How to Live Happily with Robots

JEFFREY SACHS AUGUST 3, 2015

It takes extensive government intervention to assure that gains of automation are broadly shared.

(Photo: AP/Shizuo Kambayashi)

The Robot Will See You Now: (And she never goes on break.) Customeres at the Mitsukoshi department store in Tokyo watch an android receptionist, who greets customers as they walk in the store.

This article appears in the Summer 2015 issue of The American Prospect *magazine.* ***Subscribe here.***

Machines do indeed eliminate jobs. And on the whole, we should be grateful. In the biblical telling, humanity was condemned to hard labor following the expulsion from Eden: “By the sweat of your brow you shall eat bread.” Yet

machines have offered us some respite, easing our burdens and raising living standards. The armies of robots and other smart machines now on the horizon can ease those burdens further, if we humans are smart enough to act so that the benefits of these technologies are widely shared.

Market forces alone won't do the job. Smart machines may raise productivity and output on average, but market forces will tend to concentrate the gains among a fraction of the population—those with high skills and wealth—and leave behind the rest, notably the young, the poor, and the workers displaced by the machines. Government policies are needed to ensure that the gains to society are broadly distributed.

Consider the stunning historical benefits of machines in reducing the overall burden of work, but also their adverse distributional consequences. In 1900, the U.S. economy was one of endless toil. Half the population lived on farms, engaging in heavy farm labor and household chores for 12 hours per day, six days per week. The other half lived off the farm, typically with workweeks of 60 hours or more, and home chores as well. We can therefore surmise that the average American adult (age 15 and above) spent at least ten hours a day in toil, much of it heavy physical labor. Of course, farm children under the age of 15 also put in heavy labor.

By 2013, according to recent time-use data from the Bureau of Labor Statistics, the combined time at work and household chores of Americans age 15 and above has declined by roughly half, to an average of around five hours per day, composed of around 3 and a half hours of work and commuting, and around 1 hour and 47 minutes of housework and related activities.

Machines have dramatically eased the toil of most Americans and extended our lives, in stark contrast to the hard, long toil and lower life expectancies that continue for hundreds of millions of people around the world who are still trapped in subsistence agriculture.

Machines have dramatically eased the toil of most Americans and extended our lives, in stark contrast to the hard, long toil and lower life expectancies that continue for hundreds of millions of people around the world who are still trapped in subsistence agriculture.

The idea that American adults average just five hours per day at work and housework may seem surprising, since we also assume that the typical workday is still around eight hours. Yet only around 40 percent of Americans age 15 and above are actually at work at any time. The highly productive U.S. economy supports the other 60 percent or so who are in school, retirement, full-time leisure, part-time work, or involuntary unemployment. All in all, it is an amazing triumph of technological advancement that Americans enjoy an average national income above $50,000 per person while working less than three and a half hours per day.

Yet machines did not automatically make winners of everybody. Machines such as mechanized cotton pickers threw millions of small farmers, and notably millions of African American sharecroppers, off the farms and into a desperate search for jobs in cities. Some found work; others descended into unemployment, incarceration, or poverty, or perhaps a cycle of disaster among the three. A century earlier, England's newly mechanized looms and spinning jennies had displaced millions of pre-industrial home weavers and spinners around the world, forcing many of those in England into the "Satanic Mills" of early industrialization. The same process is being repeated today, as production, clerical, and sales workers are replaced by machines, and face the prospect of lower wages or unemployment.

At the most general level, machines increase the pie while creating new inequalities as to how it is divided among classes and occupations. It has been the government—through measures such as Social Security, Medicare, Medicaid, and, yes, Obamacare—that has enabled those on the losing end of the market forces to remain on their feet, and even to enjoy rising living standards alongside the rest of society. John F. Kennedy famously declared of the economy that a rising tide lifts all boats. The government's role is to ensure that everybody at least has a lifeboat so that nobody drowns in the rising waters.

As machines have improved over time, they have increasingly displaced heavy and routinized labor while creating new occupations to work the improved machines. In economic jargon, machines have been substitutes for brawn and routinized work and complements for specialized skills. To keep ahead of the machine, therefore, the key for individuals has been to keep gaining marketable skills. While many older unskilled workers have not been able to keep pace, younger workers have sought

more schooling and training.

Society as a whole has recognized the case for added skills by establishing the expectation that almost all young people would earn at least a high school diploma. Now, more than 90 percent of young people earn a high school diploma or equivalent. And while around 70 percent of high school graduates now go directly to college, only around one-third end up with a four-year bachelor's degree by ages 25 through 29. The fact that two-thirds do not earn a bachelor's degree is significant, because in the era of ever-smarter machines, a bachelor's degree is probably the minimum threshold for a reasonable shot at stable, middle-class employability.

For workers who haven't been able to get the skills needed to keep up with the machines, decent work has proved increasingly elusive. Consider this stunning fact: The federal minimum wage per hour in 1950 was 75 cents, equal to around $7.35 at today's cost of living. This is actually slightly higher than the current minimum wage of $7.25, even though the inflation-adjusted national income per person has risen by almost four times as much. In essence, the purchasing power of the minimum wage hasn't budged in 65 years! It is skilled workers and capital owners who have walked away with the growing national economic pie.

In essence, the purchasing power of the minimum wage hasn't budged in 65 years! It is skilled workers and capital owners who have walked away with the growing national economic pie.

The race with the machines is getting harder to run. Machines keep getting smarter in the digital age. Machines are increasingly able to displace a wide swath of jobs, including assembly line workers (replaced by robots); clerical workers (replaced by computerized business processing); sales workers (displaced by e-commerce); maintenance workers (displaced by smart systems that can be monitored remotely or may be self-correcting); and surveillance workers (replaced by remote monitoring). Many more occupations will be displaced in the near future.

The implications are clear in the labor market. Those workers whose top educational attainment is a high school diploma or less have suffered an absolute decline in living standards, although we can have some doubt as to whether all of the benefits

of the information age (free music and online entertainment, instant connectivity with friends and social networks, e-commerce) are properly captured in the data. Without question, those with limited education and training have fallen out of the middle class.

While the new smarter machines and systems have displaced an expanding swath of routinized work, they have all demanded new skills to manage the smarter systems. As a result, the earnings of highly skilled technical, professional, and managerial workers have continued to rise, as has their share in the overall labor force. On the whole, though, more and more workers are being left behind.

With a growing pie, the winners in the new machine age—including capital owners of the new machines plus the skilled workers—could readily compensate the losers and still leave everybody ahead (a bargain that economists call a Pareto improvement relative to the situation without the new machines). Yet our political system, now drenched in special-interest campaign financing and the lobbying of self-interested billionaires, has increasingly rejected the idea of redistribution. Today's mega-winners tell the losers, "Tough luck, that's just progress." It is no surprise that the congressional Republicans have overwhelmingly rejected even modest outlays for trade adjustment assistance, a financial mechanism to share the gains of trade with those hard-hit by the world economy.

The implications of the coming wave of smart systems for income distribution will be more complex than a simple thumbs-up or thumbs-down for low-skilled or high-skilled workers. In the coming wave of smart machines, at least some categories of high-skilled workers will also find themselves displaced. Some advanced medical tasks—for example, reading biopsies, CAT scans, MRIs, and X-rays—are already being shifted from doctors to technicians managing expert machine systems. Similar developments are taking place in the legal profession, logistics, mass media, and even computer programming (which can be replaced by machine learning in some circumstances).

When smarter machines displace low-skilled workers, the low-skilled workers are the ones who suffer while high-skilled workers benefit twice: both from lower consumer prices and from the rising demand for skilled workers whose skills

complement the machines. When high-wage workers are displaced, the situation is potentially reversed: Lower-skilled workers can enjoy the benefits of lower consumer costs (e.g., for medical services) without incurring lower wages.

Therefore, if new information technology affects workers across a wide range of occupations, as seems likely, the adverse wage impact on any particular category of occupations is likely to be muted, and all workers benefit as consumers of lower-priced goods. Still, capital owners are likely to benefit more than workers, as the share of national income going to capital will increase at the expense of labor. The downward trend in the labor share of national income is now widely observed across the world's high-income countries.

Since smart machines tend to shift the distribution of income from labor to capital, as well as from unskilled labor to skilled labor, the economy could potentially spiral downward in reaction to a boost of machine productivity. This paradoxical outcome would occur if the wage declines hit the young especially hard, and thereby reduce their lifetime savings. Falling wages of the young could then be followed by falling national savings and reduced national capital in the future.

The shift in income distribution against the young—and particularly against the young without bachelor's degrees—seems to be occurring in many countries. The youth unemployment rate is generally much higher than the overall unemployment rate across Europe and in the U.S. This means that young people not only lose jobs and incomes, but also cease to provide significant savings for their own retirement and for national economic growth. Germany is a notable exception regarding youth employment; there, active labor-market policies, including training and apprenticeships, help young workers make an effective transition from school to work.

A downward economic spiral of high unemployment and falling incomes is completely avoidable—if we try. What will be required is government-led redistribution and active labor-market policies. Rather than leaving the capital

Rather than leaving the capital owners and highly skilled workers with their mega-gains at the expense of the rest of the workforce, the government can and should ensure that the new

owners and highly skilled workers with their mega-gains at the expense of the rest of the workforce, the government can and should ensure that the new productivity windfall is broadly shared. Taxes on windfall wealth and high incomes, returned in the form of educational outlays, technical training, apprenticeship programs, and family support, can do the job.

productivity windfall is broadly shared.

More government-supported education and training should be offered for the occupations of the future. The economy will need millions of additional workers trained in designing and operating smart systems in manufacturing, e-commerce, e-education, e-health care, transport and logistics, renewable energy, and e-governance. Millions more will be needed to provide nursing and personal support services for the rapidly aging population. And in an era of increased leisure time, the entertainment, travel, fitness, and other leisure industries are very likely to expand. Government policies are also needed to ensure that workers have the rights and opportunities for flexible time away from work, such as paid parental leave, vacation time, and sick leave, all routinely guaranteed in northern Europe but not in the United States. The right set of policies can promote not only more job opportunities at decent earnings, but also more leisure time—an outcome long predicted and advocated by economists as a positive outcome of smarter machines.

There are many added things that can and should be done to spread the benefits of advancing technology. Profit-sharing within companies should redistribute some of the capital windfalls back to the workers. A return to higher rates of unionization would help redress the runaway powers of American CEOs, including their outlandish leeway to pay themselves outlandish salaries. Patent laws should be rewritten to stop the unconscionable price-gouging of new drugs. And the monopoly-pricing in the health sector should be stopped.

In short, in an increasingly productive economy, middle-class prosperity can be shared by all, but only if the rules of the game operate to spread the benefits and limit the exploitation of the losers at the hands of the winners. The techno-optimists and the techno-pessimists are therefore both right. Living happily with the robots is a matter of social choice and fairness, not a matter of the technology, per se. One process that cannot be automated is the sharing of benefits across the society.

Retaking democracy from the plutocrats will be the first step.

You may also like:

The Medicare Bind

Corn, Corn Everywhere, But Not a Bite to Eat

The Robot Invasion

Must Environmentalists and Labor Activists Find Themselves at Odds With Each Other?

A State of Chaos