has roots in many societal trends. The rapid progress in robotics and artificial intelligence (AI) will inevitably change in blue- and white-collar jobs. As William Bonvillian and Sanjay Sarma substantiate in this issue, the labor market is already evolving rapidly. But as Philip Brown and Ewart Keep illustrate, expert forecasts of what the overall impact will be range widely. The future is so uncertain that cases can be made for a future shortage of skilled workers, a shortage of high-quality jobs for skilled workers, or—if enhanced productivity creates wealth—a decline in the need to work at all.

But is technological advance really what determines work's evolution? Technology has been transforming work for more than two centuries, and although jobs have changed, work has not disappeared but has improved. The workforce has become better educated and has boosted its productivity by embracing new technology. The average job has become less arduous, safer, and better compensated. Many experts argue that there is no reason why these trends won't continue.

One cynical explanation for the current wave of concern is that the technological changes in the past affected primarily farming, manufacturing, and other jobs not filled by college graduates. But the coming tech revolution in AI hits closer to home. It

is automating many tasks now performed by college graduates and even such highly skilled professionals as attorneys and physicians. It's one thing to be sanguine about the plight of the manufacturing and retail workers, but quite another for the "commentariat" class and its middle-class peers to face job loss. Well, many white-collar jobs suffer from what the widely regarded economist William Baumol dubbed the "cost disease." Because they cannot be routinized and automated, their productivity stagnates and they become relatively more expensive than other economic activities that are becoming more productive. As a result, for instance, health care and education take an ever-growing share of gross domestic product. An objective observer might conclude that an infusion of technology is just what's needed to ramp up productivity. Besides, highly educated workers should be most agile in mastering new skills and adapting to restructured jobs.

A concern that's harder to dismiss is that technological progress is outpacing the education system's ability to adjust to changing job requirements. But technology does not flow overnight from the lab or garage into the workplace. Like its schools, the nation's companies are deeply rooted social institutions that need time to adapt. Just because a new machine can perform a particular task does not mean that the technology will be used. Companies have sunk investments in their current ways of performing work, making retreading potentially expensive.

And only rarely do machines replace workers directly. More often, the newcomers perform certain tasks that are part of certain jobs, and it is no simple matter to restructure work flows so that humans do what they do best while machines do their bit.

Many other forces at play could be far more powerful than technology in determining where work goes and takes us. The critical factor could be who has the economic clout to influence the direction of work. The French economist Thomas Piketty has built a data-rich case that capital's strength relative to labor is increasing, giving it wider discretion in setting the terms of work. Even if machines are less productive than humans, employers could choose them because they are more easily controlled. They won't strike over wages or working conditions. They will idle quietly when demand ebbs and, when it surges, return immediately to work. And the considerable decline in labor unions' power in recent decades gives employers more latitude to act as they see fit.

The emergence of the platform economy, as described by Martin Kenney and John Zysman ("The Rise of the Platform Economy," *Issues*, Spring 2016), is also changing the power dynamics in the marketplace in ways not yet fully understood. If the most important decisions are being made one or two steps removed from one's direct employer, a worker will have commensurately less influence and the decision-maker less reason to think about individual workers.

The realignment of market power in a platform economy also raises questions about the effectiveness of government antitrust policy. The Open Market Institute, a spinoff from the New America Foundation, is raising questions about government's willingness to confront the growing influence of megacompanies such as Google, Amazon, and Facebook, which do not match the profile of earlier corporate behemoths such as Standard Oil but could still be wielding undue power.

Another worrisome development is the growth of the gig economy, a new name for freelance work. Although a handful of very highly skilled experts can find it advantageous to work short stints at high wages for a number of employers, in most cases employers benefit most from a system in which workers are hired only when needed, do not receive benefits such as health insurance or vacations, and can be let go at any time. Employers have no incentive to train current employees when it is so easy to replace them.

Given all these forces at play, technology per se is an unlikely villain. Which technologies are introduced

and how jobs are restructured to accommodate those technologies will affect workers, but how those decisions are made and the relative power of workers and employers in the process will be determined by political and economic conditions, not the technology itself. In other words, the political strength of workers, the economic strength of capital, the state of labor and antitrust policies—the factors that have always been most important—are what will set evolution's course in the labor market.

As these power struggles play out, one way that workers can increase their leverage is by enhancing their skills and value as workers through training and education. Stuart Elliott outlines the choices that lie ahead, and Mitchell Stevens, the role that elite universities can play in informing those choices. Identifying educational opportunities will benefit workers, but it will not be enough. Once we know what education and training will be most useful, the task of making it affordable and widely accessible remains. For starters, the erosion in government support for education and the private sector's investment in training must be reversed.

Even then, other structural challenges need to be addressed. Tracy Van Grack rightly calls attention to the very uneven distribution of venture capital investment. The danger here is that certain classes of workers and certain regions of the country are being left behind. If business financing were more broadly distributed, more innovative companies could thrive and more regions could have a reasonable supply of high-paying, high-quality jobs. As Sanjay Sarma and William Bonvillian highlight, the search for work and workers is a market, and like any market, it functions most efficiently when participants are well informed. At the moment, even though unemployment is low, many workers complain that they cannot find the high-quality jobs that allow them to exercise their skills, and employers grouse that they cannot find the quality workers they need. At this "he said/she said" juncture, technology could make the labor market perform in ways that benefit workers and employers alike.

The authors in this issue make insightful and useful contributions to our understanding of the evolution of work. They have neither a perfect crystal ball nor a foolproof road map to the future. But their data and analysis is a welcome step away from amorphous handwringing and toward focused research and action.