

**Testimony of
Robert D. Atkinson
President
Information Technology and Innovation Foundation**

Before the Little Hoover Commission

**Hearing on
Economic and Labor Force Implications
of Artificial Intelligence**

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INTRODUCTION

Chairman Nava, Vice Chairman Varner and members of the Commission, my name is Robert Atkinson and I am founder and president of the Information Technology and Innovation Foundation. ITIF is a nonpartisan research and educational institute whose mission is to formulate and promote public policies to advance technological innovation, productivity, and competitiveness.

Over the past several years, ITIF has conducted an array of research projects on the impact of emerging technologies, including artificial intelligence, on economic growth and labor markets. For example, our 2013 report “Are Robots Taking Our Jobs or Making Them” comprehensively reviewed the scholarly literature on the impact of technology-driven productivity on employment, finding that high productivity is associated with lower, not higher unemployment.¹ In our report “‘It’s Going To Kill Us!’ and Other Myths About the Future of Artificial Intelligence,” we examined common views about the impact of AI on society, and reviewed studies, expert opinion and the logic for why dystopian fears, including about jobs, were overblown.² More recently, in “False Alarmism: Technological Disruption and the U.S. Labor Market, 1850–2015,” ITIF relied on data from the U.S. Bureau of Labor Statistics to examine occupational churn over the last 165 years, and we found that the rates of labor market churn (occupations declining and growing relative to the average labor force growth) are now at their lowest levels in U.S. history.³

We believe that history, logic, and economic analysis all strongly point to the conclusion that the next technology wave, powered by artificial intelligence and robotics, will not lead to above average unemployment levels and that we will not run out of work. What it could do, however, is significantly improve labor productivity growth rates, making society better off, and boosting per-capita incomes for virtually all Americans. As such, policymakers should not give in to the rising techno-panic over AI or take steps to slow down AI progress. Rather, they should take steps to support AI, including by using AI much more extensively within government operations. Finally, while the next wave of innovation won’t create mass unemployment, it will likely increase labor market churn, making it essential that state governments and the U.S. federal government do a much better job equipping workers with the support, tools and skills they need to navigate a more turbulent labor market. This testimony lays out a number of specific steps California might take in this regard.

AI’S PERCEPTION PROBLEM: AI AND THE RISING TECHNO-PANIC

In our 2015 report “The Privacy Panic Cycle,” ITIF wrote:

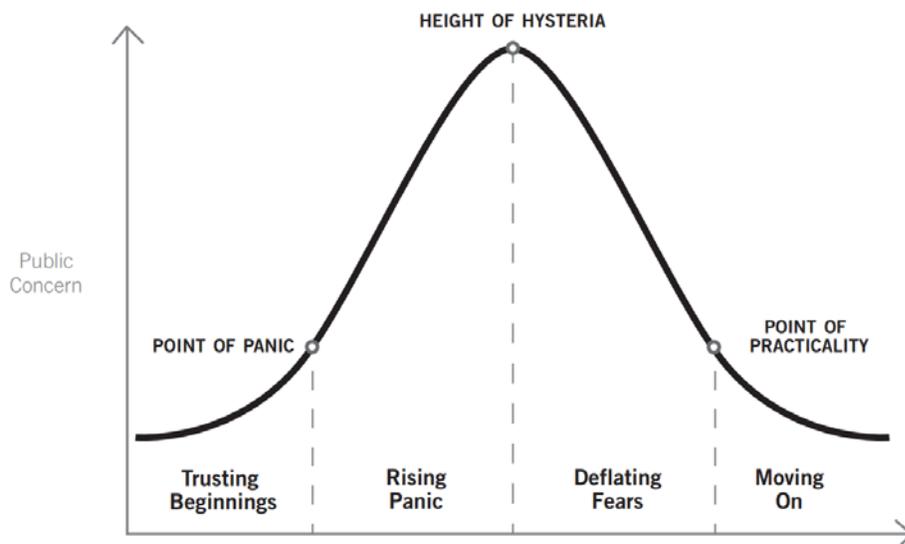
Innovative new technologies often arrive on waves of breathless marketing hype. They are frequently touted as “disruptive!”, “revolutionary!”, or “game-changing!” before businesses and consumers actually put them to practical use. The research and advisory firm Gartner has dubbed this phenomenon the “hype cycle.” But there is a corollary to the hype cycle for new technologies that is less well understood and far more pernicious. It is the cycle of panic that occurs when privacy advocates make outsized claims about the privacy risks associated with new technologies. Those claims then filter through the news media to policymakers and the public, causing frenzies of

consternation before cooler heads prevail, people come to understand and appreciate innovative new products and services, and everyone moves on. Call it the “privacy panic cycle.”⁴

While our report referred to a cycle of panic that often ensues as the public questions the privacy implications of new technologies, similar dynamics can occur as the public processes a wide range of other real and imagined issues surrounding new technologies. Today we are in the midst of just such a panic cycle about artificial intelligence (AI), and much of the panic swirls around its potential impact on jobs, inequality, and other economic outcomes.

Technology panic cycles typically unfold in a pattern resembling a bell curve. (See figure 1.) In the beginning, there is public trust as the new technology emerges. People’s attitudes toward the technology are generally benign, even if they know very little about it. But once antagonists succeed in drawing negative attention to a technology, others start fanning the flames of fear, either intentionally or unintentionally—and what we call the “Trusting Beginnings” phase gives way to “Rising Panic.” The rising fever pitch is stoked by the media, which wants to cover popular stories; elected officials in search of hot issues to attract voters; government regulators trying to maintain or gain relevancy; and researchers, consultants, and pundits seeking to advance their careers by becoming better-known. Fear makes for excellent click-bait, and as these groups repeat the claims of antagonists, they spread fear among the general public. I would argue the United States is now in this Rising Panic phase when it comes to AI.

Figure 1: The Technology Panic Cycle



Many individuals and organizations jump on the bandwagon during the Rising Panic, knowing that making outrageous claims about privacy and other issues is a sure path to recognition. For example, not content with repeating the already vastly exaggerated claims by Oxford University researchers that AI and robotics will destroy 47 percent of U.S. jobs in 20 years, one Silicon Valley pundit has claimed that it will destroy 80 to 90

percent of U.S. jobs in the next 10 to 15 years.⁵ And not to be outdone, Kevin Drum writes in *Mother Jones* that all jobs will be gone in 40 years.⁶

As a result of this sort of unquestioning hysteria, the public is bombarded with overblown fears and a false sense of urgency. Because of the crowded field of opinion and analysis, the media tends to recognize those with the most outrageous claims, setting a pattern whereby it continuously escalates the perceived implications, challenges, and threats brought by the new technology. This has been the pattern with AI. Skeptics and antagonists have engaged in hyperbolic and emotional rhetoric that the media then repeats and amplifies. This phase of panic has been marked by apocalyptic and dystopian imagery for AI, including Elon Musk's warning that it could be "summoning the demon" that destroys the human race.⁷

During the Rising Panic stage, users historically are just beginning to understand the new technology in question and just beginning to see its benefits, making people more susceptible to false statements. In most cases, because they have not yet had direct experience with the technology, antagonists can make almost any claim about the technology without losing credibility. For example, AI antagonists can and do assert that it will be able to do virtually any job.⁸ If history is a guide, then fears will continue to climb until public understanding about the technology and its benefits reaches a tipping point. Various external factors, such as early stages of adoption and use of the technology, or disillusionment when fears never materialize, can affect when this tipping point occurs. At the end of the Rising Panic stage, privacy fears eventually will reach their zenith at what we call the "Height of Hysteria."

This is the point where the fever finally breaks and the public begins to dismiss hyper-inflated fears associated with the technology. It occurs as the technology becomes increasingly commonplace and interwoven into society. Assuming the pattern holds, people's fears will subside as they start to see that AI can be used for X but not for Y, and that it can do some things pretty well and other things not so well. This period of "Deflating Fears" represents the period during which society comes to embrace the technology and individuals can see for themselves its capabilities and limits. During the Deflating Fears phase, new events may cause micro-panics that focus on discrete concerns of a particular aspect of the technology or its integration into society. For example, at some point, as driverless long-haul trucks become widely used (not likely anytime soon), a new round of technology fears will likely arise around issues unique to them. These micro-panics usually push technology concerns back to the forefront of public attention through media buzz. But the micro-panics quickly disappear or are forgotten as it becomes clear that negative impacts are limited and vastly outweighed by overall societal benefits (e.g., in the case of driverless trucks, safer roads because of less human error and cheaper products because of lower transportation costs).

Techno panic cycles typically end at what we call the "Point of Practicality," at which apocalyptic concerns fade and people move on. At this stage, the majority of the public no longer believes the dystopian claims that antagonists make, and the technology has reached a sufficient level of maturity that most people no longer express concerns about its misuse. The technology is just part of life. And we move on to a new techno-panic cycle for the next big technological innovation.

CAUSES FOR THE AI TECHNO-PANIC

AI has been swept up in the techno-panic cycle for at least three major reasons. First, AI is what economists call a “general purpose technology” that can and likely will affect many different aspects of the economy. As such, it is easy to offer doomsday scenarios in which it could affect all occupations, all industries, and all workers.

Second, AI is extremely complicated and opaque. While science fiction writer Arthur C. Clarke wrote that “Any sufficiently advanced technology is indistinguishable from magic,” this is even more true with AI because it is not tangible. Even if people in the past were not mechanical engineers, they could get at least a rudimentary sense of what a lathe, truck, or assembly line could and couldn’t do. But unless someone has a computer science degree, ideally with a specialization in machine learning, they have virtually no understanding of AI. As such, it can and does take on mysterious and ominous powers. As a result, when an AI dystopian suggests that we are only a few short steps away from artificial general intelligence (a computer with intelligence equivalent to human intelligence) or even artificial superintelligence (a computer with vastly superior intelligence), such that Elon Musk can call it our biggest existential threat, the vast majority of people have no common-sense way to judge the validity of his claim.

Third, AI has a perception problem because of its very name. The term “artificial intelligence” implies that the technology has or soon will have intelligence akin to human intelligence. And, ominously, that this will quickly transform into artificial super-intelligence that is beyond human control. But this is wrong. AI has very limited intelligence—it can figure out a game of GO or that a picture of a cat is not a dog, but it can’t and won’t be able to make the kinds of complex decisions that a three-year-old child can make. Computers don’t really think, and they certainly are not conscious. While a child might yell at Apple’s Siri that she is stupid, Siri isn’t conscious of this. As philosophy professor John Searle wrote about IBM’s Watson, “IBM invented an ingenious program—not a computer that can think. Watson did not understand the questions, nor its answers, not that some of its answers were right and some wrong, not that it was playing a game, not that it won—because it doesn’t understand anything.”⁹ Yet many AI skeptics just don’t want to believe this. James Barrat, a documentarian and author who wrote the anti-AI book *Artificial Intelligence and the End of the Human Era*, blithely writes, “As for whether or not Watson thinks, I vote that we trust our perceptions.”¹⁰ By this logic, we should believe the earth is flat.

Put this all together, and it is not surprising that much of what has been written about the social and economic impacts of AI is so ludicrous. Many claims are so comical that it is surprising that people take them seriously. As Daniel Dennet, co-director of the Tufts University Center for Cognitive Studies, writes:

The Singularity—the fateful moment when AI surpasses its creators in intelligence and takes over the world—is a meme worth pondering. It has the earmarks of an urban legend: a certain scientific plausibility (“Well, in principle I guess it’s possible!”) coupled with a deliciously shudder-inducing punch line (“We’d be ruled by robots!”) ... Wow! Following in the wake of decades of AI hype, you

might think the Singularity would be regarded as a parody, a joke, but it has proved to be a remarkably persuasive escalation.¹¹

Former Stanford computer science professor Roger Schank sums it up well: “‘The development of full artificial intelligence could spell the end of the human race,’ Hawking told the BBC. Wow! Really? So, a well-known scientist can say anything he wants about anything without having any actual information about what he is talking about and get worldwide recognition for his views. We live in an amazing time.”¹²

Some AI proponents tell us that computer systems with powerful “artificial general intelligence” (AGI) are just around the corner. For them, AGI and human-like robots will eclipse the full range of human ability—not only in routine manual or cognitive tasks, but also in more complex actions or decision-making. But there is about as much chance of AGI emerging in the next century as there is of the earth being destroyed by an asteroid. As MIT computer science professor Rodney Brooks puts it:

The fears of runaway AI systems either conquering humans or making them irrelevant aren’t even remotely well grounded. Misled by suitcase words, people are making category errors in fungibility of capabilities—category errors comparable to seeing the rise of more efficient internal combustion engines and jumping to the conclusion that warp drives are just around the corner.¹³

To be sure, there is progress in AI, including in machine learning, but these are still and will remain discrete capabilities (recognizing fraud in financial transactions, for example), not a general replication of vastly complex human intelligence that can then be easily applied to human tasks, many of which are incredibly complex, such as laying a carpet or designing a marketing campaign. In fact, it will be extremely difficult, if not impossible to automate many of these non-routine physical or cognitive jobs.

AI AND EMPLOYMENT

It seems as if a day cannot go by without a new story warning that the AI is coming for our jobs. Yet such fears are a recurring theme in American economic history, especially during periods of economic downturn in the business cycle. But unlike the past, when such claims never generated support for slowing down technological change, today’s fears are leading many to suggest that we pump the technological brakes—for example, by regulating or taxing these new technologies.¹⁴

When factory automation took off in the late 1950s and early 60s, concerns arose about the employment effects of automation and productivity. Such concerns entered into the popular imagination of the day, with TV shows and news documentaries and reports worrying about the loss of work. One particularly telling episode of *Twilight Zone* documented a dystopian world in which a manager replaces all his firm’s workers with robots, only to find himself in the final scene being replaced by a robot.

So great was the concern with automation and the rise of push-button factories, that the U.S. Joint Economic Committee in 1955 held extended hearings on the matter. In the midst of an economic recession, John Kennedy in 1961 created an Office of Automation and Manpower in the Department of Labor, identifying:

“the major domestic challenge of the Sixties – to maintain full employment at a time when automation, of course, is replacing men.” In 1964, President Johnson appointed a National Commission on Technology, Automation, and Economic Progress. But the economy soon rebounded, generating millions of jobs, low unemployment, and robust wage growth, so everyone quickly put this issue in the rearview mirror.

In the early 1980s, immediately following a severe “double-dip” recession, and when artificial intelligence was once again advancing, many warned it would produce mass unemployment. AI scientist Nil Nilson warned, “We must convince our leaders that they should give up the notion of full employment. The pace of technical change is accelerating.” Labor economist Gail Garfield Schwartz predicted, “With AI, perhaps as much as 20 percent of the work force will be out of work in a generation.” And economist Wasily Leontif warned that:

We are beginning a gradual process whereby over the next 30-40 years many people will be displaced, creating massive problems of unemployment and dislocation. In the last century, there was an analogous problem with horses. They became unnecessary with the advent of tractors, automobiles, and trucks. ... So what happened to horses will happen to people, unless the government can redistribute the fruits of the new technology.¹⁵

Today, in the wake of the Great Recession and slow labor force and GDP growth in many nations, those fears have come back, based on overzealous predictions of unprecedented technological change. Pundits use a variety of terms to refer to the supposed technological transformation, including “the Second Machine Age,” “the Rise of the Robots,” and “the Coming Singularity.” But perhaps the most commonly referenced term is the “4th Industrial Revolution.” It was coined by Klaus Schwab, head of the World Economic Forum, who breathlessly writes, “We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before.”¹⁶ Powered by artificial intelligence, autonomous vehicles, robots and other breakthroughs, these pundits tell us that change will come at rates that will make the Industrial Revolution look like a period of stability.

If this were true, it might be cause for concern, for it suggests that history, which has never produced high or permanent levels of technologically driven unemployment, provides no guide to the present. But luckily it is highly unlikely to be true. There is no reason to believe that this coming technology wave will be any different in pace and magnitude than past waves. Each past wave has led to improved technology in a few key areas (e.g., steam engines, railroads, steel, electricity, chemical processing, and information technology), and these were then used by many sectors and processes. But none completely transformed all industries or processes. Within manufacturing, for example, each wave has led to important improvements, but there have always been many other processes that have required human labor.

The next emerging technology wave, grounded in artificial intelligence, as well as AI-enabled robotics, will in all likelihood be no different. While it likely will affect many industries, processes, and occupations, many others will remain largely untouched, at least in terms of automation. Think of firefighters, pre-school teachers, massage therapists, barbers, executives, legislators, athletes, and trial lawyers, to name just a few

occupations. It is hard to imagine how technology can replace workers for these functions, unless you want to engage in magical thinking.

Moreover, while these emerging technologies will replace some workers as all past waves have done, they also will augment others as they raise economic productivity and per-capita incomes. AI, for example, won't replace doctors. No one will be turning on their iPhone 23 and asking Siri if they have cancer and then ordering their chemotherapy drugs online. But AI will help doctors make better diagnoses and treatment decisions. Some technologies substitute for workers; others complement workers. This is why ITIF has estimated that, at most, only about 8 percent of jobs are at high risk of automation by 2024.¹⁷

AI alarmists warn that the next wave of innovation will lead to massive job loss and the emergence of a large, chronic lumpen proletariat that is dependent of the state for a minimal existence. The widely repeated narrative is that productivity growth driven by increasingly powerful IT-enabled “machines” is the cause of the recent slow job growth; and that, in the future, accelerating technological change will make things worse. A growing number of policymakers worry that boosting productivity would come at the expense of needed job creation.

To start with, if technology-led productivity growth really has been the culprit behind America's anemic job growth since 2009, one would expect that America's productivity growth rate would be near all-time highs. In fact, U.S. productivity growth since the end of the Great Recession has been at historic lows—about half the rate it was before the Great Recession. What the pundits are attributing to anemic productivity growth has its roots in the slow recovery from the greatest financial crisis since the Great Depression.

Moreover, academic studies, historical data, and logic all suggest that increased rates of productivity growth do not lead to higher unemployment.¹⁸ Indeed, historically, there has been a negative relationship between productivity growth and unemployment rates. In other words, higher productivity meant lower unemployment. This correlation is shown in the 2011 McKinsey Global Institute report, “Growth and Renewal in the United States: Retooling America's Economic Engine.”¹⁹ McKinsey looked at annual employment and productivity change from 1929 to 2009 and found that increases in productivity are correlated with increases in subsequent employment growth, and that most years since 1929 have featured concurrent employment and productivity gains.

If anything, higher productivity growth in nations has been associated with lower rates of unemployment. The reason is simple: Companies invest in process innovation (innovations to boost productivity) to cut costs, and because of competitive markets they pass the lion's share of those savings onto consumers in the form of price cuts (and some to workers in the form of higher wages). This added purchasing power is not buried; it is spent, and that spending creates new jobs. This dynamic is the same if productivity grows at 1 percent a year or 10 percent.

Trehan found that, “The empirical evidence shows that a positive technology shock leads to a reduction in the unemployment rate that persists for several years.”²⁰ The Organization for Economic Cooperation and Development (OECD) finds that, “Historically, the income-generating effects of new technologies have

proved more powerful than the labor-displacing effects: technological progress has been accompanied not only by higher output and productivity, but also by higher overall employment.”²¹

Even if AI alarmists acknowledge that productivity hasn't yet killed jobs, they argue the future will be different. This is a seductive argument, of course, because there is no way to prove or disprove the claim. However, logic can be used to cast serious doubt on it. The doomsayers tell a story about technological change accelerating so much that soon there will be “nowhere left to run.” The narrative is as follows: As automation reduced agricultural jobs, people moved to manufacturing jobs. After manufacturing jobs were automated, they moved to service-sector jobs. But as robots automate these jobs, too, there will be no new sectors to move people into next.

But these advocates make three crucial mistakes. First, they wrongly assume that current technological trends will continue or even accelerate. But as a recent academic study found, the productivity rate of technological innovation (e.g., the number of researchers needed to produce a particular unit of innovation) has been falling for decades.²² For example, Bloom and Van Reenen find that it is now 18 times harder to sustain Moore's law (the process by which the computing power of semiconductors doubles every 18 to 24 months) than it was the early 1970s. It is much harder today to eke out discoveries from nature than it was a half century ago, and it is likely to get harder going forward. So, if anything, the pace of innovation is likely to slow, not accelerate. It is one thing to simply assume that Moore's law will continue ad infinitum, it is another thing for it to happen.²³ All technologies progress along S-curves; infinite exponential growth is impossible. As Sanjay Banerjee, Director of the Microelectronics Research Center at University of Texas at Austin puts it, “no exponential is forever.”²⁴

Some AI exponentialists argue that even if chip power doesn't keep doubling, chips can be put together in massive arrays, as they are in supercomputers. But there are two problems with this. For AI to eliminate jobs, the “machine” has to be cheap. McDonalds is not going to deploy a multi-million-dollar large supercomputer in every restaurant to power its AI-enabled hamburger flippers. Second, even the world's fastest supercomputers today are nowhere near having artificial general intelligence capabilities.²⁵ Moreover, the AI exponentialists simply assume that with enough computing “horsepower” artificial general intelligence will be automatic. This is highly unlikely, in large part because it is not clear that mimicking human intelligence is as simple as just generating more and faster connections between bits.

Second, they overstate the extent to which digital innovation is transforming occupations. Some contend virtually all jobs will be disrupted by smart machines. One of the most widely cited studies on this matter, from Oxford's Osborne and Frey, found that 47 percent of U.S. jobs *could* be eliminated by technology over the next 20 years.²⁶ But they appear to significantly overstate this number by including occupations that have little chance of automation, like fashion modeling. Osborne and Frey rank industries by the risk that their workers would be automated. While this is a speculation about the future, one would expect that there would be some positive correlation between their risk of automation score and recent productivity growth in the industry. In fact, there was a negative correlation of 0.26 between the risk of automation in an industry and industry productivity growth. In other words, industries they assessed to have a higher risk of automation actually demonstrated lower rates of productivity growth, not higher.

A more likely estimate is that at most about 20 percent of U.S. jobs are likely to be automated over the next decade or two, with about 50 percent being difficult to automate, and the remaining 30 percent extremely difficult to automate.²⁷ One reason for this difference is that, for many occupations, automation doesn't affect the job so much as it affects the tasks performed in an occupation. For example, the McKinsey Global Institute concludes that "Very few occupations will be automated in their entirety in the near or medium term. Rather, certain activities are more likely to be automated, requiring entire business processes to be transformed, and jobs performed by people to be redefined."²⁸ In other words, technology is much more likely to lead to job redefinitions and opportunities to add more value, not to outright job destruction.

But even if Osborne and Frey are right and 47 percent of jobs are eliminated by AI and related technologies over the next 20 years, this would be equivalent to an annual labor productivity growth rate of 3.1 percent a year, lower than the rate of productivity growth rate the U.S. economy enjoyed in the 1960s, when unemployment was at very low levels and job creation was high.²⁹ Similarly, if a recent McKinsey Global Institute study is correct in its high-end estimate that 30 percent of jobs could be automated, that would mean a productivity growth rate of just 2 percent per year.³⁰

The antagonists' third mistake is failing to recognize that this "nowhere left to run" argument is absurd on its face, because global productivity could increase at a rate never before seen in human history and people would still not run out of things to buy. Just look at what people with higher incomes spend their money on: nicer vacations, larger homes, luxury items, more restaurant meals, more entertainment, like concerts and plays, and more personal services (e.g., accounting, yard work, etc.). Unless this magic AI technologies can do all that work, the increased consumption will lead to increased job creation. Moreover, if the world economy ever gets 50 times richer, there would be a natural evolution toward a shorter work week and more vacation days as people's material wants become more satisfied.

This gets to the core reason why we should not worry about technologically created unemployment: Say's law. Named after 19th century French economist Jean-Baptiste Say, Say's law holds that supply creates its own demand, and in this case, the supply of labor creates its own demand. While Say's law does not hold in the short run if the economy is in a recession (when there is unemployment), in a period of full or close to full employment it is certainly true. Imagine that a particular birth cohort is 100,000 persons larger than the cohort born in a previous year. As this larger group of workers enters the U.S. labor force, some land open jobs, which leads to increased spending, which in turn creates demand for more jobs, and so on, until all 100,000 workers are employed. In this sense, there can never be a worker shortage, or, in the medium- to long-term, a job shortage. This is why any studies purporting to predict certain rates of job creation based on expected demand for goods and services are not valid. The only valid way to predict the future number of jobs is to predict the net number of people entering the labor force: that is the number by which jobs will change (taking into account labor force participation rates; some new workers being in school; some incarcerated; some disabled, etc.). In sum, worries of machines overtaking humans and causing unemployment are as old as machines themselves.

HOW SHOULD CALIFORNIA'S POLICIES ADDRESS AI?

There are two key implications of all this for state governments. First, states should take steps to support AI development and adoption, particularly in state government functions, while at the same time avoiding policies, such as regulation and taxes, that would hinder AI adoption. This is important, because as ITIF has written, AI has the potential to usher in the next stage of e-government, bringing new efficiencies and improved services.³¹ By embracing AI in California's government, the state will not only be helping to spur overall AI progress, it will also be improving the quality of California government.

At the same time, California should avoid imposing regulations on AI. As an inherently cross-border technology, any regulatory frameworks should be federal in scope. Moreover, in most cases regulation should not focus on AI or robotics themselves, but on the areas in which they are applied, such as credit reporting, e-commerce and privacy, financial transactions, health care, etc. We don't and shouldn't say that regulations regarding credit reporting should be different depending on the type of computer system a credit reporting firm uses. Therefore, we shouldn't regulate AI itself.

Second, states should focus on improving their systems for helping workers make transitions between jobs and occupations. As noted above, in the last two decades the U.S. labor market has actually been remarkably calm, at least in historical terms. But the pace of disruption and productivity is likely to increase somewhat, and states and the federal government need to do a better job of helping affected workers.

One step states should not take is to consider universal basic income. Under this widely touted scheme, government would somehow take money from somewhere and write monthly checks to all adults, whether they are working or not, poor or rich. This allegedly would establish a stable floor upon which everyone would build their own brighter future. Universal basic income is one idea policymakers should categorically reject. UBI would lead to the very thing its advocates warn us technology will bring: large-scale unemployment as the government incentivizes workers to be idle instead of helping pave pathways for those at risk of displacement to prepare for and to find success in new jobs.

A forthcoming ITIF report will focus in greater detail on what a comprehensive agenda for easing worker transitions should entail. But in general, states can and should do a better job of enabling workers to get "better" skills, not necessarily more. In this case, better skills entail not only higher levels of education, but also education and skills more attuned to the needs of employers. When worker skills are more developed, worker adjustment from dislocation becomes easier.³² Moreover, having a stronger base of general skills provides an important foundation if demand for a worker's specific skills dries up.

States can partner with non-profit organizations to establish better online portals for access to skill assessments, training resources, and job search. For example, the Council for Adult and Experiential Learning (CAEL) has established sites to help workers understand jobs and competencies needed for jobs in the petrochemical³³ and financial services industries,³⁴ and find specific jobs and training related to occupations in these industries.

States should also work to better enable workers to receive unemployment insurance while they are in training. An ideal time for workers to obtain new skills to enter a new occupation is when they are unemployed. However, for that to work effectively, the worker should be able to collect unemployment insurance while unemployed. While federal law requires states to allow workers enrolled in certified training programs to collect unemployment insurance, few states adequately inform unemployed workers of this option and many actively limit the number of qualifying courses. They do this, of course, because state unemployment insurance offices are motivated principally by one goal: getting workers back to work as quickly as possible, in part to keep unemployment costs, and taxes, as low as possible.

One place to start changing this would be for California to actively and clearly notify workers once they apply for unemployment insurance that they qualify for unemployment insurance benefits if they are in approved training. One study found that dislocated workers who collect UI and are sent information regarding training (its potential benefits, how to enroll, and information on financial assistance) are 40 percent more likely to enroll in training.³⁵ At the same time, California should use a profiling system to predict who is likely to be unemployed long-term and then quickly encourage them to enroll, including advising them to meet with staff at regional “One-Stops” for counseling about training opportunities.

Finally, it is important that all of us—policymakers, journalists, experts, and citizens—take a deep breath and calm down. Labor market disruption is not abnormally high, and the doomsday scenarios of massive job loss from AI are just that: scenarios that are unlikely to happen. Claims that we are all one fast-growing tech “unicorn” away from redundancy only raise fears and lead policymakers to, at minimum, ignore policies that would spur automation and technological innovation, and at worse support policies that would limit them.

Thank you again for this opportunity to appear before you today.

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