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The Future of Jobs: Lessons from History

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ECONOMY JOBS LABOR MARKET

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How will the job market evolve in our 21st century digital economy? What can we learn from history that might help us make such predictions? While there's no guarantee that historical patterns will continue to apply going forward, they might well be our most important guides as we peer into an otherwise unpredictable future.

Fears that machines will put humans out of work are **not new**. Throughout the Industrial Revolution there were periodic panics about the impact of automation on jobs, going back to the so-called **Luddites**, textile workers who in the 1810s smashed the new machines that were threatening their jobs.

Automation anxieties continued to resurface in the 20th century, right along with advances in technology. In a 1930 **essay**, English economist **John Maynard Keynes** wrote about the onset of "a new disease" which he named *technological unemployment*, that is, "unemployment due to our discovery of means of economising the use of labour outrunning the pace at which we can find new uses for labour."

Automation fears **have understandbly accelerated** in **recent years,** as our increasingly **smart machines** are now being **applied** to activities requiring intelligence and cognitive capabilities that not long ago were viewed as the exclusive domain of humans. "Previous technological innovation has always delivered more long-run employment, not less. But things can change," said an *Economist* **article** from January, 2014. "Nowadays, the majority of economists confidently wave such worries away… Yet some now fear that a new era of automation enabled by ever more powerful and capable computers could work out differently."

Automation angst, past and present, was the subject of three papers in the **Summer issue** of the **Journal of Economic Perspectives**. I'd like to focus my discussion on one of the papers, **The History of Technological Anxiety and the Future of Economic Growth: Is This Time Different?,** by economic professors **Joel Mokyr**,**Chris Vickers**, and **Nicolas L. Ziebarth**. Their paper looked at both the history and the future of jobs from multiple points of view.

Short-term disruptions, long-term benefits. The short- and long-term impacts of technology on workers has been actively debated since the early days of the Industrial Revolution. But the evidence shows that technological unemployment did not actually occur on any kind of large scale, the paper argues.

> In the end, the fears of the Luddites that machinery would impoverish workers were not realized, and the main reason is well understood. The mechanization of the early 19th century could only replace a limited number of human activities. At the same time, technological change increased the demand for other types of labor that were complementary to the capital goods

> embodied in the new technologies. This increased demand for labor included such obvious jobs as mechanics to fix the new machines, but it extended to jobs for supervisors to oversee the new factory system and accountants to manage enterprises operating on an unprecedented scale.

> More importantly, technological progress also took the form of product innovation, and thus created entirely new sectors for the economy, a development that was essentially missed in the discussions of economists of this time.

Technology and the alienation of labor. There is little question that the **Industrial Revolution** led to major improvements in the standard of living around the world. While **significant poverty** still exists, the vast majority of the world's population is better off today than their predecessors two centuries ago, with **better access** to food, clothes, housing, health care and education.

But the nature of work has drastically changed over the years. In pre-industrial times, most people worked either from or near their homes, with no sharp separation between the place of work and being close to home and family. So, even while poor, hungry and sick, people felt more in control over when and how they worked.

This all changed with the the rise of industrialization and factories. Jobs were now linked to a system of set hours and the physical separation of home from the place of work. For much of the 19th and early 20th centuries, factory working conditions were pretty harsh, dangerous and dehumanizing. Many felt that industrialization treated people like cogs in a machine, alienating individuals from each other. Compared to pre-industrial times, many workers felt a loss of control, flexibility, and the quality of their personal relationships. Their wages may have been higher, but for many, their quality of life suffered.

Looking Ahead: The Changing Nature of 21st Century Work. What about the future? One sure fact is that we're working less. Between 1870 and 1998, the number of **annual hours worked per employee** in advanced western economies fell almost precisely by half, from roughly 2,950 hours per worker in 1870 to 1,500 hours per worker in 1998. Those figures have continued to fall since then. If this decline was evenly spread across the working population, most everyone would agree that this is a very good thing. Instead, work hours are diverging across economic segments, much like income and wealth.

Between 1965 and 2003, **leisure time has increased** from 6 to 8 hour per week for men and 4 to 8 hours per week for women. But while leisure time went up by almost 10 hours per week for those with less than a high school education, it only increased by less than one hour per week for college graduates. Those with higher skills and better pay are **working longer hours**, while work has actually declined for lower skills workers.

Furthermore, we're seeing the return of some pre-industrial job patterns, including increasingly porous boundaries between work and home life and greater hours flexibility. This is particularly manifested in the rise of the so-called **On-Demand Economy**, **aka**, – the *Uberization* of the economy.

New on-demand firms are bringing together consumers and providers of goods and services with their innovative mobile applications and cloud-based platforms. They rely on a large freelance workforce– over 50 million in the US alone by **some estimates**-- instead of on a classic company workforce.

The rise of such an on-demand workforce is not surprising. Fewer workers can now expect to have a long term, stable job with one company. Moreover, many younger workers **don't necessarily** aspire to long careers with one company anyway, preferring to be self-employed for at least part of their working lives.

The technological horizon: Predictions for the future. "Making specific predictions about the

future of technology or the economy is almost always imprudent," note **the paper's** authors in their closing section. That said, they then proceed to make a few predictions.

They're highly skeptical that the more extreme anxieties–e.g., long-term technological unemployment or widespread dissatisfaction with evolving societal environments–will come to pass any time soon. Humanity is not likely to run out of pressing technological problems to solve, nor will our appetite for exciting new market offerings be satiated. "The future will surely bring new products that are currently barely imagined, but will be viewed as necessities by the citizens of 2050 or 2080… As has been true now for more than two centuries, technological advance will continue to improve the standard of living in many dramatic and unforeseeable ways."

In his aforementioned 1930 **essay**, **John Maynard Keynes** predicted that, assuming no catastrophic events, the standard of living in advanced economies would be so much higher by 2030 that "for the first time since his creation man will be faced with his real, his permanent problem – how to use his freedom from pressing economic cares, how to occupy the leisure…" Mr. Keynes thought that by 2030, most people would be working a 15-hour week or so, which would satisfy their need to work in order to feel useful and contended.

While the 15-hour week has not quite come to pass, most of us enjoy much more leisure time than was the case in generations past. Fortunately, as the paper notes, one of the most important, and under-appreciated, benefits of our digital age is the availability of high-quality leisure activities accessible to all at relatively low costs.

> We suspect that in this new world, as material goods like food, clothing, and housing become relatively less expensive, the connection between standard measurements of output and human well-being – a long-standing source of contention – will become even more tenuous… The long-term trend toward greater leisure will continue, and one can even imagine an economy that reaches the stage in which only those who want to work actually will do so…

Perhaps the essence, if not the details, of Mr. Keynes' 1930 prediction is coming to pass. Through our life, we'll aim to balance work, family, and the plethora of leisure activities now available to us all. This will take some thinking. As Mr. Keynes succinctly advised, "there will be no harm in making mild preparations for our destiny, in encouraging, and experimenting in, the arts of life as well as the activities of purpose."

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