

CYNTHIA ESTLUND

## What Should We Do After Work? Automation and Employment Law

**ABSTRACT.** Will advances in robotics, artificial intelligence, and machine learning put vast swaths of the labor force out of work or into fierce competition for the jobs that remain? Or, as in the past, will new jobs absorb workers displaced by automation? These hotly debated questions have profound implications for the fortress of rights and benefits that has been constructed on the foundation of the employment relationship. This Article charts a path for reforming that body of law in the face of justified anxiety and uncertainty about the future impact of automation on jobs.

Many of the forces that drive automation – including law-related labor costs – also drive firms’ decisions about “fissuring,” or replacing employees with outside contractors. Fissuring has already transformed the landscape of work and contributed to weaker labor standards and growing inequality. A sensible response to automation should have in mind this adjacent problem, and vice versa. Unfortunately, the dominant legal responses to fissuring – which aim to extend firms’ legal responsibility for the workers whose labor they rely on – do not meet the distinctive challenge of automation, and even modestly exacerbate it. Automation offers the ultimate exit from the costs and risks associated with human labor. As technology becomes an ever-more-capable and cost-effective substitute for human workers, it enables firms to circumvent prevailing legal strategies for protecting workers and shoring up the fortress of employment.

The question is how to protect workers’ rights and entitlements while reducing firms’ incentive both to replace employees with contractors and to replace human workers with machines. The answer, I argue, begins with separating the issue of what workers’ entitlements should be from the issue of where their economic burdens should fall. Some worker rights and entitlements necessarily entail employer duties and burdens. But for those that do not, we should look for ways to shift their costs off of employer payrolls or to extend the entitlements themselves beyond employment. The existing fortress of employment-based rights and benefits is under assault from fissuring and automation; it is failing to protect those who remain outside its walls and erecting barriers to some who seek to enter. We should dismantle some of its fortifications and construct in its place a broader foundation of economic security for all, including those who cannot or do not make their living through steady employment.



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## INTRODUCTION

Three major threats to American jobs have grabbed headlines in recent years. One is the migration of manufacturing jobs to China, as perhaps best exemplified by Foxconn, the Taiwanese firm that employs over a million Chinese workers in the production of iPhones, iPads, and other consumer electronics. To labor-law cognoscenti, the outsourcing of manufacturing to China, and the feared “race to the bottom” in labor standards, is mostly yesterday’s news. Since 2015, they have been more preoccupied with a second development—the rise of platform-based “gig” work in place of real jobs, epitomized by Uber’s treatment of its drivers as independent contractors rather than employees.

Yet both of these threats to American jobs and workers arguably pale beside the threat of automation. If Uber has its way, its drivers will soon go the way of lamplighters, replaced by self-driving vehicles.<sup>1</sup> And if Foxconn is representative, then Chinese factory jobs are also at risk: by 2016, Foxconn had replaced 60,000 production workers with robots and was planning to replace most of the others within several years.<sup>2</sup>

For some observers, Uber’s autonomous vehicles and Foxconn’s robots are harbingers of a jobless future, as machines and algorithms threaten to put vast swaths of the labor force in the United States and worldwide out of work or into desperate competition for the jobs that remain.<sup>3</sup> These commentators describe an exponential growth of technologies that replicate or surpass humans in an

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1. See, e.g., Steven Greenhouse, *Autonomous Vehicles Could Cost America 5 Million Jobs. What Should We Do About It?*, L.A. TIMES (Sept. 22, 2016, 4:00 AM), <http://www.latimes.com/opinion/op-ed/la-oe-greenhouse-driverless-job-loss-20160922-snap-story.html> [<https://perma.cc/N49P-3ZE8>]; Casey Newton, *Uber Will Eventually Replace All Its Drivers with Self-Driving Cars*, VERGE (May 28, 2014, 3:52 PM), <https://www.theverge.com/2014/5/28/5758734/uber-will-eventually-replace-all-its-drivers-with-self-driving-cars> [<https://perma.cc/QN7W-CBP9>].
  2. Jane Wakefield, *Foxconn Replaces ‘60,000 Factory Workers with Robots,’* BBC NEWS (May 25, 2016), <http://www.bbc.com/news/technology-36376966> [<https://perma.cc/XQ3A-6DSG>].
  3. See ERIK BRYNJOLFSSON & ANDREW MCAFEE, RACE AGAINST THE MACHINE: HOW THE DIGITAL REVOLUTION IS ACCELERATING INNOVATION, DRIVING PRODUCTIVITY, AND IRREVERSIBLY TRANSFORMING EMPLOYMENT AND THE ECONOMY (2012) [hereinafter BRYNJOLFSSON & MCAFEE, RACE AGAINST THE MACHINE]; ERIK BRYNJOLFSSON & ANDREW MCAFEE, THE SECOND MACHINE AGE: WORK, PROGRESS, AND PROSPERITY IN A TIME OF BRILLIANT TECHNOLOGIES (2014); MARTIN FORD, RISE OF THE ROBOTS: TECHNOLOGY AND THE THREAT OF A JOBLESS FUTURE (2015); JERRY KAPLAN, HUMANS NEED NOT APPLY: A GUIDE TO WEALTH AND WORK IN THE AGE OF ARTIFICIAL INTELLIGENCE (2015); ANDREW STERN & LEE KRAVITZ, RAISING THE FLOOR: HOW A UNIVERSAL BASIC INCOME CAN RENEW OUR ECONOMY AND REBUILD THE AMERICAN DREAM (2016).

ever-wider range of tasks.<sup>4</sup> Putting aside the more fantastical predictions about artificial intelligence (AI) dominating or even devouring its human creators,<sup>5</sup> the prospects for job destruction are eye-opening. Robotic and digital production of goods and services, coupled with advances in AI and machine learning, is poised to take over both routine or repetitive tasks and some more advanced tasks. In one much-cited reckoning, nearly half of the jobs in the current economy are at risk.<sup>6</sup> Although some new jobs are readily foreseeable—especially skilled jobs working with technology—no large new sectors or industries yet visible on the horizon appear likely to absorb the multitudes of human workers who might be displaced. Within this camp, predictions range from a tsunami of job losses to a more manageable rising tide.

For other observers, the real threat from automation is not a net loss of jobs but growing polarization of the labor market.<sup>7</sup> These observers note that automation generates large productivity gains and profits for some, while destroying many decent midlevel jobs. They predict a growing economic chasm between those who create or own the new technology, or whose high-end skills are complemented by that technology, and most workers who are stuck competing for the less-skilled but still human jobs that remain. In this scenario, labor shortages in some skilled-job categories will coexist with labor surpluses and downward wage pressure outside those categories.

The prospect of large net job losses and sharper income polarization has generated new interest in some old ideas, such as a universal basic income (UBI),<sup>8</sup>

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4. See, e.g., BRYNJOLFSSON & MCAFEE, RACE AGAINST THE MACHINE, *supra* note 3; FORD, *supra* note 3; STERN & KRAVITZ, *supra* note 3.

5. One such example is the “grey goo” scenario, in which self-replicating nanorobots rapidly consume all organic matter on Earth. See K. ERIC DREXLER, ENGINES OF CREATION 172-73 (1986).

6. Carl Benedikt Frey & Michael A. Osborne, *The Future of Employment: How Susceptible Are Jobs to Computerisation?* 44 (Oxford Martin Sch., Working Paper, 2013), [https://www.oxfordmartin.ox.ac.uk/downloads/academic/The\\_Future\\_of\\_Employment.pdf](https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf) [<https://perma.cc/S6F6-ZSMP>]. On competing estimates of automatability, see *infra* Section I.B.

7. See Laura Tyson & Michael Spence, *Exploring the Effects of Technology on Income and Wealth Inequality*, in AFTER PIKETTY: THE AGENDA FOR ECONOMICS AND INEQUALITY 170, 172-73 (Heather Boushey, J. Bradford DeLong & Marshall Steinbaum eds., 2017); Richard B. Freeman, *Who Owns the Robots Rules the World*, IZA WORLD LAB. 1, 9 (2015), <https://wol.iza.org/uploads/articles/5/pdfs/who-owns-the-robots-rules-the-world.pdf> [<https://perma.cc/V8R9-7PRX>]; see also TYLER COWEN, AVERAGE IS OVER: POWERING AMERICA BEYOND THE AGE OF THE GREAT STAGNATION 37-38 (2013). Economists who do see a new threat from automation tend to predict a greater impact on wages than on employment. See Freeman, *supra*, at 4.

8. Among proponents, see GUY STANDING, BASIC INCOME: A GUIDE FOR THE OPEN-MINDED (2017); STERN & KRAVITZ, *supra* note 3; PHILIPPE VAN PARIJS & YANNICK VANDERBORGH, *supra* note 3.

reduction of maximum working hours,<sup>9</sup> and public investments in job creation.<sup>10</sup> Before taking up responses to feared job losses, however, we must turn to the other side in the debate over the impact of automation on jobs – that is, those who discount the claim that “this time is different,” and would predict the future of automation from its past.

For many economists, the current wave of automation anxiety amounts to misguided scaremongering by modern-day Luddites.<sup>11</sup> After all, they point out, the prediction that automation will supplant human labor on a massive scale has recurred in both utopian and dystopian flavors throughout the history of indus-

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BASIC INCOME: A RADICAL PROPOSAL FOR A FREE SOCIETY AND A SANE ECONOMY (2017); and Erik Olin Wright, *Basic Income, Stakeholder Grants, and Class Analysis*, 32 POL. & SOC'Y 79 (2004). The idea has found support on the right as well as the left. See, e.g., MILTON FRIEDMAN, *CAPITALISM AND FREEDOM* 191-95 (1962) (proposing a universal minimum income in the form of a negative income tax). Indeed, the idea can be traced back to the sixteenth century and Thomas More's *Utopia*. See *History of Basic Income*, BASIC INCOME EARTH NETWORK, <http://basicincome.org/basic-income/history> [<https://perma.cc/B4TK-CHQK>]. For critics of the UBI, see, for example, Daniel Sage & Patrick Diamond, *Europe's New Social Reality: The Case Against Universal Basic Income*, POL'Y NETWORK (Feb. 16, 2017), <http://www.policy-network.net/publications/6190/Europes-New-Social-Reality-the-Case-Against-Universal-Basic-Income> [<https://perma.cc/PKB9-JCRR>]. For a recent compilation of views, pro and con, see PHILIPPE VAN PARIJS, *BASIC INCOME AND THE LEFT: A EUROPEAN DEBATE* (2018).

9. See BENJAMIN HUNNICUTT, *FREE TIME: THE FORGOTTEN AMERICAN DREAM* (2013); Matthew Dimick, *Better Than Basic Income? Liberty, Equality, and the Regulation of Working Time*, 50 IND. L. REV. 473 (2017). I address proposals to reduce working hours briefly below, see *infra* Section I.D, and plan to return to the topic in future work.
10. See *THE JOB GUARANTEE: TOWARD TRUE FULL EMPLOYMENT* (Michael J. Murray & Mathew Forstater eds., 2013). For recent calls among American left-liberals for a government-backed jobs guarantee, see, for example, Sean McElwee, Colin McAuliffe & Jon Green, *Why Democrats Should Embrace a Federal Jobs Guarantee*, NATION (Mar. 20, 2018), <https://www.thenation.com/article/why-democrats-should-embrace-a-federal-jobs-guarantee> [<https://perma.cc/PM9D-FWS3>]; Robert E. Rubin, Opinion, *Why the U.S. Needs a Federal Jobs Program, Not Payouts*, N.Y. TIMES (Nov. 8, 2017), <https://www.nytimes.com/2017/11/08/opinion/federal-jobs-program-payouts.html> [<https://perma.cc/VKF8-XTXK>]; Mark Paul et al., *The Federal Job Guarantee – A Policy to Achieve Permanent Full Employment*, CTR. ON BUDGET & POL'Y PRIORITIES (Mar. 9, 2018), <https://www.cbpp.org/research/full-employment/the-federal-job-guarantee-a-policy-to-achieve-permanent-full-employment> [<https://perma.cc/TJN9-QJFJ>]; and Neera Tanden et al., *Toward a Marshall Plan for America: Rebuilding Our Towns, Cities, and the Middle Class*, CTR. FOR AM. PROGRESS (May 16, 2017), <https://www.americanprogress.org/issues/economy/reports/2017/05/16/432499/toward-marshall-plan-america> [<https://perma.cc/J8CS-Q4HM>].
11. See, e.g., Ben Miller & Robert D. Atkinson, *Are Robots Taking Our Jobs, or Making Them?*, INFO. TECH. & INNOVATION FOUND. 1 (Sept. 2013), <http://www2.itif.org/2013-are-robots-taking-jobs.pdf> [<https://perma.cc/XP76-QWXF>].

trialization.<sup>12</sup> Futurists of the past have predicted that mass automation will usher in an era of human liberation from toil, or that it will immiserate all but the fortunate few who own or create the machines.<sup>13</sup> Time and again, however, the economy has defied such predictions. For centuries, automation has been destroying some jobs while creating other jobs—usually better paid and less grueling—and driving economic growth and prosperity. In short, the history of automation’s impact on the labor market has been one of “creative destruction,” a mantra to which many economists adhere today.<sup>14</sup>

The debate over automation and jobs rages within and between the fields of economics and information technology.<sup>15</sup> Among technology experts canvassed in 2014, nearly half said they believed that “networked, automated, [AI] applications and robotic devices [will] have displaced more jobs than they have created by 2025.”<sup>16</sup> By contrast, a 2014 survey of academic economists found wide agreement that “[a]dvancing automation has not historically reduced employ-

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12. For two famous examples, see KARL MARX, *CAPITAL: A CRITIQUE OF POLITICAL ECONOMY* (Ben Fowkes trans., Penguin Books 1976) (1867), which argued that automation yielded both alienation and immiseration on the one hand and the potential for human liberation on the other; and John Maynard Keynes, *Economic Possibilities for Our Grandchildren*, in *ESSAYS IN PERSUASION* (1931), which predicted that productivity in the United States and Europe would improve so dramatically in one hundred years that people would work only three hours per day.
  13. See Ryan Avent, Opinion, *A World Without Work Is Coming—It Could Be Utopia or It Could Be Hell*, *GUARDIAN* (Sept. 19, 2016, 1:00 PM), <https://www.theguardian.com/commentisfree/2016/sep/19/world-without-work-utopia-hell-human-labour-obsolete> [https://perma.cc/4XTP-XM4Y]; Ross Douthat, Opinion, *A World Without Work*, *N.Y. TIMES* (Feb. 23, 2013), <http://www.nytimes.com/2013/02/24/opinion/sunday/douthat-a-world-without-work.html> [https://perma.cc/8ZPA-CXSQ]; Bernard Marr, *The 4th Industrial Revolution and a Jobless Future—A Good Thing?*, *FORBES* (Mar. 3, 2017, 2:05 AM), <https://www.forbes.com/sites/bernardmarr/2017/03/03/the-4th-industrial-revolution-and-a-jobless-future-a-good-thing> [https://perma.cc/UT6T-36LV]; Derek Thompson, *A World Without Work*, *ATLANTIC* (July/Aug. 2015), <https://www.theatlantic.com/magazine/archive/2015/07/world-without-work/395294> [https://perma.cc/M75C-H7U2].
  14. See David H. Autor, *Why Are There Still So Many Jobs? The History and Future of Workplace Automation*, 29 *J. ECON. PERSP.* 3, 9-10 (2015). The concept of “creative destruction” within capitalism was named and elucidated by Joseph Schumpeter. See JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM AND DEMOCRACY* 81-86 (3d ed. 1975).
  15. For a review of recent economic scholarship on automation, see *infra* notes 44-59.
  16. Aaron Smith & Janna Anderson, *AI, Robotics, and the Future of Jobs*, *PEW RES. CTR.* 5 (Aug. 6, 2014), <http://www.pewinternet.org/2014/08/06/future-of-jobs> [https://perma.cc/PG4R-LHYK].

ment in the United States”<sup>17</sup> (which sidesteps the claim that “this time is different”). Yet one-third of them agreed that automation was “a central reason why median wages have been stagnant in the US over the past decade, despite rising productivity.”<sup>18</sup>

The debate over the impact of automation also divides economists on the left who are chiefly concerned with the well-being of ordinary workers. For example, economists at the left-leaning Economic Policy Institute<sup>19</sup> reject both the job-killing story and the income-polarization story about automation.<sup>20</sup> For them, the very real problem of wage stagnation stems not from technology but from globalization of trade and finance, declining union strength, and lagging enforcement of labor standards. By contrast, labor-friendly Harvard economist Richard Freeman believes that this time really is different, and that technology has already contributed to a historic shift in the distribution of income over the past two decades “toward robots/capital and against labor.”<sup>21</sup> Freeman expects technology to affect wages more than employment: “The ‘iron law’ of the effect of robots on pay is that increased substitutability with human skills puts downward pressure on the wages of persons doing competing tasks – a pressure likely to grow in the future as technology improves the competence of robots and lowers their cost.”<sup>22</sup>

This vigorous debate is not likely to be resolved within the legal academy; yet legal scholars, and especially scholars of labor and employment law, cannot afford to ignore it. In the United States, as in many developed countries, the employment relationship has long served as the platform for delivering a plethora of rights, protections, and benefits that enable people to live a decent life.

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17. *Robots*, CHI. BOOTH: IGM F. (Feb. 25, 2014, 1:55 PM), <http://www.igmchicago.org/surveys/robots> [<https://perma.cc/QY4Y-MPUY>].

18. *Id.*

19. The Economic Policy Institute is a “nonprofit, nonpartisan think tank created in 1986 to include the needs of low- and middle-income workers in economic policy discussions.” *About*, ECON. POL’Y INST., <https://www.epi.org/about> [<https://perma.cc/84XY-D5JS>].

20. See Lawrence Mishel & Josh Bivens, *The Zombie Robot Argument Lurches On: There Is No Evidence that Automation Leads to Joblessness or Inequality*, ECON. POL’Y INST. (May 24, 2017), <http://www.epi.org/publication/the-zombie-robot-argument-lurches-on-there-is-no-evidence-that-automation-leads-to-joblessness-or-inequality> [<https://perma.cc/MP8X-TMBQ>]; see also John Schmitt et al., *Don’t Blame the Robots: Assessing the Job Polarization Explanation of Growing Wage Inequality*, ECON. POL’Y INST. (Nov. 19, 2013), <http://www.epi.org/publication/technology-inequality-dont-blame-the-robots> [<https://perma.cc/ZUG9-7UWB>].

21. Freeman, *supra* note 7, at 4.

22. *Id.*

Automation-related job losses threaten to further destabilize that already-precarious platform. It is thus imperative that we try to understand how automation will affect the law of work—and how the law of work will affect the future trajectory of automation. This Article aims to advance that understanding and to propose an optimal strategy for the law of work in the face of uncertainty about automation’s impact on the labor market.

An optimal response to automation must take into account three other labor-market problems that are far less controversial among those who focus on workers’ well-being: rising income inequality, the erosion of labor standards for low-wage workers, and the role of “fissuring”—the substitution of outside contractors for employees—in both trends.<sup>23</sup> If we can find ways to meet the still-contested challenge of automation that will also address—or at least not exacerbate—the more certain challenges of fissuring, inequality, and deteriorating labor standards, then we will be on solid ground.

It is crucial to recognize at the outset that the existing law of work adds to the costs of employing human labor, and that new and improved worker benefits and higher labor standards would further increase those costs. As such, the law of work contributes both to firms’ flight from direct employment through fissuring and to their substitution of machines for human workers. In response to fissuring, many scholars and advocates seek to shore up what I call the “fortress of employment” by extending firms’ legal responsibility for workers in their supply chain, in most cases by expanding the definitions of “employee” and “employer.”<sup>24</sup> But automation confounds that strategy by offering firms a more complete exit from the costs, risks, and hassles associated with human labor. Extending firms’ responsibility for workers in their supply chain not only fails to meet the challenge of automation; it also modestly exacerbates that challenge by raising the cost of human labor versus machines. As technology becomes an increasingly capable and cost-effective competitor to human workers, it may doom the prevailing strategy of shoring up the fortress of employment.

In response to these concerns, this Article explores ways to reduce the legal tax on employment while protecting the essential rights and entitlements of those who work for a living. The initial move is to separate the question of what workers’ entitlements should be from the question of where their economic burdens should fall. Some worker entitlements (a term I use to include rights, protections, and benefits of various kinds) are inextricable from employer duties;

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23. “Fissuring” is the term David Weil deployed to capture the strong trend of firms outsourcing labor needs to outside contractors. See DAVID WEIL, *THE FISSURED WORKPLACE: WHY WORK BECAME SO BAD FOR SO MANY AND WHAT CAN BE DONE TO IMPROVE IT* 7-27 (2017). The trend is described below, *infra* Section II.A.

24. See *infra* text accompanying notes 176-178.

their cost must as a practical matter, or should as a deterrence matter, be borne by employers. But entitlements that are not *productively* linked to employment in these ways tend to create *counterproductive* incentives to offload workers. We should aim to shift the burdens associated with the latter set of entitlements away from employment and off of employers' balance sheets.<sup>25</sup> That would modestly reduce firms' incentive to replace employees with contractors and human workers with machines. It would also extend some essential entitlements to those left outside the fortress of employment and allow for the pursuit of redistribution through alternative funding mechanisms—a more-than-incidental virtue in our increasingly unequal economy.

I begin in Part I with a closer look at job destruction and job creation through automation, and at the equally contested question of whether we should welcome or worry about the prospect of net job losses. In Part II, I delve into firms' decisions regarding both automation and fissuring, and discuss why the challenge of automation confounds prevailing legal and policy responses to the challenges of fissuring, declining labor standards, and inequality. Finally, Part III charts a path forward in the face of factual uncertainty and multiple objectives, and it considers critiques of, and alternatives to, that proposed path.

#### I. “THIS TIME IS DIFFERENT”: THE NEXT WAVE OF AUTOMATION AND WHY WE SHOULD WORRY

The history of automation is the history of economic development. At least since the onset of the Industrial Revolution, machines have been replacing human labor, beginning with the production of food, textiles, and clothing—tasks which had occupied the bulk of humanity for millennia.<sup>26</sup> Machines and the newly collectivized modes of production they enabled supplanted most artisanal production while vastly increasing efficiency, driving down the cost of basic consumer goods and freeing up human labor for new industries that catered to the evolving appetites of a more prosperous population.<sup>27</sup> In particular, major tech-

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25. A kindred strategy is sketched near the end of Brishen Rogers, *Employment Rights in the Platform Economy: Getting Back to Basics*, 10 HARV. L. & POL'Y REV. 479, 517-18 (2016), as an alternative to privatization of worker benefits. Rogers touts some of the same virtues of socializing employment-based benefits: promoting economic equality, reducing employer domination, and expanding access to benefits. *See id.*

26. *See* ROBERT J. GORDON, *THE RISE AND FALL OF AMERICAN GROWTH: THE U.S. STANDARD OF LIVING SINCE THE CIVIL WAR* 595 (2016).

27. *See id.* at 62-93.

nological innovations from the mid-1800s to the mid-1900s brought vast improvements in most people's lives and standards of living.<sup>28</sup> Since the mid-twentieth century, technology has continued to destroy some jobs, to create others, to reduce misery and drudgery on and off the job, and to generate economic growth and prosperity.<sup>29</sup>

So what's not to like about automation going forward? The answer, foreshadowed above, lies in the prospect of growing inequality and net job losses. First, the economic gains that labor-replacing technology has helped to generate, though widely shared during the middle of the twentieth century, have been sharply skewed toward the top of the income scale since the 1970s.<sup>30</sup> Automation has likely contributed to that skewed income distribution and will likely exacerbate it in the future.<sup>31</sup> Second, because emerging technologies are able to replicate or surpass a wider swath of human capabilities, there is more reason this time around to expect job destruction to outpace job creation. But debate persists over both whether net job destruction is likely and whether that would be good or bad. After all, less work might sound more like a blessing than a curse to many hard-working people, now and throughout history. This Part will address both debates, not with an eye to settling them but in order to frame the analysis that follows.

#### A. *What Is New About the New Wave of Automating Technologies?*

Those who predict that the coming wave of automation will defy historical patterns in its impact on jobs point to the distinctive nature of the emerging technology. Advances in both hard and soft forms of technology—robots and algorithms, for example—are replicating a wider range of human capabilities and weaving together those distinct capabilities more seamlessly than ever before. The very terms “artificial intelligence” and “machine learning” hint at what is new: technology is acquiring and refining cognitive and sensory capabilities

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28. *See id.* at 94-95.

29. *See id.* at 566-604.

30. *See generally* THOMAS PIKETTY, CAPITAL IN THE TWENTY-FIRST CENTURY (Arthur Goldhammer trans., 2014) (chronicling increasing levels of economic inequality in countries such as the United States and the United Kingdom).

31. *See Freeman, supra* note 7, at 4-5; McKinsey Glob. Inst., *A Future that Works: Automation, Employment, and Productivity*, MCKINSEY & COMPANY 109 (Jan. 2017) [hereinafter MGI, *A Future that Works*], [https://www.mckinsey.com/~media/McKinsey/Featured%20Insights/Digital%20Disruption/Harnessing%20automation%20for%20a%20future%20that%20works/MGI-A-future-that-works\\_Full-report.ashx](https://www.mckinsey.com/~media/McKinsey/Featured%20Insights/Digital%20Disruption/Harnessing%20automation%20for%20a%20future%20that%20works/MGI-A-future-that-works_Full-report.ashx) [https://perma.cc/X9BX-9RWQ].

that had long been thought to be uniquely human, and is outpacing humans at increasingly complex tasks.

A few arresting examples underscore the point. Consider the lip-reading prowess of a program developed by Google and Oxford University using “deep learning” technology. In 2016, the program far outperformed an expert human lip reader, reading four times as many clips without error.<sup>32</sup> More familiar is the victory of computers over human champions at the game of *Jeopardy!*,<sup>33</sup> as well as two notoriously complex board games: chess (in 1996)<sup>34</sup> and the more intricate Go (in 2016).<sup>35</sup> The Go saga suggests what is revolutionary about AI and machine learning: Google’s AlphaGo program, which beat the reigning human champion in 2016, worked by analyzing a vast database of actual human games of Go. Its successor, AlphaGo Zero, learned the game and chose its moves based solely on the rules and logic of the game itself. Just one year after AlphaGo’s triumph, “AlphaGo Zero . . . trounced the older program 100 games to zero, [while running] on just four processors, compared with the older AI’s 48.”<sup>36</sup>

Another example can be found in the field of natural-language translation. In July 2016, Jason Furman, then Chairman of the White House Council of Economic Advisors, used translation as a prime example of humans’ enduring advantages over computers: “AI today can do decent translations but cannot come close to what a human can do with his or her knowledge of both languages, social and cultural context, and sense of the author’s argument, emotional states, and intentions.”<sup>37</sup> Just four months later, Google launched a new version of Google

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32. MGI, *A Future that Works*, *supra* note 31, at 26.

33. See John Markoff, *Computer Wins on ‘Jeopardy!’: Trivial, It’s Not*, N.Y. TIMES (Feb. 16, 2011), <http://www.nytimes.com/2011/02/17/science/17jeopardy-watson.html> [https://perma.cc/AB53-DV7V].

34. See Bruce Weber, *In Upset, Computer Beats Chess Champion*, N.Y. TIMES (Feb. 11, 1996), <https://www.nytimes.com/1996/02/11/us/in-upset-computer-beats-chess-champion.html> [https://perma.cc/28SW-XY72].

35. See Choe Sang-Hun, *Google’s Computer Program Beats Lee Se-dol in Go Tournament*, N.Y. TIMES (Mar. 15, 2016), <https://www.nytimes.com/2016/03/16/world/asia/korea-alphago-vs-lee-sedol-go.html> [https://perma.cc/FMV5-USXK].

36. See Matthew Hutson, *This Computer Program Can Beat Humans at Go – With No Human Instruction*, SCIENCE (Oct. 18, 2017, 1:00 PM), <https://www.sciencemag.org/news/2017/10/computer-program-can-beat-humans-go-no-human-instruction> [https://perma.cc/LCA9-M36M].

37. Jason Furman, Chairman, Council of Econ. Advisors, Address at New York University: Is This Time Different? The Opportunities and Challenges of Artificial Intelligence 4 (July 7, 2016), [https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160707\\_cca\\_ai\\_furman.pdf](https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160707_cca_ai_furman.pdf) [https://perma.cc/VT7V-WQ8X].

Translate that exploited recent advances in machine learning to dramatically improve results.<sup>38</sup> Google Translate suddenly became a much closer rival to human translators – except that the former is free and instantaneous.

Of course, not many jobs require lip reading, strategic gaming, or natural-language translation. But given the complex nature of these human skills, the examples illustrate how far technology has come in recent years and how fast it is advancing. The examples also suggest the potential for replacing human labor. Once these systems are developed, they can be replicated and deployed innumerable times at little or no marginal cost.

Then there are the robots, which are making big inroads in manufacturing and logistics. Just around the corner are so-called dark factories with so few human workers that “you could switch the lights off and leave the place to the machines.”<sup>39</sup> The Kiva robots that help to automate the “picking and packing” process at some large Amazon warehouses have sped up operations while cutting costs by about 20%.<sup>40</sup> Their human coworkers are ambivalent. “While walking the aisles was ‘good cardio,’” reported one Amazon employee, “the new system lets him get through more orders.”<sup>41</sup> “We don’t socialize as much,” he said, “but it’s more efficient.”<sup>42</sup>

Aside from the distressing sacrifice of sociability, the point about efficiency can be generalized. Like the Kiva robots, technology both replaces human labor

38. See Sage Lazzaro, *Google Is Using Artificial Intelligence to Make a Huge Change to Its Translate Tool*, N.Y. OBSERVER (Mar. 6, 2017, 3:04 PM), <https://observer.com/2017/03/google-translate-neural-update> [<https://perma.cc/944Z-QF6U>]; Gideon Lewis-Kraus, *The Great A.I. Awakening*, N.Y. TIMES MAG. (Dec. 14, 2016), <https://www.nytimes.com/2016/12/14/magazine/the-great-ai-awakening.html> [<https://perma.cc/4KR5-6EZQ>].

39. Will Knight, *China Is Building a Robot Army of Model Workers*, MIT TECH. REV. (Apr. 26, 2016), <https://www.technologyreview.com/s/601215/china-is-building-a-robot-army-of-model-workers> [<https://perma.cc/8EQV-LNN7>].

40. Eugene Kim, *Amazon’s \$775 Million Deal for Robotics Company Kiva Is Starting to Look Really Smart*, BUS. INSIDER (June 15, 2016, 4:02 PM), <http://www.businessinsider.com/kiva-robots-save-money-for-amazon-2016-6> [<https://perma.cc/S2NY-7VS5>]; see also *10 Most Amazing Robots in the World*, VENTUREPACT (Nov. 11, 2016), <http://blog.venturepact.com/10-most-amazing-robots-in-the-world> [<https://perma.cc/AYZ6-YKDG>] (“The Kiva robot is about 16 inches tall, weighing around 320 pounds, square-shaped, yellow machine that runs on wheels. They can run at a steady 5 mph and haul packages weighing up to 700 pounds. Kiva robots pick up shelves of products from the warehouse floor and bring them to a human employee who picks items and then packs them for shipping. While navigating, they avoid running into each other by using sensors that talk to one another.”).

41. Donna Tam, *Meet Amazon’s Busiest Employee – The Kiva Robot*, CNET (Nov. 30, 2014, 9:01 PM PST), <https://www.cnet.com/news/meet-amazons-busiest-employee-the-kiva-robot> [<https://perma.cc/FSY7-N9NB>].

42. *Id.*

and complements human labor, or makes it more productive.<sup>43</sup> The latter function is part of how automation can create jobs. Both sides of the equation have drawn empirical scrutiny and generated debate, as discussed in the next two Sections.

### *B. Estimating Automatability and the Pace of Job Destruction*

A recent spate of studies seeks to measure the extent of “automatability” of existing jobs.<sup>44</sup> Estimates vary from less than 10% to nearly half of jobs in the United States.<sup>45</sup> Here, I rely chiefly on a 2017 report by a team of researchers at the McKinsey Global Institute (MGI), which analyzed what current technology can do and what humans are currently paid to do, both at a fairly granular level, in order to determine how much human work in today’s economy can be automated.<sup>46</sup> The team looked at several major economies, but my focus here is on the U.S. results. The MGI study captures both the dramatic potential for job loss and the uncertainty of its time frame and extent.<sup>47</sup>

On the capabilities of current technology, the MGI researchers identified eighteen distinct human capabilities in five broad categories—sensory perception, cognitive skills, natural-language processing, social and emotional skills,

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43. For an attempt to model both dimensions of automation, see Daron Acemoglu & Pascual Restrepo, *Artificial Intelligence, Automation and Work* (Nat’l Bureau of Econ. Research, Working Paper No. 24196, 2018), which discusses how automation creates both a “displacement effect” and a “productivity effect.”
44. Compare, e.g., Frey & Osborne, *supra* note 6, at 44 (estimating that nearly half of all jobs are at “high risk” of automation), with Melanie Arntz et al., *The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis 4* (OECD Soc., Emp. & Migration, Working Paper No. 189, 2016), [https://www.oecd-ilibrary.org/social-issues-migration-health/the-risk-of-automation-for-jobs-in-oecd-countries\\_5jlz9h56dvq7-en](https://www.oecd-ilibrary.org/social-issues-migration-health/the-risk-of-automation-for-jobs-in-oecd-countries_5jlz9h56dvq7-en) [<https://perma.cc/ZJU7-UGUD>] (estimating that, on average, 9% of jobs in Organisation for Economic Co-Operation and Development (OECD) countries are at risk).
45. See *supra* note 44. The OECD study above criticizes Frey & Osborne, *supra* note 6, for overestimating automatability by failing to disaggregate occupations. However, the OECD study in turn appears to underestimate automatability by focusing on fully automatable jobs, and by discounting firms’ ability (over time) to consolidate nonautomatable tasks into a smaller number of human jobs.
46. For those who might be suspicious of a study conducted by the research arm of a major business-consulting firm, it is worth noting that its headline estimate of automatability is virtually identical to the oft-cited Frey & Osborne study, *supra* note 6. I use the MGI study here because it breaks down the data and analyzes automation decisions in especially useful ways, and because MGI followed up that study with a similarly useful companion study of potential job creation, see *infra* Section I.C.
47. See MGI, *A Future that Works*, *supra* note 31, at 1-3.

and physical skills—and assessed how current technology stacks up against human performance on these dimensions.<sup>48</sup> Not surprisingly, humans still outperform technology at sensing others' emotional state and responding in emotionally appropriate ways (although technology is making headway).<sup>49</sup> On the other hand, technology already outperforms most humans in many physical and cognitive skills.<sup>50</sup> On some tasks like data processing, computers obviously leave even the most skilled human being in the dust on both speed and accuracy.<sup>51</sup>

While it is clear that machines have gained ground on humans across a wide range of skills and capabilities, how much actual human work can be automated? The MGI researchers broke down human work activities into seven large categories and analyzed what percentage of the time humans spend on each of those activities is capable of being automated “by adapting currently demonstrated technology.”<sup>52</sup> Least automatable are management and development of people (9%); application of expertise to decision making, planning, and creative tasks (18%); interacting with stakeholders like customers, suppliers, or the public (20%); and unpredictable physical activities (26%). Much more automatable are collection of data (64%); processing of data (69%); and predictable physical activities (81%).<sup>53</sup>

Because the mix of workers' activities varies widely by sector and by occupation, so does automatability. The MGI researchers estimate that, at one end of the spectrum, work in the accommodation and food services sector is 73% automatable; that is, 73% of the time for which humans are now paid in that sector is spent in activities that could be automated with existing technology.<sup>54</sup> By comparison, work in the health care and social assistance sector is just 36% automatable.<sup>55</sup> (Readers employed in “educational services” will be happy to learn that it is the least automatable large sector at 27%.<sup>56</sup>) At the finer level of occupations,

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48. *See id.* at 35 exhibit 3.

49. *See id.* at 29, 35 exhibit 3, 72.

50. *See id.* at 1, 3, 10, 24 exhibit 1, 26, 35 exhibit 3. The researchers conclude that machines can match or surpass several human capabilities, including “information retrieval, gross motor skills, and optimization and planning.” *Id.* at 10.

51. *Id.* at 6 exhibit E3, 7 exhibit E4.

52. *Id.* at 42 exhibit 8.

53. *Id.* Not all activities within a category are equally automatable. For example, the predictable physical activities involved in “accommodation and food services” are over 90% automatable, while those involved in “health care and social assistance” are only 50 to 60% automatable. *Id.* at 44 exhibit 9.

54. *Id.* at 44 exhibit 9.

55. *Id.*

56. *Id.*

the work of both sewing machine operators and graders of agricultural products is nearly 100% automatable, while that of psychiatrists is between 0 and 10% automatable.<sup>57</sup> It is not just professional jobs that are relatively insulated from automation. Some low-wage jobs are hard to automate because they involve unpredictable physical tasks (janitors, landscape workers, and domestic workers, for example) or social and emotional skills (childcare or eldercare workers, for example),<sup>58</sup> but pay remains low, primarily because those basic skills are far from scarce in the labor force.

Putting these data sets together, the MGI researchers estimate that 46% of all of the time for which people are now paid in the U.S. economy is spent in activities that could be automated based on “currently demonstrated technology.”<sup>59</sup> That estimate is especially eye-opening because it does not take into account the impact of future innovations, including technology that exists today but has not yet been adapted to perform work in today’s economy.

A focus on the technology itself, however, might lead one to overestimate the speed or extent of job destruction. Technical automatability is only the threshold factor in firms’ business decisions about automation. For one thing, it is no easy matter to disaggregate automatable tasks from those that humans still do better. As David Autor writes, “many of the tasks currently bundled into . . . jobs cannot readily be unbundled . . . without a substantial drop in quality.”<sup>60</sup> Consider, for example, the automation of customer service, which reduces costs but may annoy and alienate customers.<sup>61</sup> It will take time and managerial skill to reconfigure jobs and organizations. It will also require some highly skilled workers to implement and work with the new technology, and demand for those workers currently outstrips supply.<sup>62</sup>

In view of these challenges and uncertainties, the MGI study is circumspect about how long it is likely to take to move from technical automatability to large-scale automation, with estimates ranging from two to six decades. The process is likely to be faster for software innovations (which are easier and cheaper to

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57. *Id.* at 5 exhibit E2.

58. *Id.* at 35, 45, 81 exhibit 20.

59. *Id.* at 32 (emphasis added). This estimate is nearly identical to that of the widely cited Oxford study. See Frey & Osborne, *supra* note 6, at 38 (estimating 47% automatability).

60. Autor, *supra* note 14, at 27.

61. See Callan Wienburg, *How to Stop Customer Service Automation from Annoying Your Customers*, SOLIDITECH (May 13, 2016), <http://blog.soliditech.com/blog/how-to-stop-customer-service-automation-from-annoying-your-customers> [<https://perma.cc/P2TL-HRRV>].

62. MGI, *A Future that Works*, *supra* note 31, at 114-15.

implement) than for robots, faster for higher-wage but automatable jobs, and faster in higher-wage countries like the United States.<sup>63</sup>

The MGI study identifies one large and pervasive factor in managers' decisions about automation: labor costs. If an existing technology – a robot or a software solution – is capable of performing certain tasks for which a firm currently employs humans, then the firm must weigh the costs of acquiring, operating, and maintaining the technology, and of reorganizing operations accordingly, against the potential gains.<sup>64</sup> Chief among those gains is labor cost savings: how many hours of human labor could be saved, and what are the direct and indirect costs associated with that labor? Other less-quantifiable gains in safety, reliability, and quality, for example, may be even greater in some cases. But labor costs are obviously crucial, and will inevitably affect the pace of automation. As a result, the most automatable jobs may not be the first to disappear. While jobs in “accommodations and food services” are among the most automatable in the U.S. economy (73%), low wages in that sector tend to slow the process of automation.<sup>65</sup> I will return below to the link between labor costs and automation decisions.

Strikingly, the MGI report concludes that automation is currently proceeding *too slowly* to garner all of the gains that it could generate.<sup>66</sup> Firms are failing to capture the efficiency and productivity gains that are already possible with existing technology.<sup>67</sup> And societies are missing out on the gains that are necessary, especially in aging societies, to drive economic growth.<sup>68</sup> But even if faster automation can generate greater gains, it might also generate greater losses in the form of displaced workers. That depends on the other side of the equation – new job creation – where the debate about automation and jobs is least empirically grounded.

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63. *Id.* at 10, 12, 40, 31, 53, 76-77, 80, 83, 95-96.

64. *Id.* at 67-70.

65. *Id.* at 7 exhibit E4, 68.

66. *Id.* at 109-16; see also Furman, *supra* note 37, at 4 (“We have had substantial innovation in robotics, AI, and other areas in the last decade. But we will need a much faster pace of innovation in these areas to really move the dial on productivity growth going forward.”); Matthew Yglesias, *The Automation Myth*, VOX (July 27, 2015, 7:00 AM), <http://www.vox.com/2015/7/27/9038829/automation-myth> [<https://perma.cc/Y7R6-BWTR>] (arguing that the pace of automation must accelerate to meet society’s basic needs).

67. And the MGI researchers’ counterparts on the consulting side of McKinsey are urging firms to better “capture the opportunity from automation” with their help. See *Robotics & Automation*, MCKINSEY & COMPANY, <https://www.mckinsey.com/business-functions/digital-mckinsey/how-we-help-clients/robotics-and-automation> [<https://perma.cc/VW3V-PTLJ>].

68. See MGI, *A Future that Works*, *supra* note 31, at 112-13.

*C. Estimating New Job Creation Through Labor Complementarity, Consumer Surplus, and New Products and Services*

Like many economists, the MGI researchers tend toward optimism about the economic impact of technology, and toward a belief that historical patterns of creative destruction through innovation will continue. As of early 2017, their prediction that automation would spur economic growth in the United States and across the globe was based on an explicit assumption that “human labor displaced by automation would rejoin the workforce and be as productive as it was in 2014, that is, new demand for labor will be created.”<sup>69</sup> That looks like a colossal leap of faith when compared with the meticulous and sophisticated analysis behind the estimates of likely job losses. But a more recent MGI report seeks to identify sources of new or increased demand for labor that might absorb workers displaced by automation, and to quantify new job creation.<sup>70</sup>

The new MGI study parallels recent efforts by leading economists to model the impact of automation on both job destruction and job creation and to come to grips analytically and empirically with the contingencies affecting the economy’s absorption of displaced workers into new jobs.<sup>71</sup> Daron Acemoglu and Pascual Restrepo conclude in a recent paper that, contrary to “accounts emphasizing that technology always increases the demand for labor and benefits workers,” some technological innovations might “simultaneously reduce wages and employment.”<sup>72</sup> Examining empirical trends, David Autor and Anna Salomons

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69. *Id.* at 90. Indeed, it is “vital that there be new demand for labor displaced by automation.” *Id.* On automation’s expected contribution to growth, see *id.* at 87-101.

70. McKinsey Glob. Inst., *Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation*, MCKINSEY & COMPANY (Dec. 2017) [hereinafter MGI, *Jobs Lost, Jobs Gained*], <https://www.mckinsey.com/~media/mckinsey/featured%20insights/future%20of%20organizations/what%20the%20future%20of%20work%20will%20mean%20for%20jobs%20skills%20and%20wages/mgi-jobs-lost-jobs-gained-report-december-6-2017.ashx> [https://perma.cc/F8TR-HEJS].

71. See Acemoglu & Restrepo, *supra* note 43.

72. *Id.* at 6, 11. Another recent study by Acemoglu and Restrepo found that investments in robots are associated with localized net job losses. Daron Acemoglu & Pascual Restrepo, *Robots and Jobs: Evidence from US Labor Markets* (Nat’l Bureau of Econ. Research, Working Paper No. 23285, Mar. 2017), <http://www.nber.org/papers/w23285.pdf> [https://perma.cc/LX5E-ZK5A]. For an early reaction, see Thomas Claburn, *Robots Are Killing Jobs After All, Apparently: One Droid Equals 5.6 Workers*, REGISTER (Mar. 28, 2017, 10:22 PM), [https://www.theregister.co.uk/2017/03/28/robots\\_are\\_killing\\_jobs\\_after\\_all](https://www.theregister.co.uk/2017/03/28/robots_are_killing_jobs_after_all) [https://perma.cc/UNY3-SR9N].

find that “automation has become increasingly labor-displacing in recent decades, both at the industry level and in aggregate.”<sup>73</sup> Economists – both modelers and measurers – are thus questioning and testing the historically grounded conventional wisdom on creative destruction.

Automation can create new jobs in several different ways. First and most obviously, there will be new jobs for those who create, implement, maintain, and work with the new technology itself.<sup>74</sup> Second, the productivity gains and cost savings stemming from automation can increase consumer surplus, which in turn can generate new demand for human labor both in existing job categories and in new types of jobs that produce goods and services that do not exist in the current economy.<sup>75</sup> The crucial – and exceptionally difficult – question is how many new jobs we are likely to see from all these sources. Not surprisingly, predictions about job creation are much hazier and harder to quantify than predictions of job losses, which turn on observable features of existing jobs and existing technology.

The MGI researchers’ bottom-line prediction for the United States is that job creation could just about keep pace with job destruction in the coming decades.<sup>76</sup> Yet they hedge this prediction with some qualifications and contingencies that should unsettle any complacency about “creative destruction.” First, they explicitly base their break-even prediction on what they call the “step-up scenario,” which requires major new public and private investments in training and education, human services, infrastructure, and income support.<sup>77</sup> Second, their prediction assumes that the pace of job destruction through automation is at the mean point of the MGI’s large estimated ranges.<sup>78</sup> If the pace of job destruction

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73. David Autor & Anna Salomons, *Is Automation Labor-Displacing? Productivity Growth, Employment, and the Labor Share*, BROOKINGS PAPERS ON ECON. ACTIVITY 8 (Mar. 8, 2018), [https://www.brookings.edu/wp-content/uploads/2018/03/1\\_autorsalomons.pdf](https://www.brookings.edu/wp-content/uploads/2018/03/1_autorsalomons.pdf) [https://perma.cc/4XQ4-5NVA].

74. Cf. Acemoglu & Restrepo, *supra* note 43, at 10 (describing new jobs that could be created to maintain and deploy new AI technologies in health care, design, and education); MGI, *Jobs Lost, Jobs Gained*, *supra* note 70, at 7 (estimating that twenty to fifty million jobs related to developing and deploying new technology could be created by 2030).

75. Regarding other possible sources of new jobs, see Acemoglu & Restrepo, *supra* note 43, at 10, which discusses the possibility that “rapid automation may endogenously generate incentives for firms to introduce new labor-intensive tasks.” The MGI economists suggest that by 2030, “9 percent of the US labor force could be employed in occupations that do not exist today.” MGI, *Jobs Lost, Jobs Gained*, *supra* note 70, at 70.

76. See MGI, *Jobs Lost, Jobs Gained*, *supra* note 70, at 14 (finding that “[e]nough jobs are created in the step-up scenario . . . to offset both automation and the growth in labor force”).

77. *Id.* at 6-8.

78. *Id.* at 6-8, 11.

is faster, then job creation will not keep pace even under the step-up scenario, with its various stimulating and mitigating measures.

Even apart from those two big explicit “ifs,” the MGI estimates seem to depend on some worrisome circularities. The lion’s share of new jobs is supposed to stem from higher consumer incomes and the resulting increase in demand for goods and services that more productive machines will help to generate.<sup>79</sup> But what if income growth is sharply skewed toward the rich, and especially toward owners of capital, rather than being widely distributed through new, decently paid jobs?<sup>80</sup> (That would affect job growth because richer people spend proportionally less of their income on goods and services.<sup>81</sup>) And what if consumer appetites are not inexhaustible but increasingly sated? (The so-called “full closet effect” has the potential to dampen new consumer demand for goods – if not for services and “experiences.”<sup>82</sup>) Finally, what if the new goods and services that people want can themselves be produced largely by robots or algorithms instead of by humans? There are, in short, reasons to doubt that increased consumer income will be the engine of job creation that it has been in the past.<sup>83</sup>

If predictions of new job creation prove too optimistic for any of the reasons suggested above, or if job destruction outpaces current estimates, then many workers displaced from midlevel jobs over the next few decades may find themselves competing for jobs that are hard to automate but require no special human skills or that are not worth automating because wages are so low.

All sides in the debate over automation’s impact on jobs are on the lookout for evidence of that impact on today’s economy. Those who are skeptical that automation is a net job killer point to some key economic statistics.<sup>84</sup> The unemployment rate has fallen to historic lows, and employers in parts of the country

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79. See *id.* at 6.

80. See Freeman, *supra* note 7, at 1, 6-7.

81. See Acemoglu & Restrepo, *supra* note 43, at 33; see also Josh Zumbrun, *How Rich and Poor Spend (and Earn) Their Money*, WALL ST. J. (Apr. 6, 2015, 12:38 PM), <https://blogs.wsj.com/economics/2015/04/06/how-the-rich-and-poor-spend-and-earn-their-money> [https://perma.cc/EE8Y-PE38] (noting that the poor spend a disproportionate share of their income on food and housing, while the rich spend more on entertainment and financial products).

82. See Joanne Kimberlin, ‘Full-Closet Effect’ Puts Damper on Consumer Spending, Retail Consultant Says, KNIGHT RIDDER/TRIB. BUS. NEWS (Feb. 10, 2002), <https://www.highbeam.com/doc/1G1-82735497.html> [https://perma.cc/WCL8-WABK].

83. See Erik Sherman, *Automation Won’t Create New Jobs Like Technology Did in the Past*, FORBES (Dec. 17, 2016), <https://www.forbes.com/sites/eriksherman/2016/12/17/automation-has-created-more-jobs-in-the-past-but-will-it-now> [https://perma.cc/4R3M-RNZF].

84. See Autor, *supra* note 14, at 5-9; Furman, *supra* note 37, at 1 (arguing “that the economic impact of AI will [not] be very different from previous technological advances”).

are encountering labor shortages.<sup>85</sup> Those skeptics also point to sluggish productivity growth in recent years. Stated simply: “If automation were rapidly accelerating, labor productivity and capital investment would also be surging as fewer workers and more technology did the work. But labor productivity and capital investment have actually decelerated in the 2000s.”<sup>86</sup> The coexistence of sluggish productivity growth and highly visible advances in automation technology is puzzling to many observers.<sup>87</sup> It could be that workers are being diverted into less productive jobs in the protean but zero-sum quest for market share, as Tyler Cowen has suggested.<sup>88</sup> Or it could just be that the future impact of automation is still in the future (which is notoriously hard to predict<sup>89</sup>).

On the other hand, one might see harbingers of future job losses in two well-documented historical trends. The first is the long-term decline in labor-force participation—for young and elderly men,<sup>90</sup> and, since the 1950s, for prime working-age men.<sup>91</sup> (Women’s workforce participation has obviously increased

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85. Binyamin Appelbaum, *Lack of Workers, Not Work, Weighs on the Nation’s Economy*, N.Y. TIMES (May 21, 2017), <https://www.nytimes.com/2017/05/21/us/politics/utah-economy-jobs.html> [<https://perma.cc/2T8X-FK7S>].

86. Editorial, *No, Robots Aren’t Killing the American Dream*, N.Y. TIMES (Feb. 20, 2017), <https://www.nytimes.com/2017/02/20/opinion/no-robots-arent-killing-the-american-dream.html> [<https://perma.cc/J36Y-ZGWN>]. The editorial cites data from the Economic Policy Institute. See also Mishel & Bivens, *supra* note 20.

87. As Larry Summers put it, “Any fully-satisfactory synthetic view has to reconcile those two observations. I have not heard them satisfactorily reconciled. This is something we have to figure out.” Larry Summers, Former Dir., Nat’l Econ. Council, Remarks at the Brookings Institute’s “Future of Work” Panel (Feb. 19, 2015), <http://larrysummers.com/2015/02/23/the-future-of-jobs> [<https://perma.cc/JN97-QS43>].

88. Cowen points to the proliferation of jobs in branding and marketing: “[M]achines are not effective at persuading, at developing advertising campaigns, at branding products or corporations, or at greeting you at the door in a charming manner . . . . Those activities will remain the province of human beings for a long time to come.” Tyler Cowen, *In a Robot Economy, All Humans Will Be Marketers*, BLOOMBERG: VIEW (July 26, 2017, 1:16 PM), <https://www.bloomberg.com/view/articles/2017-07-26/in-a-robot-economy-all-humans-will-be-marketers> [<https://perma.cc/Q9G5-KPJV>]. Those activities do not enhance productivity because they do not produce anything; they reflect a “zero- or negative-sum game” in which “[e]ach business tries to pull customers away from the other brands.” *Id.* It is questionable whether those jobs can sustain a healthy economy over the longer run. *Id.*

89. According to Yogi Berra, Niels Bohr, and an ancient Danish proverb. *It’s Difficult to Make Predictions, Especially About the Future*, QUOTE INVESTIGATOR (Oct. 20, 2013), <https://quoteinvestigator.com/2013/10/20/no-predict> [<https://perma.cc/B437-B7MS>].

90. See GORDON, *supra* note 26, at 250–53.

91. See *The Long-Term Decline in Prime-Age Male Labor Force Participation*, WHITE HOUSE COUNCIL ECON. ADVISERS 7 (June 2016) [hereinafter *Long-Term Decline*], <https://obamawhitehouse>

over that period, though it has fallen since 2000.<sup>92</sup>) Nationwide, 12% of men ages 25 to 54, and 17% of those with only a high school degree or less, were out of the labor force in 2015; that compares to 2% and 3%, respectively, in 1954.<sup>93</sup> The second trend is a long-term decline in working hours per employee. On one recent accounting, hours of work per employee across nonagricultural sectors have dropped from nearly sixty hours per week in the 1890s to just under thirty-five hours per week in 2010.<sup>94</sup> In short, automation has a long history of enabling the production of more goods and services with fewer total hours of human labor. Those who now predict significant net job losses due to automation, far from ignoring history, merely posit a continuation and acceleration of those historical trends.

*D. Should We Welcome or Worry About a Future with Much Less Work?*

If the coming wave of automation does enable greater economic output with less need for human labor, why not celebrate? Most humans throughout modern history have aspired to a life with more leisure and less toil. The demise of child labor, the advent of the forty-hour workweek, and the rise of retirement are among the greatest joint achievements of organized labor and modern industrial capitalism, with automation playing a starring role. Why not press for further reductions in the time that humans must devote to paid work, and wider sharing of the work that remains?

This very question was hotly debated among New Dealers and labor leaders in the 1930s, and again after the all-hands-on-deck wartime period.<sup>95</sup> Notably, the relatively few women who were active in that debate tended to favor a continued campaign to reduce work time.<sup>96</sup> For a variety of reasons, however, both

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.archives.gov/sites/default/files/page/files/20160620\_cea\_primeage\_male\_lfp.pdf [https://perma.cc/AZ76-5E95].

92. See Sandra E. Black et al., *The Recent Decline in Women's Labor Force Participation*, BROOKINGS (Oct. 2017), [https://www.brookings.edu/wp-content/uploads/2017/10/es\\_10192017\\_decline\\_womens\\_labor\\_force\\_participation\\_blackshenzenbach.pdf](https://www.brookings.edu/wp-content/uploads/2017/10/es_10192017_decline_womens_labor_force_participation_blackshenzenbach.pdf) [https://perma.cc/4YTT-8M38].

93. *Long-Term Decline*, *supra* note 91, at 2.

94. GORDON, *supra* note 26, at 258-59. That is across all sectors, including agriculture. The decline before World War II mainly reflects the reduced workweek and the advent of vacations; after World War II, it reflects partly the entry of women into the workforce and the rise of part-time jobs. *Id.* at 259-60.

95. See HUNNICUTT, *supra* note 9; BENJAMIN HUNNICUTT, *WORK WITHOUT END: ABANDONING SHORTER HOURS FOR THE RIGHT TO WORK* 147-50 (1988) [hereinafter HUNNICUTT, *WORK WITHOUT END*].

96. See HUNNICUTT, *supra* note 9, at 150.

organized labor and progressive thinkers and policy makers opted to press instead for more work, including through public job creation, and higher incomes.<sup>97</sup> The goal of reducing hours of work, which had animated organized labor for the better part of a century, gave way to a goal of “full employment,” with the government on call as needed to employ surplus workers.<sup>98</sup>

Today, with the prospect of net job losses from automation, that debate may be reopening, at least on the left. The idea of a federal job guarantee has gained new traction,<sup>99</sup> while others call for a return to the agenda of less work and more leisure.<sup>100</sup> The latter has some obvious appeal. Imagine, for example, a world in which everyone could meet their basic economic needs while working no more than thirty hours per week and forty weeks per year, with access to health care, basic income, educational opportunities throughout one’s life, and ample public goods of all kinds. That would be, if not utopian, a more egalitarian and less market-centric world than we have now. Indeed, it might require a radical transformation, or even the end, of capitalism as we know it.<sup>101</sup> If that is one’s ideal vision of the future, then one might aim to accelerate the replacement of human labor with technology while agitating for the radical social and political changes that would be required to bring about this more egalitarian distribution of income, work, and leisure.<sup>102</sup>

But others who would welcome a world of less work might still fear large-scale net job destruction in the near or medium term. Given our existing political and institutional landscape, a decline in the demand for human labor threatens to leave many people not with fewer hours of work and decent pay, but with no regular paid work at all and too little income to live a decent life. If that is what a future of less work looks like, then it would be perverse to characterize it as one

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97. See HUNNICUTT, *WORK WITHOUT END*, *supra* note 95, at 309-12.

98. HUNNICUTT, *supra* note 9, at 148-65.

99. See sources cited *supra* note 10.

100. See, e.g., ANDRÉ GORZ, *FAREWELL TO THE WORKING CLASS: AN ESSAY ON POST-INDUSTRIAL SOCIALISM* (Michael Sonenscher trans., 1982); NICK SRNICEK & ALEX WILLIAMS, *INVENTING THE FUTURE: POSTCAPITALISM AND A WORLD WITHOUT WORK* (2015); KATHI WEEKS, *THE PROBLEM WITH WORK: FEMINISM, MARXISM, ANTIWORK POLITICS, AND POSTWORK IMAGINARIES* (2011). These writers have predecessors among nineteenth-century social thinkers. See, e.g., EDWARD BELLAMY, *LOOKING BACKWARD* (New Am. Library 1960) (1888); J.A. ETZLER, *THE PARADISE WITHIN THE REACH OF ALL MEN, WITHOUT LABOUR, BY POWERS OF NATURE AND MACHINERY* (London, John Brooks 1836).

101. See Randall Collins, *The End of Middle-Class Work: No More Escapes*, in IMMANUEL WALLERSTEIN ET AL., *DOES CAPITALISM HAVE A FUTURE?* 37, 51 (2013).

102. See, e.g., SRNICEK & WILLIAMS, *supra* note 100, at 107-118 (calling for significant wage increases as a way to accelerate automation and the destruction of jobs while increasing the returns to labor).

of greater leisure. Leisure without an adequate source of household income is just the poverty and malaise of long-term unemployment.

The economic consequences of unemployment—periodic and long-term—only begin with the loss of wages. For much of the twentieth century, many social entitlements were bundled together in a concept that Harry Arthurs has called “industrial citizenship”—that is, “an employment-related system of entitlements which would protect workers against arbitrary treatment by their employer and against the vicissitudes of the economy, old age and illness.”<sup>103</sup> More than its European counterparts, the American social model delivers many of the material requisites of a decent life—not only income, but also retirement security and insurance for health care, disability, and unemployment—mainly through employment.<sup>104</sup>

Outside the highly regulated employment nexus, and above a rather stingy safety net for the poor,<sup>105</sup> individuals are largely left to the tender mercies of the market, armed with whatever individual bargaining power they can muster given the intersection of their skill set with changing market conditions. Automation threatens the future reach not only of the so-called “standard employment relationship”—the long-term, full-time jobs that were the foundation of twentieth-century American prosperity, partial though it was—but of paid work more broadly.

The problem with a significant loss of paid work—if that is what we are facing—is not merely an economic one. Useful work is central not only to most people’s identity, but also to our social and political life. The experience of shared work fosters social interaction and social integration, solidarity and friendship,

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103. H.W. Arthurs, *The New Economy and the New Legality: Industrial Citizenship and the Future of Labour Arbitration*, 7 CANADIAN LAB. & EMP. L.J. 45, 46 (1999); see also H.W. Arthurs, *Developing Industrial Citizenship: A Challenge for Canada’s Second Century*, 45 CANADIAN B. REV. 786 (1967).

104. See David Charny, *The Employee Welfare State in Transition*, 74 TEX. L. REV. 1601, 1601 (1996); Katherine V.W. Stone, *A Fatal Mismatch: Employer-Centric Benefits in a Boundaryless World*, 11 LEWIS & CLARK L. REV. 451 (2007).

105. See Elise Gould & Hilary Wething, *U.S. Poverty Rates Higher, Safety Net Weaker than in Peer Countries*, ECON. POL’Y INST. 5-7 (2012), <https://www.epi.org/publication/ib339-us-poverty-higher-safety-net-weaker> [<https://perma.cc/9C4K-Q6D8>]. “Social spending” in the United States is lower than the average of OECD countries (as a percentage of GDP), and much lower than in comparably rich developed countries in Western Europe. See *Social Spending*, OECD, <https://data.oecd.org/socialexp/social-spending.htm#indicator-chart> [<https://perma.cc/HT68-Q439>].

and cooperation and compromise amidst conflict.<sup>106</sup> Work and workplace relationships are a far more prolific source of communal, cooperative, and collegial ties than neighborhoods or other associations; and those ties play a crucial role in maintaining the social fabric of a diverse society.<sup>107</sup> If a growing segment of the population finds itself detached from the world of work, that social fabric will become even more frayed and our politics even more fraught. I think that would be true even if people's basic material needs were met by something like a universal basic income.

To be sure, people who have or expect to have fulfilling and high-status jobs (like me and most of my readers) may be inclined to idealize work as a source of community and identity. Labor lawyers and scholars in particular may tend to romanticize the experience of shared work and solidarity among coworkers. Looking ahead, we might need to recalibrate our cultural matrix of values away from what one does for a living and toward what one does with one's life, and to reconfigure our institutions to enable people to alternate among periods of education, caring for family, recreation, civic and volunteer work, and paid work.<sup>108</sup>

All in all, if we could ensure a reasonably fair distribution of income, leisure, and work,<sup>109</sup> then the growing ability to replace human labor with machines and technology would have a far more positive valence. In the meantime, however, ours is a society in which most people's income and economic security, as well as their identity, status, and experience of collective effort toward shared aims, are all heavily dependent on paid work. That makes the prospect of significant net job destruction through automation deeply unsettling, even if it is still uncertain.

If decent paid work grows scarce while most individuals continue to depend on paid work for their livelihood, then we face a feverishly competitive and highly polarized future – a high-stakes tournament in which the winners will include firms with the talent, agility, and perhaps ruthlessness to exploit labor-saving technology, and individuals who learn to “race with the machines.”<sup>110</sup> It

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106. See generally CYNTHIA ESTLUND, *WORKING TOGETHER: HOW WORKPLACE BONDS STRENGTHEN A DIVERSE DEMOCRACY* (2003) (arguing that the extent of sociability and cooperation among relatively diverse coworkers makes workplace ties crucial in a diverse democratic society).

107. See *id.*

108. See WEEKS, *supra* note 100 (challenging the centrality of work to identity, morality, and social organization).

109. As in Thomas More's original *Utopia*, as it happens. See *History of Basic Income*, *supra* note 8.

110. See BRYNJOLFSSON & MCAFEE, *RACE AGAINST THE MACHINE*, *supra* note 3.

is in the nature of tournaments that losers outnumber winners, and this tournament will be true to form.<sup>111</sup> Firms in competitive markets will lose out if they continue to employ people to do things that machines can do more efficiently, and if they lack the human talent and organizational agility to constantly adapt to and adopt new technology. Far more importantly, people will lose out if they fail to acquire the high-end, hard-to-automate skills that will be in greatest demand, if they lack the resources and opportunities needed to acquire those skills, or if they crumple under the pressure of the tournament itself. There will be many fewer of the decent midlevel jobs that require diligent completion of mostly routine tasks, and that have long sustained the broad middle of the working population.

Perhaps paradoxically, many workers at both the top and the bottom of this more automated and polarized economy might find themselves working very long hours, albeit for diametrically opposed reasons. Those with scarce skills and high marginal productivity, as well as their employers, might rationally converge around long hours of work (as we already see now). By contrast, some low-wage workers will scramble to work longer hours or multiple jobs just to make ends meet.

One cannot help but blanch at how much will be demanded of the human beings who hope to come out on top of this tournament. They will need to be intelligent, adaptable, and entrepreneurial about their working lives, and both willing and able to continually retrain and redeploy their talents to meet the ever-changing demands of technological innovation and dynamic market conditions.<sup>112</sup> That in turn will require a high level of psychological resilience and tolerance for risk and change, as well as a strong basic education that equips them to learn how to learn. Not everyone is blessed by nature and nurture with the makings of those traits, and not everyone in our egregiously unequal society has an opportunity to cultivate them. Moreover, there is little room in this scenario for a balanced life, one that is not dominated by the competition to get and stay ahead in an increasingly polarized labor market.

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111. The kind of tournament I have in mind here is of the “winner-take-all” variety. See ROBERT FRANK & PHILIP J. COOK, *THE WINNER-TAKE-ALL SOCIETY: WHY THE FEW AT THE TOP GET SO MUCH MORE THAN THE REST OF US* (1996).

112. The market-backed injunction to be entrepreneurial about one’s own life and work is a signature feature of neoliberalism, for its critics. See WENDY BROWN, *UNDOING THE DEMOS: NEOLIBERALISM’S STEALTH REVOLUTION* 22 (2015).

*E. Alternative Futures and Why the Pace of Automation Matters*

With more than a little bit of simplification, the foregoing account suggests several possible futures for workers.<sup>113</sup> First, those who trust in the market dynamics of creative destruction expect the future to look much like the present, but with more and better stuff. They believe that job losses from automation, though temporarily disruptive, will be offset by new and better jobs that satisfy evolving, and bottomless, consumer appetites.<sup>114</sup> But this vision is beginning to look far too complacent, at least on the view of the MGI economists. Without an ambitious suite of mitigating and stimulating policies, or perhaps even with those policies, job losses are likely to mount.<sup>115</sup>

If trust in creative destruction proves misplaced, and society fails to “step-up” investments in training, job creation, and the rest, then we might face a second, deeply dystopian future of mass immiseration and a growing concentration of wealth at the top. Workers without in-demand skills will compete, and drive down wages, for the jobs that machines cannot do as well or as cheaply but that most humans can do. The winners—those who make or own the technology or whose scarce skills are augmented by technology—will win access to private enclaves of privilege fortified against the rage and resentment of the losers.<sup>116</sup> Let us posit that this is a future that is worth striving to avoid.

MGI’s “step-up scenario” suggests a third possible future. If firms and governments *do* rise to the challenge of automation by investing heavily in training and education, income support, infrastructure, and social services, then job creation can keep pace with job destruction and we can enjoy continuing growth and prosperity. Some will embrace this vision of supercharged capitalism, while others will recoil—even apart from profound doubts about the environmental sustainability of perpetual economic growth.<sup>117</sup> In any case, this vision may be

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113. My terminology here unintentionally echoes that of PETER FRASE, *FOUR FUTURES: LIFE AFTER CAPITALISM* (2016). But his futures are more starkly futuristic and (deliberately) less tethered to realism than those sketched here.

114. See GORDON, *supra* note 26, at 593-604; Autor, *supra* note 14, at 9-14; *Robots Won't Take Your Job—They'll Help Make Room for Meaningful Work Instead*, QUARTZ (Mar. 15, 2017), <https://qz.com/932417/robots-wont-take-your-job-theyll-help-make-room-for-meaningful-work-instead> [<https://perma.cc/V792-5D23>].

115. That is the MGI’s “trendline scenario,” in which society fails to undertake the institutional responses that will be needed to stimulate job growth, promote redeployment of workers, and cushion losses. See MGI, *Jobs Lost, Jobs Gained*, *supra* note 70, at 14.

116. See generally FRASE, *supra* note 113 (offering a speculative portrait of what this future might entail).

117. The literature on the tension between sustainability and economic growth is large. For an early articulation of the conflict, see DONELLA H. MEADOWS ET AL., *THE LIMITS TO GROWTH*

out of reach if estimates of job creation prove too sanguine, or if the pace of automation is on the high side of current estimates.

A fourth vision of the future is utopian and perhaps postcapitalist: automation will banish scarcity, and a benevolent state will orchestrate the production of ample public goods and the distribution of resources so that everyone can live a decent life with little or no paid work. Many readers will dismiss this vision as hopelessly unrealistic; others may reject the very idea of a postcapitalist, non-market economy; or they may shudder at the prospect of a society and of human lives that are not anchored by shared work. But even those who find this vision both attractive and attainable should concede that it would require a radical transformation of politics and social institutions, and a raft of ameliorative policy measures, to fend off the dystopian alternatives. The challenge will be much greater if automation proceeds faster than expected.

A fifth possible future would steer between the last two paths—a “Goldilocks” future, if you will—toward a fair distribution of (less) paid work, leisure, and income. Shorter workweeks and access to periodic leaves for family, recreation, education, and civic work would be coupled with universal basic social entitlements and ample public goods.<sup>118</sup> Here, too, the faster the automation and destruction of existing jobs proceed, the harder it would be to construct this more egalitarian and humane future.

This last vision might appeal to many readers, as it does to me. Others will disagree as to what is desirable and what is achievable. (Indeed, one dimension of an attractive future, in my view, is the room it makes for divergent individual

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(1972). For a recent overview and intervention, see Jeroen C.J.M. van den Bergh, *A Third Option for Climate Policy Within Potential Limits to Growth*, NATURE CLIMATE CHANGE (Feb. 1, 2017), <https://www.nature.com/articles/nclimate3113.pdf> [<https://perma.cc/VZ57-4Y9G>].

118. This future would build on basic features of social policy in most European countries, which are grounded in a belief that it is necessary to “constrain the free market in the name of the public interest” in order to lay the foundation of a just society. TONY JUDD, *ILL FARES THE LAND 75* (2010); see also PETER BALDWIN, *THE POLITICS OF SOCIAL SOLIDARITY: CLASS BASES OF THE EUROPEAN WELFARE STATE 1875-1975* (1990) (examining the social bases of the European welfare state); GØSTA ESPING-ANDERSEN: *THE THREE WORLDS OF WELFARE CAPITALISM* (1990) (distinguishing three major types of welfare state in advanced Western countries). Some contemporary American thinkers look to the ideals of European social democracy for both moral inspiration and concrete policy ideas in their effort to construct a humane political economy and respond to challenges such as automation. See, e.g., STEPHEN HILL, *EUROPE’S PROMISE: WHY THE EUROPEAN WAY IS THE BEST HOPE IN AN INSECURE AGE* (2010); LANE KENWORTHY, *SOCIAL DEMOCRATIC AMERICA* (2015); *LESSONS FROM EUROPE?: WHAT AMERICANS CAN LEARN FROM EUROPEAN PUBLIC POLICIES* (R. Daniel Kelemen ed., 2015). In the meantime, European social democracy faces its own challenges on political, ideological, and economic fronts. For a range of perspectives on these challenges, see *THE CRISIS OF SOCIAL DEMOCRACY IN EUROPE* (Michael Keating & David McCrone eds., 2013). The comparative perspective on the challenge of automation to the future of work is beyond the scope of this Article, but I plan to take it up in future work.

choices about the ideal mix of, and trade-offs among, labor, leisure, and income.) It seems clear, however, that avoiding dystopia and reaching one of the better futures—better, that is, for the overwhelming majority of the population—would require major changes both in policies and in the state of our politics. That process will also take time, and could careen off the rails—if it hasn't already done so—if job losses and economic misery and resentments start to mount. It is imperative that citizens and political leaders begin to focus on these alternative futures, and avoid simply falling into the dystopian future by default—or by complacently trusting in creative destruction, which could lead to the same end if this time is indeed different.

Across a wide range of views about the likelihood and desirability of a society with much less work, the pace of automation-based job destruction is a critical factor. Public policy and public spending will have to play a large role in fostering new job creation and in equipping workers for those new jobs. But the faster jobs are destroyed, the harder it will be for public and private job creation and worker retraining to keep pace. Faster job destruction will yield more wrenching social consequences and less hospitable conditions for a serious political debate about spreading the gains and mitigating the losses from automation.

A prescription of slower automation will be anathema to those who tout automation's role in economic growth, prosperity, and innovation, and in improving human welfare. Automation both substitutes for human labor and complements human labor; and it both destroys jobs and improves efficiency, quality, safety, and sustainability. Is it possible to slow down automation's job-destructive side without sacrificing its other benefits? I believe it is possible to some degree, and will try to show how in the pages that follow.

Many bodies of law are relevant to the pace of automation.<sup>119</sup> I seek here to address how employment law might affect the pace of automation-related job losses, and how that body of law might best respond to the challenge of automation.<sup>120</sup> To that end, it is important first to situate automation among other ongoing changes in the organization of work that have lately preoccupied labor scholars, policy makers, and advocates. That is because the prevailing prescriptions for responding to those changes within labor and employment law might

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119. For example, very recent work has explored the impact of the law governing intellectual property and innovation, see Camilla A. Hrdy, *Intellectual Property and the End of Work*, 71 FLA. L. REV. (forthcoming 2019), <https://ssrn.com/abstract=3011735>, and tax law, see Ryan Abbott & Bret Bogenschneider, *Should Robots Pay Taxes? Tax Policy in the Age of Automation*, 12 HARV. L. & POL'Y REV. 145 (2018).

120. I largely set aside here the role of "labor law"—that is, the law of collective labor relations and trade unions—and how it might affect automation and vice versa. I intend to return to this topic in future work.

counterproductively speed up automation-related job losses and thus exacerbate the challenge of automation.

## II. HOW AUTOMATION ALTERS THE LANDSCAPE OF WORK AND CONFOUNDS EFFORTS TO SHORE UP THE FORTRESS OF EMPLOYMENT

The challenge that automation poses to the future of work is in many ways continuous with the more familiar challenges of “fissuring” – the growing proclivity of firms to outsource, offshore, or otherwise contract out their labor needs to other firms and individuals. In particular, the managerial decisions behind both fissuring and automation reflect similar causal forces, including the manifold costs associated with direct employment of human labor. Yet automation is also different in basic ways that confound prevailing strategies for coping with the challenge of fissuring.

### A. *Fissuring and the Growth of Outsourcing, Offshoring, and Platform Work*

“Fissuring” is the now-prevalent term, coined by David Weil, for the migration of many jobs away from the profitable branded corporations that reign at the top of the economy.<sup>121</sup> Many jobs that were done in the 1950s and 1960s within those large integrated firms – especially jobs in manufacturing and services such as maintenance, cleaning, security, and food services – are now contracted out to outside firms. Some outside firms supply specialized services or components; others, like temporary employment agencies, supply nothing but labor; still others, like franchisees, take over all daily operations subject to standards set by the lead firm. Across the board, however, workers usually end up worse off.<sup>122</sup> Instead of enjoying the relatively high wages, benefits, promotion ladders, and formal or informal job security that used to prevail even at the bottom of lead firms’ “internal labor markets,” many workers are now concentrated in low-wage supplier sectors.<sup>123</sup>

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121. See generally WEIL, *supra* note 23 (describing the causes and effects of corporations’ growing tendency to supply labor inputs through outsourcing, franchising, and contracting).

122. For a concise explanation of why that is so, see David Weil, *Income Inequality, Wage Determination, and the Fissured Workplace*, in AFTER PIKETTY: THE AGENDA FOR ECONOMICS AND INEQUALITY, *supra* note 7, at 209, 224-27.

123. The terms “lead firm” and “supplier” serve here as shorthand for dynamics that recur across multiple layers of a supply chain. A large logistics firm is a supplier for other lead firms, but it is a lead firm relative to its own suppliers. But not all lead firms are created equal. Firms with a valuable consumer brand that commands a price premium (such as Apple, Inc.) have capabilities and vulnerabilities that business-to-business firms generally do not.

Lower wages and widespread labor-standards violations among suppliers in many sectors are due in part to intense cost-based competition that sharpens the incentive to cut corners. In addition, some suppliers use or purport to use independent contractors, who are not covered by employment laws. And many suppliers invest little or nothing in compliance and have little physical capital or public reputation at stake should they break the law or become insolvent. These conditions all contribute to the decline of wages and the erosion of labor standards that have accompanied the shift of work away from branded, publicly traded lead firms. Fissuring enables lead firms to secure lower labor costs as well as a measure of insulation from the stench of the unlawful practices that may contribute to those lower costs.

Two kinds of fissuring have drawn especially anxious attention from scholars and advocates: the offshoring of jobs to overseas suppliers, and the splintering of jobs into “gigs” that are or purport to be outside the employment nexus. China and Uber thus both stand for larger trends in the world of work.

In seeking to reduce production costs, many firms have contracted out labor-intensive tasks to low-cost producers in developing countries. As a result, China’s share of global manufacturing output grew from less than 3% in 1990 to nearly 25% in 2015.<sup>124</sup> India, with its large reservoir of English-language skills, has become the epicenter of outsourced information-based services.<sup>125</sup> The cost savings from transnational outsourcing stem partly from lower wages and weaker regulatory institutions and trade unions in these much poorer countries, and partly from the same forces that depress labor standards among domestic suppliers: cost-based competition in a concentrated low-wage, low-profit environment. Offshoring is one exit option that enables firms to escape collective and regulatory efforts to protect workers or improve their wages or working conditions in more advanced economies.

Uber represents another kind of fissuring and another exit option — one that shifts work outside the employment nexus by disintegrating jobs into “gigs.”<sup>126</sup>

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124. See *Made in China?*, *ECONOMIST* (Mar. 12, 2015), <https://www.economist.com/news/leaders/21646204-asias-dominance-manufacturing-will-endure-will-make-development-harder-others-made> [https://perma.cc/FAW9-PQUK].

125. *India Tops 2016 Outsourcing Index*, *HINDU BUS. LINE* (Jan. 12, 2016), <https://www.thehindubusinessline.com/info-tech/india-tops-2016-outsourcing-index/article8097482.ece> [https://perma.cc/3TE5-LBWH].

126. Some aspects of the “gig economy” echo past patterns of industrial piecework or the old garment industry’s “putting out system” for the service economy. See Matthew W. Finkin, *Beclouded Work, Beclouded Workers in Historical Perspective*, 37 *COMP. LAB. L. & POL’Y J.* 603, 604-11 (2016).

Drivers, writers, accountants, cleaners, artists, carpenters, care workers, web designers, software programmers, fitness instructors, and therapists are among those attempting to piece together a living from a patchwork of short-term engagements, mostly as freelancers, in today's economy.<sup>127</sup> Highly valuable platforms like Uber, for their part, purport to produce nothing but the software that links consumers with the services and servants they seek. Some of these platforms induce workers to bid against each other in real time. And where the work can be done remotely – as with the microtasks posted on Amazon's Mechanical Turk<sup>128</sup> – the bidders may include poor workers in developing countries. Some platforms thus allow firms to exit both the employment relationship and high-wage labor markets.

Platform-based work is one small but salient aspect of the larger practice of outsourcing work to individual independent contractors without any of the responsibilities and burdens that attend the employment relationship. Those responsibilities and burdens, and the corresponding workers' rights and entitlements, are not merely passed down the line to less visible, profitable, and capable employers; they are vaporized.

Some freelancers prosper, and some value the greater autonomy and flexibility of independent work.<sup>129</sup> But for many U.S. workers and their families, the devolution of stable and decently paid jobs into insecure and undependable contingent work and gigs is a socioeconomic disaster. That is partly because of the loss of the economic security, benefits, and social insurance programs attached to employment, either by law, contract, or widespread practice, especially in large companies. The shift of work from lead firms to leaner and meaner supplier firms, and from long-term, full-time employment to contingent work and gigs,

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127. One large recent study found that 20-30% of working-age individuals in the United States and Europe engaged in some "independent work." McKinsey Glob. Inst., *Independent Work: Choice, Necessity, and the Gig Economy*, MCKINSEY & COMPANY 26 (2016) [hereinafter MGI, *Study on Independent Work*], <https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Employment%20and%20Growth/Independent%20work%20Choice%20necessity%20and%20the%20gig%20economy/Independent-Work-Choice-necessity-and-the-gig-economy-Full-report.ashx> [https://perma.cc/RE86-CFZ6]. Of those, most said they did so by choice, either for their primary source of income (30%) or for supplemental income (40%). The remainder said they did "independent work" out of necessity, either as their primary source of income (though they would prefer a "traditional job") (14%), or for supplemental income (16%). *Id.* at ix.

128. *Amazon Mechanical Turk*, <https://www.mturk.com> [https://perma.cc/NF52-A9UN].

129. See MGI, *Study on Independent Work*, *supra* note 127, at 7. See generally ARUN SUNDARARAJAN, *THE SHARING ECONOMY: THE END OF EMPLOYMENT AND THE RISE OF CROWD-BASED CAPITALISM* (2016) (detailing some virtues of the sharing economy).

is shaking the foundations of the American social model that took hold in the New Deal era.<sup>130</sup>

*B. Three Common Causes of Automation and Fissuring: Technology, Heightened Competition, and the Costs of Employing People*

Before turning to what makes automation different from fissuring, let us first take note of three common causal forces behind these developments: technology, more competitive product and capital markets, and the costs of human labor.

Technology—obviously the essence of automation—has played a crucial role in nearly every aspect of fissuring, including both outsourcing to lower-wage countries and platform work.<sup>131</sup> In short, technology lowers the transaction costs associated with explicit contracting for goods and services, or of “buying” versus “making” necessary inputs.<sup>132</sup> It enables lead firms to disintegrate products and processes into component parts, to set precise standards and specifications, and to monitor performance and outputs of lower-cost and remote outside suppliers. Technology, in the form of container ships and bar-coding, enables Walmart to track goods from a factory in Guangdong Province in China to a store in Lexington, Kentucky.<sup>133</sup> Technology enables Apple to maintain scrupulous quality standards while tapping into the much cheaper Chinese labor market. And it enables Uber, without directly supervising drivers, to monitor them, connect them with customers, and capture a large share of the fares.<sup>134</sup>

Technology is just the means, however, and not the motivation for these developments. Fissuring and automation are driven in part by supercharged global capital markets, in which billions of dollars move across the world in microseconds, and globalized product markets, in which firms from across the world

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130. See generally KATHERINE V.W. STONE, FROM WIDGETS TO DIGITS: EMPLOYMENT REGULATION FOR THE CHANGING WORKPLACE (2004) (describing the changes in the American workplace over time); WEIL, *supra* note 23 (same); Katherine V.W. Stone, *The New Psychological Contract: Implications of the Changing Workplace for Labor and Employment Law*, 48 UCLA L. REV. 519 (2001) (same).

131. See WEIL, *supra* note 23, at 54-58, 60-63, 167-74 (detailing the mechanisms by which fissuring cuts costs).

132. See *id.* at 60-63, 171-74.

133. The transformative impact of container ships and bar codes on global supply chains is chronicled in Witold Rybczynski, *Shipping News*, N.Y. REV. BOOKS (Aug. 10, 2006), <https://www.nybooks.com/articles/2006/08/10/shipping-news> [<https://perma.cc/23LB-CVU6>].

134. Whether Uber can do so without being the legal employer of those drivers is a hotly contested issue, as discussed below. See *infra* notes 175-182 and accompanying text.

compete for customers.<sup>135</sup> Firms that falter in the pursuit of cheaper means of producing goods and services risk losing both investors and market share to more efficient producers. The basic underlying dynamics of price, supply, and demand are hardwired into the market economy, although deliberate policy decisions have done much to foster the growth of transnational firms, networks, and supply chains, and to facilitate the movement of goods, services, and capital across national boundaries.<sup>136</sup> Technology has obviously accelerated all of those movements. But firms use technology to eliminate or outsource jobs only when doing so generates higher returns to capital through lower production costs, higher productivity, or both.

Automation is thus part of a larger menu of options by which those who own or manage capital seek to maximize their returns. Those who supply the robots and the algorithms that replace human labor and destroy jobs are responding to demand from firms seeking more profitable ways to produce other goods and services. All of the related trends that fall under the rubric of fissuring—the development of far-flung supply chains, domestic outsourcing of labor-intensive functions, franchising of food service and hospitality services, and the rise of platform-based service providers—reflect the growing ability of lead firms to secure labor inputs without directly employing people. And if robots or algorithms can supply those inputs even more quickly, more reliably, more cheaply, or with less risk, then lead firms will turn to them instead of human labor.

That points to a third factor driving fissuring and automation: the effort to reduce or avoid the costs and risks of employing human beings. For many labor scholars and advocates, it is distressing to realize the extent to which this factor drives trends in the organization and automation of work. Investment banker Steven Berkenfeld made the point in vivid terms at a 2015 Department of Labor (DOL) conference on the future of work:

As I talk to companies, yes, it's about labor savings, but that's just the starting point. It's also about indirect cost savings . . . . It's about health care liabilities, lawsuits[,] and insurance and disabilities benefits.

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135. Some observers call the resulting economy “hypercapitalism.” See, e.g., Marina Vujnovic, *Hypercapitalism*, in 2 THE WILEY-BLACKWELL ENCYCLOPEDIA OF GLOBALIZATION 978 (George Ritzer ed., 2012).

136. See generally DANI RODRIK, THE GLOBALIZATION PARADOX: DEMOCRACY AND THE FUTURE OF THE WORLD ECONOMY (2011) (critiquing the excesses of liberalization of trade and finance and analyzing their consequences).

And . . . people need people. There is a whole management infrastructure that needs to go on top of every person that you employ; it's a multiplier effect.<sup>137</sup>

Worse yet from the perspective of labor advocates, managers report that “people are a pain to manage”:

They have to be identified and recruited, hired [and] trained. They want performance reviews and promotions. They take vacations, they get sick, their kids get sick, their parents get sick, they get pregnant; they get injured on the job. Sometimes they don't get along with each other. They sue for harassment. They need all kinds of insurance and benefits. They want raises and career development, and then sometimes they quit. Then you have to start it all over again . . . [People] have needs, issues, and ambitions. And perhaps most significantly from a CEO's standpoint they do dumb things. They give bribes and kickbacks, they discriminate and harass, they expose companies to cyber-attacks, they commit . . . acts of negligence, misconduct, and violence, and sometimes they even deliberately sabotage. They create liabilities, they damage brands, and they sometimes get CEOs fired.<sup>138</sup>

Berkenfeld's bottom line brought an audible gasp from the mostly labor-friendly audience at the DOL conference. “[S]ome CEOs . . . will do anything possible, they'll explore all other alternatives so as not to hire another full-time employee.”<sup>139</sup> Putting the point more succinctly in another venue, Berkenfeld reports that CEOs these days ask, “Can I automate it? If not, can I outsource it? If not, can I give it to an independent contractor?” In other words, “[h]iring an employee is the last resort.”<sup>140</sup>

The role of labor costs in outsourcing and other forms of fissuring is well established.<sup>141</sup> Their role in spurring automation can come as no surprise. A basic postulate of labor economics holds that increases in the cost of labor—whether due to market forces, legal mandates, or collective bargaining—tend to

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137. Steven Berkenfeld, Managing Dir., Barclays Capital, Opportunities and Challenges, Presentation at the U.S. Department of Labor Conference on the Future of Work (Dec. 10, 2015) (transcript on file with author).

138. *Id.*

139. *Id.*

140. Olivier Garret, *How the Coming Wave of Job Automation Will Affect You and the U.S.*, FORBES (Feb. 23, 2017), <http://www.forbes.com/sites/oliviargarret/2017/02/23/how-the-coming-wave-of-job-automation-will-affect-you-and-the-us> [https://perma.cc/6KGV-AKLC].

141. See, e.g., WEIL, *supra* note 23.

lead firms to substitute capital, including technology, for labor.<sup>142</sup> That substitution is bound to accelerate with the growing capabilities and falling cost of labor-saving technology.

Some labor costs, and thus some part of the motivation for both automation and fissuring, stem from employment laws.<sup>143</sup> Some laws add predictable direct costs, such as payroll taxes for workers' compensation and unemployment insurance, Social Security, and Medicare, which can add 18 to 26% to the base salary cost.<sup>144</sup> Minimum wage rates obviously affect direct labor costs at the bottom of the labor market.<sup>145</sup> Overtime laws and the pay-or-play employer mandates of the Affordable Care Act (ACA)—as long as they exist—may increase direct costs much further up the wage scale.<sup>146</sup> Labor economists generally assume that employees bear the cost of these taxes and mandates in the form of lower wages—down to the point at which minimum wage laws block further wage reductions.<sup>147</sup> If that is so, then these laws mainly add to the cost of employing

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142. RICHARD B. FREEMAN & JAMES L. MEDOFF, *WHAT DO UNIONS DO?* (1984).

143. Charlotte Alexander has explored firms' ability to restructure work to avoid the costs of legal mandates—for example, by using independent contractors or reducing employee work hours below a minimum threshold for coverage (e.g., the Affordable Care Act's employer pay-or-play obligations accrue only for employees working more than thirty hours per week). See Charlotte S. Alexander, *Legal Avoidance and the Restructuring of Work*, in *THE STRUCTURING OF WORK IN ORGANIZATIONS* 311 (Lisa E. Cohen et al. eds., 2016). Automation may be an even better legal avoidance strategy.

144. For a breakdown of the nonwage direct costs of each employee, see Jose Pagliery, *You Make \$70k but Cost Your Boss \$88k*, CNN MONEY (Feb. 28, 2013, 9:16 AM ET), <https://money.cnn.com/2013/02/28/smallbusiness/salary-benefits/index.html> [https://perma.cc/RD5C-J4AH].

145. On the economic impact of minimum wage levels, see *infra* Section II.D.

146. For example, the ACA covers employers with more than fifty employees, but only with regard to employees working over thirty hours per week. Most early studies found modest effects on employers' costs and employment levels. See, e.g., Jean Abraham & Anne Beeson Royalty, *How Has the Affordable Care Act Affected Work and Wages?*, LEONARD DAVIS INST. HEALTH ECON. (Jan. 19, 2017), <https://ldi.upenn.edu/brief/how-has-affordable-care-act-affected-work-and-wages> [https://perma.cc/L59D-BTMS]; Fredric Blavin et al., *Monitoring the Impact of the Affordable Care Act on Employers*, URB. INST. (Oct. 2014), <https://www.urban.org/sites/default/files/publication/33696/413273-Monitoring-the-Impact-of-the-Affordable-Care-Act-on-Employers.PDF> [https://perma.cc/BNB5-8NGP].

147. See TRUMAN F. BEWLEY, *WHY WAGES DON'T FALL DURING A RECESSION* 173-80 (1999); Alan B. Krueger & Uwe E. Reinhardt, *The Economics of Employer Versus Individual Mandates*, 13 HEALTH AFF. 34 (1994); Lawrence H. Summers, *What Can Economics Contribute to Social Policy?: Some Simple Economics of Mandated Benefits*, 79 AM. ECON. REV. 177, 180 (1989); John Olson, *What Are Payroll Taxes and Who Pays Them?*, TAX FOUND. (July 25, 2016), <https://taxfoundation.org/what-are-payroll-taxes-and-who-pays-them> [https://perma.cc/X4K3-W4G9]. They are more likely to offer slower wage increases to incumbents or lower starting wages to new hires. See BEWLEY, *supra*, at 1, 131.

low-wage workers. But evidence is mixed on whether the assumption holds and whether employers – whose decisions are at the heart of the matter – believe it.<sup>148</sup> Other laws increase the cost of employing people in less predictable ways; they are a source of *risk*. For example, union organizing, strikes, and other activities that are protected by federal labor law pose “risks” to firms;<sup>149</sup> and firms pay “union avoidance” consultants a lot of money to manage those risks.<sup>150</sup>

I will focus here on employment laws and liabilities. Consider the bevy of employment laws prohibiting discrimination, harassment, and retaliation. Litigation under those laws imposes both tangible costs and intangible ones, such as harms to reputation and morale. Employees may be on both sides of litigation, as when employees or ex-employees sue over other employees’ misconduct, mistakes, or misjudgments for which the employer is liable. Employees can mistakenly or maliciously trigger corporate liabilities not only under employment laws but also under environmental laws, tax and securities laws, consumer protection laws, and other laws regulating corporate conduct. Large corporate compliance departments, which cost large firms billions of dollars per year, are devoted to avoiding or managing these risks and liabilities (not to mention the risks created by managerial malfeasance or brinksmanship).<sup>151</sup>

Employment laws thus account for part of the cost of employing humans. Some legal mandates could yield countervailing productivity gains through lower turnover or higher employee morale and motivation. But most of the

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148. For evidence that employers in fact bear a large share of payroll taxes, see Daniel S. Hamermesh, *New Estimates of the Incidence of the Payroll Tax*, 45 S. ECON. J. 1208 (1979). On employer beliefs regarding who pays for employment taxes, see *id.* at 1217; and Krueger & Reinhardt, *supra* note 147, at 43.

149. The direct costs stemming from the labor laws, including the cost of violating those laws, are small; but when workers exercise their rights through collective agitation and organizing, the costs can be substantial (though only obliquely traceable to the law).

150. How much they spend is unclear. See Michael Hiltzik, *Labor Dept. Finally Closes a Loophole Favoring Union-Busters – After 57 Years*, L.A. TIMES (Mar. 24, 2016), <https://www.latimes.com/business/hiltzik/la-fi-hiltzik-union-busting-20160323-snap-htmlstory.html> [<https://perma.cc/N54J-RYXB>]; Dave Jamieson, *It’s About to Get Harder for Companies to Hide Union-Busting*, HUFFINGTON POST (Mar. 23, 2016, 12:01 AM EST), [https://www.huffingtonpost.com/entry/union-busting-persuader-rule\\_us\\_56f1bdcbe4b0c3ef52172770](https://www.huffingtonpost.com/entry/union-busting-persuader-rule_us_56f1bdcbe4b0c3ef52172770) [<https://perma.cc/DB5M-BPG4>]; Noam Scheiber, *Rules to Require Employers to Disclose Use of Anti-Union Consultants*, N.Y. TIMES (Mar. 23, 2016), <https://www.nytimes.com/2016/03/24/business/economy/union-labor-regulation-consultant-relationships.html> [<https://perma.cc/X5WU-6QAH>].

151. HSBC, for example, anticipated spending \$3.3 billion on regulatory and compliance actions in 2017 alone. Richard Partington, *Banks Trimming Compliance Staff as \$321 Billion in Fines Abate*, BLOOMBERG (Mar. 22, 2017, 8:01 PM EDT), <https://www.bloomberg.com/news/articles/2017-03-23/banks-trimming-compliance-staff-as-321-billion-in-fines-abate> [<https://perma.cc/B97D-7TXD>].

productivity gains associated with higher wages and benefits (according to “efficiency wage” theory) depend on their being voluntary and above what either the law or the market demands; that is how employers recruit and retain employees who might otherwise go elsewhere, and induce reciprocal loyalty in the form of higher effort.<sup>152</sup> That dynamic cannot necessarily be reproduced through across-the-board mandates and minimum standards.

It is hardly a revelation that employment laws add to the cost of employing humans. Nor is it a reason to oppose those laws. From a societal standpoint, those laws might promote allocative efficiency by mitigating negative externalities or overcoming collective action problems; or they might serve just distributional ends or other overriding noneconomic values.<sup>153</sup> But none of those social gains undercut firms’ private incentive to avoid or evade those laws and their costs if they can do so. Indeed, both corporate law and financial-market pressures virtually compel firms to minimize these costs if doing so increases returns to shareholders.<sup>154</sup> And increasingly firms can avoid those costs—in part through fissuring, but more completely through automation.

### C. *Why Automation Is Different*

Automation is in one sense just another tool in the toolbox for firms seeking to reduce the costs and risks associated with in-house labor. But in other ways it is fundamentally different. Rather than separating human workers from those who use and profit from their labor, automation replaces human labor inputs altogether. Where automation is feasible and cost-effective, it offers the ultimate exit from the costs, risks, and hassles of employing people, including those that stem from the law of work.

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152. See Lawrence F. Katz, *Efficiency Wage Theories: A Partial Evaluation*, in 1 NBER MACROECONOMICS ANNUAL 1986, at 235, 248 (Stanley Fischer ed., 1986); Michael L. Wachter, *Neoclassical Labor Economics: Its Implications for Labor and Employment Law*, in RESEARCH HANDBOOK ON THE ECONOMICS OF LABOR AND EMPLOYMENT LAW 20, 28-29 (Cynthia L. Estlund & Michael L. Wachter eds., 2012).

153. See Christine Jolls, *Employment Law and the Labor Market 2* (Nat’l Bureau of Econ. Research, Working Paper No. 13230, 2007), <https://www.nber.org/papers/w13230> [<https://perma.cc/B6DM-UQNC>] (arguing that “[i]n the presence of a market failure, legal intervention through employment law may both enhance efficiency and make employees better off”); see also Alain Supiot, *Law and Labour: A World Market of Norms?*, 39 NEW LEFT REV. 109, 120 (May-June 2006) (arguing that the law can and should serve noneconomic human values).

154. See Henry Hansmann & Reinier Kraakman, *The End of History for Corporate Law*, in CONVERGENCE AND PERSISTENCE IN CORPORATE GOVERNANCE 33 (Jeffrey N. Gordon & Mark J. Roe eds., 2004).

Fissuring can partially but not completely insulate lead firms from the workers who perform outsourced tasks and from the blowback that may hit even far-away lead firms when those workers suffer abuse. Recall Apple's brand-bruising scandals when a dozen Foxconn workers committed suicide in 2010, or when others were injured in explosions or suffered nerve damage from the use of dangerous chemicals in the manufacture of iPhones and iPads.<sup>155</sup> By contrast, robots and algorithms have no human rights to be violated and no bodies to be bruised or battered. Foxconn's plan to automate nearly all of its operations will avert some risks to both Apple and Foxconn, for robots do not commit suicide or suffer nerve damage.

Robots and algorithms also do not demand higher wages, form unions, or go on strike, as humans sometimes do. The high wages and benefits that unionized American blue-collar workers had fought for over many decades in part caused the flight of much manufacturing to China. But average real wages in China rose by a factor of ten from 1990 to 2015.<sup>156</sup> Higher wages in China have

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155. See Tania Branigan, *Chinese Workers Link Sickness to N-Hexane and Apple iPhone Screens*, *GUARDIAN* (May 7, 2010), <https://www.theguardian.com/world/2010/may/07/chinese-workers-sickness-hexane-apple-iphone> [<https://perma.cc/G8SG-9BSB>]; Jenny Chan, *Robots, Not Humans: Official Policy in China*, *NEW INTERNATIONALIST* (Nov. 1, 2017), <https://newint.org/features/2017/11/01/industrial-robots-china> [<https://perma.cc/QBB7-RYAC>]; Charles Duhigg & David Barboza, *In China, Human Costs Are Built into an iPad*, *N.Y. TIMES* (Jan. 25, 2012), <https://www.nytimes.com/2012/01/26/business/ieconomy-apples-ipad-and-the-human-costs-for-workers-in-china.html> [<https://perma.cc/B9HK-UQTW>]; Nick Statt, *iPhone Manufacturer Foxconn Plans to Replace Almost Every Human Worker with Robots*, *VERGE* (Dec. 30, 2016, 5:07 PM EST), <http://www.theverge.com/2016/12/30/14128870/foxconn-robots-automation-apple-iphone-china-manufacturing> [<https://perma.cc/KH26-GY53>].
156. See *A Tightening Grip: Rising Chinese Wages Will Only Strengthen Asia's Hold on Manufacturing*, *ECONOMIST* (Mar. 12, 2015) [hereinafter *A Tightening Grip*], <http://www.economist.com/news/briefing/21646180-rising-chinese-wages-will-only-strengthen-asias-hold-manufacturing-tightening-grip> [<https://perma.cc/GU6C-QKN7>]. Rising wages in China (and elsewhere) reflect some profound social forces. Karl Polanyi famously argued that the spread of capitalist markets and the commodification of labor have historically tended to provoke a countermovement – both collective agitation and political mobilization – in pursuit of social protection against harsh market forces. KARL POLANYI, *THE GREAT TRANSFORMATION: THE POLITICAL AND ECONOMIC ORIGINS OF OUR TIME* (2d ed. 2001). The countermovement to socialize markets is far from inevitable, especially in authoritarian countries. Yet China's unelected leaders have found it necessary to raise labor standards in response to the spread of labor unrest. See ELI FRIEDMAN, *INSURGENT TRAP: LABOR POLITICS IN POSTSOCIALIST CHINA* (2014); see also CYNTHIA ESTLUND, *A NEW DEAL FOR CHINA'S WORKERS?* 99-122 (2017) (describing how higher labor standards fit into a larger effort to preempt politically threatening labor conflict and mobilization).

pushed some suppliers to poorer countries with cheaper labor and have led others to automate their Chinese factories.<sup>157</sup> Some manufacturing has even returned to the United States, but to factories equipped with robots and 3-D printers, and staffed with a relative handful of workers who are more likely to have an engineering degree than just a high school diploma.<sup>158</sup>

Even if workers demand only a decent living wage—as the “Fight for \$15” movement does in many high-cost U.S. cities—they may bolster the managerial case for automation. Andrew Puzder, a fast-food CEO and President Trump’s first nominee for Secretary of Labor, made the point in more colloquial terms: “If you’re making labor more expensive, and automation less expensive—this is not rocket science.”<sup>159</sup> The first burger-flipping robots might be expensive relative to low-wage fast food workers. But as innovation races forward, the machines get cheaper and more efficient while labor usually does not. At some point, the up-front investment will be worthwhile, if not obligatory, for firms in a competitive market.

Unlike human labor, machines tend inexorably to get more capable and cheaper over time.<sup>160</sup> The falling costs and expanding capabilities of robots and algorithms stem from the mysterious but much studied dynamics of innovation. In response to firms’ demand for ways to lower costs and increase productivity, tech firms on the supply side race to improve the capabilities and lower the cost of the technologies that enable both fissuring and automation.<sup>161</sup>

In short, technological innovation outpaces human evolution. That oversimplifies things, of course; educational and cultural institutions expand the horizon of human aptitudes. But the functional capabilities of machines appear to be rising much faster and with fewer apparent natural limits than those of humans. At the same time, humans are unable, even if they were willing, to keep pace with the falling cost of machines. The organizational innovations that come under the rubric of fissuring, though facilitated by technology, still run up against the upper bounds of human performance and the lower bounds of the cost of

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157. See *A Tightening Grip*, *supra* note 156.

158. See Jeffrey Rothfeder, *Why Donald Trump Is Wrong About Manufacturing Jobs and China*, NEW YORKER (Mar. 14, 2016), <https://www.newyorker.com/business/currency/why-donald-trump-is-wrong-about-manufacturing-jobs-and-china> [<https://perma.cc/AB4R-XW8W>].

159. Kate Taylor, *Fast-Food CEO Says He’s Investing in Machines Because the Government Is Making It Difficult to Afford Employees*, BUS. INSIDER (Mar. 16, 2016, 5:30 PM), <https://www.businessinsider.com/carls-jr-wants-open-automated-location-2016-3> [<https://perma.cc/HT2N-44CX>].

160. FORD, *supra* note 3.

161. See Hrdy, *supra* note 119 (questioning whether society necessarily benefits from speeding the pace of labor-saving innovations, as intellectual property protections can do).

sustaining human beings and reproducing their labor. Automation transcends both.

So automation is different from the various forms of fissuring that have drawn so much attention from labor scholars in recent years. It offers firms the ultimate exit from the costs of employing human labor, including those stemming from the large body of law, developed over centuries, that regulates human labor and the sometimes-complex relationships between the users and the suppliers of labor. That is unsettling. But it reflects another basic difference between automation and fissuring: automation simply obviates some of the problems that the law of work addresses. It reduces workers' exposure to occupational illness or injury, discrimination, retaliation, and excessive hours. To the extent that technology replaces human workers in dangerous jobs, OSHA has no role to play, for there are no hazards to abate or regulate. So, too, with excessive work hours or discrimination.

The law of work is largely concerned with ensuring decent terms and conditions of work in whatever jobs exist. Indeed, it reflects a societal judgment about what jobs should and should not exist. By and large, however, it neither seeks to ensure that jobs do exist, nor to compel firms to use humans to do things that machines can do better or cheaper or both, nor to hold firms responsible for the humans whose labor they no longer need.<sup>162</sup> Other bodies of law – environmental or consumer safety regulations, for example – might be deployed in ways that deliberately or incidentally slow the destruction of jobs. Concerns about traffic safety, whether justified or not, might thus slow down the advent of autonomous vehicles and the displacement of millions of U.S. workers who make their living by driving cars or trucks.<sup>163</sup> But the U.S. law of work itself simply is not designed to preserve jobs or to slow the pace of job destruction in the private sector.

To be sure, a “right to work” – a right to a job and a corresponding duty of government to promote full employment – has been a recurring demand from left-liberals since the New Deal,<sup>164</sup> and it finds support in international labor law

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162. That is, apart from the system of temporary unemployment compensation for those who are actually laid off.

163. See *Why Waiting for Perfect Autonomous Vehicles May Cost Lives*, RAND CORP. (Nov. 7, 2017), <https://www.rand.org/blog/articles/2017/11/why-waiting-for-perfect-autonomous-vehicles-may-cost-lives.html> [<https://perma.cc/TLQ8-NZMT>].

164. The “right to work” touted by organized labor (as distinct from the antiunion “right-to-work” slogan that is more familiar in U.S. public discourse) has a long history in the United States. See, e.g., Senator Huey P. Long, *Statement of the Share Our Wealth Movement* (May 23, 1935), in 74 CONG. REC. 8040-43 (1935) (calling for, among other things, a national minimum income and a limitation on the hours of work); Dr. Martin Luther King, Jr., *Showdown for Non-Violence*, LOOK, Apr. 16, 1968, at 23, <http://www.thekingcenter.org/archive/document/showdown-nonviolence> [<https://perma.cc/UEE9-JTYH>] (calling for an “economic bill of

theory and advocacy.<sup>165</sup> But the right to work, even when it has come closest to realization, is not part of the U.S. law of work as such.<sup>166</sup> Nor do U.S. workers have a right to consult with management over decisions about the use of labor-saving technology, as some European workers do under works-council legislation. For example, Germany permits workers to negotiate with management over uses of labor-saving technology.<sup>167</sup>

*D. How Automation Confounds Prevailing Approaches to the Regulation of Work*

Even if the U.S. law of work does not concern itself with the displacement of jobs by automation, that does not mean it is irrelevant to that process. To whatever extent employment laws add to the costs of human labor (without boosting its productivity), they tilt firms' calculus toward labor-saving technologies.<sup>168</sup> The effect is probably greater at the low end of the labor market, where many highly automatable jobs reside, and where minimum wage levels prevent firms from shifting the costs of legal mandates onto employees through lower wages. Especially at the bottom of the labor market, raising the floor on wages, benefits, and working conditions through employer mandates strengthens the business case for automation of automatable jobs.

That surely includes large increases in the minimum wage. Twenty years ago, Daniel Shaviro observed that “[m]ost economists of all ideological persuasions have long agreed that [the minimum wage] is self-defeating: it destroys jobs in

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rights,” which “would guarantee a job to all people who want to work and are able to work”). The “right to work,” or at least the effort to ensure full employment, largely supplanted the earlier effort to reduce working hours. See *supra* text accompanying notes 97-100. For more recent calls for a “right to work” in the form of a federal jobs guarantee, see *infra* text accompanying note 260.

165. For an excellent collection of essays offering theoretical, comparative, and historical perspectives on the “right to work,” see *THE RIGHT TO WORK: LEGAL AND PHILOSOPHICAL PERSPECTIVES* (Virginia Mantouvalou ed., 2015). This line of inquiry is beyond the scope of this Article, though it is one that I plan to include in future work on the topic.

166. See Katherine V.W. Stone, *A Right to Work in the United States: Historical Antecedents and Contemporary Possibilities*, in *THE RIGHT TO WORK: LEGAL AND PHILOSOPHICAL PERSPECTIVES*, *supra* note 165, at 275.

167. See Walther Müller-Jentsch, *Germany: From Collective Voice to Co-management*, in *WORKS COUNCILS: CONSULTATION, REPRESENTATION, AND COOPERATION IN INDUSTRIAL RELATIONS* 53, 58-60 (Joel Rogers & Wolfgang Streek eds., 1995).

168. The McKinsey study makes that clear. See MGI, *A Future that Works*, *supra* note 31, at 7.

the low-wage sector of the economy and thus hurts many of the people it is intended to help.”<sup>169</sup> The widely discussed Card and Krueger studies in the 1990s,<sup>170</sup> as well as more recent empirical studies, have challenged that consensus.<sup>171</sup> Others discount those studies and hold to the orthodox position.<sup>172</sup> While the debate continues with regard to moderate increases in the minimum wage, most economists would now agree that small increases do not matter much, and that large increases are indeed likely to lead to job losses, at least among the least skilled workers.<sup>173</sup> At any point along either spectrum, however—from small to large increases in the minimum wage, or from orthodoxy to heterodoxy—the growing capabilities and falling costs of automation are bound to tilt the scales to some degree toward displacement of workers.

Puzder’s comment cited above (“this is not rocket science”) makes the well-nigh irrefutable point that the business case for automation is stronger if direct wage costs are fifteen dollars an hour versus eight dollars an hour. Puzder was

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169. Daniel Shaviro, *The Minimum Wage, the Earned Income Tax Credit, and Optimal Subsidy Policy*, 64 U. CHI. L. REV. 405, 406 (1997).
170. See DAVID E. CARD & ALAN B. KRUEGER, MYTH AND MEASUREMENT: THE NEW ECONOMICS OF THE MINIMUM WAGE (1995). For a critique of the methodology of the Card and Krueger studies, see Shaviro, *supra* note 169.
171. See Arindrajit Dube et al., *Minimum Wage Effects Across State Borders: Estimates Using Contiguous Counties* (Inst. for Research on Labor and Emp’t, IRLE Working Paper No. 157-07, 2010), <https://irle.berkeley.edu/files/2010/Minimum-Wage-Effects-Across-State-Borders.pdf> [<https://perma.cc/C4AC-53UD>]. For a round-up of recent studies finding no impact of (usually modest) increases in minimum wage levels on employment, see Holly Sklar, *Research Shows Minimum Wage Increases Do Not Cause Job Loss*, BUS. FOR FAIR MINIMUM WAGE, <https://www.businessforafairminimumwage.org/news/00135/research-shows-minimum-wage-increases-do-not-cause-job-loss> [<https://perma.cc/VJ5X-HMYE>].
172. See David Neumark, *The Effects of Minimum Wages on Employment*, FED. RES. BANK S.F. (Dec. 21, 2015), <https://www.frbsf.org/economic-research/publications/economic-letter/2015/december/effects-of-minimum-wage-on-employment> [<https://perma.cc/WEP2-S3PD>].
173. For example, liberal economist Jared Bernstein, based on recent studies including Dube et al., *supra* note 171, concludes: “I don’t think we should worry too much about the impact of moderate minimum wage increases on labor substitution . . . . Large minimum wage increases, like going to \$15 in places with low wages, are another story,” and may need to be phased in slowly. See Jared Bernstein, *Minimum Wages and Capital/Labor Substitution*, ON THE ECON.: JARED BERNSTEIN BLOG (Aug. 17, 2015, 3:43 PM), <https://jaredbernsteinblog.com/minimum-wages-and-capital-labor-substitution> [<https://perma.cc/U7FU-GYSL>]. Similarly, Alan Krueger (of the Card-Krueger study, *supra* note 170, which challenged the orthodox view of employment effects of minimum wage increases) argues that an increase to \$12 per hour “would not have a meaningful negative effect on United States employment,” but that “\$15 an hour is beyond international experience, and could well be counterproductive,” especially in low-wage regions. Alan B. Krueger, Opinion, *The Minimum Wage: How Much Is Too Much?*, N.Y. TIMES (Oct. 10, 2015), <https://www.nytimes.com/2015/10/11/opinion/sunday/the-minimum-wage-how-much-is-too-much.html> [<https://perma.cc/8TE6-272J>].

excoriated by workers' advocates for preferring robots to workers.<sup>174</sup> But at the point that robots can perform as well as or better than humans at a lower cost, they will be irresistible for firms in competitive markets, lest those firms lose profits, market share, and investors. That is indeed “not rocket science”; it is Capitalism 101. And *if* new job creation lags behind job destruction, then those who call for significant hikes in the minimum wage—or in any other material labor standards that raise employer costs—face a dilemma.

A similar dilemma plagues the prevailing legal responses to fissuring. Even as law-related labor costs tend to promote fissuring in all its varied forms, including the disintegration of jobs into “gigs,” fissuring tends to undermine labor standards and the employment-based social model. Faced with this very big problem, labor scholars have converged on a solution with several variations: shore up what I call the “fortress of employment” — the whole array of rights and duties associated with employment — by expanding lead firms’ responsibility for the wages and working conditions of the workers whose labor they use.<sup>175</sup> Hence the proliferation of scholarship and advocacy aimed at combatting misclassification of employees as independent contractors and at expanding the definition of “employment,” including the scope of “joint employment,” so that it is harder for lead firms to escape the costs of complying with labor standards. Other scholars have proposed more radically reconstructing the concept of employment,<sup>176</sup> or dismantling the distinction between employees and independent contractors,<sup>177</sup> or creating an intermediate category between the highly regulated employment relationship and the relatively free-wheeling domain of commercial contracting.<sup>178</sup>

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174. See, e.g., Michael Hiltzik, *Andy Puzder, Trump’s Choice for Labor Secretary, Is a Good Spokesman for Fast-Food Restaurant Owners. For Their Employees, Not So Much*, L.A. TIMES (Dec. 8, 2016, 1:40 PM), <https://www.latimes.com/business/hiltzik/la-fi-hiltzik-puzder-labor-20161208-story.html> [<https://perma.cc/9P7T-JQBW>].

175. See WEIL, *supra* note 23.

176. See JEREMIAS PRASSL, *THE CONCEPT OF THE EMPLOYER* (2015).

177. See Judy Fudge et al., *Changing Boundaries in Employment: Developing a New Platform for Labour Law*, 10 CANADIAN LAB. & EMP. L.J. 329, 336 (2003).

178. See GUY DAVIDOV, *A PURPOSIVE APPROACH TO LABOUR LAW* (2016); H.W. Arthurs, *The Dependent Contractor: A Study of the Legal Problems of Countervailing Power*, 16 U. TORONTO L.J. 89 (1965). A more recent proposal in the United States along these lines focuses on the status of “platform-based” workers such as Uber drivers. See Seth D. Harris & Alan B. Krueger, *A Proposal for Modernizing Labor Laws for Twenty-First-Century Work: The “Independent Worker,”* HAMILTON PROJECT (Dec. 2015), [https://www.hamiltonproject.org/assets/files/modernizing\\_labor\\_laws\\_for\\_twenty\\_first\\_century\\_work\\_krueger\\_harris.pdf](https://www.hamiltonproject.org/assets/files/modernizing_labor_laws_for_twenty_first_century_work_krueger_harris.pdf) [<https://perma.cc/66AB-G82M>].

These proposals generally aim to expand the responsibility of firms for the people who supply their labor inputs. That is, they aim to extend to those firms some or all of the legal costs and burdens that are conventionally tied to employment, and to extend to some actually or nominally “self-employed” individuals the corresponding benefits and protections. The effort to expand firms’ responsibility for workers whom they do not formally employ is vehemently opposed by many in the business community, who argue that it will squelch innovation, flexibility, and growth.<sup>179</sup> But corporations do not merely oppose these efforts; they can often escape them by rewriting contracts and reconfiguring supplier relationships to avoid employer status.<sup>180</sup> Smart legal tests of “employment” aim to defeat that response by ignoring the formalities that are most easily manipulated by firms and focusing on functional issues of control (however exercised), integration into the firm’s operations, or genuine entrepreneurial autonomy of the worker.<sup>181</sup> If firms have to pay a functional price to avoid employer responsibilities, more workers will remain within the fortress of employment.

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179. See, for example, the U.S. Chamber of Commerce’s statements against Obama-era expansions of “joint-employer” responsibility in the NLRB, *Establish a Proper Definition of Joint Employer*, U.S. CHAMBER COM. (Feb. 26, 2018), <https://www.uschamber.com/issue-brief/establish-proper-definition-joint-employer> [<https://perma.cc/S7QY-B3LK>], and in the Department of Labor (DOL), *Wage and Hour’s Joint Employer Pile-on*, U.S. CHAMBER COM. (Feb. 10, 2016), <https://www.uschamber.com/article/wage-and-hour-s-joint-employer-pile> [<https://perma.cc/L7HJ-2UV3>]. The Trump NLRB and DOL have both obliged. See *Board Proposes Rule to Change Its Joint-Employer Standard*, NLRB (Sept. 13, 2018), <https://www.nlr.gov/news-outreach/news-story/board-proposes-rule-change-its-joint-employer-standard> [<https://perma.cc/AU7Z-UX98>]; *Secretary of Labor Withdraws Joint Employment, Independent Contractor Informal Guidance*, U.S. DEP’T LAB. (June 7, 2017), <https://www.dol.gov/newsroom/releases/opa/opa20170607> [<https://perma.cc/DM7J-XL8N>].

180. See DAVIDOV, *supra* note 178, at 116; WEIL, *supra* note 23, at 236–37; *Independent Contractor Misclassification Imposes Huge Costs on Workers and Federal and State Treasuries*, NAT’L EMP. L. PROJECT (July 2015), <http://www.nelp.org/content/uploads/Independent-Contractor-Costs.pdf> [<https://perma.cc/84NX-FUC6>] (reviewing recent studies on the misclassification of employees as independent contractors).

181. See DAVIDOV, *supra* note 178, at 115; Richard R. Carlson, *Why the Law Still Can’t Tell an Employee When It Sees One and How It Ought to Stop Trying*, 22 BERKELEY J. EMP. & LAB. L. 295, 306–14 (2001). The so-called “ABC test” is one such test. As articulated recently by the California Supreme Court in *Dynamex Operations West, Inc. v. Superior Court*, the hiring firm has the burden of meeting a three-part test to escape employer status:

(A) [T]hat the worker is free from the control and direction of the hirer in connection with the performance of the work, both under the contract . . . and in fact; (B) that the worker performs work that is outside the usual course of the hiring entity’s business; and (C) that the worker is customarily engaged in an independently established trade, occupation, or business of the same nature as the work performed for the hiring entity.

The exit option of automation, however, confounds this otherwise sensible strategy of expanding the scope of employer responsibility. The more successful worker advocates are in holding lead firms responsible for the workers who supply their labor inputs, the greater those firms' incentive to replace workers altogether through automation.<sup>182</sup> In other words, if McDonalds, Inc., is held to be the employer of its franchisees' employees, or if Uber is deemed to be the employer of its drivers, those firms are marginally more likely to turn to burger-flipping robots or self-driving vehicles.

An analogous dilemma shadows the evolving response to branded firms' offshoring of operations to lower-cost, less-regulated jurisdictions. Echoing the domestic strategy of expanding the scope of employer responsibility, advocates and scholars have sought over the course of several decades to develop transnational regulatory tools – some of them “soft law,” others with harder edges – that aim to hold major corporations responsible for labor conditions within their supply chains.<sup>183</sup> Progress has been halting, and firms' public commitments to social responsibility surely outstrip actual improvements on the ground.<sup>184</sup> Still, we are very far from the days when big consumer brands could respond to reports of forced labor or child labor in their supply chains by claiming they were “just the buyer.”<sup>185</sup> That is seen, for example, in Apple's response to a rash of negative publicity about injuries to the Foxconn workers who assemble iPhones and iPads

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416 P.3d 1, 7 (Cal. 2018). Commentators have pointed out that Uber and many other “gig economy” firms will be especially hard pressed to meet the second part of the test. See Noam Scheiber, *Gig Economy Business Model Dealt a Blow in California Ruling*, N.Y. TIMES (Apr. 30, 2018), <https://www.nytimes.com/2018/04/30/business/economy/gig-economy-ruling.html> [<https://perma.cc/L38G-CG8Y>]. See generally Anna Deknatel & Lauren Hoff-Downing, *ABC on the Books and in the Courts: An Analysis of Recent Independent Contractor and Misclassification Statutes*, 18 U. PA. J.L. SOC. CHANGE 54, 65-71 (2015) (analyzing the power of the “ABC Test” to ferret out the misclassification of employees).

182. To be sure, where automation is infeasible or too costly, these strategies might have the desired effect of inducing lead firms either to monitor and improve contractors' labor practices or to bring contracted-out work back into the firm.
183. See Alan Hyde, *To What Duties Do Global Labour Rights Correlate?: Responsibility for Labour Standards down the Production Chain*, in GLOBAL JUSTICE AND INTERNATIONAL LABOUR RIGHTS 209, 209-236 (Yossi Dahan et al. eds., 2016); see also Cynthia Estlund, *Enforcement of Private Transnational Labor Regulation: A New Frontier in the Anti-Sweatshop Movement?*, in ENFORCEMENT OF TRANSNATIONAL REGULATION: ENSURING COMPLIANCE IN A GLOBAL WORLD 237 (Fabrizio Cafaggi ed., 2012).
184. See Estlund, *supra* note 183, at 241-47.
185. See *id.* at 241 (recounting that, when early antisweatshop activists sought to hold Nike accountable for labor violations in its supply chain, Nike claimed to be “just the buyer”).

in China.<sup>186</sup> Apple felt compelled to improve transparency and monitoring and to put resources into improving labor conditions at Foxconn.<sup>187</sup>

Automation modestly complicates this transnational strategy. The more successful global labor regulators and advocates are in holding branded firms politically, socially, or even legally responsible for labor conditions in their global supply chains, the more those firms and their suppliers have an incentive to switch to robots. For Apple, one side benefit of Foxconn's ambitious plan to replace most of its Chinese workers with robots—starting with the most dangerous jobs—is that it will neatly sidestep future scandals based on labor abuses.

None of this means that advocates and scholars are misguided in seeking to hold profitable and capable firms accountable for the wages and working conditions of the workers, foreign and domestic, who supply necessary labor inputs. Still, proponents of this sensible multifaceted response to fissuring should reckon with the fact that it not only fails to meet the potential challenge of automation-based job loss, but also tends to tilt firms' calculus further away from human labor and toward machines. It might even contribute to what Dani Rodrik calls "premature deindustrialization," by which developing countries experience declining employment in industry before attaining the income, resources, and infrastructure needed to advance to a postindustrial economy.<sup>188</sup>

At the same time, the Apple-Foxconn case illustrates again the double-edged nature of automation for workers. Automation is enabling Foxconn to eliminate some very dangerous jobs, as well as hundreds of thousands of other jobs whose grueling nature was blamed for a spate of worker suicides in 2010.<sup>189</sup> If the displaced workers end up with better jobs, this case may show innovation and creative destruction at their most virtuous. If not, it may illustrate the double-edged nature of efforts to hold lead firms responsible for upstream working conditions, at least for workers who lack decent alternatives. That does not mean we should

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186. See Duhigg & Barboza, *supra* note 155.

187. See Rebecca Greenfield, *How Apple Fixed Its Foxconn Problem*, ATLANTIC (May 10, 2012), <https://www.theatlantic.com/technology/archive/2012/05/how-apple-fixed-its-foxconn-problem/328307> [<https://perma.cc/G4KX-R6S5>]; Paul Harris, *Apple Hit by Boycott Call over Worker Abuses in China*, GUARDIAN (Jan. 28, 2012, 19:07 EST) <https://www.theguardian.com/technology/2012/jan/29/apple-faces-boycott-worker-abuses> [<https://perma.cc/8XNV-5AG5>].

188. See Dani Rodrik, *Premature Deindustrialization*, (Nat'l Bureau of Econ. Research, Working Paper No. 20935, 2015), <http://www.nber.org/papers/w20935> [<https://perma.cc/EY8Y-GEYD>]. Rodrik notes that a significant factor in "premature deindustrialization" is the erosion of labor-cost-based comparative advantages in manufacturing by automation. *Id.*

189. See David Barboza, *After Suicides, Scrutiny of China's Grim Factories*, N.Y. TIMES (June 6, 2010), <https://www.nytimes.com/2010/06/07/business/global/07suicide.html> [<https://perma.cc/TN7W-UFAQ>].

abandon those efforts, but we should proceed with eyes wide open, and on the lookout for ways to mitigate the dilemma they pose.

### III. A WAY FORWARD IN THE FACE OF UNCERTAINTY

Workers, their organizations, and their advocates have long struggled to raise labor standards, expand employee rights and benefits, and improve the enforcement of these legal entitlements. For present purposes, we may assume that those labor standards, rights, and benefits serve the interests of workers and the society as a whole; they represent an evolving societal conception of “decent work.” But to private firms, many of those entitlements entail net labor costs or risks that are worth avoiding if possible—in effect, they tax the employment of human labor. Fissuring strategies enable firms to avoid or evade some of those costs, and legal efforts to expand the scope of direct or joint employer responsibility aim to make that more difficult. Automation sidesteps those efforts and more completely avoids the costs of human labor, including those stemming from the law. The automation option becomes ever more compelling as the cost of machines falls and their capabilities rise.

All in all, it is hard to avoid the conclusion that labor costs stemming from employment laws are among the factors that lead firms to automate jobs and replace people. Those costs accelerate what might be an already-inevitable decline in the overall demand for human labor, especially in midlevel jobs. That is a serious concern if, as I have argued, a faster process of automation will make it much harder for individuals, institutions, and society as a whole to respond in ways that mitigate the losses and spread the gains from automation. Such a conclusion might point to a verdict that would be dispiriting to worker advocates and many labor and employment law scholars: perhaps we should now be looking for judicious ways to unburden or deregulate the employment relationship so as to slow down, or avoid speeding up, automation-related job losses.

There are reasons to resist this “unburdening” strategy, even apart from the basic uncertainty about the future net impact of automation on employment, and I will turn to them below. But first, we must return to that basic empirical uncertainty, for it has important implications for the strategy going forward, and for whether and in what ways to “unburden” employment. This Part will frame the objectives of an optimal strategy, illustrate how the strategy would work in several contexts, and defend it against some objections.

#### *A. Framing a Strategy in the Face of Uncertainty*

As discussed in Part I, the prospect that automation will produce sizable net job losses and growing wage disparities in the next decade or two is uncertain

and hotly debated, including among economists who are chiefly concerned with the well-being of ordinary workers. There is disagreement as well over whether a net decline in the demand for labor might be a boon for most people (if we had the political will and capacity to fairly distribute leisure, income, and the work that remains). There is much less controversy, however, over three related problems: growing economic *inequality*, *erosion of labor standards* at the bottom of the labor market, and the role of *fissuring* in both trends. That is, there is wider agreement that those three trends exist and that they are detrimental to workers and society.<sup>190</sup> I do not intend to argue those points further—for example, to rehearse arguments that our economy is too unequal—but will take them as reasonable premises for the argument that follows.

Given the relatively wide consensus about inequality, erosion of labor standards, and fissuring, one might conclude that we should put a priority on addressing those problems rather than the more uncertain prospect of automation-related job losses. Unfortunately, as shown in Part II, the prevailing responses within labor and employment law to the former set of problems—that is, raising minimum labor standards and mandatory benefits and expanding the reach of employer responsibility for compliance—tend to accelerate the loss of jobs to automation.

Can we avoid the opposite problem in framing a response to the threat of automation? That is, can we slow the tide of job destruction while also addressing the problems of fissuring, inequality, and deteriorating labor standards? Without pretending to magically dissolve the dilemmas flagged above, I believe we can devise a strategy that will make progress on all these fronts. It is possible, in short, to reduce the legal tax on employment—and thus marginally reduce firms' incentive *both* to replace human workers with machines and to replace employees with contractors—while improving the quality of work and of life for most workers.

It seems axiomatic that reducing the legal tax on employment, and thus reducing the cost of labor, will tend to reduce firms' incentive to outsource labor

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190. For example, the left-leaning Economic Policy Institute, which rejects the claim that automation has hurt workers' employment or wages, see Mishel & Bivens, *supra* note 20, has reported critically on problems of wage stagnation and growing inequality, see Josh Bivens, *Inequality Is Slowing U.S. Economic Growth*, ECON. POL'Y INST. (Dec. 12, 2017), <https://www.epi.org/files/pdf/136654.pdf> [<https://perma.cc/PD59-H4KW>], and on firms' growing use of often-misclassified independent contractors in place of employees, see Françoise Carré, *(In)dependent Contractor Misclassification*, ECON. POL'Y INST. (June 8, 2015), <https://www.epi.org/files/pdf/87595.pdf> [<https://perma.cc/NL4Q-LKS2>].

needs and to automate them.<sup>191</sup> The challenge is to do that while maintaining or improving labor standards and mitigating inequality. The first step in meeting that challenge lies in separating the normative question of which entitlements workers should have from the question of where the attendant costs should fall, or how the entitlements should be financed. (I use the term “entitlements” here, despite its political baggage, to encompass all of the rights, protections, benefits, and minimum labor standards to which workers are entitled by law.) The latter question, I will argue, is more practical than normative. In some cases it makes sense to put the costs of workers’ entitlements on those who employ workers, or more broadly on those who use their labor. But in other cases, it does not. Having identified the appropriate set of worker entitlements, we need to conduct an inventory to determine which of those entitlements should correspond to employer burdens and which should not.

Separating the question of what workers’ entitlements should be from the question of how they should be paid for opens up constructive possibilities on three fronts. It allows us to reduce the labor-and-employment-law tax on the use of human labor; to extend some rights and benefits to nonemployed workers; and, not just incidentally, to redistribute some of the enormous wealth that is flowing to the already wealthy, especially to those who own or make the machines.

#### *B. Employee Entitlements that Are Inextricable from Employer Mandates*

Some of the hard-won rights and protections of workers necessarily entail duties and burdens on those who employ them. That is true, for example, of laws regulating workplace hazards. Employers exercise actual or potential control over many aspects of workplace safety. Compelling them to abate hazards and to internalize the costs of occupational injuries and disease gives them an incentive to exercise their control to avoid those losses. The point holds as well for laws prohibiting discrimination and retaliation (against whistleblowers, for example). These laws are designed to redress past harms and to prevent future harms; and the latter requires altering employer behavior. Forcing the firm to answer for past harms deters future misconduct and encourages organizational precautions that reduce the individual and social harms of discrimination and retaliation.

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191. Indeed, to the degree that law effectively taxes the employment of human labor (as opposed to being borne wholly by employees in the form of a lower cash wage, *see supra* notes 147-148 and accompanying text), it distorts firms’ demand for labor versus capital in the form of labor-saving technology. *See* Abbott & Bogenschneider, *supra* note 119, at 27. Reducing that tax would thus improve economic efficiency as well as slow the loss of jobs to automation.

The point is not that these laws impose no costs or trade-offs on employers. If compliance entails a net cost to employers that they cannot pass on to workers through lower wages, those employers are presumably more likely to replace workers with machines. That trade-off should be considered by advocates and policy makers in deciding whether and how to regulate labor standards. Yet some trade-offs between the number of jobs and their quality are obviously justified. Once we as a society conclude that a decent job entails protection from hazardous conditions and from discrimination and retaliation, there is no way around imposing the costs of those protections on employers (perhaps to be shared, as market conditions permit, with employees and consumers).

The same is true of laws that regulate working time. One typical feature of the employment relationship is employer control over work hours and scheduling. American legislatures have been regulating working time for well over a century, albeit in the teeth of judicial resistance until the New Deal breakthrough.<sup>192</sup> The Fair Labor Standards Act (FLSA) of 1938 established a forty-hour workweek and a time-and-a-half overtime premium for most employees.<sup>193</sup> More recently, worker advocates have pushed for “fair scheduling” laws in response to employers’ high-tech efforts to reduce staffing costs by tailoring work schedules to customer volume.<sup>194</sup> Laws that regulate onerous “just-in-time” scheduling practices presumably increase the costs of employing people in some jobs to some degree — relative, that is, to a baseline of unfettered employer discretion — and affect firms’ calculus as to whether to automate those jobs. But if the entitlement to “fair scheduling” is justified (as I think it is), then so is the regulation of employers’ scheduling practices. There is no way to regulate hours and scheduling, and to protect workers’ ability to plan and live their lives, without regulating employers and imposing costs on them.

For the subset of worker entitlements that necessarily or practically entail employer duties and burdens, the scope of employer responsibility should be broad enough to protect the underlying rights and entitlements, to promote compliance, and to discourage evasion through fissuring. The law should aim to minimize lead firms’ ability to evade responsibility by misclassifying workers as independent contractors, or to avoid the cost of compliance by contracting out the work. That weighs in favor of extending some of these entitlements to inde-

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192. See Frank T. deVyver, *Regulation of Wages and Hours Prior to 1938*, 6 LAW & CONTEMP. PROBS. 323, 325-26 (1939).

193. See Fair Labor Standards Act of 1938, Pub. L. No. 75-718, § 7, 52 Stat. 1060, 1063 (codified as amended at 29 U.S.C. § 207 (2018)).

194. See Jonathan Timm, *Why Fair Scheduling Could Be Labor’s Next Big Fight*, THESE TIMES (Nov. 25, 2016), <http://inthesetimes.com/article/19669/why-fair-scheduling-could-be-labors-next-big-fight> [https://perma.cc/6VFV-XHJ6].

pendent contractors – for example, protections against discrimination and retaliation, and against hazards within the control of the contracting firm. It also weighs in favor of “joint employer” responsibility on the part of lead firms, at least for contractor violations that the lead firm knows or should know about. Such liability should induce lead firms to monitor and control errant contractors. In other words, for this subset of worker rights and entitlements, efforts to extend the reach of lead firms’ responsibility for workers in their supply chain – to shore up the “fortress of employment” – make eminent good sense.

Again, I assume that efforts to abate occupational hazards, prevent discrimination and retaliation, and regulate working hours – and to expand coverage and responsibility for compliance with those laws – *do* generally raise the cost of human labor relative to machines. Those entitlements, though, are part of our society’s evolving definition of “decent work,” and they necessarily entail corresponding duties and burdens on employers. Debates over the establishment and enforcement of minimum labor standards and nonwaivable worker rights have always been about what jobs we think are worth having at all at any point in our economic and social development. The growing capabilities of machines might, and perhaps should, draw closer attention to that trade-off. But once we settle on what “decent work” entails, and on the corresponding need to change employer behavior by imposing certain costs and liabilities on them, we should strive to make that judgment stick as broadly as possible, knowing and even intending that some jobs will be lost.

### *C. Employee Entitlements that Can and Should Be Detached from Employer Mandates*

That prescription does not apply, however, to all entitlements that are or could be attached to employment. Some employer mandates redress no harms that are caused or preventable by the employer. While these mandates may support crucial social entitlements, charging their cost to the employer is not necessary to protect those entitlements. On the contrary, they function as taxes on the employment of human labor, and introduce a distortion in firms’ demand for labor and toward the substitution of capital.<sup>195</sup>

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195. Brishen Rogers similarly notes that the cost of “employment-linked benefits” is “part of the reason firms seek to avoid employing their workers,” versus treating them as independent contractors. Rogers, *supra* note 25, at 517. For that reason, he suggests that “employment-related duties should be limited to those that advance goals that can only be achieved through changes to employer policies.” *Id.* at 518. Rogers calls for the “socialization” of benefits and their funding, citing the mitigation of economic inequality and greater worker mobility. *Id.*

Take health insurance, for example—a big-ticket item for many U.S. employers.<sup>196</sup> Let us posit that employees need access to affordable health care, and that most of them need help paying for it. But should the cost fall on their employers? In general, employers bear no causal responsibility for the health-care needs of workers or their families; and there is no deterrent logic in requiring employers to bear a portion of employees' health insurance costs, as the pay-or-play mandate of the ACA tends to do. On the contrary, the ACA might counterproductively deter some employment, for employers can escape its reach by reducing employees' hours below thirty per week, the threshold for employee coverage, or by keeping the size of their workforce below fifty, the threshold for employer coverage.<sup>197</sup> An employer mandate, to the extent it imposes significant and unavoidable costs on employers, will tend to discourage some employment and encourage the replacement of employees with machines, or with contractors who are not covered by the mandate, where either is feasible.

There are proposals afoot to extend guaranteed health (and other) benefits to all workers, including part-time employees and independent contractors or “gig” workers, while maintaining the link to paid work. Ideally those benefits would be portable from job to job and funded on a pro rata basis by firms on behalf of all who perform work for them.<sup>198</sup> The result would be to afford coverage to individuals who need it, and to reduce firms' incentive to substitute

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These proposals are sketched briefly at the end of an article on classification of platform workers. But the congruence of our proposals suggests an important point: there are a number of good reasons to socialize many “employment-linked benefits”; the goal of slowing automation-related job losses is one more good reason to do so.

196. According to a 2016 survey of employers, “[a]nnual premiums for employer-sponsored family health coverage reached \$18,142 this year, up 3% from last year, with workers on average paying \$5,277 towards the cost of their coverage.” *2016 Employer Health Benefits Survey: Abstract*, KAISER FAM. FOUND. (Sept. 14, 2016), <http://www.kff.org/health-costs/report/2016-employer-health-benefits-survey> [<https://perma.cc/NH78-B995>]. Not all of these costs are the product of legal mandates, of course.
197. See Alexander, *supra* note 143, at 318. The empirical evidence on these effects is mixed. One study estimated “an increase in low-hours, involuntary part-time employment of a half-million to a million workers in retail, accommodations, and food services.” Marcus Dillender et al., *Effects of the Affordable Care Act on Part-Time Employment: Early Evidence* (Upjohn Inst., Working Paper No. 16-258, 2016), [https://research.upjohn.org/cgi/viewcontent.cgi?article=1276&context=up\\_workingpapers](https://research.upjohn.org/cgi/viewcontent.cgi?article=1276&context=up_workingpapers) [<https://perma.cc/KK8V-TGVB>]. Other studies are inconclusive or show limited effects. See, e.g., Abraham & Royalty, *supra* note 146, at 21-22; see also *id.* at 11 (summarizing related work).
198. One proposal along these lines—though not clearly framed as mandatory—has gained support from a wide range of stakeholders. See Byron Auguste et al., *Common Ground for Independent Workers: Principles for Delivering a Stable and Flexible Safety Net for All Types of Work*, WTF? ECONOMY (Nov. 9, 2015), <https://wtfecconomy.com/common-ground-for-independent-workers>

part-timers or freelancers for full-time employees. That is all to the good. But as long as the mandate is tied to the use of human labor, it will still tend to tilt the users' calculus toward the exit option of automation (or perhaps the other exit option of transnational outsourcing) when that is feasible.

The point here is simple, though the details are devilish. Although a broad entitlement to health insurance makes good sense, that does not necessarily dictate putting its cost on the users of labor. Uncoupling the funding of health benefits from the use of human labor will mitigate firms' incentive to replace employees with contractors and human labor with machines. I will return briefly below to the question of how to finance benefits such as health insurance if not through an employer mandate. For now I will simply note that most alternative finance mechanisms have the added virtue of enabling a modicum of redistribution, thus mitigating economic inequality.

Rather than only repealing the ACA's employer mandate, we should replace it with something better. Repeal-and-replace, if you like. The United States is an outlier among developed countries in its failure to ensure universal health-care coverage.<sup>199</sup> It long relied on voluntary employer provision of health benefits (with the increasingly weak spur of collective bargaining and competition with unionized firms), and a backstop of Medicaid for the poor and Medicare for the elderly. The ACA took an important step forward by imposing an employer mandate (plus a now-deceased individual mandate to cover those still left out in the cold).<sup>200</sup> A broader mandate that covered some independent workers would be a further improvement. But the tax that such employer mandates impose on

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-83f3bfcf548f [<https://perma.cc/JLL5-TSFT>] (“Everyone, regardless of employment classification, should have access to the option of an affordable safety net that supports them when they're injured, sick, in need of professional growth, or when it's time to retire.”).

199. Among countries in the OECD, the United States has by far the lowest level of public health-care coverage (under 35% compared to 100% coverage in most countries); including private health-care coverage, the United States is still next-to-last among OECD countries (ahead of Greece) in health-care coverage, and is one of the few that has not achieved universal health coverage. *Universal Health Coverage and Health Outcomes*, OECD 9 (2016), <https://www.oecd.org/els/health-systems/Universal-Health-Coverage-and-Health-Outcomes-OECD-G7-Health-Ministerial-2016.pdf> [<https://perma.cc/6AUY-7F2J>]; see also Special Report, *America Is a Health-Care Outlier in the Developed World*, *ECONOMIST* (Apr. 26, 2018), <https://www.economist.com/special-report/2018/04/26/america-is-a-health-care-outlier-in-the-developed-world> [<https://perma.cc/8FTT-LFPS>].

200. The ACA took a step closer to the so-called “Bismarck Model,” found in Germany, France, and Japan, among other developed countries. The Bismarck Model relies on private insurers and mostly private providers, with funding through mandatory employer contributions; it taxes employment, but the tax is smaller than in the United States because insurers are non-profit and tightly regulated, and costs are lower. See T.R. REID, *THE HEALING OF AMERICA: A GLOBAL QUEST FOR BETTER, CHEAPER, AND FAIRER HEALTH CARE* 17 (2009).

the use of human labor becomes more troubling as automation becomes an increasingly viable alternative. That is among the reasons to take the next step from an employment-based system toward some form of universal single-payer health-care model.<sup>201</sup> Beyond that point, the extremely complex mechanics, economics, and politics of health care are beyond the scope of this Article.

Consider another example: paid leave for family responsibilities such as child care and elder care. Employees should be able to take a reasonable period of time off for these essential human activities without losing either their job or their income (as they can in every other OECD country).<sup>202</sup> The benefits would flow to employees' family members as well as employees themselves, and would tend to advance gender equity by mitigating the disproportionate burden of family responsibilities that is still borne by women.<sup>203</sup> Yet who should bear the cost of an entitlement to family leave?

Let us first distinguish between the entitlement to take time off without job loss and the entitlement to be paid during that time. It clearly makes sense to require the employer to grant leave and to restore the employee's job afterward (as the Family and Medical Leave Act does).<sup>204</sup> Only the employer can do that, and the costs are fairly modest and at least partially offset by intangible gains from employee retention.<sup>205</sup>

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201. Single-payer plans may use a single government provider (as in the United Kingdom's "Beveridge Model"), or may use multiple and mostly private providers (as in Canada's National Health Insurance system). See REID, *supra* note 200, at 17-19. The single-payer concept is still a political long shot in the United States, though support is growing. See, e.g., Alexander Burns & Jennifer Medina, *The Single-Payer Party? Democrats Shift Left on Health Care*, N.Y. TIMES (June 3, 2017), <https://www.nytimes.com/2017/06/03/us/democrats-universal-health-care-single-payer-party.html> [<https://perma.cc/864W-HV7N>].

202. Gretchen Livingston, *Among 41 Nations, U.S. Is the Outlier When It Comes to Paid Parental Leave*, PEW RES. CTR. (Sept. 26, 2016), <https://www.pewresearch.org/fact-tank/2016/09/26/u-s-lacks-mandated-paid-parental-leave> [<https://perma.cc/P5RA-XWB4>].

203. See AEI-Brookings Working Grp. on Paid Family Leave, *Paid Family and Medical Leave: An Issue Whose Time Has Come*, BROOKINGS 4-7 (May 2017), [https://www.brookings.edu/wp-content/uploads/2017/06/es\\_20170606\\_paidfamilyleave.pdf](https://www.brookings.edu/wp-content/uploads/2017/06/es_20170606_paidfamilyleave.pdf) [<https://perma.cc/TMC6-B5NJ>].

204. See 29 U.S.C. § 2601 (2018).

205. See *FMLA and Its Impact on Organizations: A Survey Report by the Society for Human Resource Management*, SOC'Y FOR HUM. RES. MGMT. 26 fig.12 (July 2007), <https://www.shrm.org/hr-today/trends-and-forecasting/research-and-surveys/documents/fmla%20and%20its%20impact%20on%20organizations%20survey%20report.pdf> [<https://perma.cc/CYG7-6MME>]; Jacob Alex Klerman et al., *Family and Medical Leave in 2012: Technical Report*, ABT ASSOCS., INC. 157 exhibits 8.5.1 & 8.5.2 (Apr. 18, 2014), <https://www.dol.gov/asp/evaluation/fmla/FMLA-2012-Technical-Report.pdf> [<https://perma.cc/NN4A-F939>].

What about the larger cost of *paid* family leave? The employer did not cause the circumstances giving rise to the leave and can do nothing to avoid it—or nothing good, anyway. If employers had to pay the cost of family leave directly out of current revenues, some would predictably discourage or penalize leave taking or discriminate against likely leave-takers, such as women of childbearing age.<sup>206</sup> To avoid this problem, state-level paid-leave mandates in the United States generally use a payroll tax, which spreads the cost of paid leave across the entire workforce.<sup>207</sup> Unfortunately, a payroll tax modestly raises the cost of employing anyone and to that degree may tilt firms' calculus toward automating work where that is feasible.<sup>208</sup>

Once again, we should recall the economists' assumption that employees largely bear payroll taxes (in the form of lower wages) regardless of who nominally pays them.<sup>209</sup> On that assumption, the resulting tax is regressive—because it generally phases out at higher income levels<sup>210</sup>—but it is not one that should spur automation. On the other hand, that assumption may not match the beliefs of employers who make decisions about hiring versus automation; and in any event it runs out at the low end of the labor market. To whatever extent the bur-

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206. Of course, that would be illegal, but it might not be detectable, provable, or likely to trigger a lawsuit. See Samuel Issacharoff & Elyse Rosenblum, *Women and the Workplace: Accommodating the Demands of Pregnancy*, 94 COLUM. L. REV. 2154, 2172-89 (1994).

207. That is the case in California and New Jersey, two states with paid family-leave programs. A Trump Administration proposal would link funding to unemployment compensation programs, also funded by payroll taxes. See Maggie Haberman, *Ivanka Trump Swayed the President on Family Leave*. *Congress Is a Tougher Sell*, N.Y. TIMES (May 21, 2017), <https://www.nytimes.com/2017/05/21/us/politics/ivanka-trump-parental-leave-plan.html> [<https://perma.cc/8GVS-GJZB>].

208. Paid family leave might pay off for employers in the form of employee retention and loyalty. That is presumably why some employers voluntarily offer paid family-leave benefits. For those who do not, and who would be affected by a mandate, it is possible but hardly certain that the benefits of employee retention outweigh the costs of paid leave.

209. See Kelly Bedard & Maya Rossin-Slater, *The Economic and Social Impacts of Paid Family Leave in California: Report for the California Employment Development Department*, CAL. EMP'T DEV. DEP'T (Oct. 13, 2016), [https://www.edd.ca.gov/Disability/pdf/PFL\\_Economic\\_and\\_Social\\_Impact\\_Study.pdf](https://www.edd.ca.gov/Disability/pdf/PFL_Economic_and_Social_Impact_Study.pdf) [<https://perma.cc/MU6V-D3AP>].

210. Payroll taxes in general are the most regressive large category of taxes (in Europe as well as in the United States). See *Briefing Book*, TAX POL'Y CTR. 61 fig.2 (2016), [https://www taxpolicycenter.org/sites/default/files/briefing-book/tpc-briefing-book\\_o.pdf](https://www taxpolicycenter.org/sites/default/files/briefing-book/tpc-briefing-book_o.pdf) [<https://perma.cc/UK4U-PBDX>]; John H. Cochrane, *Europe's Payroll Taxes*, GRUMPY ECONOMIST (Sept. 22, 2012, 3:28 PM), <https://johnhcochrane.blogspot.com/2012/09/europes-payroll-taxes.html> [<https://perma.cc/36RE-REC3>]; *Policy Basics: Federal Payroll Taxes*, CTR. ON BUDGET & POL'Y PRIORITIES (Mar. 23, 2016), <https://www.cbpp.org/research/federal-tax/policy-basics-federal-payroll-taxes> [<https://perma.cc/5L9U-HTJ8>].

den of mandatory paid family leave does fall on employers, it is part of a cumulative tax on employment whose incentives appear counterproductive in an age of accelerating automation.<sup>211</sup>

To be sure, much turns on the particulars of the program. Existing paid family-leave mandates (in California, New Jersey, and Rhode Island, for example) are modest, providing for four to six weeks of partial salary replacement, up to a rather low cap.<sup>212</sup> At those benefit levels, the cost is quite small, wherever it falls.<sup>213</sup>

Suppose, however, that we aspired to a more generous paid family-leave mandate (like those in much of Europe.)<sup>214</sup> And suppose that we sought to extend the entitlement to cover a larger set of family and medical exigencies, and even to allow an annual paid vacation of at least three or four weeks, along with some number of paid holidays. If we did all those things, we would join the overwhelming majority of the world's developed countries in the worthy effort to enable employees to care for themselves and their families and to have annual and periodic respites from work, without losing their income for those periods.<sup>215</sup> Yet this larger entitlement to paid leave – if it were funded through a payroll tax or other mandatory employer contribution keyed to number of employees and hours of work – would impose a significant tax on employment. Far from inducing employers to avoid socially harmful conduct (as in the case of workplace safety mandates and their costs), a generous paid-leave mandate would give firms an added incentive to offload employees and turn to fissuring or automation.

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211. See, e.g., Harry J. Holzer, *Paid Family Leave: Balancing Benefits and Costs*, BROOKINGS (Jan. 30, 2017), <https://www.brookings.edu/blog/social-mobility-memos/2017/01/30/paid-family-leave-balancing-benefits-and-costs> [<https://perma.cc/A33C-ENQ4>].

212. *Id.*

213. *Id.*; see Eileen Appelbaum & Ruth Milkman, *Paid Family Leave Pays Off in California*, HARV. BUS. REV. (Jan. 19, 2011), <https://hbr.org/2011/01/paid-family-leave-pays-off-in> [<https://perma.cc/KNU3-T945>]; *The Economics of Paid and Unpaid Leave*, COUNCIL ECON. ADVISERS 19-20 (June 2014), [https://obamawhitehouse.archives.gov/sites/default/files/docs/leave\\_report\\_final.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/leave_report_final.pdf) [<https://perma.cc/9RVB-GRWP>].

214. See Erin Killian, *Parental Leave: The Swedes Are the Most Generous*, NPR (Aug. 8, 2011 3:59 PM EST), <https://www.npr.org/sections/babyproject/2011/08/09/139121410/parental-leave-the-swedes-are-the-most-generous> [<https://perma.cc/8J87-LRRD>].

215. The United States is the only OECD country that has no mandatory paid vacation or personal leave and among the few without a right to paid holidays. See Rebecca Ray & John Schmitt, *No-Vacation Nation USA—A Comparison of Leave and Holiday in OECD Countries*, EUR. TRADE UNION INST. 1 (2007), <https://www.etui.org/content/download/3061/35676/file/EEEEPB+03+2007+BBA.pdf> [<https://perma.cc/7VC7-5FCC>].

An alternative would be to shift all or part of the cost of these social benefits onto a different—and potentially more progressive—tax base. The main goal would be to reduce the tax on the use of human labor for all the reasons explored above. But an important secondary goal could be to permit a modicum of redistribution from wealthier taxpayers toward ordinary workers. I return briefly below to the question of how that might best be accomplished. The central point here is that some entitlements that have historically been linked to employment should be reconceived, and their funding mechanisms reconfigured, so that they do not tax and discourage the employment of human labor. Some employer mandates usefully force employers to bear the costs of, and thus to avoid, socially harmful conduct within their operations. Others, though, are politically expedient off-budget ways to finance social entitlements that bear no necessary relation to employment or to work.<sup>216</sup>

For historically contingent reasons, both public policy and private ordering have held major employers in the United States—more than their counterparts in Europe—heavily responsible for their employees’ ability to care for their dependents and to live a decent life through retirement.<sup>217</sup> That model might have been sustainable in the economy of the past century, dominated as it was by vertically integrated firms with strong internal labor markets and long-term employment relationships within mostly national labor and product markets.<sup>218</sup> But in an age of rampant fissuring, shorter job tenure, proliferating contingent work arrangements, and global production networks, we need to rethink that paradigm.<sup>219</sup> Rapidly advancing automation capabilities amplify the point. We need better ways of delivering basic social entitlements and meeting people’s material needs that are not dependent on steady full-time employment, *and* that do not function as a tax on the use of human labor versus machines.

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216. It is possible that the political advantages of existing funding mechanisms outweigh the disadvantages discussed here, and that the status quo is the only politically realistic alternative to sacrificing these entitlements altogether. That is a challenge that I plan to take up in future work, but that I bracket here.

217. See Stone, *supra* note 104, at 454-60. Collective bargaining between unions and major employers, war-time wage controls in the 1940s, and tax laws all played pivotal roles in the “Treaty of Detroit,” which created this template. See Shayna Strom & Mark Schmitt, *Protecting Workers in a Patchwork Economy*, CENTURY FOUND. 2 (Apr. 7, 2016), <https://s3-us-west-2.amazonaws.com/production.tcf.org/app/uploads/2016/04/25195440/ProtectingWorkersInAPatchworkEconomy-1.pdf> [<https://perma.cc/8S4U-FT9W>]. For more on the Treaty of Detroit, see NELSON LICHTENSTEIN, WALTER REUTHER: THE MOST DANGEROUS MAN IN DETROIT (1995).

218. See Stone, *supra* note 104, at 460; Strom & Schmitt, *supra* note 217, at 2-3.

219. Katherine Stone and others have made this argument for several years. See Stone, *supra* note 104, at 464.

As suggested above, it is not just the cost of entitlements but the entitlements themselves that in some cases should extend beyond employment.<sup>220</sup> After all, not only employees but also self-employed individuals need to be able to take time off from work without losing their entire income for the duration.<sup>221</sup> That might be ensured through a system of what Alain Supiot refers to as “social-drawing rights” to support time off from paid work—whether in employment or self-employment—for education, retraining, a job search, or volunteer civic work.<sup>222</sup> Those “social-drawing rights” might be funded in part through forced savings by individual workers; but to the extent that such rights generate broader social benefits, they could be subsidized by public revenues drawn from a broader and more progressive tax base.

Subsidizing time out of the paid workforce for both employees and independent workers would have many benefits. Especially in case of future job losses and further declines in labor-force participation, enabling individuals to take time off work would have a modest but valuable tendency to spread work among more workers. In addition, it would serve the various human and social needs that require time away from work, such as caring for infants and elders, and it would enable individuals to upgrade their skills or switch occupations in a changing labor market. Finally, funding such subsidies through a broad-based and progressive tax would also redistribute income from the winners to the rest in a more polarized economy. It would do all those things without taxing, and thus discouraging, the use of human labor.

The basic strategy of separating the question of what workers should be entitled to from the question of how to pay for those entitlements has surprising implications for minimum wage laws. Suppose we agree, as to the first question, that all workers deserve at least a living wage—enough for a single individual working full-time to meet basic material needs.<sup>223</sup> The current national minimum wage of \$7.25 per hour falls far short of a living wage not only in high-cost

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220. See Nicolas Colin & Bruno Palier, *The Next Safety Net: Social Policy for a Digital Age*, FOREIGN AFF. (July-Aug. 2015), <https://www.foreignaffairs.com/articles/2015-06-16/next-safety-net> [<https://perma.cc/3DWT-62JA>].

221. See Julie Kashen, *The Future of Work? Paid Leave for All*, CENTURY FOUND. (Mar. 8, 2018), <https://tcf.org/content/commentary/future-work-paid-leave> [<https://perma.cc/6N83-J6P9>] (referring to New York’s recent paid family-leave law, N.Y. WORKERS’ COMP. LAW § 212(4)(b) (Consol. 2018), which permits independent contractors and self-employed individuals to opt in).

222. See ALAIN SUPIOT, BEYOND EMPLOYMENT: CHANGES IN WORK AND THE FUTURE OF LABOUR LAW IN EUROPE 56 (2001).

223. In other words, minimum wage workers who support one or more dependents will have to turn to other forms of social support.

states and cities (many of which have enacted higher minimum wage rates), but even in the poorest counties in the nation.<sup>224</sup> Raising the minimum wage to a living wage would thus require large locally targeted increases in much of the country – as much as 75% in some cases.<sup>225</sup> Alternatively, a large increase in the national minimum wage (to \$15 per hour, for example) would ensure a living wage to most workers; but in many poorer localities it would more than double the prevailing minimum wage, and would far exceed a locally adjusted living wage.<sup>226</sup> Either way, ensuring that all U.S. workers make at least a living wage – which I take to be a self-evidently worthy aim – would require some very large wage increases for the poorest workers.

The problem, as economists across the political spectrum agree, is that wage hikes of that magnitude are very likely to destroy jobs and displace workers.<sup>227</sup> Those wage-destructive tendencies are magnified as robots and algorithms become ever-better and cheaper substitutes for human workers, especially in the routine tasks that dominate many low-wage jobs. Workers clearly need a raise, but they also need jobs (at least under current social arrangements). So even if we agree that low-income workers need and deserve higher incomes, we should ask whether it makes sense to require employers to supply those higher incomes in the form of a much higher minimum wage. Or are there other ways to put some of that money into workers' pockets?

Indeed there are. The Earned Income Tax Credit (EITC) currently subsidizes low-income workers and funds that subsidy through general revenues in the form of a tax expenditure. Daniel Shaviro, among others, has argued that the EITC is a better way to raise poor workers' incomes and to increase the returns to work than higher minimum wages, both because the subsidy is better targeted

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224. For example, in Holmes County, Mississippi, one of the poorest counties in the country, the living wage is calculated to be \$10.25 per hour. See *Living Wage Calculation for Holmes County, Mississippi*, LIVING WAGE CALCULATOR (2018), <http://livingwage.mit.edu/counties/28051> [<https://perma.cc/M3EV-VTQU>].

225. This would apply to Atlanta, Georgia, for example. See *Living Wage Calculation for Atlanta-Sandy Springs-Roswell, GA*, LIVING WAGE CALCULATOR (2018), <http://livingwage.mit.edu/metros/12060> [<https://perma.cc/KJ7F-Y2BD>].

226. That is, it would double the minimum wage in all states and cities where the national minimum wage currently prevails, and would exceed a living wage for a single individual almost everywhere – though not, for example, in Manhattan. See *Living Wage Calculation for New York County, NY*, LIVING WAGE CALCULATOR (2018), <http://livingwage.mit.edu/counties/36061> [<https://perma.cc/GUH7-2X5M>].

227. See *supra* notes 169-173 and accompanying text. Of course, that effect would be mitigated to the extent that the higher wage is introduced gradually, as some advocates propose. See *Why America Needs a \$15 Minimum Wage*, ECON. POL'Y INST. & NAT'L EMP. L. PROJECT (Apr. 26, 2017), <https://www.epi.org/files/pdf/127246.pdf> [<https://perma.cc/Y5DR-3LME>].

at low-income workers and because it does not tax and reduce employment.<sup>228</sup> Better yet, he has argued, would be a “universal lump-sum payment” – essentially a guaranteed basic income – or “negative marginal tax rates” at low income levels.<sup>229</sup> Others have argued for “wage subsidies” that low-wage workers receive with each paycheck instead of at the end of the tax year, and without the filing requirements that keep many eligible workers from claiming the EITC.<sup>230</sup> In one way or another, all of these alternative strategies effectively separate the question of what workers need or deserve by way of income from the question of what their employers should be required to pay them. All of them increase incomes for low-wage workers and allow for the pursuit of legitimate redistributive aims without a counterproductive impact on employment. Any of them might also be combined with moderate increases in the minimum wage.<sup>231</sup>

This argument is bound to rankle many worker advocates. It flies in the face of what might seem to be a perfectly sensible normative premise that employers ought to pay whatever workers deserve to earn as a return on their labor – indeed, that tapping public funds to support the incomes of the poorest workers “provide what is in effect a subsidy for unconscionable employers.”<sup>232</sup> That normative claim is frequently backed by an empirical prediction that mandating higher wages would push firms toward more efficient and capital-intensive modes of production and the creation of better jobs – as indeed it did in the run-up to World War II and its aftermath.<sup>233</sup> It is at least plausible, however, to think that this time will be different, that job destruction will outrun job creation, and

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228. See Shaviro, *supra* note 169, at 459–66. Notably, the EITC covers “self-employed” workers who work as independent contractors. 26 U.S.C. § 32(c)(2)(A)(ii) (2018). The EITC does not now, but could, reflect local differences in the cost of living. David Callahan, *Why Not Peg EITC Benefits to the Local Cost of Living?*, DEMOS (Mar. 9, 2014), <https://www.demos.org/blog/3/19/14/why-not-peg-eitc-benefits-local-cost-living> [<https://perma.cc/T4K7-RYBK>].

229. Shaviro, *supra* note 169, at 410.

230. For an empirical assessment of some relatively narrow wage-subsidy programs, see Lawrence F. Katz, *Wage Subsidies for the Disadvantaged* (Nat’l Bureau of Econ. Research, Working Paper No. 5679, 1996). For a more polemical endorsement from a business-friendly think tank, see *The Case for a Targeted Living Wage Subsidy*, EMP. POLICIES INST. (June 2001), [https://www.epionline.org/wp-content/studies/epi\\_livingwage\\_07-2001.pdf](https://www.epionline.org/wp-content/studies/epi_livingwage_07-2001.pdf) [<https://perma.cc/6RUT-ME3H>].

231. That is the position of Alan Krueger, a leading scholarly skeptic of the conventional economic wisdom regarding minimum wage increases. See Krueger, *supra* note 173 (“Although the plight of low-wage workers is a national tragedy, the push for a nationwide \$15 minimum wage strikes me as a risk not worth taking, especially because other tools, such as the earned-income tax credit, can be used in combination with a higher minimum wage to improve the livelihoods of low-wage workers.”).

232. *West Coast Hotel v. Parrish*, 300 U.S. 379, 399 (1937).

233. See Marc Linder, *The Minimum Wage as Industrial Policy: A Forgotten Role*, 16 J. LEGIS. 151, 157–58 (1990).

that large minimum wage increases will contribute to that process. If I am right in arguing that a slower pace of automation will better enable us to make the major social, political, and individual adjustments that will be required to meet the challenge of automation, then it makes sense to find alternative ways to pay for part of what workers deserve to earn from their labor – even if it might look like a subsidy to employers.

In short, to the extent that firms are increasingly able to boost profits by shedding workers and automating work, their chronic complaints about the costs of employment mandates will have to be taken more seriously. Yet that need not entail shrinking workers' entitlements; in some cases, we can and should instead shift the burden of paying for those entitlements away from the employment nexus.

The unburdening strategy proposed here has an additional virtue that should appeal to those who see much to be gained from technological advances. The proposed strategy would have its greatest impact on the automation decisions that should most concern us: those that mainly *substitute* for labor rather than complement labor, and those that are driven chiefly by *labor costs* rather than gains in quality, reliability, safety, or the like. Obviously, the same technology can both replace some workers and enhance others' productivity, and can both save on labor costs and improve quality. But the more heavily labor costs weigh in firms' automation decisions, the more those decisions will be affected by the unburdening of employment. Firms' pursuit of other gains from automation – such as increasing workers' productivity, product quality, and reliability – will be left comparatively unaffected.

#### *D. Paying for Entitlements that Are Detached from Employment*

Thus far I have argued for maintaining or even expanding workers' entitlements, and for replacing the current mechanism for financing them. That raises the obvious question, already touched on, of how to pay for those entitlements. Without wandering too far into the domain of tax policy and public finance, let us take up that question briefly.

The primary aim is to reduce the costs associated with hiring workers, and thus slow the flight from human labor to machines. Insofar as we can shift those costs toward the top of the income scale, where the gains from automation are concentrated, then we can simultaneously address the distinct but related problem of rising income inequality. Automation has already contributed to the troubling growth of economic inequality by increasing the returns to capital versus

labor, and is likely to continue to do so going forward.<sup>234</sup> As such, it is increasingly a moral and political imperative to find ways to redistribute income from the winners in our highly polarized winner-take-all economy to those who have lost ground or are just scraping by. A reconfiguration of the basic system for funding social entitlements opens the door to undertaking some much-needed redistribution. (On the political question of how to persuade more voters of the need for redistribution I will be even briefer here.)

Redistribution can be achieved and inequality countered through policy decisions on both the taxing side and the spending side of the public ledger.<sup>235</sup> More egalitarian European countries achieve redistribution less through a highly progressive tax structure than through larger public expenditures on behalf of those in need (and higher taxes overall). On the spending side, I have already argued for replacing employee entitlements with broader or universal benefits such as affordable health care, generous paid family and medical leave and vacations, decent retirement income, and income support for poor workers. But the net redistributive impact of these programs, and the impact on economic inequality, would depend on how they are financed—on the taxation side of the ledger.

It is worth noting at the outset that the payroll tax, which now finances several major employee entitlements, is arguably the single most regressive major source of tax revenues in the United States (and elsewhere).<sup>236</sup> Shifting all or part of the cost of some worker entitlements from employers' payrolls to a broader and more progressive tax base would mitigate *both* the incentive to automate *and* the growth of income inequality.

Given the multiple goals here—funding social benefits, achieving redistribution, and mitigating the incentive to automate—it might seem hard to resist the idea of a “robot tax,” proposed famously by Bill Gates and Elon Musk.<sup>237</sup> On the

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234. See, e.g., Tyson & Spence, *supra* note 7, at 171. The problem is exacerbated by the U.S. tax code, which “subsidizes capital relative to labor.” Acemoglu & Restrepo, *supra* note 43, at 14; see also Abbott & Bogenschneider, *supra* note 119, at 150.

235. See EDWARD D. KLEINBARD, *WE ARE BETTER THAN THIS: HOW GOVERNMENT SHOULD SPEND OUR MONEY*, at xxi (2015).

236. That is based on the standard assumption that the payroll tax mainly falls on workers themselves, and on the fact that the tax drops out at high income levels. As of 2018, only the first \$128,400 of income is subject to the tax. See Cost-of-Living Increase and Other Determinations for 2018, 82 Fed. Reg. 59937, 59939 (Dec. 15, 2017). If we relax the first assumption, the payroll tax would be less regressive but more likely to discourage employment.

237. See Kevin J. Delaney, *The Robot that Takes Your Job Should Pay Taxes, Says Bill Gates*, QUARTZ (Feb. 17, 2017), <https://qz.com/911968/bill-gates-the-robot-that-takes-your-job-should-pay-taxes> [<https://perma.cc/G3KD-WVX5>]; see also Abbott & Bogenschneider, *supra* note 119;

face of it, such a tax could simultaneously slow down the replacement of people by robots, replace lost payroll-tax revenues as payrolls shrink, and promote equitable redistribution from those who make and own the robots to those whose jobs they are destroying or degrading. Presumably, like the tax on human labor, a robot tax would affect firms' decisions only at the margin; size matters. But the basic concept might seem irresistible given all I have argued here. In some ways, a robot tax might look like a mirror image of my proposal to reduce the law's tax on human labor (but without the attack on cherished and hard-fought labor gains). On the other hand, most economists scoff at the idea of a robot tax.<sup>238</sup> There is the challenge of identifying a "robot" – they do not all look like C-3PO or R2-D2 from *Star Wars*<sup>239</sup> – as well as the arbitrariness of targeting robots versus nonrobotic forms of automation.<sup>240</sup> More importantly, however, they say that such a tax would depress (or drive overseas) any efficient and productive capital investments, along with the good jobs that accompany such investments.<sup>241</sup> As a potential source of revenue to fund the entitlements that I propose to unlink from employment, it deserves consideration beyond what I can give it here.

Perhaps the simplest way in the United States to achieve some redistribution of income and to pay for what are now employee entitlements is to increase the income tax and steepen its progressivity.<sup>242</sup> We could, for example, couple a negative income tax for the poor with significantly higher marginal tax rates at the

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Orly Masur, *Taxing the Robots*, 46 PEPP. L. REV. (forthcoming 2019), <https://ssrn.com/abstract=3231660>.

238. See, e.g., Masur, *supra* note 237, at 19-25 (criticizing robot-tax proposals).

239. *Id.* at 20-21. Proxies for a robot tax, such as a tax based on the ratio of profits to number of employees, would avoid the problem of identifying robots, but it would exacerbate the problem of discouraging or driving away productivity-enhancing investments.

240. *Id.* at 21-22.

241. See Yanis Varoufakis, *A Tax on Robots? Bill Gates's Proposal for a "Robot Tax" Highlights Technological Risks to Jobs – and Also to the Income Tax Base*, ACUITY, June-July 2017, at 35-36 (arguing that it would be functionally difficult to create a robot tax that does not expand to encompass all capital goods); James Bessen, *Bill Gates Is Wrong that Robots and Automation Are Killing Jobs*, FORTUNE (Feb. 25, 2017), <http://fortune.com/2017/02/25/bill-gates-robot-tax-automation-jobs> [<https://perma.cc/QU3B-46DZ>] (arguing that a robot tax would inhibit innovation and slow job growth). That last argument might reflect assumptions about the overall net societal benefits of automation that I have questioned here. It might also highlight the blunt impact of a tax on robots as compared to a reduction in the tax on human labor. As I have argued above, the latter tends to target the labor substitution and labor-cost-driven aspects of automation.

242. Greater progressivity could be achieved in part by eliminating some highly regressive tax expenditures including "around \$100 billion of outright subsidies every year to various business

top of the income scale. One need not crunch the numbers to recognize that there is some income tax rate structure that could fully fund a set of universal social entitlements that would more than replace both the existing system of mandatory employee benefits and sizeable increases in the minimum wage.

There are alternatives, of course, such as a wealth tax,<sup>243</sup> a tax on financial transactions,<sup>244</sup> or a European-style consumption tax.<sup>245</sup> Each of these forms of taxation has advantages and disadvantages, all explored elsewhere.<sup>246</sup> The important point here is that some combination of taxes on income, wealth, financial transactions, and consumption would have two virtues over taxes on employment as a way to fund entitlements such as health insurance, paid leave, and supplemental income for poor workers. They would avoid hastening the substitution of technological capital for labor and allow for some redistribution of income.

I want to emphasize that I am not proposing to dismantle the current system of employment-based benefits, creaky and incomplete as it is, unless and until a sustainable system of more broadly socialized benefits is at hand. Efforts to socialize and subsidize what have long been employee benefits will face stiff political headwinds, including powerful antitax and antiredistributive impulses (even among some prospective beneficiaries).<sup>247</sup> Those efforts will also inspire evasive maneuvers, such as transnational tax strategies by which firms or individuals can reduce their tax exposure by offshoring operations or income.<sup>248</sup> The project

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interests—subsidies that never would pass muster as cash outlays.” KLEINBARD, *supra* note 235, at 242.

243. Thomas Piketty, for example, has proposed a global wealth tax as an antidote to rising inequality. See PIKETTY, *supra* note 30, at 515-39.
244. See Leonard E. Burman et al., *Financial Transaction Taxes in Theory and Practice*, 69 NAT'L TAX J. 171 (2016).
245. See Michael J. Graetz, *100 Million Unnecessary Returns: A Fresh Start for the U.S. Tax System*, 112 YALE L.J. 261, 281-90 (2002). Consumption taxes tend to be regressive, but that could be offset either by other taxes or, on the spending side, by using increased revenues to fund redistributive programs.
246. See generally KLEINBARD, *supra* note 235 (providing an overview of different forms of taxation and spending).
247. On the politics of redistribution, see Gillian Lester, *Can Joe the Plumber Support Redistribution? Law, Social Preferences, and Sustainable Policy Design*, 64 TAX L. REV. 313 (2011); Gillian Lester, “Keep Government Out of My Medicare”: *The Search for Popular Support of Taxes and Social Spending*, in WORKING AND LIVING IN THE SHADOW OF ECONOMIC FRAGILITY 176 (Marion Crain & Michael Sherraden eds., 2014).
248. The potential gamesmanship that can be set off by changes in the tax laws is illustrated (in the context of the Trump administration's tax legislation) in an extraordinary report by thirteen leading tax law scholars. See David Kamin et al., *The Games They Will Play: An Update on*

outlined here aims to replace the existing employment-based social model, but not to undermine it in the meantime.

*E. A Broader Case for Reconstructing the Platform for Social Rights and Benefits*

I am hardly the first to call for a shift away from “employment” as the foundation for allocating basic social entitlements. This Article’s argument echoes, for example, earlier scholarly responses to the disintegration of the standard employment relationship and the rise of various forms of contingent work and “self-employment.” Especially in the wake of Alain Supiot’s renowned 1999 report to the European Commission,<sup>249</sup> scholars in Europe and North America were moved to reconsider the continued viability of the contract of employment as what Brian Langille called “the ‘platform’ for delivering rights and benefits.”<sup>250</sup> The erosion of the standard employment relationship and the rise of contingent work highlighted the need to extend those social entitlements beyond the “platform” of employment, and to expand the responsibilities of firms accordingly.

Now the growing capabilities and falling costs of automation are highlighting the need to extend basic entitlements, their funding, or both beyond the broader platform of paid work. Now, as then, the goal is at least two-pronged: first, to extend crucial entitlements to those who are no longer (or perhaps never were) securely ensconced within stable employment relationships; and second, to preserve good jobs by countering firms’ incentive to replace employees with contractors or human workers with machines.

This Article has focused on the latter virtue of untying some entitlements and their costs from employment. I do not want to overstate the impact on job preservation. The fairly modest recalibration of the legal burdens on employment of human labor proposed here—which aims to preserve or even expand the decent-work agenda—would only incrementally reduce firms’ incentive to offload workers. On the other hand, the unburdening strategy, unlike earlier proposals to expand both the benefits and burdens of employment to other workers and work arrangements, would help to meet the challenge of fissuring *and* the challenge of automation. It would extend crucial entitlements to those who no longer work within stable employment relationships, and it would reduce firms’ incentive to replace employees with either contractors or machines.

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*the Conference Committee Tax Bill*, 103 MINN. L. REV. (forthcoming 2018), <https://ssrn.com/abstract=3089423>.

249. The 1999 “Supiot Report” was later published in book form. SUPIOT, *supra* note 222.

250. Fudge et al., *supra* note 177, at 331-32, 363 (quoting Brian Langille, *Labour Policy in Canada—New Platform, New Paradigm*, 28 CANADIAN PUB. POL’Y 133 (2002)).

In sum, the strategy proposed here would promote both liberty and equality. On the side of liberty, it would better enable some individuals to *choose* the greater autonomy and flexibility of self-employment or freelancing (even as it reduced firms' incentive to use freelancers instead of employees). It is hard to credit the rosy depictions of the so-called sharing economy when so many of those who work in that economy would prefer to have a real job and the relative stability and benefits that go with it.<sup>251</sup> Yet freelance and platform-based work is not merely a sham or a last resort for those who cannot get a full-time job. Many individuals genuinely value the freedom from direct supervision and the ability to determine their own work schedule.<sup>252</sup> Others would surely make that choice if they had a baseline level of economic security from which to do so.

A stronger universal system of social provision would also promote equality in two senses. As sketched in this Article, it would redistribute some of the outsized gains at the top of the income distribution to those whose living standards have fallen or stagnated, and it would counter social stratification between insiders—relatively privileged and well-provisioned employees of leading firms—and outsiders who are left to their own devices (or to a social safety net that is politically vulnerable because of its narrow focus on the poor).

The prevailing strategy of shoring up the fortress of employment, however successful, will still leave out a large and probably growing segment of the adult population, along with their dependents. Detached from economically capable and comparatively responsible lead firms, those individuals may work for less profitable and compliant contractor firms, or as independent contractors, freelancers, and temps. Or they may be unable to find steady paid work at all. A stronger set of basic social entitlements would help to ensure that those individuals and their children enjoy the foundations of a decent and healthy life even if they cannot enter the fortress of full-time stable employment.

#### *E. Some Objections and Alternatives*

I have argued that a shift away from employment as the platform for entitlements and their funding, and toward more universal social entitlements and broader-based funding, would serve multiple goals. But the strategy of unburdening employment—even along the circumspect lines proposed here—will meet resistance from those who seek instead to fortify the existing model of worker rights and entitlements and employer responsibilities—to shore up the

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251. MGI, *Study on Independent Work*, *supra* note 127, at 1, 7.

252. *Id.*

fortress of employment. As suggested above, some of the resistance to unburdening employment reflects a premise, explicit or implicit, that employers *deserve* to bear the burden of whatever rights and entitlements workers deserve to have, including the basic material requisites of a decent life for oneself and one's dependents.<sup>253</sup> I share that intuition, but I have come to question it. As it becomes easier for employers to escape those burdens – partially through fissuring or altogether through automation – the premise begins to look self-defeating.

Other objections to the unburdening strategy are more pragmatic. One, also foreshadowed above, harkens back to the economists' mantra of creative destruction: even if high labor standards would destroy some jobs, they will also help to generate new and better jobs. As Marc Linder has shown, some New Deal proponents of early minimum wage laws similarly viewed the tendency to displace some workers and to promote more capital-intensive modes of production as a feature, not a bug, of those laws.<sup>254</sup> As a result, both consumer demand and displaced workers would flow toward more efficient (and capital intensive) producers who could afford to pay higher wages.<sup>255</sup> But if this time really is different, such that machines will be able to produce an ever-larger share of the products and services that humans demand in the future, then we have more to worry about than the New Dealers did.<sup>256</sup>

Another argument for shoring up the fortress of employment, and against the unburdening strategy, is more fatalistic. Net job losses due to automation are inevitable, and will not be much affected by reducing the costs of employees' legal rights, benefits, and protections. Those costs obviously matter only at the margin in firms' decisions about automation; and cutting them back would only marginally slow down the loss of jobs while undermining the quality and working conditions in the jobs that remain. There is much to be said for this response. To be sure, people will not win a "race against the machines" on cost grounds, and they should not try to do so. Still, as I have argued above, the *pace* of automation matters a lot. The faster jobs are automated, the less time people will have to acquire the skills needed in a more tech-infused economy; and the less time we as a society will have to devise, build support for, and implement sensible legal and institutional responses to automation.

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253. It might resonate, too, with a fulsome conception of the total cost of reproducing labor, the burden of which should arguably fall on those who use labor.

254. See Linder, *supra* note 233, at 152-56.

255. This was not just left to the "invisible hand" of the market; public investments in training, transition, assistance, and job creation were also part of the New Deal program, and of the recovery. See *infra* note 258.

256. On the other hand, those who yearn for a postwork future might push for higher wages and labor standards precisely because of their tendency to accelerate automation. For an example, see SRNICEK & WILLIAMS, *supra* note 100, at 105.

Underlying the last two defenses of the fortress strategy are conflicting predictions about the future impact of automation on jobs—one that is skeptical of the prospect of job losses and one that is resigned to them. That reminds us again of the uncertainties and contingencies that cloud our labor-market forecast and cast doubt on a broadly deregulatory response to fears of automation-induced job losses. Yet all of these arguments together do not dispel the concern that labor and employment laws, and their attendant costs, are contributing in some measure to the speed and extent of job losses. I have argued that it is possible to counter that impact while protecting workers' rights and interests, and at the same time to begin constructing a stronger and more inclusive foundation for the more varied working lives that are likely in the labor markets of the future.

Some who oppose the unburdening strategy proposed here would point to alternative strategies for spreading the benefits and mitigating the costs of automation. Most such alternatives fall into four categories. First, investments in job training; second, investments in job creation; third, new forms of guaranteed income support, such as a UBI or a negative income tax; and fourth, job sharing through reduced hours and weeks of work.<sup>257</sup> This is not the place to thoroughly evaluate all of these alternative strategies, although some of them overlap with the proposals I have made here. But I do not believe that these alternative strategies undermine this Article's basic case for shifting some of the entitlements and burdens that are currently linked to employment to a broader set of beneficiaries and a broader funding base.

There is no doubt that we need better institutions of basic and higher education and of vocational training and retraining to equip more people for the technology-adjacent jobs that are likely to grow in the future, and to allow more people to reap the economic gains that automation will produce.<sup>258</sup> But it will

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257. In addition, Richard Freeman and colleagues have proposed that, in view of the long-term and seemingly inexorable decline in economic returns to labor versus capital, workers should gain an ownership share in technological capital—perhaps in the form of employee stock ownership—from which they might derive part of their income. See JOSEPH R. BLASI, RICHARD B. FREEMAN & DOUGLAS L. KRUSE, *THE CITIZEN'S SHARE: REDUCING INEQUALITY IN THE 21ST CENTURY* (2014); Freeman, *supra* note 7, at 1.

258. Notably, the MGI report urges measures like these. See MGI, *Jobs Lost, Jobs Gained*, *supra* note 70, at 106-14. The New Dealers who embraced the tendency of higher labor standards to destroy some jobs also urged the adoption of an "active manpower policy," including investments in "retraining and education . . . and public employment," so that displaced workers did not bear the burden of these shifts. Linder, *supra* note 233, at 158-59. Indeed, the expansion of social programs and regulatory activity since the New Deal—and the resulting growth of public employment at all levels of government—might well have offset some of the labor-market slack created by automation over the past eight decades, whether or not it was intended to do so.

take time—even if it is possible—to devise and implement education and training programs that could enable those displaced from more routine jobs to move into higher-skilled jobs. Again, the *speed* of job destruction matters.

Public job creation, including the newly resurgent idea of a federal job guarantee, would have a number of benefits. In particular, investments in physical infrastructure, education, and other public goods, and in social services for people—especially young, old, and disabled people—who cannot afford to buy the services they need in the market, would both create jobs and meet societal needs.<sup>259</sup> A program of national service—voluntary or even compulsory—would do both of those things and perhaps more.<sup>260</sup> I do not think, however, that those investments would obviate the need to unburden employment by recalibrating employment mandates, benefits, and liabilities. For one thing, the faster job destruction takes place in the private sector, the harder it will be for public job creation to take up the slack. Moreover, public job creation will not address the growing coverage gap that arises from fissuring and the proliferation of independent work outside of the employment nexus; nor will it serve the liberty interests that a more universal system of social benefits would advance. Public job creation should supplement, not substitute for, the strategy proposed here.

Proposals for universal income support, and especially the idea of a UBI, are gaining renewed attention as fears of automation-related job losses spread. It is striking that former trade-union leader Andy Stern emerged from a deep dive into the impact of technology on the future of work as a proselytizer for a UBI to cushion the impact of massive job losses due to automation.<sup>261</sup> A UBI or some similar measure would help people to weather (or choose) breaks or shortfalls in paid employment, or to choose independent work beyond employment, and it could redistribute some of the gains from automation from the economic winners to the losers. The case for a UBI is hotly contested, but it will undoubtedly gain strength and adherents if job losses begin to mount; and it is not incompatible with the strategy proposed here. But unless new income entitlements also

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259. On the economic and social value of public investments in caregiving and early childhood education, see Nina Dastur et al., *Building the Caring Economy: Workforce Investments to Expand Access to Affordable, High-Quality Early and Long-Term Care*, GEO. CTR. ON POVERTY & INEQ. (2017), [https://www.georgetownpoverty.org/wp-content/uploads/2017/05/Building-the-caring-economy\\_hi-res.pdf](https://www.georgetownpoverty.org/wp-content/uploads/2017/05/Building-the-caring-economy_hi-res.pdf) [<https://perma.cc/9ZTM-UZZZ>].

260. Apart from supplying valuable paid work opportunities and work experience, “a vastly expanded, even mandatory, national service program . . . might at once throw Americans of every creed and culture together for a year or two at an impressionable age, fire up civic engagement and even revive the American dream.” See Roger Cohen, *Travel Abroad, in Your Own Country*, N.Y. TIMES (Mar. 4, 2017), <https://www.nytimes.com/2017/03/04/opinion/sunday/travel-abroad-in-your-own-country.html> [<https://perma.cc/G5Y2-VDPJ>].

261. See STERN & KRAVITZ, *supra* note 3.

replace or reduce the burden of employer mandates, they would not have the job preservation benefits of the strategy I have proposed. Any move to supplement wage-based income should be designed to slow as well as to cushion job losses.

A final alternative strategy would press for a reduction in working hours—both fewer hours per week and fewer weeks per year. For the better part of the century leading up to the New Deal, organized labor campaigned tirelessly to reduce the workweek while maintaining compensation levels.<sup>262</sup> More recently, Matthew Dimick has sought to revive the argument for tighter regulation of working hours as a way to more equitably spread both work and leisure.<sup>263</sup> Like the UBI, proposals to reduce hours—as well as proposals to expand access to paid leave and vacations—will gain support if we begin to see an overall decline in the amount of paid work in the economy. Yet the virtues of this proposal do not include work preservation. Tighter regulation of hours—whether in the form of an hours cap or an overtime premium—would likely raise the hourly cost of labor and strengthen the case for automation.<sup>264</sup> That would be especially true if shorter hours are to be achieved without lowering incomes, as past labor campaigns for shorter hours sought to do.

In short, all of these alternatives—job training, job creation, income support, and reduced work time—have much to be said for them, and much more than I can say here. An ideal policy response to the prospect of job destruction through automation would probably combine elements from all four of those categories. I do think it is worth devising an ideal response—even if it is hard in the current environment to envision the political path that would lead there. Indeed, those daunting political challenges underscore the wisdom—whatever the other responses to automation-related job losses—of slowing the pace of job destruction by unburdening employment and building a new and broader platform for social benefits that are currently delivered through employment.

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262. See HUNNICUTT, *supra* note 9; HUNNICUTT, *WORK WITHOUT END*, *supra* note 95.

263. See Dimick, *supra* note 9, at 483 (“[N]ot only could work-hours regulation create more leisure time for workers, but it could also create more work opportunities for those struggling to find a job.”). Dimick frames his proposal as an alternative to the UBI, *see id.* at 476 (“[T]his Article . . . contends that working-time regulation is a *superior* alternative to basic income.”), but it might also be seen as an alternative response to automation-related job losses.

264. See, e.g., Ronald L. Oaxaca, *The Effect of Overtime Regulations on Employment*, IZA WORLD LAB. (Oct. 2014), <https://wol.iza.org/uploads/articles/89/pdfs/effect-of-overtime-regulations-on-employment.pdf> [<https://perma.cc/9EEK-C33X>] (“Legal reduction in work time raises labor costs, which can lead to a reduction in overall employment.”).

**CONCLUSION**

The claim that machines will make human labor obsolete is overstated and often stated. It is a refrain that has surfaced periodically – often with the addendum that “this time is different” – only to be buried by the next wave of economic growth. History is largely on the side of those enthusiasts of innovation and markets who reject predictions of a jobless future. And yet sometimes the future really is different from the past. Consider Malthus: at the close of the eighteenth century, he extrapolated from centuries of stagnant productivity to predict that a growing population would inevitably outstrip society’s nearly fixed food supply,<sup>265</sup> only to be proven spectacularly wrong by the Industrial Revolution.<sup>266</sup>

We might now face a future of shrinking employment opportunities and falling wages for workers whose skills are being replicated or surpassed by ever-smarter and more cost-effective machines. Given current social and economic arrangements, that is a devastating prospect for the vast majority of people in our society who depend on paid work for their livelihood and the material support of their dependents. And it is a profoundly unsettling prospect for a society in which so many dimensions of personal identity, social integration, and civil society – as well as economic security – are intertwined with paid work. For now and for the near future, decent work for those who want and need it – whether it is within or beyond the employment relationship – remains a worthy aspiration.

For some scholars, automation’s threat to the future of work, and especially the technological destruction of middle-class jobs, is more profound than I have admitted. It may be precipitating the end of capitalism as we know it.<sup>267</sup> If that is so, then we should begin to grapple with the daunting challenge of building the foundations of a new political economy that is not centered on private profits and paid work. That challenge will loom larger if the facts on the ground begin to point decisively toward shrinking demand for human labor. But in the current context of uncertainty and intense debate about the future impact of automation on labor markets, the strategy proposed here can preserve jobs, or slow their loss, while simultaneously laying the foundations for a future of much less work.

There is a certain irony in the almost-romantic attachment of some contemporary worker advocates to the standard employment relationship, with its signature features of worker dependency and managerial domination. In the early

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265. See THOMAS ROBERT MALTHUS, *AN ESSAY ON THE PRINCIPLE OF POPULATION* (Joyce E. Chaplin ed., W.W. Norton & Co. 2018) (1798).

266. See SYLVIA NASAR, *GRAND PURSUIT: THE STORY OF ECONOMIC GENIUS*, at xiii-xiv (2011).

267. See Collins, *supra* note 101.

decades of industrialization, skilled artisans fought desperately to retain their autonomy, resisting the subordination and dependency that came with what they called “wage slavery.”<sup>268</sup> Eventually most workers and their organizations resigned themselves to the subordinate role of employee, and fought for its reformation through an array of rights, minimum labor standards, and structures for collective representation – all to the end of transforming “wage slavery” into a decent way of economic life for ordinary workers. Yet the standard employment relationship, thus civilized, is hardly an ideal to defend at all costs. And in any case, it is now crumbling.

Through fissuring and automation, firms are increasingly finding ways to escape their end of the socially constructed deal embodied in the standard employment relationship. A growing number of workers are either fleeing or being ejected from both the constraints and the protections of that relationship. Shoring up and expanding the fortress of employment will not prevent that exodus. We do need to improve and enforce employee rights and labor standards – those that embody evolving norms of decent work and that are necessarily tied to employment and employer practices. But we also need to furnish the growing domain that lies beyond employment with the basic material requisites of a decent life for those who choose a more independent economic existence and for those who cannot get into the fortress.

In his prescient 1999 report to the European Commission, Alain Supiot observed that “the employee subject to full-time, open-ended subordination is surely not the only model for working life. Another figure can be discerned on the horizon: a worker who can reconcile security and freedom.”<sup>269</sup> Perhaps the real, if sometimes exaggerated, threat of automation-based job losses will supply the motivation we need to move toward a new social model – one that reconciles security and freedom, that supports many modes of working life, and that works better for all of those who work for a living.

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<sup>268</sup>. See Elizabeth Anderson, *Liberty, Equality, and Private Government*, 35 TANNER LECTURES ON HUM. VALUES 63, 86 (2016); William E. Forbath, *The Ambiguities of Free Labor: Labor and the Law in the Gilded Age*, 1985 WIS. L. REV. 767, 769. They were also perhaps struggling to retain the domination that they exercised over the unfree members of their own households – wives, children, apprentices, servants, and even slaves.

<sup>269</sup>. See SUPIOT, *supra* note 249, at 57.