

Proactive Policy Making for a Jobless Era

16 November 2016

Summary

Assumptions around modern-day employment are increasingly anachronistic in the face of rapidly evolving technologies that are upending traditional job categories and occupations. In order to establish a more viable and adaptive model of employment in the near- and long-term future, which helps workers achieve personal fulfillment while also contributing productively to society, it is necessary for policymakers and leaders to reimagine how the working world will look and function. In a world characterized by rapid change that suggests new applications for our labor, how will we go about preparing for the future? This article proposes a more proactive approach, including specific policy considerations.

I have spent the last 10 years of my professional life championing the inherent goodness of jobs and employment. In this time, I've learned that job access provides workers with purpose, families with income, employers with employees, and local economies with the basic ingredients necessary for sustainable growth and prosperity. I've advocated on behalf of federal programs and funding allocations that propel a greater number of

Americans into the traditional labor market. I've encouraged policy-makers at all levels of government to invest in the American labor force through training and education efforts, job counseling programs, and community and economic development initiatives. At one time, it seemed to me that the solutions to our social and economic ills were simple. We should focus our attention on programs, initiatives, and public policies that would better connect those among us looking for jobs with the employment opportunities that we so desperately seek. It was this combination of assumptions and universally accepted constructs that led me to believe that economic empowerment and competitiveness, for both workers and for firms, could be achieved if and when we succeeded in sufficiently connecting job-seekers with available job openings.

My views over the past 10 years have changed as I've confronted three fundamental questions inherent in this simple jobs equation. First, are there even enough good jobs available for all the people that want one? Second, do people desire jobs because they actually want to work or because they simply can't afford the alternative? Finally, as we move into a future that is characterized by rapid advances in technology, robotics, and machine learning, will human labor increasingly be replaced by that of machines and, if so, will our access to work and our relationship with it change?

So, let's explore these fundamental questions and explain

how the answers that I have found should cause us all to question the degree to which we allow the traditional structures of employment to dominate our economy, our social well-being, and our policy-making. The most striking finding in all my research—which maybe shouldn't be as surprising as it was—is that the smartest people in the world can't quite agree on what the future holds.¹ As one such thought-leader and futurist, Vivek Wadhwa, concludes, "the only certainty is that much change lies ahead that no one really knows how to prepare for."²

My findings neither prove nor disprove the likelihood of technology and automation destroying our jobs. It is not a question of whether or not we're doomed for a future ravaged by unemployment, joblessness, and the end of work. It is a question of how the choices that we make along the way will determine our fate. It is imperative that we consider the effect that technological advances might have on our society and begin to proactively lay a foundation for the future. If we do not choose to be agents of change, we will assuredly fall victim to it.

Scarcity of Good Jobs

A thorough analysis of the current state and future of work cannot be fairly entertained without first establishing a basic understanding of what it is we currently know about jobs, how we measure and account for structural changes in employment, and the recognized limitations of how these definitions and measures are used to guide the

decision-making of policy-makers. Most often, policy analysts rely on data points such as the unemployment rate, labor market participation rate, employment-to-population ratio, and monthly job creation reports to inform their view of the current state of employment in the United States and to guide their policy-making choices. It is their fixation on these outcome metrics that discourages policy-makers from grappling with the fundamental shifts that are occurring as part of the evolution of jobs and work. Furthermore, by ignoring the changing circumstances of work, leaders overlook alternative strategies that may have greater public benefit, but might negatively affect these traditional measures of our overall economic health.

For example, early each month, the Bureau of Labor Statistics (BLS) of the U.S. Department of Labor announces the total number of employed and unemployed people in the U.S. for the previous month, along with many characteristics about them.³ The general public has been conditioned to understand that a drop in the unemployment rate is a positive indicator of the overall economic health of the U.S. labor market and that an increase in net job creation is a signal of increased economic opportunity for job-seekers. Look no further than the headlines and reactions to monthly jobs reports. For example, after one such recent jobs report The New York Times reported, Jobs Roar Back With Gain of 287,000 in June, Easing Worries.⁴ Our national fixation

with these numbers and such reports preoccupies us from considering the quality of jobs being created and often dissuades policy-makers from questioning whether or not the jobs and work opportunities being offered in the new economy are adequately providing the level of income and sense of purpose required for individuals and their families to remain self-reliant and to lead meaningful, dignified lives.

Instead, we should look to indicators that reflect the overall health of our work-based society in accordance with the characteristics of the employment opportunities that are being created, the extent to which jobs are readily available, who actually has access to these opportunities, and how well they are compensated. Gallup has recognized this important distinction between being merely employed—characterized by BLS as a person that did any work at all for pay or profit during the survey reference week including part-time and temporary work—versus being employed in what is generally understood to be a 'job.'

In 2005, Gallup began conducting its World Poll⁵ with the goal of collecting behavioral economic data that represented the world's 7 billion inhabitants across nearly every country and demographic and sociographic group imaginable. Six years into the data collection effort, Gallup has already discovered what its Chairman, Jim Clifton, describes as "the single most searing, clarifying, helpful, world-altering fact.... What the whole world wants is a

good job." As explained in *The Coming Jobs War*,⁶ "humans used to desire love, money, food, shelter, safety, peace and freedom more than anything else. The last 30 years have changed us. Now people want to have a good job, and they want their children to have a good job.... The word 'good' is important.... When people talk about a good job, they mean a job that gives them the amount of work they want...in a company that's officially registered with the government and where [they] have regular work for 30 hours or more a week."

As a consequence of this finding, Gallup began tracking and publishing its Gallup Good Jobs report.⁷ The methodology employed by Gallup is no more or less valid than the metrics presented by BLS, but it is less often considered when contemplating the current circumstances of employment and the changing nature of jobs and work in the U.S. Gallup projects that 1.3 billion out of the world's roughly 5 billion adults have a good job. Of these 1.3 billion, roughly 12 percent are engaged at work and have great jobs.⁸ A great job is a job in which you believe your boss cares about your development, you can use your strengths every day at work, and you believe your work makes a contribution to something. So your job matters and, subsequently, your life matters.

By this measure, out of the total global workforce of roughly 3.2 billion adults, only 6% of us have a job that offers consistent work, a steady paycheck, and wherein which someone believes in us and we feel like the work we

do makes a difference. In looking more closely at how this manifests itself within the U.S. workplace, a full 70% of American workers are “not engaged” or “actively disengaged” and are emotionally disconnected from their workplaces and less likely to be productive.⁹

Plainly, 70% of Americans don't like their jobs. Even for those employed in so-called good jobs, this lack of engagement demonstrates an overall lack of satisfaction and fulfillment with the work they are being asked to do day-in-and-day-out. “Engaged employees are [those] employees who are involved in and enthusiastic about their work and workplace. But the majority of employees are indifferent, sleepwalking through their workday without regard for their performance or their organization’s performance.”¹⁰

Reduction of the Psychological, Social, and Economic Benefits of Work

It is not enough to celebrate a reduction in unemployment or an increase in overall net employment because people are not merely looking for more work. They're looking for better work—work that offers adequate pay, stability, and the means necessary to build meaningful lives. Through this lens, it becomes apparent that for many workers, work isn't working the way we think it is. American society generally accepts hard work as a means through which a meaningful, dignified life is achieved. This ideal has been built up over decades and is evident in Catholic Social

Teaching¹¹ and the speeches¹² of Martin Luther King. Lawrence Samuel, author of *The American Dream: A Cultural History* writes, "For many in both the working class and the middle class, upward mobility has served as the heart and soul of the American Dream.... 'Work hard, save a little, send the kids to college so they can do better than you did, and retire happily to a warmer climate' has been the script we have all been handed."¹³ These notions contribute to the inherent value that is ascribed to work, yet "purpose, meaning, identity, fulfillment, creativity, autonomy—all things that positive psychology has shown us to be necessary for well-being are absent in the average job."¹⁴

Employers, too, are unsatisfied with the state of their workforce. Employers have typically relied heavily on paid labor to produce the goods and services they make. Our economic stability, output, and global competitiveness has historically rested on the idea that our human labor force is highly productive. Yet, in the Gallup report, *State of the American Workplace*, those 70% of disengaged workers are estimated to cost U.S. employers somewhere between \$450 billion to \$550 billion each year in lost productivity.⁹

Though, before we lament the estimated costs incurred by U.S. employers due to so-called lost productivity of their workers, let's also examine the most basic characteristic of what makes work what it is. Work provides individuals and families with income. This is the

most basic characteristic of work, because it is by its very definition what makes work, work. The concept of work as established by a market-based society "is not work in the anthropological or philosophical sense of the term. It is not the labor of a parturient women, nor the work of the sculptor or poet. It is not work as the 'autonomous activity of transforming matter,' nor as the 'practico-sensory activity' by which the subject exteriorizes him/herself by producing an object which bears his/her imprint."¹⁵ Work, by definition, is really nothing more and nothing less than an activity whereby an individual exchanges his/her labor for wages. Although, society has saddled this term, work, with many other attributes and connotations. It was not until 'work' was bundled with minimum wages, the 40-hour work week, healthcare benefits, pension and retirement plans, unemployment insurance, and paid-time-off that we created the modern construct of a 'job.'¹⁶ Therefore, if the most critical characteristic of work is that it pays, then it is important to examine the extent to which work is providing wages and income for the individuals that trade their labor as part of the exchange.

While the data provided by Gallup is compelling and certainly demonstrates the bleak prospect of ever achieving universal, or even national, access to good jobs, let alone great jobs, the fact still remains that BLS statistics do indicate that the U.S. has experienced an overall reduction in unemployment and new work opportunities have been created since the Great

Recession. In a paper written by David H. Autor, he demonstrates how “the rapid employment growth in both high- and low-education jobs has substantially reduced the share of employment accounted for by ‘middle-skill’ jobs.”¹⁷ This is popularly described as the ‘hollowing out of the middle class’¹⁸ or, in other words, the increasing availability of jobs requiring high-skill labor characterized by abstract task-intensive work found in professional, technical and managerial occupations and a corresponding increase in low-skill jobs such as personal care, food service, and cleaning.

It is precisely the types of unfulfilling, low-quality “average jobs” described in Thompson’s article that have been created over the last decade for a great many working Americans.¹⁴ This explains how and why the unemployment rate has, in fact, declined since the Recession. Workers that were displaced from jobs in middle-skill occupations have found work in predominately lower-skill occupations. It is also the increasing availability of these low-skill employment opportunities that accounts for a portion of the net job creation, as depicted graphically in Autor’s article.¹⁷

Figure 2

Change in Employment by Major Occupational Category, 1979–2012

(the y-axis plots 100 times log changes in employment, which is nearly equivalent to percentage points for small changes)

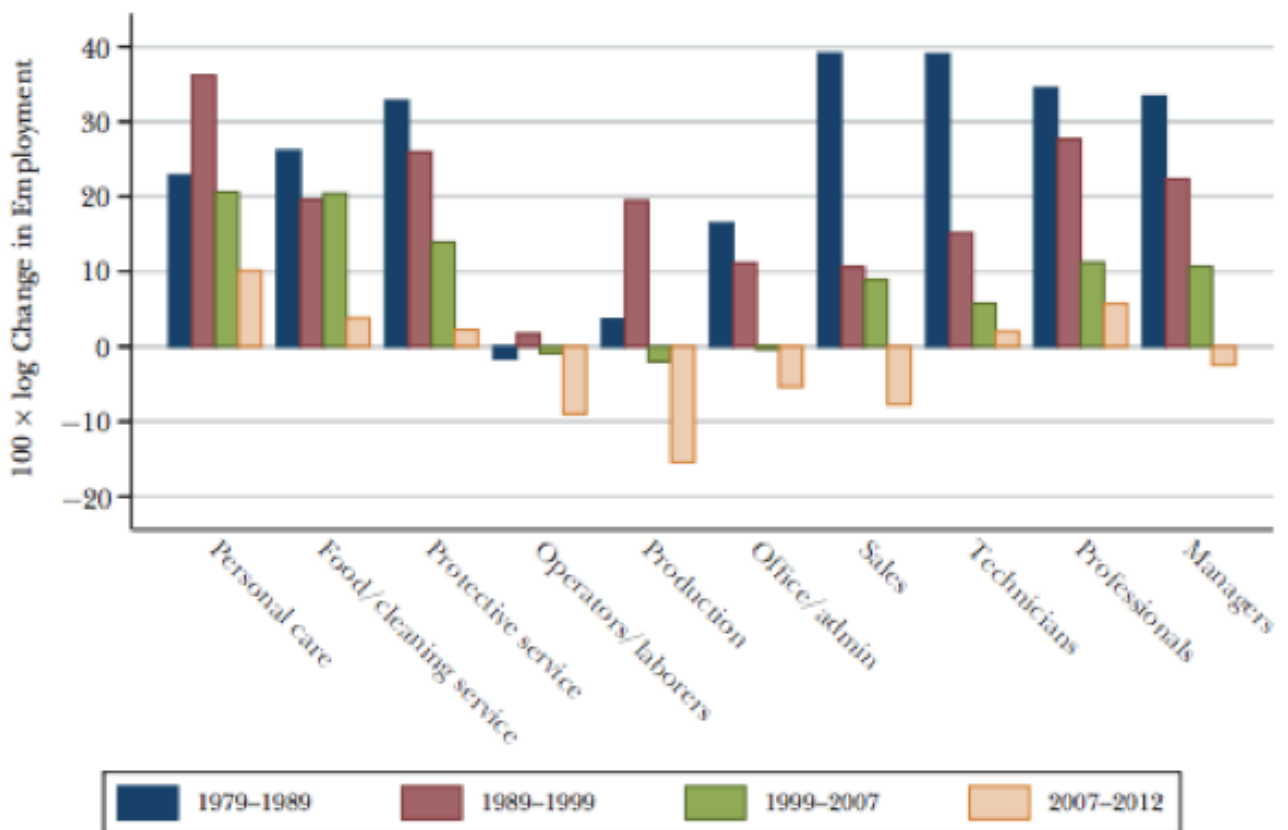


Figure 2 originally appeared in: David H. Autor, "Why Are There Still So Many Jobs? The History and Future of Workplace Automation," *Journal of Economic Perspectives* 29, no. 3 (2015): 3-30.

Again, it is necessary to more closely examine the structure and quality of these recently created work opportunities. Except, instead of focusing on whether the work is steady, meaningful, or in line with other characteristics indicative of a great job, quality should be assessed simply by examining the wages associated with the opportunities that have emerged. The defining characteristic of many of these new work opportunities is not just their inability to provide anything close to what

Gallup defines as a great job, it is the stagnant wages associated with this work and it affects occupations in both the low- and high-skill percentiles. Autor demonstrates that wage growth was essentially zero at all skill percentiles from 2007-2012.

Figure 4

Changes in Mean Wages by Occupational Skill Percentile among Full-Time, Full-Year (FTFY) Workers, 1979–2012

(the y-axis plots 100 times log changes in employment, which is nearly equivalent to percentage points for small changes)

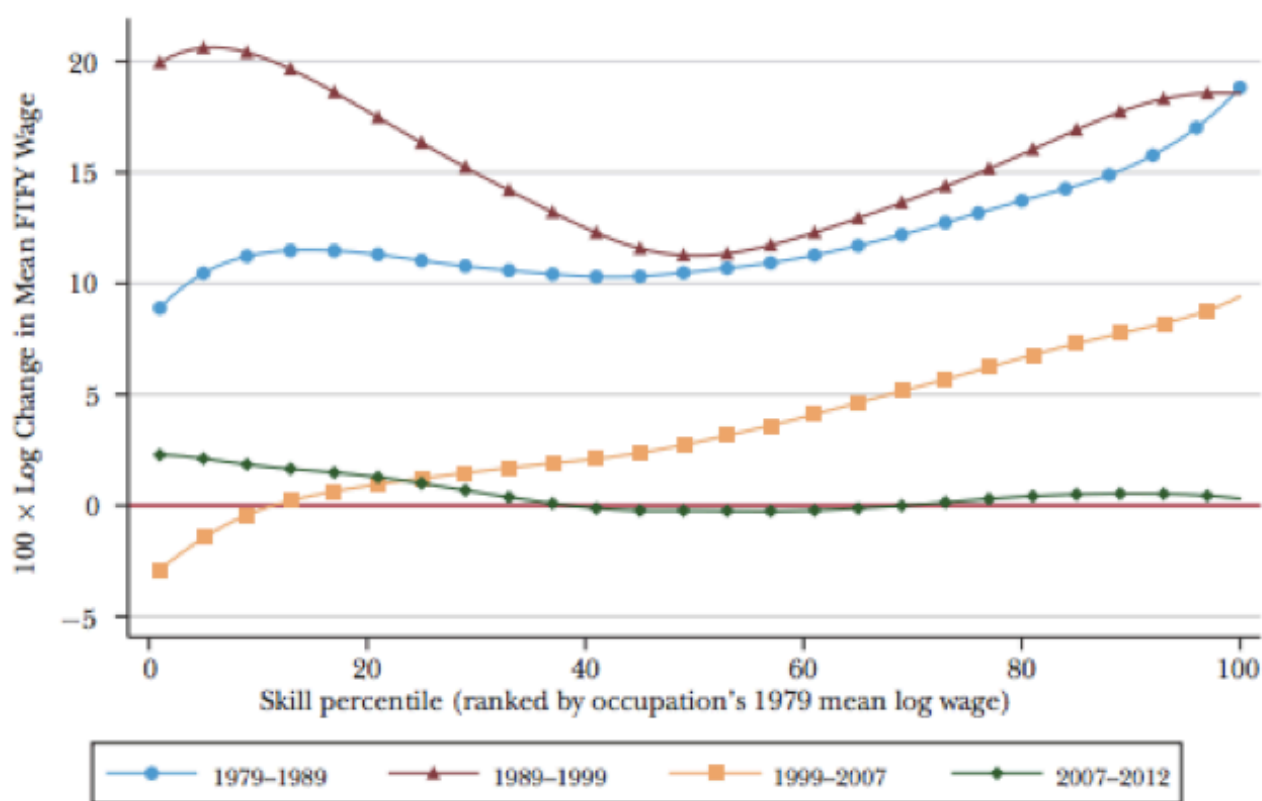


Figure 4 originally appeared in: David H. Autor, "Why Are There Still So Many Jobs? The History and Future of Workplace Automation," Journal of Economic Perspectives 29, no. 3 (2015): 3-30.

Furthermore, the Economic Policy Institute (EPI) has studied the perpetual stagnation of wages for workers

beginning in the late nineties.¹⁹ However, rather than articulating how wages have changed (or not changed) according to occupation type, EPI has analyzed how wages have fluctuated based on categories of wage-earners. This is an important distinction and what they find demonstrates an even more acute circumstance of wage stagnation and decline amongst the lowest earners. Essentially, those who have historically earned the least in exchange for their labor are earning even less than they once were and those earning the most in exchange for their labor are the select few who have seen the value of their labor increase over the last 15 years. An EPI Briefing Paper found that, between 2000 and 2013, hourly wages of the vast majority of workers either fell (bottom 30%) or were essentially flat (next 40%), and only the 95th percentile saw wage growth closely approaching 1% annually.²⁰

The 'Problem' of Today

This is the current state of work in America and across the globe. At present, this evidence shows that there aren't nearly enough jobs to match the global demand. It also demonstrates that many of the job and work opportunities that have been created over the last century are failing to provide adequate pay and failing to provide workers with a sense of meaning or purpose. This current state has prompted some to suggest that the great challenge of the future is to create more, better paying, high-quality jobs.

As former U.S. Treasury Secretary, Lawrence Summers, observes, "the great economic problem for millennia has been scarcity.... The challenge has been to produce as much as possible and to ensure that everybody gets their fair share. In important respects, the problem has changed.... The economic challenge of the future will not be producing enough. It will be providing enough good jobs."²¹ It was not more than five years ago that Gallup Press published *The Coming Jobs War*, wherein Clifton warned that "a global jobs war is coming" and reached much the same conclusion as Summers: the first priority for all the world leaders must be to create more good jobs. Though, work has changed drastically over just the past five years and current trends forecast a future that promises fewer good jobs. These trends of tomorrow seem to indicate that both Clifton and Summers are wrong. The future may not be about creating more good jobs, but, rather adapting to a world where fewer good jobs are available.

Trends of Tomorrow

In much the same way that our fixation with the unemployment rate obscures our understanding of the current availability and characteristics of employment, so too does our notion of the future of work. Our notions are obscured by those that contemplate the seemingly limitless opportunities that will be created by technology. For those of us who see ourselves among the elite

working class—those of us with jobs that, for now, seem too abstract and too important to ever be replaced by computerization or a robot—this group celebrates the advances of technology and the great potential to evolve our work and workplaces for the better. For this group of workers, “the future of work is all about freedom..., the freedom to work when and where [they] want..., the freedom to work on the things that really matter.”²² This notion is driven by the increased flexibility offered by mobile technology, access to new communication tools, and the ability to work alongside computing technologies that will visualize big data and create opportunities for better human decision-making.

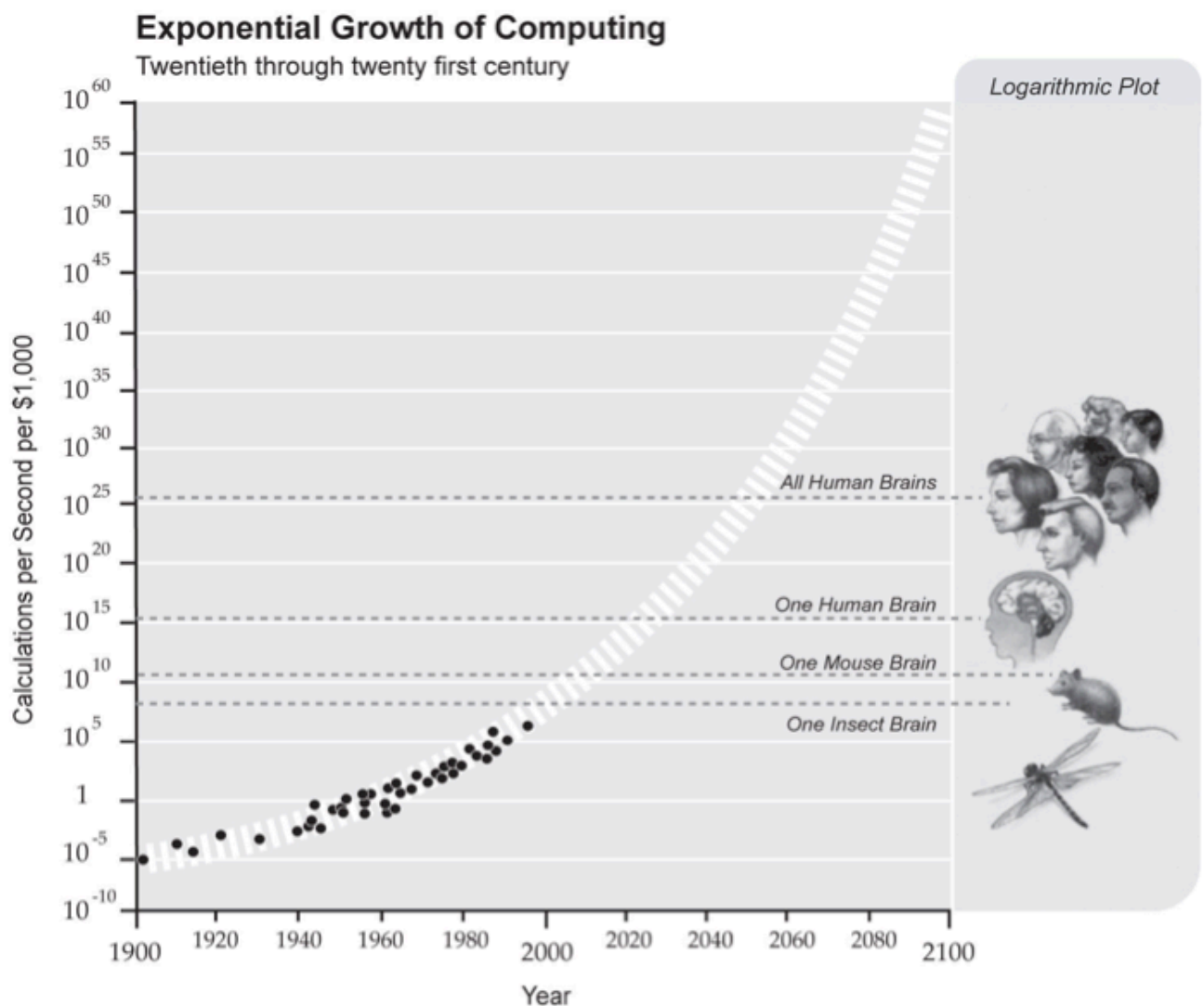
Those 6% of workers identified by Gallup as having great jobs can likely imagine themselves as competitive agents in the new world of flexible work, and point to work opportunities that will be created for everyone else due to the advent of new technology platforms, such as Uber, TaskRabbit, and Amazon’s Mechanical Turk. These opportunities to gain entry into the ‘gig economy’ will offer workers who have been displaced from the jobs-of-old a means of accessing a new market for their paid labor in a way that has never before been possible in the traditional labor market. This has been the trend of the last five years and the exponential advances of technology and automation offer ample evidence that this trend will likely continue. According to The Freelancer’s Union, one in three Americans (roughly 42 million) is an independent

worker.²³ By 2020, they predict that freelancers will make up 50% of the labor force. For a relative few, this trend seems to indicate that they can “say goodbye to long commutes, office politics, and the nine-to-five grind,”²⁴ and can offer their high skills to employers on-demand, as they please, and at a price they set.

However, for many others, these technologies simply enable workers to exchange their labor in return for running errands. This trend points to a future where, for example, janitorial services are no longer needed due to self-cleaning toilets, but where a new under-class of data janitors is created to scrape and clean-up after our digital mess.²⁵ These freelance opportunities are not good jobs. These are not even jobs at all. These are merely opportunities to exchange labor for pay and they carry few, if any, of the positive social benefits provided by traditional jobs. These opportunities shift risks to workers, will become increasingly competitive due to an extremely low barrier for entry, and offer precarious sources of income. These flexible, ‘on-demand’ employment opportunities are detached from benefits such as retirement security, healthcare coverage, and unemployment insurance. If this is what we’ll consider ‘work’ in the future, then we’re edging increasingly further away from delivering on what the whole world wants, a good job.

Though, it is more likely that instead of continuing on this somewhat linear path, we are approaching a point of

exponential growth of technology. This exponential growth will result in increased access and reduced costs of automation, robotics, and machine learning. This rule has been explained by Moore's Law, named for Intel cofounder Gordon Moore, and the Law of Accelerating Returns coined by Ray Kurzweil. Kurzweil explains that the reality of information technology is that it progresses exponentially. Thirty linear steps get you to 30. With exponential growth, it's one, two, four, eight. By step 30, you're at a billion.²⁶



"Exponential Growth of Computing," The Singularity is

Near, accessed November 15, 2016,

<http://www.singularity.com/charts/page70.html>.

As the cost to automate rapidly declines, producers will replace human labor with the relative affordability and increased efficiency of machine labor. Consumers, as well, will develop a preference for more technologically advanced approaches to service delivery. Critics argue that a machine could never serve as a substitute for face-to-face human interaction, which "suggests that we should stop the 10 million students each month who visit Khan Academy, an online collection of instructional videos and practice problems, from using the system on the grounds that there is no 'face-to-face' interaction with a teacher."²⁷

Technology is moving even faster than what we've witnessed in the last five years. "Within two decades... robots will drive our cars, manufacture our goods, and do our chores. There won't be much work for human beings. Self-driving cars will be commercially available by the end of this decade... and will eliminate the jobs of taxi, bus, and truck drivers. Drones will take the jobs of postmen and delivery people.... Robots are already replacing manufacturing workers.... And, unlike human beings, robots don't complain, join labor unions, or get distracted.... Robots will also take the jobs of farmers, pharmacists, and grocery clerks."² Technology will be far more revolutionary and create far more significant change than introducing a new host of 'apps' that connect us to

'gigs' on our phones. In fact, technology holds the promise of quite rapidly replacing the need for much of the kind of work currently accounted for in today's economy. In *The Future of Employment: How Susceptible Are Jobs to Computerisation?*, researchers analyzed 702 occupations and found that 47% of total U.S. employment is susceptible to computerization.²⁸

Many conjecture that the labor of middle-skilled workers will increase in demand due to the advent of some new, unknown technology or industry, but this ignores current evidence and future trends.²⁹ Companies and entrepreneurs of today are creating tremendous economic value, but are doing so by employing few workers. The company WhatsApp recently sold at a \$19 billion valuation and did so by employing just 55 employees.³⁰ This isn't unique to the high-technology sector but will affect the relatively low-tech service industry as well. A San Francisco-based company, Momentum Machines, says it has already built a working hamburger-making robot that can do the job of up to three kitchen workers, grilling a beef patty, adding lettuce, tomatoes, pickles and onions and dropping it all on a bun. It can reportedly produce up to 400 hamburgers per hour. "Our device isn't meant to make employees more efficient," co-founder Alexandros Vardakostas has said. "It's meant to completely obviate them."³¹

The Future Will Require Proactive Policy-

Making and Public Leadership

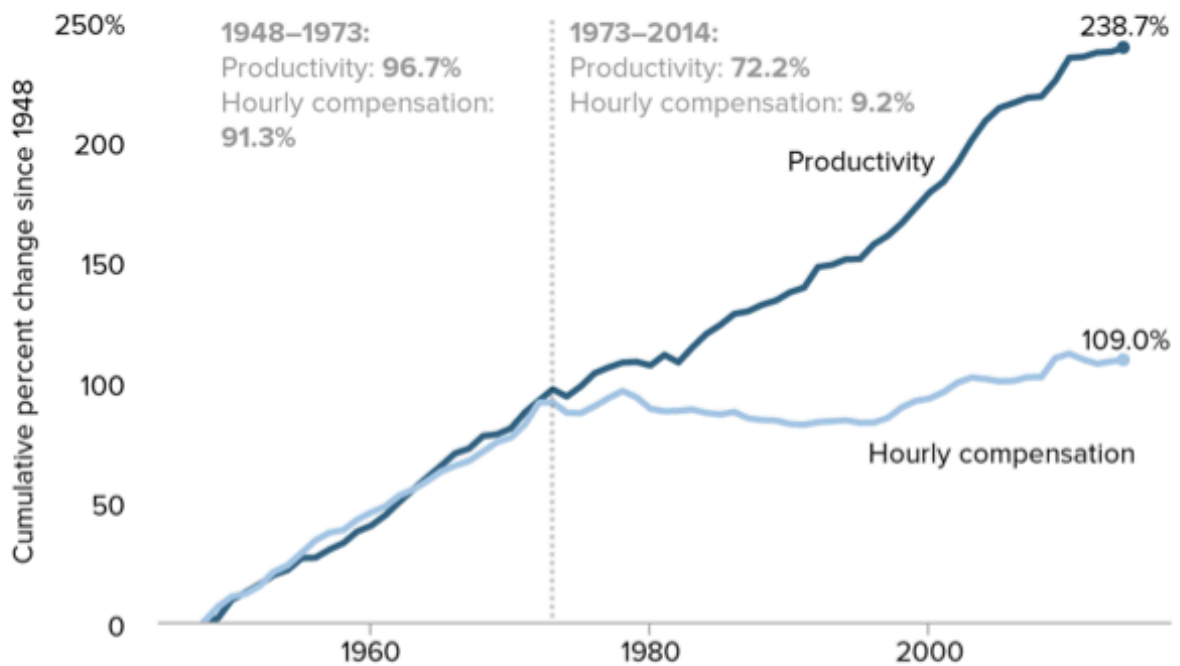
If these technological trends continue, and do so on an exponential growth path, the leaders of tomorrow may find themselves less responsible for creating jobs, but instead responsible for cultivating a world where people are not dependent on an employer for survival. In this future, leaders will be responsible for reimagining how we approach learning and redefining the purpose of education. They will be responsible for developing new avenues for social welfare that will be necessary for people to live and labor in a way that is best for them, their families, and their communities. An increase in joblessness does not have to be the end of the world, but it will likely be the end of the world as we know it.

Wadhwa suggests that governments can try as they might to obstruct technological progress, but change is inevitable.² Though, as Summers surmises, "the role of government was transformed to meet the needs of an industrial age by Gladstone, Bismarck and the two Roosevelts. We will need their equivalent if we are to meet the needs of the information age."²¹ While both Wadhwa and Summers agree that much change lies ahead, Summers' observation that government must play an active role is particularly astute.

After all, it was through the political will and policy-making of these industrial age leaders that social benefits such as pensions, healthcare, and insurance were bundled with

'full-time' jobs. It was through proactive policy-making that social programs became so deeply intertwined with the terms of employment, and it is the responsibility of proactive policymakers and public leaders to respond to a future where technology is swiftly unstitching the system built by their predecessors. It is precisely for this reason that the prospect of a jobless future scares us—"a significant increase in the number of people without full-time jobs would exacerbate divisions within society and complicate the distribution of benefits such as pensions, healthcare and insurance."³² This is why the headlines warn of the threat of a jobless future and the looming danger that robots will steal our jobs. Our personal economics and social support mechanisms are all tied up in the 'having' of a job, though our business economics and national productivity are proving to be less and less dependent on paid labor. In fact, current trends indicate that capital is rewarded for reducing jobs and wages, increasing automated production, and introducing more efficient approaches to service delivery. How can public leaders and policymakers take steps to assess and respond to these changes?

Disconnect between productivity and a typical worker's compensation, 1948–2014



Note: Data are for average hourly compensation of production/nonsupervisory workers in the private sector and net productivity of the total economy. "Net productivity" is the growth of output of goods and services minus depreciation per hour worked.

Source: EPI analysis of data from the BEA and BLS (see technical appendix for more detailed information)

Economic Policy Institute

Josh Bivens and Lawrence Mishel, "Understanding the Historic Divergence Between Productivity and a Typical Worker's Pay," Economic Policy Institute (September 2, 2015), accessed November 15, 2016, <http://www.epi.org/publication/understanding-the-historic-divergence-between-productivity-and-a-typical-workers-pay-why-it-matters-and-why-its-real/>

Policy Consideration for the Future: New Metrics for Understanding Jobs and Work

First, leaders at the local, state, and federal levels should shift focus from net job creation and the reduction of

unemployment rates. It is clear that all jobs are not the same, and all work is not the same. Jobs lost and jobs gained and the number of hires and separations are inadequate measures for evaluating economic achievement and the dynamism of the labor market. Instead, metrics should be developed and tracked that examine the degree to which employers in their communities are providing work opportunities that people actually want—work that offers adequate pay, stability, and the means necessary to build meaningful lives. This may mean different metrics for different communities.

However, it is critical for state and local policymakers to begin to examine the equity and accessibility of their local labor markets by engaging workers in the conversation. Policymakers and local community leaders should consider developing a kind of jobs access census that seeks to measure the degree to which their community employment landscapes are providing jobs that deliver purpose and income. It will not be until there is a better understanding of how structural changes and technological trends are shaping the lives of individuals that we will have the necessary forums to consider alternative methods for supporting our citizens and growing our communities.

Policy Consideration for the Future: Alternative Sources for Family Income

As workers become increasingly disconnected from work

opportunities, public leaders will be responsible for exploring different mechanisms for providing citizens with income and the freedom to pursue alternative applications of their labor to improve their lives and those of their neighbors. If current trends continue, with newer jobs increasingly being created at the very highest and very lowest skill levels, it may be advantageous to consider wage insurance programs that protect workers against the earnings loss they may suffer as they are increasingly required to accept a wage cut in order to get reemployed.³³

Though, if technology and automation continue to replace the work being done by the low-skilled worker, then more holistic income supplement programs must be considered. An example of one such income supplement is currently underway in Oakland, CA. Y Combinator is working with city officials and community groups to pilot a project to explore the application of a basic income guarantee.³⁴ Sam Altman, president of Y Combinator, explains that “the income will be unconditional; we’re going to give it to participants for the duration of the study, no matter what. People will be able to volunteer, work, not work, move to another country—anything. We hope basic income promotes freedom, and we want to see how people experience that freedom.”

Policy Consideration for the Future: Tax Structures and Social Benefit Delivery

According to the Center on Budget and Policy Priorities, a full 80% of all federal tax revenue is derived from the combination of payroll and income tax.³⁵ It is through these revenues that the U.S. government provides social security, Medicare and Medicaid programs, and unemployment insurance. In a future where corporations increasingly rely on 'flexible' work for their labor needs, they will be less responsible for payroll taxes. In the near future, that tax burden will shift to the flexible, self-employed workforce that will be responsible for both halves of these employment taxes through self-employment tax, for example.³⁶ In the more distant future, where machines and automation replace a larger share of human work, self-employment taxes may fall short of providing the requisite tax revenue to support these vital social support mechanisms.

Employers only need employees because employees produce products that employers sell. If employers can continue producing with fewer employees at lower wages, they will. 'Employers' can exist without employees, though we just call those businesses. Employers are not nearly as dependent on employees as employees are to employers. This gives them tremendous leverage in the new economy and it will be the responsibility of governments to adapt to this shift in the employee-employer relationship. Public leaders and policymakers should begin to consider alternative tax sources that adequately capture a larger share of productivity gains in the face of shrinking income

and wage gains.

Policy Consideration for the Future: Rethinking the Purpose of Education and Job Training

Our goals and framework in the education and training space are out of sync with what the jobless future may portend. Public leaders must rethink the current approach to how society is preparing people for the future. They must reexamine the purpose of education and training and how we define skills. As technology rapidly grows, so too will the relative worth of the highly-trained and highly-adaptive. The authors of *The Second Machine Age: Work, progress, and prosperity in a time of brilliant technologies* note that “technological progress is going to leave behind some people, perhaps even a lot of people, as it races ahead.... [T]here’s never been a better time to be a worker with special skills or the right education, because these people can use technology to create and capture value. However, there’s never been a worse time to be a worker with only ‘ordinary’ skills and abilities to offer, because computers, robots, and other digital technologies are acquiring these skills and abilities at an extraordinary rate.”³⁷

It is this notion that has prompted public leaders to suggest that through education and training we can prepare the global workforce for the industries and opportunities of tomorrow. The logic is reasonable and it

appears as though formal work opportunities of the near future will accrue to an elite class of highly-educated, highly-skilled workers. However, given the research presented, might public leaders be prompted to question the applicability of a work-based, employer-driven approach to education and skill-building in the future? A future with fewer employers and fewer job opportunities may force us to reexamine this approach and adopt a more localized, breadth of skills approach to education.³⁸ Learning and education would be aimed less at cultivating 'employability-skills' and focused, instead, on sustainable development, global citizenship, and entrepreneurship; teachers would seek to impart skills such as teamwork, civics, critical thinking, communication, creativity, and emotional intelligence. It would require that our models for schooling shift dramatically from our Industrial Age approach to a new model that recognizes that learning, education, and school are not one in the same. In a report published by the Brookings Institute, the authors suggest that this approach "opens up a vision of education that can encompass life-long learning, starting from early childhood through adulthood."³⁸

For many workers, jobs are tedious, thankless, and unengaging, yet far less lucrative; and, in the future, will be increasingly scarce. It should remain our goal to offer access to high-quality learning opportunities to all children and all adults, but our aim must not necessarily be to prepare them for the world of work. It should,

instead, focus on preparing people for a world of rapid change and equip them with the skills and confidence to pursue alternative applications for their intellect, their imagination, and their potential.

Policy Consideration for the Future: More Jobs May Not Be the Answer

It is reasonable to consider a world where our vocations are not only driven by market demand—a world where we can afford to be more responsive to community demands. In this future, people will have the freedom to focus on the virtuousness of child-rearing, elder care, mentorship, teaching, and community building, regardless of how well that work is remunerated in today's wage-based economy. We must begin to consider a future where human output and potential are directed towards endeavors more noble than fighting a losing contest for work opportunities that are increasingly defined by their relative scarcity and precarity. Our ambitions are too narrow-minded and our expectations too low if we are only hoping that technology might create more work. It may be more valuable to consider whether or not opportunities created in the future will be of a higher quality than the opportunities currently available. What public policies might be necessary to stimulate change, and can the future offer us a better use for our labor or just more of the same?

The most important decision for public leaders will be

whether to choose to ignore, contest, or accept the prospect of a world with less work. This choice will dictate how well we adapt to exponential advances in technology and how prepared we are to respond as these advances challenge the central role that work plays in our lives, our economy, and our governments.

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Josh is pursuing a career committed to the furtherance of economic and social systems that support and maximize human output and potential. He traces his interest in the critical role that jobs play in our economy and our lives to his time spent at the Pittsburgh Technology Council. His views are further informed by his current role as the Vice President and Chief Operating Officer of the National Association of Workforce Boards in Washington, DC.

Other interests include the intersection of public-private sector innovation, new trends in impact investing and social enterprise, and the influence of new technologies on education, business, and consumerism.

He is a graduate of the University of Pittsburgh and holds a Bachelor's degree in both political science and history. Josh received his Master of Public Administration degree from the University of Pennsylvania.

Contact Josh [\[josh.copus@gmail.com\]](mailto:josh.copus@gmail.com)

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he is professionally affiliated.