

THE ROBOTIC REVOLUTION: A TAX POLICY COLLISION COURSE

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ABSTRACT

Media projections depict that robotics, process automation, and artificial intelligence threaten human workforce sustainability. Two oft-cited studies forecast that technological innovation could jeopardize more than one-third of the U.S. workforce. Significant worker displacement would devastate federal funding that is heavily reliant on individual income tax revenue and payroll taxes. Concerns of mass joblessness have led Bill Gates and others to propose a robot tax, with some suggesting a complete reworking of the Internal Revenue Code to address looming predictions.

While these ideas are critical to the robot immersion dialogue, they are largely premised on fear and the proposition that human labor should be protected. As history supports, automation has always threatened the human workforce, which has demonstrated a great propensity for adaptation. As resisting the tractor for fear of replacing farmers' grit would have been senseless, it is now imprudent to tax innovation for fear of automation substitution. From its inception, the U.S. Constitution has protected innovation and intellectual property. Similarly, the Internal Revenue Code serves to incentivize research and development. Taxing robots would disrupt our nation's deeply rooted tax policies.

As a matter of astute policy, this Article advances that Congress should not impose a robot tax. This Article is the first to conduct a significant literature review of the current proposals to tax robots, ultimately taking a contrarian view. It examines mankind's historical connection to labor amid fears of automation substitution and proposes that implementing fear-based tax policy based on job displacement projections is unsound. In addition, this Article advances that "robot" cannot be defined for tax purposes because its characteristics are not clearly delineated. Finally, it concludes that the proper strategic course for U.S. tax policy is to encourage innovative robotics, rather than discourage it.

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INTRODUCTION

Media coverage is replete with articles discussing robotics, process automation, and other major technological advancements, which are projected to dramatically impact the future workforce.¹ Many of these articles carry the same alarming message—the future is bleak for human workers so the public must act now.² Society needs to slow down, or even discourage technological advancements, to safeguard the anticipated throngs of displaced workers.³ Governments must have sufficient time to plan

1. See, e.g., Travis Greene, *Overcoming the Limitations of Robotic Process Automation in the Workplace*, FORBES (Aug. 9, 2019, 8:15 AM), <http://www.forbes.com/sites/forbestechcouncil/2019/08/09/overcoming-the-limitations-of-robotic-process-automation-in-the-workplace/?sh=1980efe4a20f> [https://perma.cc/E9NJ-P2SA]; Janet Morrissey, *When Robots Ring the Bell*, N.Y. TIMES (Nov. 7, 2018), <http://www.nytimes.com/2018/11/07/business/robotics-automation-productivity-jobs.html> [https://perma.cc/9VCV-Y5QE]; Jess Shankleman, *Brexit Targeted Foreign Workers. Now Robots Are Coming*, BLOOMBERG (May 21, 2019, 12:01 AM), <http://www.bloomberg.com/news/articles/2019-05-21/brexit-targeted-foreign-workers-now-robots-are-coming> [https://perma.cc/9MH6-L3RW]; Irving Wladawsky-Berger, *The Challenges of Automation in a Fast Changing Economy*, WALL STREET J.: CIO J. (Aug. 9, 2019, 6:22 PM), <http://blogs.wsj.com/cio/2019/08/09/the-challenges-of-automation-in-a-fast-changing-economy/> [https://perma.cc/JT7L-DXQJ].

2. See, e.g., Gareth Jones, *Scotland Could Face “Dystopian” Future, Charities Warn*, TFN NEWS (July 26, 2019), <http://thirdforcenews.org.uk/tfn-news/scotland-could-face-dystopian-future-charities-warn> [https://perma.cc/MLN7-D74T]; Chloe Taylor, *Robots Could Take Over 20 Million Jobs by 2030, Study Claims*, CNBC (June 26, 2019, 10:28 AM), <http://www.cnbc.com/2019/06/26/robots-couldtake-over-20-million-jobs-by-2030-study-claims.html> [https://perma.cc/4UWB-FZ3S]; Ewan Watt, *The Four Skills Young People Need To Find Work in the Fourth Industrial Revolution*, THEIRWORLD (Jan. 30, 2019), <http://theirworld.org/news/four-skills-young-people-need-to-find-work-succeed-in-fourth-industrial-revolution> [https://perma.cc/69E8-B2G5]; Alex Williams, *Will Robots Take Our Children’s Jobs?*, N.Y. TIMES (Dec. 11, 2017), <http://www.nytimes.com/2017/12/11/style/robots-jobs-children.html> [https://perma.cc/G7K8-PR52].

3. See, e.g., Ezra Klein, *The Case for Slowing Everything Down a Bit*, VOX (Nov. 19, 2018, 10:30 AM), <http://www.vox.com/technology/2018/11/19/18101274/google-alphabet-facebook-twitter-addiction-speed> [https://perma.cc/GNJ9-EWS7]; Farhad Manjoo, *A Future Where Everything Becomes a Computer Is As Creepy*

accordingly.⁴ Otherwise, if the cards are not shuffled correctly, it will be a dystopic “Skynet”⁵ future where robots dominate the workforce and large segments of the population go unemployed or underemployed.⁶

Certainly, for each doomsayer prediction, there exists an equal and opposite reaction from those envisioning a revolutionized future—where human creativity and productivity flourish amid robotic workhorses that never grow tired, get sick, age, or cease working.⁷ Regardless of one’s yin or yang future prediction—eternal happiness or impending doom—McKinsey Global Institute estimates that approximately one-third of the U.S. workforce will be permanently displaced as a result of automation by 2030.⁸ Carl Frey and Michael Osborne’s renowned examination of job susceptibility similarly predicts 47% of U.S. jobs are vulnerable to technological substitution.⁹ If remotely accurate, either forecast will result in a technologically driven disruption to payroll receipts and federal income tax revenue.¹⁰

As You Feared, N.Y. TIMES (Oct. 10, 2018), <http://www.nytimes.com/2018/10/10/technology/future-internet-of-things.html> [https://perma.cc/6BZR-QYY4]; James Pethokoukis, *Should We Intentionally Slow the Pace of Technological Change To Help Workers?*, AEI: AEIDEAS (May 4, 2017), <http://www.aei.org/publication/should-we-intentionally-slow-the-pace-of-technological-change-to-help-workers> [https://perma.cc/92UY-LUKG].

4. See K. Gretchen Greene, *Spend Part of the \$2 Trillion Infrastructure Plan on Robots*, WIRED (May 5, 2019, 8:00 AM), <http://www.wired.com/story/infrastructure-plan-robots/> [https://perma.cc/3D4J-9T43]; Farhad Manjoo, *A Plan in Case Robots Take the Jobs: Give Everyone a Paycheck*, N.Y. TIMES (Mar. 2, 2016), <http://www.nytimes.com/2016/03/03/technology/plan-to-fight-robot-invasion-at-work-give-everyone-a-paycheck.html> [https://perma.cc/W8MN-C576]; Blake Morgan, *Robots Will Take Our Jobs and We Need a Plan: 4 Scenarios for the Future*, FORBES (Sept. 5, 2018, 10:56 PM), <https://www.forbes.com/sites/blakemorgan/2018/09/05/robots-will-take-our-jobs-and-we-need-a-plan-4-scenarios-for-the-future/?sh=245056826db4> [https://perma.cc/28XG-8ED9].

5. Skynet is a fictional, artificial superintelligence defense system created for the movie franchise *Terminator*. Once Skynet became self-aware, it perceived human beings as a threat and thus sought their extinction. See David C. Vladeck, *Machines Without Principals: Liability Rules and Artificial Intelligence*, 89 WASH. L. REV. 117, 120 n.13 (2014).

6. See Olivia Solon, *More than 70% of US Fears Robots Taking Over Our Lives, Survey Finds*, GUARDIAN (Oct. 4, 2017, 1:15 PM), <http://www.theguardian.com/technology/2017/oct/04/robots-artificial-intelligence-machines-us-survey> [https://perma.cc/9U78-9E5E].

7. See, e.g., Ruchir Sharma, *No, That Robot Will Not Steal Your Job*, N.Y. TIMES (Oct. 7, 2017), <http://www.nytimes.com/2017/10/07/opinion/sunday/no-that-robot-will-not-steal-your-job.html> [https://perma.cc/GQQ8-UPWW]; Noah Smith, *As Long as There Are Humans, There Will Be Jobs*, BLOOMBERG (Mar. 23, 2018, 11:58 AM), <http://www.bloomberg.com/opinion/articles/2018-03-23/robots-won-t-take-all-jobs-because-humans-demand-new-things> [https://perma.cc/CXT4-CXAZ]; John Tamny, *Robots Won't Take Our Jobs—But They Will Make Us Like Our Jobs More*, FOUND. FOR ECON. EDUC. (Sept. 2, 2018), <http://fee.org/articles/robots-wont-take-our-jobs-but-they-will-make-us-like-our-jobs-more/> [https://perma.cc/8SME-RXF3].

8. JAMES MANYIKA, SUSAN LUND, MICHAEL CHUI, JACQUES BUGHIN, JONATHAN WOETZEL, PARUL BATRA, RYAN KO & SAURABH SANGHVI, MCKINSEY GLOB. INST., *JOBS LOST, JOBS GAINED: WORKFORCE TRANSITIONS IN A TIME OF AUTOMATION* 11 (2017).

9. Carl Benedikt Frey & Michael A. Osborne, *The Future of Employment: How Susceptible Are Jobs to Computerisation?*, 114 TECH. FORECASTING & SOC. CHANGE 254, 265 (2017).

10. See Orly Mazur, *Taxing the Robots*, 46 PEPP. L. REV. 277, 290 (2019).

Payroll and individual income taxes currently account for about 86% of the U.S. Treasury's total receipts.¹¹ Dramatic human workforce declines would devastate federal social safety net resources.¹² In addition, states and municipalities would likewise suffer economic hardship under a mass job loss scenario.¹³ The corporate tax generates only 4% of total state tax revenues; therefore, mass unemployment could result in a revenue death spiral for states.¹⁴

To counteract such dark and thunderous forecasts, Bill Gates has called upon governments to legislate some form of a "robot tax" on the robots themselves or profits attributable to such automation.¹⁵ Numerous academics have also advanced the robot tax idea, with some suggesting the complete reworking of the Internal Revenue Code of 1986 (Code), as amended.¹⁶ Those calling for Code revisions have suggested it be modified with regard to the manner in which it prefers "capital" over "labor."¹⁷ This drastic change would either treat capital and labor in a neutral fashion¹⁸ or would prefer labor over capital.¹⁹ While such ideas are essential to the broader conversation of the impending

11. POLICY BASICS: WHERE DO FEDERAL TAX REVENUES COME FROM?, CTR. ON BUDGET & POL'Y PRIORITIES, http://www.cbpp.org/sites/default/files/atoms/files/PolicyBasics_WhereDoFederalTaxRevsComeFrom_08-20-12.pdf [<https://perma.cc/LU3J-MEJF>] (last updated Aug. 6, 2020).

12. See Mazur, *supra* note 10, at 292–93 (documenting that a decline in human workers would result in diminished payroll funds available to retired and disabled workers).

13. See Matt Simon, *Who Will Pay for the Future If Not the Robots?*, WIRED (May 30, 2017, 7:00 AM), <http://www.wired.com/2017/05/will-pay-future-not-robots/> [<https://perma.cc/2G2E-SUMH>] (discussing economic concerns for cities and states if human labor is replaced with automation labor).

14. *Id.*

15. Malcolm James, *Here's How Bill Gates' Plan To Tax Robots Could Actually Happen*, BUS. INSIDER (Mar. 20, 2017, 11:18 AM), <http://www.businessinsider.com/bill-gates-robot-tax-brighter-future-2017-3> [<https://perma.cc/CJK5-MTFJ>].

16. See, e.g., Ryan Abbott & Bret Bogenschneider, *Should Robots Pay Taxes? Tax Policy in the Age of Automation*, 12 HARV. L. & POL'Y REV. 145, 151–52 (2018) (proposing a movement toward tax neutrality in the United States in order to combat automation substitution); Sami Ahmed, *Cryptocurrency & Robots: How To Tax and Pay Tax on Them*, 69 S.C. L. REV. 697, 730–32 (2018) (discussing the advantages and disadvantages of a robot tax); Mazur, *supra* note 10, at 281–82 (recommending U.S. capital tax reform, among other nontax policy reforms, to address the automation revolution); Jay A. Soled & Kathleen DeLaney Thomas, *Automation and the Income Tax*, 10 COLUM. J. TAX L. 1, 1 (2018) [hereinafter Soled & Thomas, *Automation*] (proposing reforms to the Code to compliment technological advancements that now inhibit human labor); Joao Guerreiro, Sergio Rebelo & Pedro Teles, *Should Robots Be Taxed?* 2–4 (NBER, Working Paper No. 23806, 2017) (using static and dynamic models of automation to determine it is optimal to tax robots in the short term, but not in the long term); Vincent Ooi & Glendon Goh, *Taxation of Automation and Artificial Intelligence as a Tool of Labour Policy* (Sing. Mgmt. Univ. Ctr. for AI & Data Governance, Research Paper No. 2019/01, 2019) (proposing an "automation tax" to decelerate automation substitution); Uwe Thuemmel, *Optimal Taxation of Robots* (CESifo, Working Paper No. 7317, 2018) (studying the optimal taxation of robots and labor income); Joachim Englisch, *Digitalisation and the Future of National Tax Systems: Taxing Robots?* 22 (Sept. 5, 2018) (unpublished manuscript), <http://ssrn.com/abstract=3244670> [<https://perma.cc/9UVH-UX4J>] (recommending the taxation of capital investments in lieu of a tax directly on robots).

17. See Mazur, *supra* note 10, at 313–22; Soled & Thomas, *Automation*, *supra* note 16, at 17–20; Englisch, *supra* note 16, at 21–22.

18. See Abbott & Bogenschneider, *supra* note 16, at 151–52 (proposing the tax system adjust to treat robots and human workers neutrally).

19. See Mazur, *supra* note 10, at 281–82 (noting the Code's preference for capital as compared to labor).

social robot immersion,²⁰ this Article suggests the aforementioned tax policy recommendations are largely premised on fear and the proposition that human labor *should* be protected.

Automation has always been a looming threat to the U.S. workforce—which has historically (and tellingly) demonstrated a great propensity for adaptation. For example, in 1860 over 50% of the U.S. workforce was engaged in agricultural production.²¹ The subsequent societal drift away from work-life on the farm was largely attributable to the introduction of mechanized advancements at the end of the 1800s.²² The tractor alone increased agricultural production in a powerful way—far beyond that which could be accomplished by a single farmer with his hands, muscle, and horse.²³ This, in turn, resulted in a workforce shift away from agricultural labor and into other forms of employment including industrial and factory work.²⁴ By 2020 only 1% of the total U.S. labor force was employed in agriculture.²⁵ While few human workers exist in the field today, improvements to mechanized farming have only reduced the costs of consumer goods and increased the standard of living for most Americans.²⁶

In hindsight, it would have been imprudent to resist the tractor's inauguration into farming for fear of replacing American working hands.²⁷ The same rationale holds true for the incoming wave of technological advancements in agriculture. If a tractor or combine can self-drive to produce even higher efficiencies, why would one hinder

20. See *infra* Section III for a discussion of the policy implications of integrating robots into human society.

21. Nadav Orian Peer, *Negotiating the Lender of Last Resort: The 1913 Federal Reserve Act as a Debate over Credit Distribution*, 15 N.Y.U. J.L. & BUS. 367, 412 (2019).

22. See Douglas W. Allen & Dean Lueck, *The Nature of the Farm*, 41 J.L. & ECON. 343, 368–69, 368 n.56 (1998). The first gas tractor could thresh over one thousand bushels a day without the safety issues posed by earlier steam engines. *History of the Tractor*, SODGOD, <http://www.sodgod.com/tractor-history/> [<https://perma.cc/5HBF-9BCJ>] (last visited Feb. 1, 2021). John Froelich incorporated the Waterloo Gasoline Traction Engine Company in 1895, which later was owned by John Deere. *Id.* From 1910 to 1970, tractor production increased from one thousand tractors per year to approximately five million. *Id.* This was largely attributable to the lower costs of production. See *id.* By the 1950s, tractors were largely available to most farmers. See *id.*

23. See Gina Moroni, Comment, *Mediating Farm Nuisance: Comparing New Jersey, Missouri, and Iowa Right To Farm Laws and How They Utilize Mediation Techniques*, 2018 J. DISP. RESOL. 299, 302 (noting the evolution from animal to tractor).

24. See Kathryn Kisska-Schulze & Karie Davis-Nozemack, *Humans vs. Robots: Rethinking Tax Policy for a More Sustainable Future*, 79 MD. L. REV. 1009, 1014 (2020) (noting the Second Industrial Revolution's transformation from farm to factory).

25. *Employment in Agriculture*, WORLD BANK (June 21, 2020), <http://data.worldbank.org/indicator/SL.AGR.EMPL.ZS> [<https://perma.cc/CN9N-FVDF>].

26. See Cynthia Estlund, *What Should We Do After Work? Automation and Employment Law*, 128 YALE L.J. 254, 287 (2018) [hereinafter Estlund, *What Should We Do After Work?*] (noting that technological improvements are adopted as a means of lowering production costs or increasing productivity); see also Clark Nardinelli, *Industrial Revolution and the Standard of Living*, LIBR. ECON. & LIBERTY, <http://www.econlib.org/library/Enc/IndustrialRevolutionandtheStandardofLiving.html> [<https://perma.cc/LX57-4PF3>] (last visited Feb. 1, 2021) (“No economist today seriously disputes the fact that the industrial revolution began the transformation that has led to extraordinarily high (compared with the rest of human history) living standards . . .”).

27. See *Resistance Is Futile*, NPR (Apr. 25, 2019, 12:01 AM), <http://www.npr.org/transcripts/716521520> [<https://perma.cc/2WS5-6E22>].

such?²⁸ Futuristic farming will likely involve entire operations that are managed remotely on mobile devices with algorithms assisting in the decisionmaking²⁹—while robots pick fruits and vegetables, sensors collect localized growing condition data, and drones apply fertilizers, pesticides, and other solutions.³⁰ Should U.S. tax policy makers stand in the way of such advancements?

The Fourth Industrial Revolution will undoubtedly change the mosaic of the global workforce;³¹ however, the Code was never intended to be the champion of labor.³² Humans have adapted to innovative changes since primitive man.³³ In modern cultures, each industrial revolution has added—and subtracted—human jobs.³⁴ The retooling of the workforce through each revolution is a natural occurrence in the fabric of progress, which requires regeneration to remain competitive. Although the Code has evolved throughout history, it has never disincentivized research and development (R&D).³⁵ To disrupt this deeply rooted foundation—to neutralize or place human labor above technology—would diminish the United States’ global positioning.

Enacting reformative tax legislation premised on a fear of automation substitution ignores automation’s efficiencies, the current labor market, and its social benefits.³⁶ Most importantly, as a matter of astute tax policy, this Article advances that Congress cannot, and ultimately should not, impose a tax on something that cannot be accurately defined.³⁷

To fully evaluate these issues, this Article is divided into three Sections. Section I addresses how the concept of labor has become so embedded in U.S. culture that it would be difficult to envision or plan for a future society where human labor becomes obsolete. Section II then conducts a critical examination of the existing academic literature and

28. See Ted Kritsonis, *The Role of Self-Driving Vehicles in Transforming Agriculture*, FUTURITHMIC: THE ECON. (May 27, 2020), <http://www.futurithmic.com/2020/05/27/the-role-self-driving-vehicles-transforming-agriculture/> [https://perma.cc/5QL5-EJK6].

29. An algorithm is a set of rules used to solve a particular mathematical formula. See Rachel Kraus, *What Is an Algorithm, Anyway?*, MASHABLE (Aug. 30, 2020), <http://mashable.com/article/what-is-an-algorithm/> [https://perma.cc/U734-Z3ZP]. It can also be a set of rules programmed into a computer and designed to achieve a particular goal. *Id.* Search engines use proprietary algorithms to display the most relevant results to a search query. *Id.* Computer programs often have a series of algorithms programmed as functions that make them run efficiently. *Id.*

30. See Taylor Dobbs, *Farms of the Future Will Run on Robots and Drones*, PBS: NOVA NEXT (July 9, 2013), <http://www.pbs.org/wgbh/nova/article/farming-with-robotics-automation-and-sensors/> [https://perma.cc/39FH-B4SE].

31. See Daryl Lim, *AI & IP: Innovation & Creativity in an Age of Accelerated Change*, 52 AKRON L. REV. 813, 826–27 (2018) (noting the ultimate impact of AI innovation on the workforce).

32. See Bryan T. Camp, *Franklin Roosevelt and the Forgotten History of the Earned Income Tax Credit*, 20 GREEN BAG 2D 337, 338–39 (2017) (noting that Congress favors capital above labor and therefore taxes capital income at lower rates than labor income).

33. See Kisska-Schulze & Davis-Nozemack, *supra* note 24, at 1012–13 (citing RUTH SCHWARTZ COWAN, *A SOCIAL HISTORY OF AMERICAN TECHNOLOGY*, 1, 65 (1997)).

34. See *infra* notes 57–67 and accompanying text for a discussion of the workforce impact attributable to the First, Second, and Third Industrial Revolutions.

35. See Kisska-Schulze & Davis-Nozemack, *supra* note 24, at 1035–38 (discussing U.S. innovation tax policy and in particular, Congress’s interest in promoting R&D through federal tax law).

36. See *infra* Part II.G for an overview of the limitations and potential consequences of fear-based tax legislation.

37. See *infra* Section III for a discussion of the difficulties in defining “robot” for tax purposes.

proposals on robotic taxation. Section III contends that developing a stable definition of the term “robot” for tax purposes is nearly impossible. Lastly, this Article concludes that reforming the Code to tax robots fails all metrics of sound tax policy.

I. FEARING THE LOSS OF LABOR

Much of the impetus behind calls for a robot tax emerges from concerns over job displacement or major societal loss of labor.³⁸ Such stimuli are intriguing, particularly as humanity has historically exhibited a love-hate relationship with labor.³⁹ Humans romanticize it, politicize it, and spend their lives attempting—or waiting—to escape its clutches.⁴⁰ The Bible prophesies of great prosperities attributable to human toil, revealing that believers should “eat the fruit” of their labors.⁴¹ In contrast, Aristotle tendered, “The end of labor is to [] gain [] leisure,”⁴² deeming a life of ease as indispensable to a virtuous existence.⁴³ Similarly, the 19th century political economist John Stuart Mill, in his *Principles of Political Economy*, proclaimed, “[P]ersons can be supported [by industrial production] equally well with less toil and greater leisure.”⁴⁴

Scholarly literature examining the dichotomy between toil and relaxation is robust.⁴⁵ The interconnection between labor and leisure, which infuses modern social systems, lies in stark contrast to the early Puritan ethos of hard work as the basis of social and self-esteem.⁴⁶ Although income and leisure are both inherently beneficial, scholars assert that contemporary workers embrace increased relaxation more than the daily

38. See Mazur, *supra* note 10, at 283–87.

39. See, e.g., CHARLOTTE PERKINS GILMAN, *HUMAN WORK* 179–200 (1904).

40. See Neil Brooks, *Flattening the Claims of the Flat Taxers*, 21 DALHOUSIE L.J. 287, 351 (1998) (explaining that individuals labor throughout their lives to accumulate sufficient funds so that they can retire without having to work any longer); Estlund, *What Should We Do After Work?*, *supra* note 26, at 278 (documenting that high-status professionals may be inclined to romanticize their work experiences); David Macarov, *The Employment of New Ends: Planning for Permanent Unemployment*, 544 ANNALS 191, 200 (1996) (noting that the prospect of human job loss plays a significant role in political decisionmaking).

41. *Psalm* 128:2 (English Standard Version).

42. Tshildzi Marwala, *On Robot Revolution and Taxation* (Aug. 5, 2018) (unpublished manuscript), <http://arxiv.org/ftp/arxiv/papers/1808/1808.01666.pdf> [<https://perma.cc/DA63-9PY6>].

43. Ali Khan, *The Dignity of Labor*, 32 COLUM. HUM. RTS. L. REV. 289, 294 (2001).

44. JOHN STUART MILL, *PRINCIPLES OF POLITICAL ECONOMY WITH SOME OF THEIR APPLICATIONS TO SOCIAL PHILOSOPHY* 762 (W.J. Ashley ed., 1909).

45. See, e.g., Matthew Dimick, *Better than Basic Income? Liberty, Equality, and the Regulation of Working Time*, 50 IND. L. REV. 473, 482–84 (2017) (examining the roots of working-time regulation as a contrast to basic income); David Hasen, *Liberalism and Ability Taxation*, 85 TEX. L. REV. 1057, 1059–61 (2007) (analyzing the labor/leisure relationship within the confines of individual endowment taxation); Khan, *supra* note 43 (studying the historical relationship between labor and leisure); Theodore P. Seto, *Does the Income Tax Cause Parents To Spend Too Much Time with Their Children?: Unpacking Mirrlees*, 37 VA. TAX REV. 55, 67–71 (2017) (examining complications inhibiting inequality-induced labor-leisure distortions); Kirk J. Stark, *Enslaving the Beachcomber: Some Thoughts on the Liberty Objections to Endowment Taxation*, 18 CAN. J.L. & JURIS. 47, 50–55 (2005) (demonstrating that labor and leisure lifestyles are commodity choices).

46. Marcel Kahan, *The Limited Significance of Norms for Corporate Governance*, 149 U. PA. L. REV. 1869, 1897–98 (2001) (noting the puritan ethic of hard work as a basis for social and self-esteem); see also Khan, *supra* note 43, at 298 (identifying labor/leisure as one factor permeating social systems).

grind.⁴⁷ There even endures a term accounting for one's voluntary and final cessation of work: retirement.⁴⁸

The word "labor," from a definitional standpoint, often entails strenuous connotations. This includes the physical act of labor as bestowed upon those giving birth. The legal arena commonly identifies "labor" as "work; toil; service . . . of the more onerous and inferior kind."⁴⁹ Merriam-Webster defines it, in relevant part, as an "expenditure of physical or mental effort, especially when difficult or compulsory."⁵⁰ The Etymology Dictionary designated labor as "a task," while the late fourteenth century definition expanded the term to include the "exertion of the body; trouble, difficulty, hardship."⁵¹ This broader interpretation originated from the Old French language, in which "labor" meant "toil, work, exertion, task; tribulation, suffering," which historically derived from the primordial Latin meaning, "exertion; hardship, pain, fatigue."⁵²

While impressions of hard physical activity and fatigue may accompany the labor paradigm, the term itself is not necessarily limited to such. The American judicial system finds obscurity in defining "labor" because of its broad embodiment, which includes adults, children, animals, as well as "soft-" and "hard-handed" workers.⁵³ Traditionally, a "laborer" was identified as one who worked in manual or industrial waged professions.⁵⁴ Such nomenclature was distinguishable from that of the "laboring man,"

47. Cynthia Estlund, *Three Big Ideas for a Future of Less Work and a Three-Dimensional Alternative*, 82 LAW & CONTEMP. PROBS. 1, 5 (2019) (identifying both income and leisure as important social functions); see also Estlund, *What Should We Do After Work?*, *supra* note 26, at 275 (noting that most modern workers seek a leisurely life with less toil); Jean M. Twenge, Stacy M. Campbell, Brian J. Hoffman & Charles E. Lance, *Generational Differences in Work Values: Leisure and Extrinsic Values Increasing, Social and Intrinsic Values Decreasing*, 36 J. MGMT. 1117, 1123 (2010) (discussing the increased leisure values across more modern generations).

48. See Patricia E. Dilley, *The Evolution of Entitlement: Retirement Income and the Problem of Integrating Private Pensions and Social Security*, 30 LOY. L.A. L. REV. 1063, 1067 n.12 (1997).

49. *Labor*, BLACK'S LAW DICTIONARY (9th ed. 2009) (defining "labor" in full as "[w]ork; toil; service. Continued exertion, of the more onerous and inferior kind, usually and chiefly consisting in the protracted expenditure of muscular force, adapted to the accomplishment of specific useful ends"); see also *Meyer Jewelry Co. v. Johnson*, 581 N.W.2d 734, 736 (Mich. Ct. App. 1998) (defining "labor"); *Mo. Land Dev. Specialties, LLC v. Concord Excavating Co., L.L.C.*, 269 S.W.3d 489, 502 (Mo. Ct. App. 2008) (providing definitions of "labor"); *Wilson v. Wilson*, No. 2004-04-037, 2004 Ohio App. LEXIS 5724, at *4-5 (Ohio Ct. App. Nov. 22, 2004) (noting the common definition of "labor").

50. *Labor*, MERRIAM-WEBSTER DICTIONARY, <http://www.merriam-webster.com/dictionary/labor> [<https://perma.cc/467X-T9JA>] (last visited Feb. 1, 2021).

51. *Labor*, ONLINE ETYMOLOGY DICTIONARY, <http://www.etymonline.com/word/labor> [<https://perma.cc/H7TS-Q78X>] (last visited Feb. 1, 2021).

52. *Id.*

53. See, e.g., *Ass'n of Rock Island Mech. & Power Plant Emp. v. Lowden*, 15 F. Supp. 176, 185-86 (D. Kan. 1936) (suggesting labor be associated with "common attributes" found within the laboring group); *Baker Hughes Oilfield Operations, Inc., v. Nat'l Rural Utils. Coop. Fin. Corp. (In re Naknek Elec. Ass'n, Inc.)* 471 B.R. 225, 236-37 (Bankr. D. Alaska 2012) (noting that the term labor should not be restricted to "physical labor alone," but expanded to include both "physical and mental exertion"); *Mo. Land Dev. Specialties*, 269 S.W.3d at 502 (providing two different definitions for the term "labor" as found in two different dictionaries); *Multnomah Cty. v. U.S. Fid. & Guar. Co.*, 180 P. 104, 106 (Ore. 1919) (including within the definition of the term "labor" any "work done by a human or an animal"); *Stephens v. Porter*, 69 S.W. 423, 424 (Tex. App. 1902) (defining labor, in part, as exerting "strength with painful effort").

54. *Laborer*, WOLTERS KLUWER BOUVIER LAW DICTIONARY (2012).

who exercised mental (as opposed to physical) skills to complete tasks.⁵⁵ The New Deal era later popularized the dueling characterizations between “blue collar” manual laborers and “white collar” workers.⁵⁶

Over time, the concept of American labor became entrenched in the technological revolutions.⁵⁷ The First Industrial Revolution, which originated in Great Britain, resulted in the regression of certain occupations and skills due to mechanized substitution.⁵⁸ Eli Whitney’s cotton gin, for example, proved fifty times more productive than human labor, marking a meaningful transition from artisanship to machinery.⁵⁹ The Second Industrial Revolution brought forth combustion engines, mass production, electricity, and American economic growth.⁶⁰ Henry Ford’s assembly line authenticated low- and semi-skilled laborers as integral to the technological control of industrial workspaces.⁶¹ This period transitioned laborers from field to factory⁶² and sparked the evolution of trade unions,⁶³ resistance to organized labor,⁶⁴ and progressive social reforms within the workplace.⁶⁵ The Third Industrial Revolution launched the “knowledge economy,” driven by rapid R&D of emerging technologies, including electronics, digitization, biotech, remote sensing, and the internet.⁶⁶ Labor during this era shifted away from the confines of physical office spaces to virtual workplaces due to the advent of the computer.⁶⁷

As society now embarks on the Fourth Industrial Revolution, data analytics—augmented by complicated algorithms—is transitioning decisionmaking

55. See *Oliver v. Macon Hardware Co.*, 25 S.E. 403, 404–05 (Ga. 1896) (distinguishing a “laborer”—one who performs a toilsome occupation—from a “laboring man,” one whose employment requires mental skill); *Howell v. Atkinson*, 59 S.E. 316, 318 (Ga. Ct. App. 1907) (distinguishing the work of a laborer from that of a laboring man).

56. See Deborah C. Malamud, “*Who They Are—or Were*”: *Middle-Class Welfare in the Early New Deal*, 151 U. PA. L. REV. 2019, 2022–23 (2003).

57. See Laurie Monahan, *Re-Organized Labor: Affirming Labor’s Relevance By Reframing Its Image and Merging with Allies*, 3 AM. U. LABOR & EMP. L.F. 438, 441 (2013).

58. Chris Vickers & Nicolas L. Ziebarth, *Economic Development and the Demographics of Criminals in Victorian England*, 59 J.L. & ECON. 191, 191–92 (2016).

59. David G. Barker, *Troll or No Troll? Policing Patent Usage with an Open Post-Grant Review*, DUKE L. & TECH. REV., Apr. 15, 2005, ¶ 12.

60. Susan Sell, *Intellectual Property and Public Policy in Historical Perspective: Contestation and Settlement*, 38 LOY. L.A. L. REV. 267, 290–91 (2004).

61. See Marion Crain, *The Transformation of the Professional Workforce*, 79 CHI.-KENT L. REV. 543, 556 (2004).

62. Kisska-Schulze & Davis-Nozemack, *supra* note 24, at 1014.

63. See Ugo Pagano, *The Evolution of the American Corporation and Global Organizational Biodiversity*, 35 SEATTLE U. L. REV. 1271, 1287 (2012).

64. See Nelson Lichtenstein, *Taft-Hartley: A Slave Labor Law?*, 47 CATH. U. L. REV. 763, 766–70 (1998) (addressing both opposition to and support of the Taft-Hartley Act).

65. See Marcia L. McCormick, *Consensus, Dissensus, and Enforcement: Legal Protection of Working Women from the Time of the Triangle Shirtwaist Factory Fire to Today*, 14 N.Y.U. J. LEGIS. & PUB. POL’Y 645, 648–49 (2011) (noting that the Second Industrial Revolution’s Progressive Era gave rise to significant changes in the workplace, including safe labor reform and women engagement).

66. Rochelle Cooper Dreyfuss, *Does IP Need IP? Accommodating Intellectual Production Outside the Intellectual Property Paradigm*, 31 CARDOZO L. REV. 1437, 1439 (2010).

67. See Nancy J. King, *Labor Law for Managers of Non-Union Employees in Traditional and Cyber Workplaces*, 40 AM. BUS. L.J. 827, 830 & n.11 (2003) (discussing cyber and virtual workspaces).

applications from humans to machinery.⁶⁸ The mounting concern is whether this current revolution is so uniquely distinct from its predecessors that it will substitute fractions of the human workforce through automation without creating enough new or different jobs to compensate for such substitution.⁶⁹

Society's primal fear of the coming wave of robots may stem from the fact that labor, however defined, is so inextricably intertwined in society's makeup that it simply cannot envision a world in its absence. Humans work because society's myriad of cultures have conditioned individuals to endure guilt if unproductive.⁷⁰ Leisureliness might never fully compensate for the achievement void that would result from a collapse in labor.⁷¹ As the "worker bees" of the developed world, Americans may find it particularly challenging to adapt to life devoid of its presence.⁷² Significant declines in work-related income may torment the consumer-driven middle class, whose consumption needs have cultivated an ethos of self-identity based on choice of goods.⁷³ In *The Wealth of Nations*, Adam Smith proposed that an individual's prosperity is gauged by "the quantity of that labour which he can command, or which he can afford to purchase."⁷⁴ Work defines communities and is among the most important of relationship characteristics.⁷⁵ Without hard-earned money derived from personal toil and accomplishment, what would the human economy do?

Archaeological discoveries indicate labor has been essential to human survival since early man.⁷⁶ Ancient history suggests labor was divided into three categories—foraging, hunting, and agriculture⁷⁷—and primitive tools are demonstrative

68. Philip M. Nichols, *Bribing the Machine: Protecting the Integrity of Algorithms as the Revolution Begins*, 56 AM. BUS. L.J. 771, 772–73 (2019).

69. Richard Rubin, *The 'Robot Tax' Debate Heats Up*, WALL STREET J. (Jan. 8, 2020, 10:00 AM), <http://www.wsj.com/articles/the-robot-tax-debate-heats-up-11578495608> [https://perma.cc/2EPE-XY9T].

70. Derek Thompson, *A World Without Work*, ATLANTIC, <http://www.theatlantic.com/magazine/archive/2015/07/world-without-work/395294/> [https://perma.cc/4NKT-7W23] (last visited Feb. 1, 2021).

71. *Id.*

72. *Id.* (noting that while annual hours worked in Europe fell by 40% between 1950 and 2012, in the United States that percentage dropped only 10%).

73. See Steven Wilf, *The Making of the Post-War Paradigm in American Intellectual Property Law*, 31 COLUM. J.L. & ARTS 139, 161 (2008) (noting the middle class's impact on a consumer-driven economy).

74. 1 ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 26 (Edwin Robert Anderson Seligman ed., 3d ed 1914).

75. Ken Matheny & Marion Crain, *Disloyal Workers and the "Un-American" Labor Law*, 82 N.C. L. REV. 1705, 1706 (2004).

76. See Susan W. Brenner, *Law in an Era of Pervasive Technology*, 15 WIDENER L.J. 667, 674–75 (2006) [hereinafter Brenner, *Pervasive Technology*].

77. See, e.g., Robin Bradley Kar, *Western Legal Prehistory: Reconstructing the Hidden Origins of Western Law and Civilization*, 2012 U. ILL. L. REV. 1499, 1550–51, 1558–59 (discussing the essence of hunting, foraging, and agriculture within early human social patterns). Hunting was an early form of "organized" labor, with various tasks assigned according to the skill sets of the hunters. See, e.g., Paul L. Hooper, Kathryn Demps, Michael Gurven, Drew Gerk & Hillard S. Kaplan, *Skills, Division of Labour and Economies of Scale Among Amazonian Hunters and South Indian Honey Collectors*, PHIL. TRANSACTIONS ROYAL SOC'Y B, Dec. 5, 2015, at 1, 1 (examining the division of labor in hunter-gatherer civilizations and its relation to the skill level required of various foraging activities).

of labor's critical role.⁷⁸ Entire civilizations were built around labor-building opportunities, including port cities,⁷⁹ natural resource hubs,⁸⁰ and manufacturing towns.⁸¹ Countless political movements have also focused on labor.⁸² It has even played a role in philosophy, religion, and entertainment.⁸³

Animals, such as hunting and guide dogs, horses, mules, and Ringling Brothers and Sea World performers, are also no strangers to the concept of labor—often working alongside humans.⁸⁴ Highly organized animals, such as bees, ants, dolphins, wolves, and lions, also “work” together in packs or colonies without any human intervention.⁸⁵ Notwithstanding such, as the tractor and automobile eventually replaced the horse,⁸⁶ so too may robots one day replace the human laborer.

When one thinks of robots in the workforce, they might envision physical machinery performing blue-collar tasks such as bricklaying, strawberry picking, or milking cows.⁸⁷ Robots, however, are no longer limited to the tangible. They now incorporate an arsenal of advanced software that is programmed to perform various white-collar functions such as insurance adjusting, medical imaging, legal services, and

78. See Brenner, *Pervasive Technology*, *supra* note 76, at 674–75 (noting the use of primitive tools to carry out tasks similar to those later accomplished by more evolved technological tools).

79. See Kanu Agrawal, *Bilateral Investment Treaties: A Developing History*, 7 JINDAL GLOBAL L. REV. 175, 179 (2016) (noting the prominence of port cities for early European settlements).

80. Niall Patrick Walsh, *6 Reasons Cities Are Located Where They Are*, ARCH DAILY (Mar. 10, 2017), <http://www.archdaily.com/866821/the-origin-of-cities-six-reasons-for-their-location> [<https://perma.cc/V642-FL7M>].

81. See Aslam A. Jaffery, *Economic Freedom and Privatization – From Egypt and Mesopotamia to Eastern Europe*, 28 DENV. J. INT'L L. & POL'Y 365, 370 (2000).

82. See, e.g., Kate Andrias, *An American Approach to Social Democracy: The Forgotten Promise of the Fair Labor Standards Act*, 128 YALE L.J. 616, 704–05 (2019) (noting political movements that embody egalitarian and democratic political economies); Roger C. Hartley, *The Framework of Democracy in Union Government*, 32 CATH. U. L. REV. 13, 32–34 (1982) (discussing worker political movements toward the development of business unionization); Berta E. Hernández-Truyol & Jane E. Larson, *Sexual Labor and Human Rights*, 37 COLUM. HUM. RTS. L. REV. 391, 405 (2006) (addressing the emergent political movements that address labor conditions for international law and human rights); Ahmed A. White, *My Coworker, My Enemy: Solidarity, Workplace Control, and the Class Politics of Title VII*, 63 BUFF. L. REV. 1061, 1072–73 (2015) (examining the political movements toward worker unionism).

83. See, e.g., FRANK TANNENBAUM, *A PHILOSOPHY OF LABOR* (1951) (analyzing the impact of “status” on American workers); Emily C. Chi, *Star Quality and Job Security: The Role of the Performers’ Unions In Controlling Access to the Acting Profession*, 18 CARDOZO ARTS & ENT. L.J. 1 (2000) (examining labor unions within the entertainment industry); Roberto L. Corrada, *Religious Accommodation and the National Labor Relations Act*, 17 BERKELEY J. EMP. & LAB. L. 185, 203–04 (1996) (arguing the need to amend the National Labor Relations Act to require accommodations for broader religious beliefs).

84. See SUE DONALDSON & WILL KYMLICKA, *ZOOPOLIS: A POLITICAL THEORY OF ANIMAL RIGHTS* 139–42 (2011) (examining the practice of animal labor).

85. See, e.g., Susan W. Brenner, *Toward a Criminal Law for Cyberspace: Distributed Security*, 10 B.U. J. SCI. & TECH. L. 1, 22–31 (2004) (comparing and contrasting the “work” requirements between wolf packs and ant colonies).

86. See Melissa Love Koenig, Julie A. Oseid, & Amy Vorenberg, *OK Google, Will Artificial Intelligence Replace Human Lawyering?*, 102 MARQ. L. REV. 1269, 1303 (2019) (noting the replacement of the horse for the tractor).

87. See Roger Michalski, *How To Sue a Robot*, 2018 UTAH L. REV. 1021, 1022–23.

accounting⁸⁸—often with the assistance of artificial intelligence (AI).⁸⁹ Machine use, whether by software or physical property, is not neoteric. The nineteenth century English Luddites protested the use of machines as a “fraudulent and deceitful” labor practice.⁹⁰ Karl Marx, as if predicting the impending robotic revolution in his economic treatise, *Machinery and Modern Industry*, stated:

The contest between the capitalist and the wage-labourer dates back to the very origin of capital. It raged on throughout the whole manufacturing period. But only since the introduction of machinery has the workman fought against the instrument of labour itself, the material embodiment of capital. He revolts against this particular form of the means of production, as being the material basis of the capitalist mode of production.

....

The instrument of labour, when it takes the form of a machine, immediately becomes a competitor of the workman himself. The self-expansion of capital by means of machinery is thenceforward directly proportional to the number of the workpeople, whose means of livelihood have been destroyed by that machinery.⁹¹

While the Luddite crusade to destroy textile machinery was perhaps the most infamous spectacle of organized efforts to safeguard the human workforce, anti-tech rallies continue in today’s culture of innovation.⁹² Some have even promoted this as an era of neo-Luddites amid increasing concerns of automation substitution.⁹³ A 2019 survey found that 37% of workers between the ages of eighteen and twenty-four worry

88. See Richard Baldwin, *White-Collar Robots Are Coming for Jobs*, WALL STREET J. (Jan. 31, 2019, 8:00 AM), <http://www.wsj.com/articles/white-collar-robots-are-coming-for-jobs-11548939601> [https://perma.cc/MMM3-Z3L5].

89. Eric Pandey & Kim Hart, *New Research Suggests That Artificial Intelligence Could Start Taking over Popular White-Collar Jobs, from Legal Professionals to Marketing Specialists*, BUS. INSIDER (Nov. 20, 2019, 11:32 AM), <http://www.businessinsider.com/artificial-intelligence-take-over-popular-white-collar-jobs-2019-11> [https://perma.cc/M4AK-NU83].

90. Nick Ismail, *Embracing Those Who Fear Technology in the Digital Era Is Necessary for Businesses To Thrive*, INFO. AGE (Feb. 22, 2018), <http://www.information-age.com/embracing-fear-technology-digital-era-123470914/> [https://perma.cc/MN2R-PALF].

91. 1 KARL MARX, *THE PROCESS OF CAPITALIST PRODUCTION* 466, 470 (Frederick Engels ed., Samuel Moore & Edward Aveling trans., 4th ed. 1906) (1867) (footnotes omitted).

92. Jenna Kagel, *Today’s Anti-Tech Protests Are Nothing New*, FAST COMPANY (Jan. 28, 2014), <http://www.fastcompany.com/3025628/todays-anti-tech-protests-are-nothing-new> [https://perma.cc/DJN5-Q7JP] (noting the San Francisco protests against Google’s corporate busses and the assaults on Uber drivers by French taxi drivers).

93. See, e.g., Nicholas Hunt-Bull, *A Neo-Luddite Manifesto: Or Why I Do Not Love Robots*, (2006 AAAI Workshop on Human Implications of Human-Robot Interaction, 2006), <http://www.aaai.org/Papers/Workshops/2006/WS-06-09/WS06-09-011.pdf> [https://perma.cc/CM5C-VQZE]; Bryan Appleyard, *The New Luddites: Why Former Digital Prophets Are Turning Against Tech*, NEWSTATESMAN (Aug. 29, 2014), <http://www.newstatesman.com/sci-tech/2014/08/new-luddites-why-former-digital-prophets-are-turning-against-tech> [https://perma.cc/DNG9-QXYU]; Joe Humphreys, *Unthinkable: Why It Makes Sense To Be a Neo-Luddite*, IRISH TIMES (Feb. 12, 2017, 7:00 AM), <http://www.irishtimes.com/culture/unthinkable-why-it-makes-sense-to-be-a-neo-luddite-1.2968393> [https://perma.cc/FCF6-LXYR].

that emerging technology will eliminate their jobs.⁹⁴ Experts, on the other hand, claim that machines are far less likely to appropriate jobs than they are to change them.⁹⁵ While technology can do remarkable things to ease life's burdens, it also can be the catalyst for pervasive harms—including job elimination.⁹⁶ Could the modern-day robot be the ultimate and final expression of labor, acting in direct competition with humans in the workforce? Will human labor eventually cease to exist altogether? Balancing such dualism has led Bill Gates and others to opine on whether it is time to tax robots. Section II provides a critical analysis of the various literary calls to tax automation.⁹⁷

II. THE ACADEMIC CALL: TAX 'EM

In his 1987 essay examining the effects of microelectronic technology on job displacement, scholar Lewis Solomon first introduced the concept of a robot tax in legal scholarship.⁹⁸ His brief discussion about taxing robots was embedded within a broader analysis of the social impacts of automation substitution in the workforce.⁹⁹ Solomon surmised that a tax on robots raises three overarching concerns: (1) automation would slow due to the diminished cost differential between labor and technology, (2) U.S. international competitiveness would decelerate, and (3) a tax would require large-scale social acceptance of what is deemed “useful or desirable consumption.”¹⁰⁰ In lieu of fearing an impending “workless society,” Solomon concluded that releasing individuals from labor constraints would invite utopian-like opportunities, giving way to the pursuit of human creativity.¹⁰¹

Solomon's view on taxing robots remained the sole legal opinion on the matter for thirty years until Bill Gates's proposal to tax robots planted a fresh seed in this otherwise barren literary field.¹⁰² Stephen Hawking and Elon Musk have also publicly advanced

94. Jacob Douglas, *These American Workers Are the Most Afraid of A.I. Taking Their Jobs*, CNBC (Nov. 7, 2019, 10:30 AM), <http://www.cnbc.com/2019/11/07/these-american-workers-are-the-most-afraid-of-ai-taking-their-jobs.html> [https://perma.cc/Q93G-ZJL6].

95. See, e.g., Adam Robinson, *Harvard and MIT Say A.I. Isn't Going To Steal Your Job, but Your Colleagues Who Embrace It Will*, INC. (Sept. 14, 2018), <http://www.inc.com/adam-robinson/harvard-mit-say-ai-isnt-going-to-steal-your-job-but-your-colleagues-who-embrace-it-will.html> [https://perma.cc/HW6D-C6TG] (citing to a Harvard-MIT study which found that AI will not take jobs, but instead help humans work more efficiently); Meredith Somers, *3 Ways To Reexamine the Future Digital Workforce*, MIT MGMT. SLOAN SCH. (Dec. 30, 2019), <http://mitsloan.mit.edu/ideas-made-to-matter/3-ways-to-reexamine-future-digital-workforce> [https://perma.cc/L7X6-QLCB] (“Machines are probably not going to take your job. They might automate parts of it . . . commercial planes can fly themselves but that reality hasn't eliminated pilots.”).

96. Symposium, *Hack to the Future: How Technology Is Disrupting the Legal Profession*, 73 U. MIAMI L. REV. 413, 422 (2019).

97. Throughout this Article, the terms “robot” and “automation” are used interchangeably; however, Section III clarifies circumstances in which automation is not deemed a robot per se.

98. Lewis D. Solomon, *The Microelectronics Revolution, Job Displacement, and the Future of Work: A Policy Commentary*, 63 CHI.-KENT L. REV. 65, 89 (1987).

99. See generally *id.*

100. *Id.* at 89.

101. *Id.* at 94–95.

102. See James, *supra* note 15.

similar warnings that automation will decimate jobs and create mass unemployment.¹⁰³ In reaction, a growing body of academic literature has emerged analyzing the logistics of taxing robots.¹⁰⁴

This research has resulted in proposals, such as (a) levying a tax on robots,¹⁰⁵ (b) taxing the imputed income of robots,¹⁰⁶ (c) imposing a “sin tax” on robot usage,¹⁰⁷ (d) levying an automation tax,¹⁰⁸ (e) taxing capital more heavily than—or in a neutral fashion to—labor income,¹⁰⁹ and (f) imposing a surrogate tax on capital income.¹¹⁰ Much of the impetus behind these calls to tax robots stems from society’s fear of job displacement. The following Parts discuss the shortcomings of each of these proposals. In addition, Part II.G introduces dialogue surrounding fear-based tax legislation.

A. *Levying a Robot Tax*

Only a minority of scholars recommend that the current U.S. tax system impose a tax on robots themselves.¹¹¹ Nevertheless, several theoretical frameworks for deploying this concept have been suggested. One idea is to tax robots as if they are legal persons, similar to corporations.¹¹² Not all agree, however, that a tax directly on the robot itself is the proper course of action. For example, scholars Orly Mazur and Joachim Englisch conclude that taxing robots directly is not the answer.¹¹³ Mazur opines that in this age of

103. Quincy Larson, *A Warning from Bill Gates, Elon Musk, and Stephen Hawking*, FREECODECAMP (Feb. 19, 2017), <http://www.freecodecamp.org/news/bill-gates-and-elon-musk-just-warned-us-about-the-one-thing-politicians-are-too-scared-to-talk-8db9815fd398/> [https://perma.cc/U43L-9FHJ].

104. See, e.g., Abbott & Bogenschneider, *supra* note 16, at 150–51 (reasoning tax policy changes are necessary to stimulate innovation and offset lost tax revenue); Ahmed, *supra* note 16, at 732 (providing recommendations for taxing technologies); Estlund, *What Should We Do After Work?*, *supra* note 26, at 315–17 (noting a robot tax on technology that replaces human workers may serve as a potential revenue source to fund entitlements); Kisska-Schulze & Davis-Nozemack, *supra* note 24, at 1040–41 (highlighting the tension between innovation and employment tax policies); Mazur, *supra* note 10, at 298–303 (arguing against a robot tax).

105. See *infra* Part II.A.

106. See *infra* Part II.B.

107. See *infra* Part II.C.

108. See *infra* Part II.D.

109. See *infra* Part II.E.

110. See *infra* Part II.F.

111. See, e.g., Abbott & Bogenschneider, *supra* note 16, at 151–52 (analyzing the effects of a tax-neutral robot tax); Ahmed, *supra* note 16, at 732 (proposing that a minimal robot tax may be necessary in the future if a significant part of the human workforce is displaced); Xavier Oberson, *Taxing Robots? From the Emergence of an Electronic Ability To Pay to a Tax on Robots or the Use of Robots*, 9 WORLD TAX J. 247, 250–52 (2017) [hereinafter Oberson, *Taxing Robots?*] (exploring avenues to tax robots, including granting robots legal personality); Guerreiro et al., *supra* note 16, at 3–4 (building a model that concludes income inequality can be abridged if robots are taxed); Thuemmel, *supra* note 16 (studying the optimal robot tax for the United States).

112. See, e.g., M. Mustafa Erdoğan & Coşkun Karaca, *The Fourth Industrial Revolution and a Possible Robot Tax*, in INSTITUTIONS & ECONOMIC POLICIES 103, 114 (Irem Berksoy et al. eds., 2017) (proposing that giving legal personality to a robot could result in their ability to pay taxes); Oberson, *Taxing Robots?*, *supra* note 111, at 250–54 (exploring the taxation of robots that are granted legal capacity); Englisch, *supra* note 16, at 3–4.

113. Mazur, *supra* note 10, at 280 (noting that a robot tax will not address the impending concerns of the Fourth Industrial Revolution); see also Englisch, *supra* note 16, at 21 (concluding that it is unnecessary to tax robots directly).

automation, both nontax policy measures, as well as Code reforms, are necessary.¹¹⁴ Meanwhile, Englisch suggests imposing an indirect tax on the use of robots.¹¹⁵ The feasibility of imposing such a tax—whether directly or indirectly—raises interesting considerations, including whether robots should embody legal personage¹¹⁶ and whether such a tax would raise constitutional concerns.¹¹⁷

1. Robots as Legal Persons

For a robot to become a taxpayer, a legal personality would have to be created from scratch.¹¹⁸ If history is any guidance, robots would pursue a path similar to corporations in obtaining legal personage, which, as academic literature evidences, was a long and arduous path.¹¹⁹ In fact, corporate personage continues to be a hotly debated issue, with competing legal theories as to what exactly constitutes a corporate personality.¹²⁰

The U.S. Constitution makes no mention of the term “corporation.”¹²¹ It was not until the mid-1800s that the laws of the United States evolved, granting legal entity status to corporations.¹²² Soon after, the U.S. Supreme Court extended legal personage to corporations, entitling them to Fourteenth Amendment protections.¹²³ As legal entities, separate and distinct from their shareholders, corporations enjoy legal rights and responsibilities similar to those of individuals.¹²⁴ In particular, corporations can sue or be sued, enter into binding contract agreements, and own property.¹²⁵ Corporations are

114. Mazur, *supra* note 10, *passim*.

115. See also Englisch, *supra* note 16, at 22.

116. See *infra* Part II.A.1.

117. See *infra* Part II.A.2.

118. See Erdoğan & Karaca, *supra* note 112, at 114.

119. See John Dewey, *The Historic Background of Corporate Legal Personality*, 35 YALE L.J. 655, 657–58 (1926).

120. Katsuhito Iwai, *Persons, Things and Corporations: The Corporate Personality Controversy and Comparative Corporate Governance*, 47 AM. J. COMP. L. 583, 593–94 (1999) (“It is my belief that it is not the personality *per se* but the person/thing duality of the corporation that is responsible for most of the confusion in the past debate on its ‘essence.’ In fact, if we for some reason ignore or suppress or forget its personality, the corporation appears merely as a thing owned and controlled by shareholders, and we draw near to the position of corporate nominalists. If for some other reason we ignore or suppress or forget its thingness, the corporation appears fully as a person owning and managing corporate assets, and we draw near to the position of corporate realists. The recent important theorization by Professor Meir Dan-Cohen, who pictured the corporation as ‘a machine endowed with artificial intelligence,’ might be interpreted as an attempt, indeed an ingenious attempt, to reconcile the inherently irreconcilable person/thing duality of the corporation by invoking an image which amalgamates persons and things.”).

121. Nina Totenberg, *When Did Companies Become People? Excavating the Legal Evolution*, NPR (July 28, 2014, 4:57 AM), <http://www.npr.org/2014/07/28/335288388/when-did-companies-become-people-excavating-the-legal-evolution> [<https://perma.cc/F2UQ-LUUE>] (noting that the U.S. Constitution fails to mention “corporations”).

122. Jonathan Macey & Leo E. Strine, Jr., *Citizens United as Bad Corporate Law*, 2019 WIS. L. REV. 451, 515 (citing *People ex rel. Bank of Watertown v. Assessors of Watertown*, 1 Hill 616, 620–21 (N.Y. Sup. Ct. 1841)).

123. See *Santa Clara v. S. Pac. R.R. Co.*, 118 U.S. 394, 396 (1886).

124. Macey & Strine, *supra* note 122, at 454.

125. *Id.*

also taxable entities,¹²⁶ benefitting from “the same powers as an individual to do all things necessary or convenient to carry out its business and affairs.”¹²⁷

In comparison, robots have yet to be granted legal recognition of personhood,¹²⁸ thereby making it largely impossible to efficiently tax them as a legal person. Imposing a robot tax would be analogous to levying a tax on a computer, a machine which may (or may not) fall within the broader spectrum of the term “robot” depending on the definition utilized.¹²⁹ No matter how intelligent any given computer may be, or how many jobs could be lost as a result of its deployment into the workforce, there currently exists no legal framework for imposing legal personage on computers.¹³⁰ Certainly, continued improvements to autonomous machinery may ultimately lead to deeper considerations of whether robots should be granted legal personage akin to corporations.

The European Parliament has proposed that a new category of “electronic person” be applied to robots.¹³¹ Such categorization would require assigning legal rights and duties to inanimate objects or software programs, separate and distinct from their creators.¹³² If such evolution of law occurs, robots would then be entitled to property ownership, bank account maintenance, contract agreements, and constitutional protections, while simultaneously becoming legally responsible for paying taxes and compensating injured parties.¹³³ Thus far, no similar proposal has been introduced in the United States.

2. Constitutional Inquiries into the Robot Tax

The imposition of a robot tax could also raise U.S. constitutional issues, depending on how the tax would be levied. For example, before ratifying the Sixteenth Amendment, in 1909 Congress passed the corporate income tax, which was

126. Samuel A. Donaldson, *The Easy Case Against Tax Simplification*, 22 VA. TAX REV. 645, 671 n.111 (2003) (citing the taxability of corporations under I.R.C. § 11 (2018)); see also Iwai, *supra* note 120, at 592–93 (indicating that a corporation is a legal “person” that owns corporate assets). However, a corporation is also a “thing” owned by its shareholders in the form of equity interests. A corporation, therefore, plays a dual role of person and thing. Naturally a corporation is neither, but legally it is both. *Id.*

127. Gerhard Wagner, *Robot, Inc.: Personhood for Autonomous Systems?*, 88 FORDHAM L. REV. 591, 598 (2019) (quoting MODEL BUS. CORP. ACT § 3.02 (AM. BAR ASS’N 2016)).

128. See *id.* at 598–600 (discussing that although the legal system *could* confer legal personhood on autonomous machinery, the question is still out on whether it *should*).

129. See *infra* Section III for a more thorough discussion on defining robots.

130. See Tom Allen & Robin Widdison, *Can Computers Make Contracts?*, 9 HARV. J.L. & TECH. 25, 30 (1996).

131. Ignacio N. Cofone, *Servers and Waiters: What Matters in the Law of A.I.*, 21 STAN. TECH. L. REV. 167, 168 (2018).

132. Kyle Bowyer, *Robot Rights: At What Point Should an Intelligent Machine Be Considered a ‘Person’?*, CONVERSATION (Feb. 6, 2017, 2:14 PM), <http://theconversation.com/robot-rights-at-what-point-should-an-intelligentmachine-be-considered-a-person-72410> [https://perma.cc/BC8K-Y2T5].

133. See Woodrow Barfield, *Intellectual Property Rights in Virtual Environments: Considering the Rights of Owners, Programmers and Virtual Avatars*, 39 AKRON L. REV. 649, 696 & n.357 (2006) (discussing the rights that could be applied to virtual avatars if granted “electronic person[age],” including paying taxes); see also Giorgia Guerra, *An Interdisciplinary Approach for Comparative Lawyers: Insights from the Fast-Moving Field of Law and Technology*, 19 GERMAN L.J. 579, 606 (2018) (noting that as electronic persons, robots could be sued for compensation by injured parties).

constitutionally challenged two years later in *Flint v. Stone Tracy Co.*¹³⁴ The U.S. Supreme Court ultimately found the corporate income tax to be constitutional as an excise tax on the privilege of operating as a corporation, rather than a direct tax.¹³⁵ In 1913, the Sixteenth Amendment empowered Congress with the authority to impose a federal income tax without apportioning it among the states.¹³⁶ Congress has never since earnestly considered abolishing the corporate income tax.¹³⁷

In a similar manner, the legality of a robot tax could be called into question depending on its imposition as either a direct or indirect tax. A direct tax is one imposed directly on taxpayers and constitutionally subject to apportionment.¹³⁸ An indirect tax—for example, the corporate income tax—is generally understood as a tax on consumption and thus not subject to apportionment.¹³⁹ If a robot tax is levied as a direct tax—perhaps on the mere ownership of the robot itself—apportionment would be required unless it somehow fell within the framework of the Sixteenth Amendment. Alternatively, if it is implemented as an indirect tax, such as a levy on the use of robots in manufacturing,¹⁴⁰ no apportionment would presumably be required. It is within this broad spectrum that the constitutionality of a robot tax could be considered dubious.¹⁴¹

B. Taxing the Imputed Income of Robots

Notwithstanding the constitutional hurdles that could arise if either legal or electronic personage is bestowed, robots themselves have no actual or practical ability to

134. 220 U.S. 107 (1911).

135. *Flint*, 220 U.S. at 151–52 (stating that as an excise tax, there is no constitutional requirement that the corporate tax be apportioned based on population). The Constitution requires direct taxes be apportioned among the states based on the populations. In *Pollock v. Farmers' Loan & Trust Co.*, 157 U.S. 429 (1895), the Supreme Court held the individual income tax was unconstitutional because it was a direct tax that was not apportioned among the states. *Id.* at 607–08. In reaction, Congress amended the Constitution with the Sixteenth Amendment, which was ratified on February 3, 1913 and states, “The Congress shall have the power to lay and collect taxes on incomes, from whatever sources derived, without apportionment among the several States, and without regard to any census or enumeration.” U.S. CONST. amend. XVI.

136. U.S. CONST. amend. XVI.

137. Steven A. Bank, *Entity Theory as Myth in the Origins of the Corporate Income Tax*, 43 WM. & MARY L. REV. 447, 464 (2001).

138. Joseph M. Dodge, *What Federal Taxes Are Subject to the Rule of Apportionment Under the Constitution?*, 11 U. PA. J. CONST. L. 839, 861 (2009).

139. See Erik M. Jensen, *The Apportionment of “Direct Taxes”: Are Consumption Taxes Constitutional?*, 97 COLUM. L. REV. 2334, 2337 (1997); see also Brian Galle, *Conditional Taxation and the Constitutionality of Health Care Reform*, 120 YALE L.J. ONLINE 27 (2010), <http://www.yalelawjournal.org/forum/conditional-taxation-and-the-constitutionality-of-health-care-reform> [https://perma.cc/W7SE-5856]. While there is no universal agreement on the definition of a direct tax, it generally entails capitation taxes (i.e., a head tax) and taxes on the mere ownership of real or personal property (rather than use). *Id.* In contrast, an indirect tax is a tax on the use of property or particular business transactions, vocations, occupations, and the like. *Id.*

140. See Antony Bourne, *The Rise of Robots in Manufacturing*, MANUFACTURING GLOBAL (June 9, 2018), <http://www.manufacturingglobal.com/technology/rise-robotics-manufacturing> [https://perma.cc/RV7P-VMVD].

141. Although it is outside the scope of this Article to thoroughly examine the potential constitutional issues that could arise if a robot tax is instituted, this Article deems this to be an important issue that invites further scholarly inquiry. See Oberson, *Taxing Robots?*, *supra* note 111, at 254 (noting that tax payments would be imputed to the owners or employers of robots); see also Ying Hu, *Robot Criminals*, 52 U. MICH. J.L. REFORM, 487, 491 (2019) (providing that robots have no rights or liabilities).

pay any tax liabilities. To maneuver around this, Some have suggested that a tax be imposed on the imputed income attributable to robots that would otherwise have been earned by employees performing similar tasks.¹⁴² Such a tax could be levied on the “hypothetical salary that robots should receive from equivalent work done by humans.”¹⁴³

Imputed income, which includes the value of using a capital asset for one’s own benefit, is generally not part of U.S. tax law.¹⁴⁴ It is described in academic literature as “a flow of satisfactions from durable goods . . . and services arising out of the personal exertions of the taxpayer on his own behalf.”¹⁴⁵ In general, unless a Code provision applies, U.S. tax law does not consider imputed income to be gross income.¹⁴⁶ In addition, the Supreme Court has held that imputed income from property is not “income” within the meaning of the Sixteenth Amendment, and its inclusion in gross income might be problematic under the U.S. Constitution.¹⁴⁷ Since robots are property,¹⁴⁸ any attempt to tax the imputed income attributable to their use might invoke similar constitutional concerns.¹⁴⁹

If the imputed income associated with robotic use is nevertheless eventually subject to taxation, determining the appropriate amount of imputed income attributable to robots could also prove challenging. Unlike humans, robots work twenty-four hours a day without interruption.¹⁵⁰ Compared to their human counterparts, they have higher accuracy rates, never take vacations, do not get sick, and increase company productivity.¹⁵¹ Such diversity in comparative labor capacity raises a number of questions with respect to imputed income calculations, including whether robots that work nonstop, with no days off, should be considered in the analysis, and whether the tax savings associated with human labor versus robotic labor should also be considered.

142. Oberson, *Taxing Robots?*, *supra* note 111, at 254–55.

143. *Id.* at 254.

144. Ruth Mason, *Delegating Up: State Conformity with the Federal Tax Base*, 62 DUKE L.J. 1267, 1289–90 (2013). Imputed income includes “the value of using capital assets” that a taxpayer owns. *Id.* at 1290.

145. Donald B. Marsh, *The Taxation of Imputed Income*, 58 POL. SCI. Q. 514, 514 (1943).

146. This is not the case in other parts of the world. *See, e.g.*, Bruce Bartlett, *Taxing Homeowners as if They Were Landlords*, N.Y. TIMES: ECONOMIX (Sept. 3, 2013, 12:01 AM), <http://economix.blogs.nytimes.com/2013/09/03/taxing-homeowners-as-if-they-were-landlords/> [https://perma.cc/8QLX-GPP2] (listing countries that tax imputed rental income, including Iceland, Luxembourg, the Netherlands, Slovenia, and Switzerland).

147. *Helvering v. Indep. Life Ins. Co.*, 292 U.S. 371, 378–79 (1934) (involving a taxpayer occupying part of a building and renting another part yet deducting expenses attributable to the entire building). In addressing this issue, in dictum, the Court indicated that laying any taxes on the part of a building occupied by an owner would be unconstitutional as it was a direct tax without apportionment. *Id.* at 378–81.

148. Michalski, *supra* note 87, at 1025.

149. *See* Bryan T. Camp, *The Play’s the Thing: A Theory of Taxing Virtual Worlds*, 59 HASTINGS L.J. 1, 42–44 (2007) (making the case that there may be reason to include imputed income as part of gross income, but acknowledging that thus far the U.S. Supreme Court excludes it).

150. Misty Robotics, *Robots, Jobs, and Productivity: The Future of the Workplace*, MEDIUM (Mar. 21, 2018), <http://medium.com/mistyrobotics/robots-jobs-and-productivity-the-future-of-the-workplace-3c4bf2b8831f> [https://perma.cc/666J-AN42].

151. *Humans Do . . . Robots Don’t*, BIODIRECT (Nov. 21, 2016, 10:58 AM), <http://www.biodirectusa.com/details/humans-do-robots-dont> [https://perma.cc/CEU2-W8XB].

The Code also provides no method of realistically valuing the labor or services attributable to robotic income.¹⁵² Taxing the imputed income of hard-to-define robots would afford an open invitation to tax the imputed income on all other property types and services, requiring that new Code and Treasury Regulations be carved out to accommodate various methods for doing so. Tax scholar Lawrence Zelenak has noted that the “exclusion of [imputed income from services] dates from the dawn of the income tax and is so central to the structure of the income tax that it is inconceivable that the courts would support an administrative effort to reverse that exclusion.”¹⁵³ Congress never intended for the income tax laws to apply to such income; thus, any attempt to extract a tax on the imputed income from robots will likely be met with heavy criticism.

C. *Imposing a Technological “Sin Tax”*

A third proposal to tax robots suggests imposing a “sin tax” on companies that substitute technology for humans.¹⁵⁴ Similar to taxes on cigarettes, alcohol, or sugary drinks to deter consumption, a technological sin tax might discourage companies from using robots in lieu of humans in the workplace.¹⁵⁵ Sin taxes are generally deployed to discourage bad behavior. For example, a bank might reconsider the number of ATMs it plans to install if displacing human bank tellers would subject it to a sin tax.¹⁵⁶ However, as scholar Orly Mazur observes, society must genuinely consider whether robot usage should be inhibited in the workplace if robots actually increase workload productivity.¹⁵⁷ This type of fiscal punishment seems counterproductive and unlikely in light of today’s technologically advancing society.¹⁵⁸

D. *Levying an Automation Tax*

In lieu of levying a sin tax on human displacement, another proposal entertains the notion of instituting an automation tax on robot owners.¹⁵⁹ An automation tax is distinguishable from a robot tax in that a robot tax is a form of blanket tax on automation,

152. See I.R.C. § 61(a) (2018), for a list of income items includable in gross income.

153. Lawrence Zelenak, *Custom and the Rule of Law in the Administration of the Income Tax*, 62 DUKE L.J. 829, 834 (2012).

154. See Daniel Drew, *The End of Meaningful Work: A World of Machines and Social Alienation*, ZERO HEDGE (May 18, 2015, 7:50 PM), <http://www.zerohedge.com/news/2015-05-18/end-meaningful-work-world-machines-and-social-alienation> [<https://perma.cc/B7CG-MZQP>] (proposing the idea of a sin tax on companies substituting human workers for machinery); see also Nadav Shoked, *Cities Taxing New Sins: The Judicial Embrace of Local Excise Taxation*, 79 OHIO ST. L.J. 801, 802–03 (2018) (including “human-replacing robots” in a broader list of negative activities being targeted for tax purposes).

155. See Rachelle Holmes Perkins, *Salience and Sin: Designing Taxes in the New Sin Era*, 2014 BYU L. REV. 143, 182 (noting sin taxes discourage “undesirable behavior”).

156. Drew, *supra* note 154.

157. Mazur, *supra* note 10, at 299.

158. See William Hays Weissman, *Why Robot Taxes Won’t Work*, 88 STATE TAX NOTES 125, 126 n.8 (2018) (noting that sin taxes are generally imposed on things identified as being bad (like tobacco products), but that within the context of automation, robots are neither inherently good nor bad).

159. See Abbott & Bogenschneider, *supra* note 16, at 151–52 (proposing an adjustment be made to the tax system allowing for tax neutrality between robots and human workers); see also Ooi & Goh, *supra* note 16, at 6 (proposing an automation tax be applied to all technology that makes up the “present wave of technological innovation”).

while an automation tax acknowledges “the distinction between automation’s employment-substituting and employment-complementing effects.”¹⁶⁰ One theory includes imposing a tax based on a ratio of corporate revenue over number of employees.¹⁶¹ An automation tax, although not categorized as a sin tax per se, would similarly result in unfavorable tax treatment for companies utilizing robots.¹⁶² Such a tax could threaten the U.S. economy by diminishing investment in innovation, thereby reducing productivity and gross domestic product growth.¹⁶³ South Korea implemented an automation tax in 2018, transforming its tax law to disincentivize technological capital assets by decreasing tax deductions for automation business investments.¹⁶⁴ The exact ramifications of this tax policy decision are yet unknown.

Some scholars have also suggested levying a tax on the increased profits associated with automation.¹⁶⁵ This theory postulates that businesses are in a better position to pay taxes on profits due to heightened income opportunities from increased productivity, which are further enriched by decreased costs of automated work.¹⁶⁶ Taxing profits that are tethered solely to robotic production, however, neglects to quantify the exact value of contributions made by a robot’s performance poised against a human’s.¹⁶⁷ As previously mentioned, a variety of nonquantifiable factors would have to be considered, which could result in a chicken or the egg circular analysis.¹⁶⁸

E. Taxing Capital Versus Labor

Emerging discussions surrounding the imposition of a robot tax also include various opinions on taxing capital versus labor.¹⁶⁹ Arguments against Congress granting preferred tax treatment to capital emerged long before the current debate involving

160. Ooi & Goh, *supra* note 16, at 6 (noting that an automation tax should incentivize employment-complementing effects (i.e., technologies used by humans to enhance human productivity), while disincentivizing employment-substituting effects (i.e., technologies performing the same tasks as humans so they ultimately substitute humans in the workforce)).

161. Xavier Oberson, *How Taxing Robots Could Help Bridge Future Revenue Gaps*, OECD (2017), <http://www.oecd.org/employment/how-taxing-robots-could-help-bridge-future-revenue-gaps.htm> [<https://perma.cc/78LP-SS8A>].

162. See ROBERT D. ATKINSON, INFO. TECH. & INNOVATION FOUND., *THE CASE AGAINST TAXING ROBOTS* (Apr. 8, 2019), <http://itif.org/sites/default/files/2019-case-against-taxing-robots.pdf> [<https://perma.cc/BX6Y-M738>].

163. See *id.*

164. Eduardo Porter, *Don’t Fight the Robots. Tax Them.*, N.Y. TIMES (Feb. 23, 2019), <http://www.nytimes.com/2019/02/23/sunday-review/tax-artificial-intelligence.html> [<https://perma.cc/ZNY9-HDQH>].

165. See Stefano Dorigo, *Robots and Taxes: Turning an Apparent Threat into an Opportunity*, 92 TAX NOTES INT’L 1079, 1082 (2018); Englisch, *supra* note 16, at 21 (concluding that it is feasible to tax profits arising from the use of robots).

166. Dorigo, *supra* note 165, at 1082.

167. *Id.*

168. See *supra* notes 150–53 and accompanying text.

169. See, e.g., Mazur, *supra* note 10, at 313–22 (arguing for a tax on capital amid the increase in automation); Jay A. Soled, *Reimagining the Estate Tax in the Automation Era*, 9 U.C. IRVINE L. REV. 787, 810 (2019) (proposing that Congress reimagine the estate tax in lieu of taxing capital amid this era of automation).

robots.¹⁷⁰ In many respects, the concept of taxing capital more heavily than—or in a neutral fashion to—labor is a mere retooling of previous academic theories within the context of robots.¹⁷¹

Historically, U.S. capital gains have received preferential tax treatment as compared to ordinary income.¹⁷² In particular, the Code imposes heavier tax burdens on labor than on capital investments, including enacting higher marginal tax rates and payroll taxes.¹⁷³ In contrast, capital gains are not subject to payroll taxes, benefit from lower preferential tax rates, and can be minimized, deferred, or eliminated based on select Code provisions.¹⁷⁴

If robots replace humans in the workplace, some academics have advanced that the Code must evolve to tax capital more heavily to recoup revenue lost from displaced workers.¹⁷⁵ In this rapidly developing, technologically advanced society, scholars note that “capital is usurping the lodestar role that labor once had.”¹⁷⁶ However, to materially increase taxes on capital would require that the Code transform in ways not previously witnessed in the nation’s history.¹⁷⁷ In addition, such a dramatic congressional reaction could prompt companies to relocate their capital from the United States to lower-tax jurisdictions, as capital is fairly mobile.¹⁷⁸

The idea of taxing capital less favorably is by far the most popular proposal addressing the robotic takeover.¹⁷⁹ These proposals vary depending on how “capital” is defined.¹⁸⁰ Within the construct of the Code, the term is defined as “property held by the

170. See, e.g., Bruce Bartlett, *The Case for Ending the Capital Gains Tax*, 41 FIN. ANALYSTS J. 23, 23 (1985) (proposing an abolishment of the capital gains tax); Charles J. Cooper, Michael A. Carvin & Vincent J. Colatratiano, *The Legal Authority of the Department of the Treasury To Promulgate a Regulation Providing for Indexation of Capital Gains*, 12 VA. TAX. REV. 631, 681 (1993) (noting that the Tax Reform Act of 1986 included the Treasury’s proposal to eliminate the capital gains preference); Phyllis C. Taite, *Saving the Farm or Giving Away the Farm: A Critical Analysis of the Capital Gains Tax Preferences*, 53 SAN DIEGO L. REV. 1017, 1020–31 (2016) (providing a historical discussion of the tax treatment of capital gains property, beginning with the U.S. Supreme Court’s 1920 *Eisner v. Macomber* decision).

171. See Meredith Somers, *The Case for Taxing Robots – Or Not*, MIT MGMT. SLOAN SCH. (June 14, 2019), <http://mitsloan.mit.edu/ideas-made-to-matter/case-taxing-robots-or-not> [<https://perma.cc/PSN3-MBQU>] (“A robot tax really is saying we need to tax capital more than we’re taxing labor.” (quoting professor and scholar Ryan Abbott)).

172. Soled, *supra* note 169, at 812.

173. See *id.* at 803 (explaining that for every significant decrease in labor income, an equivalent increase in capital gains would cost the government billions of dollars in tax revenue); see also I.R.C. §§ 1(a), 61(a), 3101 (2018).

174. Soled & Thomas, *Automation*, *supra* note 16, at 12; see also I.R.C. §§ 121, 1014, 1031.

175. See Mazur, *supra* note 10, at 281; Soled & Thomas, *Automation*, *supra* note 16, at 26; Soled, *supra* note 169, at 790.

176. Jay A. Soled & Kathleen Delaney Thomas, *Taxes in the Age of Technology*, 161 TAX NOTES 459, 464 (2018) [hereinafter Soled & Thomas, *Age of Technology*].

177. See Soled & Thomas, *Automation*, *supra* note 16, at 17 (documenting that for the past century, the Code has afforded preferential tax treatment to capital gains).

178. Soled, *supra* note 169, at 790.

179. See, e.g., Soled & Thomas, *Age of Technology*, *supra* note 176, at 465 (discussing proposals addressing robotic takeover).

180. See, e.g., Soled & Thomas, *Automation*, *supra* note 16, at 7 (defining “capital” as “any investment in property regardless of form (tangible or intangible) and regardless of use (business, investment, or personal)”).

taxpayer (whether or not connected with his trade of business)”,¹⁸¹ however, the Code also excludes from the definition specific items such as inventory, stock in a business, and certain self-created intangibles.¹⁸² In contrast, as discussed in academic literature, the term “capital” seems to be applied more broadly to include all business assets.¹⁸³

The narrower Code interpretation of the term is exclusively reserved for preferential tax rates levied when a taxpayer ultimately disposed of capital assets. In particular, it applies to capital gains taxes paid on taxpayer income that is received following the sale or exchange of capital assets.¹⁸⁴ For individual taxpayers, the long-term capital gains tax rates are 0%, 15%, or 20%.¹⁸⁵ As noted above, these rates are generally lower than the ordinary income tax rates (which can be as high as 39.6%).¹⁸⁶ In addition, two superfluous items must be considered when assessing an individual taxpayer’s capital gains tax rates. First, a 3.8% net investment income tax may apply to certain capital gains for taxpayers exceeding specified income thresholds.¹⁸⁷ Further, long-term capital gains on “collectible assets,” such as stamps, coins, art, and comic books, are generally subject to a 28% maximum rate,¹⁸⁸ while “unrecaptured 1250 gains” (i.e., gains linked to prior straight-line depreciation deductions) are subject to a maximum rate of 25%.¹⁸⁹

Unlike individual taxpayers, corporations—which are more likely to own the majority of the robots used in the workforce—do not receive preferential tax treatment for long-term capital gains or any other gains.¹⁹⁰ Corporate capital gains are subject to a 21% flat rate regardless of the income character.¹⁹¹ From a practical standpoint, proposals that the Code change to tax capital more heavily than labor are largely moot, since such preferred treatment would only generally apply to employees and individual shareholders of the robot-owning companies. Any change in the preferential tax rate for capital gains would, thus, not likely impact the corporate taxpayer’s decision to employ a robot versus an individual. More acutely, while a change in capital gains rates may increase the Treasury’s receipts from individual income taxpayers, it is unlikely to impact

181. See I.R.C. § 1221(a) (2018).

182. *Id.* §1221(a)(1)–(8).

183. See, e.g., Soled & Thomas, *Automation*, *supra* note 16, at 7.

184. See Steven A. Bank, *Mergers, Taxes, and Historical Realism*, 75 TUL. L. REV. 1, 51 (2000).

185. I.R.C. § 1(h)(1) (reviewing applicable rates dependent on the taxpayer’s income).

186. Jesse M. Fried, *Option Backdating and Its Implications*, 65 WASH & LEE L. REV. 853, 876 (2008). The previous highest rate for individuals, 39.6%, was modified in I.R.C. § 1(h), (j), which resulted in the highest rate for individuals being decreased to 37%. I.R.C. § 1(j). This lower rate applies in the case of the tax years beginning after December 31, 2017 and before January 1, 2026. After January 1, 2026, the highest rate goes back up to 39.6%. *Id.* In addition, ordinary income attributable to wages earned is subject to payroll taxes, while capital gains are generally not. See *id.* § 3402.

187. *Id.* § 1411(a). The threshold for the tax to apply under subsection (b) is \$200,000 for individuals (single and head of household) or \$250,000 for married couples (and surviving spouses). *Id.* § 1411(b). This threshold is not indexed for inflation. Net investment income subject to tax includes gains attributable to the disposition of property, such as capital gains, but it excludes gains attributable to a trade or business (e.g., Section 1231 gains, capital gains, etc.). See *id.* § 1441(c).

188. See *id.* § 1(h)(4).

189. *Id.* § 1(h)(1)(E); see also Richard L. Schmalbeck & Jay A. Soled, *Unifying Depreciation Recapture*, 48 CONN. L. REV. 531, 545 (2015).

190. I.R.C. § 11(a)–(b).

191. *Id.*

the Treasury's corporate revenues or the corporate taxpayer's interest in robot deployment.¹⁹²

In addition, most assets owned by businesses—regardless of entity structure—are considered Section 1231 assets.¹⁹³ Section 1231 assets include depreciable personal property used in a trade or business and real property used in a trade or business.¹⁹⁴ While not specifically designated as capital assets, Section 1231 assets are treated as long-term capital assets for gain recognition purposes.¹⁹⁵ Any robots deployed in a business operation will likely be considered Section 1231 assets.¹⁹⁶ As such, gains attributable to the disposition of robots will result in preferred tax treatment for individual business owners and capital gain treatment for corporations.¹⁹⁷ The preferred character of gain on the disposition of a robot is similarly unlikely to influence a corporation's decision to employ a robot today; rather, it is the implementation of innovation in the workplace, combined with increased efficiencies and productivity, that will likely impact such decisionmaking.¹⁹⁸

Admittedly, owning a capital asset—like a robot—grants taxpayers flexibility in controlling the timing of realization and recognition of gains and losses; however, such benefit is largely illusory since it is available to all assets.¹⁹⁹ For example, an individual

192. Corporate income taxes make up approximately 7% of federal revenue. POLICY BASICS: WHERE DO FEDERAL TAX REVENUES COME FROM?, *supra* note 11, at 1. Over the decades the share of revenues from individuals has grown while those derived from corporations has shrunk. *Id.* at 3.

193. See I.R.C. § 1231 (b)(1) (defining a Section 1231 asset as “property used in a trade or business, of a character which is subject to the allowance for depreciation provided in section 167, held for more than 1 year, and real property used in the trade or business, held for more than 1 year”).

194. Daniel P. Fischer, Note, *Old MacDonald Files Chapter 12 Bankruptcy: How Should the IRS Tax the Reorganization?*, 97 IOWA L. REV. 589, 608 (2012).

195. Under I.R.C. § 1231(a)(1), if a taxpayer has net Section 1231 gains, such gains are treated as long-term capital gains and long-term capital losses. If the taxpayer has a net Section 1231 loss, the respective gains and losses are treated as Section 1231(a)(2) ordinary gains and losses. I.R.C. § 1231(a)(2). This provides the “best of both worlds” for a taxpayer from a characterization standpoint. If the taxpayer is in an overall gain position, those gains are treated as long-term capital gains with preferred rate treatment for individuals and the ability to offset capital losses for corporate taxpayers. If the taxpayer has an overall loss, such losses are ordinary in character and thereby generally unrestricted in their allowance. See Fischer, *supra* note 194, at 608–09.

196. In other words, physical robots are Section 1231 assets because they are used in a trade or business, presumably held for more than one year, and subject to depreciation (i.e., they are susceptible to exhaustion, wear and tear, or obsolescence). See I.R.C. § 1231. If a robot is an intangible, it may also be a Section 1231 asset assuming it is not self-created, certain computer software, and is an amortizable Section 197 intangible. See Treas. Reg. § 1.197-2 (as amended in 2020) (elaborating what constitutes a Section 197 amortizable intangible); see also I.R.C. § 179.

197. Capital gains are only “preferred” for corporations in that they are the only types of gains that can offset capital losses. If a corporation has excess capital losses, they are carried back three years as net short-term capital losses and forward five years. I.R.C. § 1212. In addition, such gains would be subject to I.R.C. § 1245 recapture (I.R.C. § 1231 gains are recaptured as ordinary income to the extent of depreciation previously claimed). See *id.* § 1245.

198. See Kweilin Ellingrud, *The Upside of Automation: New Jobs, Increased Productivity and Changing Roles for Workers*, FORBES (Oct. 23, 2018, 2:15 PM), <http://www.forbes.com/sites/kweilinellingrud/2018/10/23/the-upside-of-automation-new-jobs-increased-productivity-and-changing-roles-for-workers/#4c800da67df0> [https://perma.cc/YNE5-EQUG].

199. See Cynthia Blum, *Rollover: An Alternative Treatment of Capital Gains*, 41 TAX L. REV. 383, 401 (1986) (noting that capital gains benefit from a taxpayer's ability to defer under the realization and recognition rules).

taxpayer may choose to sell an ordinary income asset and recognize gain when the taxpayer's marginal rate is lower.²⁰⁰ Alternatively, a taxpayer with a capital asset may choose to sell it at a gain during an accounting period when there is available capital loss.²⁰¹ Further, the timing of gain recognition can be deferred over a period of years through an installment sale or qualifying nonrecognition exchange.²⁰² Still, the "benefits" of owning capital are largely misplaced within the context of owning robots. If a multinational corporation owns robots, timing considerations are unlikely to be the driving force for robotic deployment. Instead, the company's primary interest likely rests on the implementation of robots to increase productivity and efficiencies.²⁰³

Most business assets also enjoy the benefits of generous depreciation provisions in the Code.²⁰⁴ Depreciation deductions occur when a taxpayer elects to either immediately expense an asset or instead take deductions over an applicable recovery period.²⁰⁵ The Tax Cuts and Jobs Act of 2017 (TCJA) introduced a new 100% expensing allowance for depreciable assets, thus allowing businesses to deduct the cost of certain business assets immediately.²⁰⁶ This new provision invited concerns that the TCJA would further encourage companies to invest in robots over people.²⁰⁷

200. Corporations have a 21% flat rate so there is no rate advantage. I.R.C. § 11. Before the Tax Cuts and Jobs Act (TCJA) was signed, corporations were taxed at graduated rates. Therefore, there was a rate advantage unless an applicable surcharge applied. For a discussion of corporate taxation before and after the signing of the TCJA, see Don Leatherman, *The Treatment of Corporations and Partnerships Under the TCJA*, 19 TRANSACTIONS 509, 515 (2018).

201. For individuals, capital losses offset capital gains, \$3,000 of ordinary income, and the excess is carried forward indefinitely. See I.R.C. §§ 1211(b), 1212(b). For corporate taxpayers, capital losses can only offset capital gains. Any excess losses are carried back three years and forward five years. *Id.* §§ 1211(a), 1212(a)(1).

202. Under I.R.C. § 453, taxpayers may elect to treat their gains under the installment method when they receive at least one payment after the close of the tax year in which the disposition occurred. I.R.C. § 453; see also *id.* §§ 1031, 1033, 351, 721.

203. See Ellingrud, *supra* note 198.

204. Tangible property placed in service after December 31, 1986 generally must use the modified accelerated cost recovery system under Section 168 unless excluded. See I.R.C. § 168; Treas. Reg. § 1.168A-1(a) (as amended in 1986). Intangible assets are not depreciated under the modified accelerated cost recovery system but rather amortized under I.R.C. § 167 or § 197.

205. I.R.C. § 179.

206. Under I.R.C. § 179(a), rather than depreciating certain assets, taxpayers may elect to expense up to \$1 million (adjusted for inflation) of the cost of the asset placed in service. *Id.* § 179(a)–(b)(1). For tax years beginning in 2020, this amount is increased to \$1.04 million. See *id.* § 179(b)(6). Most robots would qualify for this election, provided, however, the applicable expense amount phases out on a dollar-for-dollar basis when the Section 179 property placed in service for the year exceeds \$2.5 million (as adjusted for inflation). See *id.* § 179(b)(2). The threshold amount is \$2.59 million for tax years beginning in 2020. See *id.* § 179(b)(6). For multinational corporations that make purchases far in excess of this amount, the election will be of little use. Congress also permits bonus depreciation, however, which is significant for large corporations. Under the TCJA, taxpayers may expense 100% of certain qualifying property under I.R.C. § 168(k)(2) until December 31, 2022. One hundred percent expensing is then phased down, decreasing by 20% each year after 2022. See *id.* § 168(k)(6). Robots would qualify under I.R.C. § 168(k)(2) and thus be eligible for 100% expensing.

207. Nicole Goodkind, *Trump Tax Plan Gives Jobs Away to Robots and Will Increase Unemployment*, NEWSWEEK (Nov. 15, 2017, 6:59 PM), <http://www.newsweek.com/tax-plan-robots-jobs-senate-republicans-712930> [https://perma.cc/C2TH-4TBZ] ("The bill includes a provision called 'Full and Immediate Expensing' that allows a company to deduct the cost of any new asset right away instead of when it sells the asset or as deductions depreciate over time. That means a company can take out a cheap loan, use it to purchase an expensive

Although depreciation serves as one of the greatest tax advantages to robot ownership, it is important to understand that this benefit extends to all depreciable business assets—not just robots.²⁰⁸ In other words, there is no greater advantage to immediately expensing (or depreciating) a robot as compared to any other depreciable business asset.

While the Code certainly provides more enhanced tax treatment to capital and Code-defined capital assets as compared to labor income, many of these preferences are not specific to robots and are unlikely to impact a corporation's decision to deploy them.²⁰⁹ With limited exception, proprietors of capital have long received preferred tax treatment as compared to wage earners,²¹⁰ with such benefits dating back to the capital tax treatment as applied by the British.²¹¹ America is a capitalist system, and those who live and work within it must “build . . . the modern economic order.”²¹² In fact, the term “capitalism” itself is defined as “an economic system characterized by private or corporate ownership of capital goods.”²¹³ It is unlikely that the United States will deviate from its capitalistic roots anytime soon to advance an ill-conceived robot tax.

F. *Imposing a Surrogate Tax at Death*

A final proposition recommends that capital be left alone, and instead, revenue lost from human worker displacement be recaptured at death as a “surrogate tax on capital

machine, and write it off immediately. Some economists argue that this could spur companies to favor automation over jobs and to invest in robots over people.”).

208. Robots may also be software, in which case they are generally not depreciable under the modified recovery system. *See* I.R.C. § 168. The depreciation, expensing, or amortization of computer software depends on whether a taxpayer developed the software or instead purchased it. If the taxpayer developed the robotic computer software, it may be expensed in the year the costs are incurred or capitalized and amortized over sixty months under I.R.C. § 174. If the costs incurred are not considered research and experimental expenditures, then the costs must generally be depreciated under the straight-line method over thirty-six months per I.R.C. § 167(f). If the robotic computer software is purchased with a computer, the taxpayer may be able to depreciate it together with the computer under the modified accelerated cost recovery system. *See id.* § 168. On the other hand, if it is purchased separately, the software will be depreciated via the straight-line method over thirty-six months. *See id.* § 168. Finally, in the event the software is purchased as part of the acquisition of an existing trade or business, then it is amortized for a period of fifteen years as an I.R.C. § 197 asset.

209. Proposals to tax capital heavily or in parity with labor largely focus on the projected loss of revenue associated with job displacement and job loss. *See, e.g.,* Dorigo, *supra* note 165. These proposals are rendered moot if the projected labor loss does not occur. Moreover, as this Article demonstrates, a shift to taxing capital more heavily or in a neutral fashion is not necessarily going to impact robot deployment.

210. *See, e.g.,* Frank J. Slagle, *A Decade of Tax Policy: A Reflection of the Economic Dilemmas and Budget Deficits During the 1980s*, 25 NEW ENG. L. REV. 1, 75–78 (1990) (discussing the Tax Reform Act of 1986, which eliminated the preferential treatment of capital gains income, resulting in such gains being taxed at the same rates as income derived from other sources).

211. *See* Soled & Thomas, *Automation*, *supra* note 16, at 6 (indicating that when Great Britain enacted the first full-fledged income tax system in 1799, capital gains were not taxed). It was not until 1965 that Great Britain began taxing capital gains. *Id.*

212. Christopher Angevine, *The Consociative Value of Work: What Homelessness-to-Work Programs Can Teach Us About Reforming and Expanding Prison Labor*, 4 CRIM. L. BRIEF 19, 20 (2009) (omission in original).

213. Mark Bernstein, Note, *Should Governments Play Robin Hood? The Effects of the Repeal of the Estate Tax on Wealth Apportionment*, 12 CARDOZO J. INT'L & COMP. L. 187, 192 (2004) (quoting *Capitalism*, MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY (10th ed. 1993)).

income.”²¹⁴ Scholar Jay Soled proposes that strategic changes be made to the estate tax which would require the “haves”—owners and sellers of capital who exploit preferential capital gains rates throughout life—bear a greater portion of the U.S. estate tax burden as compared to the “have nots,” those who, through no fault of their own, are displaced from the job market due to automation substitution.²¹⁵

In simplistic terms, consider the “Mark Zuckerbergs” of the world having to fill a significant portion of the nation’s coffers upon death, as compared to commercial truckers who lose their jobs when driverless technology takes over. Although this proposal carries interesting merit, it raises important questions of whether it is equitable to confiscate funding from the opportunistic few to feed the many. While seemingly a politically intriguing solution, such an outright seizure of wealth is unlikely. Moreover, there is also no proximate relationship between robots and the ultrarich.²¹⁶ Extreme wealth is not necessarily synonymous with robots or technology. Discussions entailing confiscatory estate tax rates are more about the disparity between the rich and the poor²¹⁷ than they are robots and their impact on the labor market.

G. Fear-Based Tax Legislation

Much of the stimuli driving these various calls to tax robots stems from society’s fear of job displacement and humans’ intimate relationship with labor.²¹⁸ Although only a modicum of academic literature has analyzed “fear-based” lawmaking,²¹⁹ it has been

214. Soled, *supra* note 169, at 790.

215. *See id.*

216. However, many argue that AI will increase wealth inequality between the rich and poor. *See, e.g.,* Abbott & Bogenschneider, *supra* note 16, at 155 (noting that automation generates uneven wealth); Estlund, *What Should We Do After Work?*, *supra* note 26, at 258 (remarking that threats of increased automation will lead to growing polarization of the labor market); Mazur, *supra* note 10, at 287 (acknowledging the public fear that increased automation will lead to increased wealth inequality).

217. *See, e.g.,* Anne L. Alstott, *Equal Opportunity and Inheritance Taxation*, 121 HARV. L. REV. 469, 489–96 (2007); Mark L. Ascher, *Curtailing Inherited Wealth*, 89 MICH. L. REV. 69, 119 (1990) (noting that in 1972, even blue-collar workers protested the proposal for confiscatory estate taxes as it would delineate the American dream of wealth accession); Marc Linder, *Eisenhower-Era Marxist-Confiscatory Taxation: Requiem for the Rhetoric of Rate Reduction for the Rich*, 70 TUL. L. REV. 905, 991–93 (1996) (examining Secretary of the Treasury, Andrew Mellon’s, declaration of estate tax rates as “confiscatory”); Edward J. McCaffery, *The Uneasy Case for Wealth Transfer Taxation*, 104 YALE L.J. 283, 284–85 (1994) (noting that scholars have called for a confiscatory estate tax due to unequal wealth distribution).

218. *See* Mazur, *supra* note 10, at 283–88 (discussing the element of fear with regard to automation substitution). *See also supra* Section I for a discussion of the human-labor relationship.

219. *See, e.g.,* Mary Orsini, *Quantity vs. Quality: The Misdirected War on Immigration and the Sweeping Effects of the Tier III Terrorist Organization*, 41 RUTGERS L. REC. 167, 176 (2014) (opining that the “war on terror” is wrought with fear-based legislation that betrays U.S. national security interests); Catharine Richmond & Melissa Richmond, *The Future of Sex Offense Courts: How Expanding Specialized Sex Offense Courts Can Help Reduce Recidivism and Improve Victim Reporting*, 21 CARDOZO J.L. & GENDER 443, 446 (2015) (noting that “increasingly harsh sex offender laws are the product of fear-based legislation”); Joel A. Heller, Note, *Fearing Fear Itself: Photo Identification Laws, Fear of Fraud, and the Fundamental Right To Vote*, 62 VAND. L. REV. 1871, 1885–91 (2009) (discussing the risks of fear-based lawmaking in voting rights); Elias Wright, Note, *The Future of Facial Recognition Is Not Fully Known: Developing Privacy and Security Regulatory Mechanisms for Facial Recognition in the Retail Sector*, 29 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 611, 653 (2019) (citing CASS SUNSTEIN, *LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE* 1–5, 35–61 (2005)) (documenting that media coverage has resulted in fear-based lawmaking).

suggested that passing legislation founded upon fear is highly suspect since fear may be irrational, emotional, manipulatable, not easily measured, and resulting in obscure decisionmaking consequences.²²⁰ The U.S. Supreme Court has opined that taking governmental action based on ambiguous fears is unsound practice and that fear-based laws raise questions about whether such laws satisfy rational basis review.²²¹ Some have similarly postured that fear-based, reactionary lawmaking is a costly legislative approach.²²²

Although no academic literature specifically focuses on fear-based *tax* legislation, this Article concludes that revising the Code based on fears of potential job losses due to automation substitution is erroneous. Well-cited studies, like McKinsey's and Frey and Osborne's, spark social fears by painting forecasts of catastrophic job disruption.²²³ In contrast, current U.S. Bureau of Labor Statistics data evidences a different story. Between 2009 and 2019, the compound annual rate of job growth resulted in a positive change of 1.3, with forecasts of additional positive rates of job growth between 2019 and 2029.²²⁴ While specific industries, like manufacturing, utilities, and wholesale and retail trade indicate reductions in overall job growth, data supports the conclusion that most U.S. industries will continue to observe progressive job growth rates as depicted in Figure 1.²²⁵

220. See Heller, *supra* note 219, at 1887–91.

221. See *id.* at 1885–86 (citing *City of Cleburne v. Cleburne Living Ctr.*, 473 U.S. 432, 449–50 (1985)).

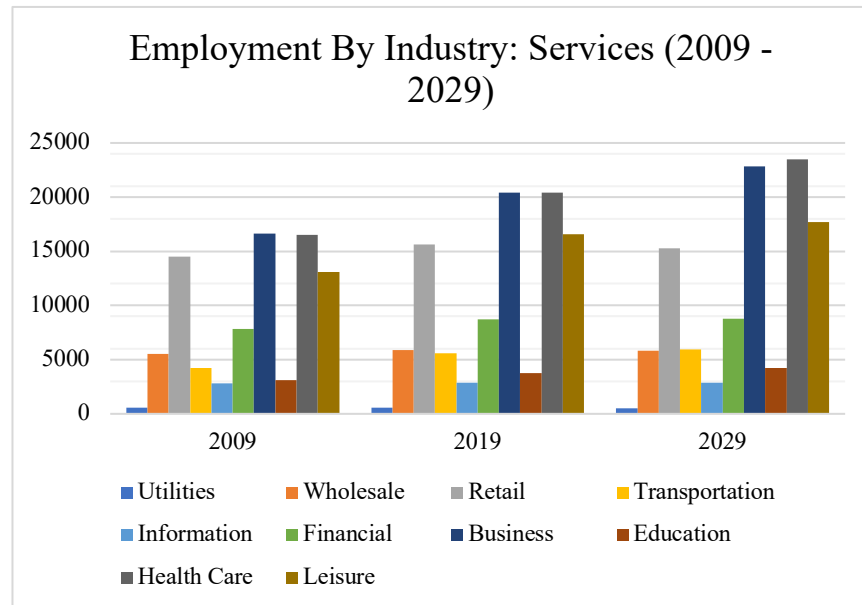
222. See Rafael E. Silva, *Knowledge as Power: Criminal Registration and Community Registration Laws in America*, 34 CHAMPION 60 (2010) (reviewing WAYNE A. LOGAN, *KNOWLEDGE AS POWER* (2009)).

223. See MANYIKA ET AL., *supra* note 8; Frey & Osborne, *supra* note 9.

224. See *Employment Projections: Employment by Major Industry Sector*, U.S. BUREAU LAB. STATS., <http://www.bls.gov/emp/tables/employment-by-major-industry-sector.htm> [<https://perma.cc/9WU9-YJU4>] (last visited Feb. 1, 2021). Positive job growth rates are particularly expected in the areas of transportation and warehousing, business services, education, health care, and leisure and hospitality. *Id.*

225. See *id.*

FIGURE 1



A 2018 study undertaken by PricewaterhouseCoopers suggested that job loss due to automation will be largely offset by the creation of new jobs.²²⁶ Another study conducted by Autor and Salomons in 2017 found that over a thirty-five-year historical period, productivity growth from technological progress remained employment-augmenting, rather than employment-reducing.²²⁷ In 2018, the World Economic Forum published a report denoting that 75 million jobs will be displaced by 2022, while another 133 million will be created.²²⁸

In 2019, the Metropolitan Policy Program at the Brookings Institution released a report on the impact of automation and AI in the workforce.²²⁹ The study found that the correlation between job displacement and automation/AI is more complex than initially understood and that automation will bring neither a future apocalypse nor utopia.²³⁰ The

226. See PRICEWATERHOUSECOOPERS, WILL ROBOTS REALLY STEAL OUR JOBS? 2 (2018).

227. David Autor & Anna Salomons, Does Productivity Growth Threaten Employment? 1, 6 (ECB Forum on Central Banking, 2017), http://www.ecb.europa.eu/pub/conferences/shared/pdf/20170626_ecb_forum/D_Autor_A_Salomons_Does_productivity_growth_threaten_employment.pdf [<https://perma.cc/X439-P6VD>] (acknowledging, however, that this study was based on past job exposure to technology, rather than future projections).

228. WORLD ECON. FORUM, THE FUTURE OF JOBS REPORT 2018, at 8 (2018) [hereinafter WORLD ECON. FORUM 2018 REPORT].

229. See MARK MURO, ROBERT MAXIM & JACOB WHITON WITH IAN HATHAWAY, METRO. POL'Y PROGRAM, AUTOMATION AND ARTIFICIAL INTELLIGENCE: HOW MACHINES ARE AFFECTING PEOPLE AND PLACES (2019).

230. See *id.* at 11 (“[M]ost observers today agree that the recent past may well presage the near future with its reminder that automation in the last 30 years delivered more jobs to the economy than it destroyed Automation and AI, in this vein, are increasingly looking like sources of the productivity gains badly needed to secure higher-quality economic growth in the United States.”).

report indicated that automation has not coincided with a significant reduction in the employment sector in the last four decades but has instead complemented jobs, thus resulting in employment growth.²³¹ None of these various studies proposed that automation will have zero impact on the global labor force; however, individually and combined, they render a more positive outlook than those predicated on sinister forecasts.

From its inception, the U.S. Constitution has protected innovation and intellectual property.²³² Thomas Jefferson praised intellectual property rights, noting their benefit to society;²³³ the U.S. Supreme Court has concurred.²³⁴ The federal government awards prizes and grants to incentivize innovation and uses considerable tax expenditures to promote R&D.²³⁵ In 1954, U.S. innovation tax policy began taking shape to further encourage R&D.²³⁶ From that point forward, Congress has adopted beneficial tax provisions specifically governing intellectual property.²³⁷ Policy makers continue to maintain that “innovation increases long-term productivity.”²³⁸

Disrupting the United States’ deeply rooted foundation of incentivizing technology would diminish the nation’s global competitiveness.²³⁹ Scholar Fiona de Londras once wrote, “law-making processes tend not to cope particularly well in times of crisis.”²⁴⁰ Perhaps the greatest question with regard to the future of robotic immersion in the workplace is whether society is, in fact, heading into a crisis that would prompt Congress to reconsider its protective stance on innovation. Evolving technology will undoubtedly displace some workers in the future, but data also suggest that new jobs will be created, and job growth is on the rise in certain sectors.²⁴¹

Revising the Code based on panic or fear of human job losses at this juncture would raise questions about the Treasury’s application of law based on good tax policy, which

231. *Id.* at 23–24 (“Over the years 1980 to 2016, the economy created 54 million net new jobs, even as exponential gains in computer adoption and processing speed were realized.”).

232. *See* U.S. CONST. art. I, § 8, cl. 8 (granting Congress the power “to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries”).

233. Kisska-Schulze & Davis-Nozemack, *supra* note 24, at 1029 (citing Loletta Darden, *Lights, Lights, Lights! Finding Light in the Darkness of The Public/ Private Patent Debate*, 9 AM. U. INTELL. PROP. BRIEF 106, 143 (2018)).

234. *Id.*; *see, e.g.*, *Graham v. John Deere Co.*, 383 U.S. 1, 8–9 (1966) (stating that Jefferson “clearly recognized the social and economic rationale of the patent system”); *Mazer v. Stein*, 347 U.S. 201, 219 (1954) (“The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in ‘Science and useful Arts.’”).

235. Kisska-Schulze & Davis-Nozemack, *supra* note 24, at 1031.

236. *Id.* at 1035–36 (citing Xuan-Thao Nguyen & Jeffrey A. Maine, *The History of Intellectual Property Taxation: Promoting Innovation and Other Intellectual Property Goals?*, 64 SMU L. REV. 795, 811–13, 831 (2011)).

237. *Id.* at 1036–37; *see, e.g.*, I.R.C. §§ 41(a), 174(a), 1235, 197 (2018).

238. Kisska-Schulze & Davis-Nozemack, *supra* note 24, at 1032; *see also* CONG. BUDGET OFFICE, PUB. NO. 2927, *FEDERAL SUPPORT FOR RESEARCH AND DEVELOPMENT 1* (2007).

239. *See* Atkinson, *supra* note 162, at 2, 15.

240. FIONA DE LONDRAS, *DETENTION IN THE ‘WAR ON TERROR’: CAN HUMAN RIGHTS FIGHT BACK?* 8 (2011).

241. *See supra* notes 223–31 and accompanying text.

relies on the three tenets of equity, efficiency, and administrability.²⁴² Good tax policy does not and should not rely on an underlying principle of fear. If meaningful consideration of some form of a robot tax ultimately surfaces at the federal level, such a proposal should be considered in light of all labor statistics available, not merely those signifying doom. Until hard data materializes that substantiates society's fears of monumental job displacement, revising the Code in order to tax robots would be unsound tax policy.

Regardless of the above lines of reasoning identifying the shortcomings of various calls to tax robots, if Congress eventually moves to consider implementing some form of a robot tax in the future, an additional issue that must be considered is how the Treasury would effectively define the term "robot." The remainder of this Article argues that a robot cannot be defined for tax purposes as its characteristics are not clearly delineated.

III. A DEFINITIONAL RABBIT HOLE

American physicist Joseph Engelberger once stated, "I can't define a robot, but I know one when I see one."²⁴³ Defining the term "robot" for tax purposes would be similar to explaining (with exacting precision) a "business expense" or "capital asset" for purposes of the Code.²⁴⁴ Congress could not state with any specificity every possible business expense available to taxpayers, which resulted in the term being broadly defined as any expenses that are "ordinary and necessary" and incurred while carrying on a trade or business.²⁴⁵ Similarly, Congress could not list every conceivable asset that might constitute a capital asset, resulting in the Code defining the term by listing all things that a capital asset is not.²⁴⁶

Unlike capital assets or business expenses, however, defining a robot for tax purposes would require a very precise definition as the robot itself (directly or indirectly) would be the subject of taxation.²⁴⁷ To better establish that defining the term "robot" with any accuracy or uniformity is impossible, Part III.A examines the various complexities involved in defining a robot for tax purposes. Part III.B offers a similar examination of the quagmire in defining toy figures. Part III.C scrutinizes various global attempts to create a uniform definition of the term. Lastly, Part III.D proposes that defining "robot"

242. See John A. Swain, *State Sales and Use Tax Jurisdiction: An Economic Nexus Standard for the Twenty-First Century*, 38 GA. L. REV. 343, 348–50 (2003).

243. Tom Harris, *How Robots Work*, HOWSTUFFWORKS, <http://science.howstuffworks.com/robot.htm> [<https://perma.cc/JA2N-HQPX>] (last visited Feb. 1, 2021).

244. See I.R.C. § 162(a) (2018) (providing a deduction for all ordinary and necessary expenses that are paid or incurred during the taxable year in carrying on any trade or business); *Id.* § 1221(a)(1)–(8) (denoting what a "capital asset" is not).

245. *Id.* § 162(a).

246. *Id.* § 1221 (a)(1)–(8).

247. I.R.C. § 7701 contains the general definitions utilized in the Code unless the applicable statutory section expressly provides one. If I.R.C. § 7701 and the applicable statutory section(s) are silent, one must look to the Treasury Regulations. If the regulations are also silent, as well as other administrative announcements, applicable case law might define the term. In certain cases, particularly with newer legislation, the Code provision's legislative history might define an applicable term in the committee reports generated by the House and Senate.

for tax purposes could find a similar fate as the Treasury's failed attempt to define an "association" under the *Kintner* regulations.²⁴⁸

A. How Does One Define a Robot for Tax Purposes?

If Congress applied an extremely broad definition of the term robot, it would result in overinclusion—and thus, over-taxation.²⁴⁹ Congressional implementation of a narrowly tailored definition, however, would be virtually impossible due to the infinite number of machine types in use that may or may not actually be robots (no matter how people ultimately refer to them).²⁵⁰ Numerous commentators have indicated that no comprehensive or universal definition of a robot currently exists in tax law or elsewhere.²⁵¹ Robots represent varying types of intelligence, thus rendering it challenging to distinguish one robot category from another type of software or technology for tax law or any other purpose.²⁵² Notwithstanding this difficulty, there have been a few rudimentary attempts at defining a robot.²⁵³

248. See Treas. Reg. § 301.7701-2(a)(1) (1960) (deriving an ultimately unworkable definition of "association" from *United States v. Kintner*, 216 F.2d 418, 422–23 (9th Cir. 1954)).

249. See Philip T. Hackney, *Charitable Organization Oversight: Rules v. Standards*, 13 PITT. TAX REV. 83, 139 (2015) (discussing the harms associated with applying a broad definition to a term for purposes of the Code, resulting in the IRS selectively choosing whether to apply the law in any given circumstance).

250. See Harris, *supra* note 243 ("If you consider all the different machines people call robots, you can see that it's nearly impossible to come up with a comprehensive definition.").

251. See, e.g., Ryan Calo, *Robotics and the Lessons of Cyberlaw*, 103 CALIF. L. REV. 513, 529 (2015) (explaining that there is no definition for a robot, and a consensus suggests "robots are mechanical objects that take the world in, process what they sense, and in turn act upon the world"); Elizabeth E. Joh, *Policing Police Robots*, 64 UCLA L. REV. DISCOURSE 516, 523 (2016) [hereinafter Joh, *Policing Police Robots*] (noting that while there is "no single definition of a robot," a consensus suggests it may be "defined as any machine that can collect information, process it, and use it to act upon the world" (internal quotation marks omitted)); Elizabeth E. Joh, *Private Security Robots, Artificial Intelligence, and Deadly Force*, 51 U.C. DAVIS L. REV. 569, 577 & n.46 (2017) (observing there is no single definition of robot, yet suggesting a consensus finds the definition to be its "ability to process data with artificial intelligence and to react to it in the world"); Margot E. Kaminski, *Robots In The Home: What Will We Have Agreed To?*, 51 IDAHO L. REV. 661, 663 (2015) (asserting there is "no single definition of a robot," but suggesting that a consensus defines "robots as technologies that sense, think, and then act on and in the physical world"); Mazur, *supra* note 10, at 298 (promoting the need for a definition that is "clear, practicable, and justifiable"); Oberson, *Taxing Robots?*, *supra* note 111, at 249 (prompting that "robot" is not sufficiently defined by law as of yet and that such commission would be difficult); Soled, *supra* note 169, at 809 (professing that there is a "collective inability" to universally define the term robot).

252. See Oberson, *Taxing Robots?*, *supra* note 111, at 249. The numerous types of robots currently in use raise important questions about what, in fact, should constitute a robot. For example, is software that reduces human time spent on audit tasks equitable to self-driving software that entirely eliminates the need for commercial truck drivers? Is self-driving software that still requires human supervision but fewer drivers the same as self-driving software that eliminates drivers? Should robotically assisted surgical devices that are used to perform complex surgeries with more precision than human doctors be treated differently for tax purposes than drones counting large-scale audit stock in lieu of human accountants?

253. See Calo, *supra* note 251, at 529 (suggesting they "are mechanical objects that take the world in, process what they sense, and in turn act upon the world"); Joh, *Policing Police Robots*, *supra* note 251, at 523 (suggesting that a robot may include "any machine that can collect information, process it, and use it to act upon the world"); Kaminski, *supra* note 251, at 663 (suggesting that robots are "technologies that sense, think, and then act on and in the physical world"); Tim McFarland, *Factors Shaping the Legal Implications of Increasingly Autonomous Military Systems*, 97 INT'L REV. RED CROSS 1313, 1324 & n.31 (2015) (proposing that the "operational definition of a robot" is a "'sense-think-act' paradigm" which "refers to the continuous process by

These definitions share certain common themes, which include the ability of a robot to (1) collect, process, and use data; (2) make independent decisions based on programming; and (3) exercise a degree of freedom to either act or react with the physical world. These mutual characteristics are comparable to those introduced in the European Union's 2017 *Report to the Commission on Civil Law Rules on Robots*.²⁵⁴ Each listed attribute implies that robots are distinguishable from other types of machinery such as cars, tractors, or conveyor belts, in that robots are autonomous, capable of learning and making judgments, and can substitute human activities.²⁵⁵ In other words, a robot is seemingly similar in nature to a natural person as compared to a machine that merely automates human tasks.

If tax law evolves in such a way that it eventually treats robots the same as natural persons, then the Code will have to include them in its list of defined "persons." In the Code, the term "person" is an "individual, a trust, estate, partnership, association, company or corporation" and thus, encompasses humans, pass-through and tax-exempt entities, and taxable entities.²⁵⁶ The term "taxpayer" includes any person subject to an internal revenue tax.²⁵⁷ Nowhere in the Code is the term robot defined or used.

Treasury regulations are also silent with regard to robots, except for one regulation that discusses qualified R&D expenditures.²⁵⁸ This regulation mentions "robotic equipment" with respect to certain research-related activities in the manufacturing process.²⁵⁹ In addition, there are currently no U.S. Tax Court cases that define robot, mention the term in any substantive manner, or entertain the idea of taxing them directly or indirectly.²⁶⁰ Thus, deploying the term "robot" into the Code or Treasury Regulations

which a robot perceives its environment, uses that information to 'make decisions' according to its programming, and acts on those decisions"); Harry Surden & Mary-Anne Williams, *Technological Opacity, Predictability, and Self-Driving Cars*, 38 CARDOZO L. REV. 121, 173 (2016) ("A good working definition of a robot is a computer-controlled machine that moves through the environment or produces physical action in the world and which has some degree of freedom about where to move.").

254. See Report with Recommendations to the Commission on Civil Law Rules on Robotics, EUR. PARL. DOC. A8-0005/2017 (2017). The proposed characteristics of a "smart robot" include (1) "the acquisition of autonomy through sensors and/or by exchanging data with its environment (inter-connectivity) and the trading and analyzing of those data," (2) "self-learning from experience and by interaction (optional criterion)," (3) "at least a minor physical support," (4) "the adaptation of its behaviour and actions to the environment," and (5) "absence of life in the biological sense." *Id.*

255. See Oberson, *Taxing Robots?*, *supra* note 111, at 249–50.

256. I.R.C. § 7701(a)(1) (2018).

257. *Id.* § 7701(a)(14).

258. See Treas. Reg. § 1.41-4(c)(10) ex. 7 (as amended in 2016).

259. *Id.*

260. Cf. *Barker v. Comm'r*, 103 T.C.M. (CCH) 1410 (2012) (discussing robotics systems on the space station); *Ill. Tool Works, Inc. v. Comm'r*, 117 T.C. 39, 40 (2001) (involving patent infringement payments attributable to certain industrial robots and deducting such payments), *aff'd*, 355 F.3d 997 (7th Cir. 2004); *Nationalist Movement v. Comm'r*, 102 T.C. 558, 566 (1994) (mentioning a racist newsletter stating that Chrysler replaced workers with robot assemblers and high-tech), *aff'd*, 37 F.3d 216 (5th Cir. 1994); *Diamond v. Comm'r*, 92 T.C. 423, 427 (1989) (denying petitioner certain expenses related to the development of robotic technology), *aff'd*, 930 F.2d 372 (4th Cir. 1991); *Seder v. Comm'r*, 60 T.C. 49, 50 (1973) (mentioning that one corporation, which owned another corporation, manufactured an industrial robot).

would be revolutionary, akin to Congress one day attempting to tax an animal or computer.²⁶¹

After Congress moves past the unfounded fear-based tax legislation issue, the underlying problem (from a practicality standpoint) in advocating for some form of a robot tax is that there is no consensus among scholars as to exactly what should be taxed.²⁶² Instead, most proposals merely emerge from a generalized concern over job displacement, resulting in a tax policy reaction.²⁶³ Tax consultant Tatiana Falcão demonstrated this point, suggesting the current scholarship in robotics is extremely vague on whether a robot tax should apply to the activity, the process, or the asset that substitutes for the human activity.²⁶⁴ Without a concrete definition of what constitutes a robot, any proposal to tax it as a legal person will inevitably blur the lines between taxing the robot itself, the activity it performs, and/or the process involved.²⁶⁵

Moreover, absent a uniform and internationally recognized definition, significant tax avoidance opportunities will exist between countries and ultimately render any tax extraction obsolete.²⁶⁶ Alternatively, any definition too mechanical—or too exacting—will likely result in most job-displacing forms of automation escaping taxation altogether.

For example, a bank ATM is arguably a robot,²⁶⁷ as is a self-serve checkout stand at a grocery store and an airline kiosk at the airport.²⁶⁸ None of these three machines are akin to cars or conveyor belts since each of them is purposefully used as a substitute for humans in the workforce. However, under the proposed definitions of the term “robot,”²⁶⁹ each would fall outside the spectrum of being identified as a robot because they are neither autonomous nor capable of learning and making judgments.

261. For example, the term “person” as included in I.R.C. § 7701(a), has remained the same and constant since 1954. To introduce the term “robot” into the overall definition of a “person” would arguably be monumental.

262. See *supra* Parts II.A–II.F for discussions of the various ways to structure a robot tax.

263. See *supra* Part II.G for a critique of implementing fear-based legislation in response to increasing automation.

264. Tatiana Falcão, *Should My Dishwasher Pay a Robot Tax?*, 90 TAX NOTES INT’L 1273, 1275 (2018).

265. See *id.*

266. See Mazur, *supra* note 10, at 300–01 (noting that robotic software could easily be uploaded to the cloud and thus moved to a low-tax or no-tax jurisdiction).

267. See Drew, *supra* note 154 (stating that banks using ATM machines in place of humans could be subject to a form of sin tax on robots).

268. Lydia DePillis, *Forget the Haters. Grocery Self-Checkout Is Awesome.*, WASH. POST (Oct. 9, 2013, 9:00 AM), <http://www.washingtonpost.com/news/wonk/wp/2013/10/09/forget-the-haters-grocery-self-checkout-is-awesome/> [https://perma.cc/5HW4-7HVV] (identifying self-checkouts and airline kiosks as robots).

269. See *supra* note 253 and accompanying text.

The mental gymnastics in defining a robot can best be illustrated by looking at various U.S. Customs Court²⁷⁰ cases involving imported toy figures.²⁷¹ If a toy figure cannot be accurately defined, the government cannot be expected to define a robot for taxation—where the stakes are much higher.

B. *The Quagmire in Defining Toy Figures*

Under U.S. tariff schedules, the applicable classification of an imported item can have a significant impact on the item's duty rate.²⁷² As a consequence, a series of U.S. customs cases involve importers attempting to classify toy figures as “figures of animate objects” (upon which lower duty rates are imposed) as compared to various other classifications garnering higher duty rates (i.e., inanimate objects).²⁷³

In *Louis Marx & Co. v. United States*,²⁷⁴ the United States took the position that a figure of an animate object must represent a living being, while the plaintiff argued that such term does not require a toy figure to “represent a real or recognizable being.”²⁷⁵ The plaintiff's imported object was shaped like a “stubby bullet atop extremely short legs and highly elongated feet” and otherwise represented some form of fruit or vegetable like a watermelon, ear of corn, or banana.²⁷⁶ The court determined that merely adding facial features to a fruit or vegetable is not sufficient to turn an inanimate object into an animate one, since the figure itself does not represent any living being.²⁷⁷

In *Dobson v. United States*,²⁷⁸ the Customs Court ruled that figures that look like trucks, motorcycles, and taxi cabs (identified as inanimate objects), but which have human figures attached to them (clearly animate objects), are not “figures or images of

270. The U.S. Customs Court was reorganized in 1980 and renamed the U.S. Court of International Trade. *About the Court*, U.S. CT. INT'L TRADE, <http://www.cit.uscourts.gov/about-court> [https://perma.cc/QB4U-X9TW] (last visited Feb. 1, 2021). All references herein to the “Customs Court” are in reference to either court as applicable.

271. See, e.g., *Kamar Int'l Inc. v. United States*, 10 Ct. Int'l Trade 658, 660–61 (1986); *Lewis Galoob Co. v. United States*, 66 Cust. Ct. 484, 486–87 (1971); *Louis Marx & Co. v. United States (Louis Marx II)*, 66 Cust. Ct. 139, 140–43 (1971); *Dobson v. United States*, 28 Cust. Ct. 290, 292–93 (1952).

272. Onur Akarca, *Why It's Important To Have the Correct Tariff Classification on Imported Goods*, MORE THAN SHIPPING (Mar. 30, 2018), <http://www.morethanshipping.com/why-its-important-to-have-the-correct-tariff-classification-on-imported-goods/> [https://perma.cc/JS7T-ZTMT].

273. See, e.g., *Louis Marx II*, 66 Cust. Ct. at 140 (noting that the applicable duty rate between classifications can be substantial (21% versus 41%)).

274. 66 Cust. Ct. 139 (1971).

275. *Louis Marx II*, 66 Cust. Ct. at 141.

276. *Id.* at 140.

277. *Id.* at 142–43. The term “figures of animate objects” must be read to mean forms or representations of humans or animals.

278. 28 Cust. Ct. 290 (1952).

animate objects.”²⁷⁹ The court in *Kamar International, Inc. v. United States*,²⁸⁰ after pondering whether a stuffed toy that looked like E.T. was an animate object, held that imaginary figures that do not represent an actual living person on Earth are not animate objects.²⁸¹ In *Lewis Galoob Co. v. United States*,²⁸² the court determined that an animate object (like an astronaut robot) that can perform inhuman feats (such as swiveling its head 360 degrees) is incapable of representing any living being on Earth, and thus is not an animate object.²⁸³

Curiously, when toy robots are involved, the courts have held they *can never* be animate objects by their very nature, as a robot is “not a living thing . . . [and] not endowed with life.”²⁸⁴ Nevertheless, the Customs Court was willing to breathe life into other imaginary toy figures that do not look like any human or living thing—such as Mr. Spock from planet Vulcan and Chewbacca.²⁸⁵

Circling back to defining robots, these cases raise an interesting query as to whether a robot tax (if implemented) should apply to only “humanoid” looking robots. In other words, for tax or other legal purposes, should human-looking robots be distinguishable from robots without such animate features? Thus far, none of the proposed robot definitions give “humanoid” features any serious or enhanced consideration. Yet one should nevertheless consider whether there exists an element of job displacement uniquely associated with humanoid features.

For example, humans may be more likely to interact with and use the services of a mechanical bell hop, nurse, or personal trainer if such robot is virtually indistinguishable from that of a natural person.²⁸⁶ Some suggest that integrating humanoid robots may break down barriers associated with robot interaction.²⁸⁷ Boston Dynamics makes robots that look like dogs and that are being used for police application.²⁸⁸ Sophia, a social-humanoid robot that resembles a woman, gives speeches and demonstrates

279. *Dobson*, 28 Cust. Ct. at 293 (“We take it, therefore, that the figures in the imported articles representing various men, such as the drivers, operators, or policemen, are figures or images of animate objects and that the remaining portions of these items (the vehicles which are parts of the complete articles) are images of inanimate objects. The specific question remains whether such items consisting partly of human figures and partly of figures of inanimate objects are ‘figures or images of animate objects.’ Careful consideration of the issue before us leads us to the conclusion that these imported articles are not ‘figures or images of animate objects’ and, accordingly, are not entitled to the reduced rate claimed by the plaintiffs.”).

280. 10 Ct. Int’l Trade 658 (1986).

281. *Kamar Int’l*, 10 Ct. Int’l Trade at 660–61.

282. 66 Cust. Ct. 484 (1971).

283. *Lewis Galoob*, 66 Cust. Ct. at 486–87.

284. *Louis Marx & Co. v. United States (Louis Marx I)*, 40 Cust. Ct. 610, 611 (1958).

285. See *Kamar Int’l*, 10 Ct. Int’l Trade at 660–61 (indicating that Spock, from planet Vulcan, is just as much an animate object as Captain Kirk of Star Trek even though he is from a different planet and further indicating that figures such as Chewbacca of Star Wars should be classified as an animate object because they are living beings endowed with life even though they are mythical or fictitious).

286. See Mary-Ann Russon, *Should Robots Ever Look Like Us?*, BBC (July 23, 2019), <http://www.bbc.com/news/business48994128> [<https://perma.cc/S44L-MDMU>].

287. *Id.*

288. Peter Holley, *Boston Dynamics’ “Terrifying” Robot Dogs Have Been Put To Work by at Least One Police Agency*, WASH. POST (Nov. 26, 2019, 5:43 PM), <http://www.washingtonpost.com/technology/2019/11/26/bostondynamics-terrifying-robotic-dogs-have-been-put-work-by-least-one-police-agency/> [<https://perma.cc/RP7Y-UA6E>].

technology globally.²⁸⁹ Similar to the judicial analysis surrounding toy figures and tariffs, perhaps humanoid features should be contemplated in the overall definitional discussion surrounding robots. In tandem, another important factor that should be considered amid the broader academic dialogue is how other countries are defining the term.

C. *International Standards and Civil Commissions*

In 2016, a draft report was submitted to the European Parliament that contained several recommendations to the Commission on Civil Law Rules on Robotics.²⁹⁰ The recommendations included establishing ethical standards for AI, creating insurance for liability associated with autonomous vehicles, requiring mandatory “kill switches” for robots, and a robot tax.²⁹¹ This was the first serious legislative proposal for implementing a robot tax of which the authors are aware.²⁹² The report indicated that a robot tax (which included a tax on AI) was proposed in light of rising concerns over future employment prospects and the viability of the social security systems under the current tax base.²⁹³

The report called upon the commission to create a uniform definition of autonomous robots, describing them as “smart robots” with the following features: (1) “autonomy through sensors and/or exchanging data with its environment (inter-connectivity) and trades and analysis data,” (2) “self-learning (optional criterion),” (3) “has a physical support,” and (4) “adapts its behaviours and actions to its environment.”²⁹⁴ The report also recommended registration of these advanced robots.²⁹⁵

In addition, the report called into question whether autonomous robots were “legal persons,” or whether a new legal category should be created, stating:

[U]nder the current legal framework robots cannot be held liable per se for acts or omissions that cause damage to third parties; the existing rules on liability cover cases where the cause of the robot’s act or omission can be traced back to a specific human agent such as the manufacturer, the owner or the user

. . . [I]n the scenario where a robot can take autonomous decisions, the traditional rules will not suffice to activate a robot’s liability, since they would not make it possible to identify the party responsible²⁹⁶

289. Russon, *supra* note 286.

290. Mady Delvaux (Rapporteur), Comm. on Legal Affairs, *Draft Report with Recommendations to the Comm’n on Civil Law Rules on Robotics*, INL 2015/2103 (May 31, 2016).

291. European Parliament Press Release, Robots and Artificial Intelligence: MEPs Call for EU-Wide Liability Rules (Feb. 16, 2017). The resolution was passed by 396 votes to 123, with 85 abstentions. *Id.*

292. As previously mentioned, South Korea has a robot tax in nomenclature, but it is more akin to an automation tax. *See supra* note 164 and accompanying text.

293. *See Delvaux, supra* note 290, at 3 (“[W]hereas at the same time the development of robotics and AI may result in a large part of the work now done by humans being taken over by robots, so raising concerns about the future of employment and the viability of social security systems if the current basis of taxation is maintained, creating the potential for increased inequality in the distribution of wealth and influence.”).

294. *Id.* at 6–7.

295. *Id.* at 7. Registration of certain smart robots would definitely create a bright-line for application of a robot tax but the definitional issues would still exist at the registration level.

296. *Id.* at 5–6 (“[W]hereas, ultimately, robots’ autonomy raises the question of their nature in the light of the existing legal categories – of whether they should be regarded as natural persons, legal persons, animals

Although the commission passed a majority of the report's provisions, Parliament rejected the idea of a robot tax.²⁹⁷ Those in the robotics industry backed this decision, indicating a robot tax would only suffocate innovation and competitiveness.²⁹⁸ While the report focused primarily on autonomous decisionmaking, as Tatiana Falcão suggests, there are simply too many variables involved between a process, an activity, and an asset, for proper classification.²⁹⁹

The International Organization for Standardization (IOS), which sets forth various international standards for manufacturing and technology, has similarly attempted to define "robot," finding it to be an "actuated mechanism programable in two or more axes . . . with a degree of autonomy . . . moving within its environment, to perform intended tasks."³⁰⁰ The standard breaks the term into different types of robots—industrial, service, personal service, professional service, and mobile.³⁰¹

Industrial robots include those used in automotive manufacturing plants, where parts are installed with the assistance of robotics.³⁰² Service robots perform specific tasks for humans outside the industrial context—for example, a bellhop at a hotel.³⁰³ A personal service robot performs certain domestic tasks, like house cleaning or mobility assistance for the disabled.³⁰⁴ Professional service robots are those that clean floors at a hospital, fight fires, or perform surgeries.³⁰⁵ Finally, mobile robots operate from a mobile platform—autonomously or not.³⁰⁶

While the IOS attempted to define the term "robot" for manufacturing purposes, its definition likely falls short of what would be required of a legal definition for tax purposes. The commission's definition of a "smart robot" is also likely unworkable. As professor and scholar Xavier Oberson indicates, all of the current definitions of a robot appear to focus on the degree of autonomy and the capacity of the robot to evolve and learn.³⁰⁷

Focusing exclusively on robotic intelligence is shortsighted, as these are not the only types of robots that threaten the workforce. Numerous nonautonomous robots can

or objects – or whether a new category should be created, with its own specific features and implications as regards the attribution of rights and duties, including liability for damage . . .").

297. Rich Haridy, *EU Move To Bring in AI Laws, but Reject Robot Tax Proposal*, NEW ATLAS (Feb. 17, 2017), <http://newatlas.com/eu-robot-law-proposal-passes-parliament/47971/> [<https://perma.cc/9EAP-4XE8>].

298. *Id.* (reporting that rejecting the robot tax was the position of the International Federation of Robotics).

299. See Falcão, *supra* note 264, at 1275–76 (discussing that defining what constitutes a robotic asset, process, activity, or action is critical). This determination may be context specific depending on the country and time frame involved. For example, in many developing countries dishes are still washed manually. Does this mean the automatization of dishwashing in developing countries will be considered a robot, but not in developed countries? See *id.*

300. ISO 8373:2012(en) *Robots and Robotic Devices—Vocabulary*, INT'L ORG. FOR STANDARDIZATION § 2.6 (2012), <http://www.iso.org/obp/ui/#iso:std:iso:8373:ed-2:v1:en> [<https://perma.cc/CLR4-62EE>].

301. See *id.* §§ 2.9–.13.

302. *Id.* § 2.9.

303. See *id.* § 2.10.

304. *Id.* § 2.11.

305. *Id.* § 2.12.

306. *Id.* § 2.13.

307. Oberson, *Taxing Robots?*, *supra* note 111, at 250.

easily displace workers, such as those in the food sector that perform rote tasks like spreading sauce, putting pizzas into the oven, delivering food, slicing and grilling, and preparing coffee.³⁰⁸ Implementing a cohesive definition of robot for tax purposes must take nonautonomous machines, which take over human jobs, into account.

D. *Learning from the Kintner Regulations*

Other academics have taken note of the thorny issues of classifying a robot for tax purposes.³⁰⁹ Future attempts to define the term could resemble the Treasury's historically failed attempt at defining an "association" under the *Kintner* regulations.³¹⁰ Under these former regulations, the Treasury identified six characteristics from the U.S. Supreme Court's decision in *Morrissey v. Commissioner*,³¹¹ which distinguished associations (i.e., corporations) from other types of entities.³¹² The corporate characteristics were identified as (1) the presence of associates, (2) an objective to carry on business and divide gains, (3) continuity of life, (4) centralized management, (5) limited liability, and (6) free transferability.³¹³ For an entity to be classified as an association—and thus a corporation—the Treasury required that it carry more corporate characteristics than noncorporate characteristics.³¹⁴

The problem with the Treasury's test, however, was that the first two factors were commonplace not just for corporations, but for many partnerships as well.³¹⁵ As a consequence, equal weight was conferred on the remaining four primary corporate

308. See Jessica Yadegaran, *Bay Area Restaurants with Robots Making, Serving Your Food*, MERCURY NEWS (Feb. 22, 2018, 2:59 PM), <http://www.mercurynews.com/2018/02/22/bay-area-restaurants-with-robots-making-serving-your-food/> [<https://perma.cc/JZ2L-XENN>]; see also Zach Brendza, *This Robot Can Make 300 Pizzas in an Hour*, TRIBLIVE (Oct. 1, 2019, 3:31 PM), <http://triblive.com/business/technology/this-robot-can-make-300-pizzas-in-an-hour/> [<https://perma.cc/89RL-JC93>].

309. See e.g., Dorigo, *supra* note 165, at 1082 (suggesting that a true robot tax is "profoundly theoretical" as it would be difficult to construct a tax liability rule because the level of autonomy required and the definition of a robot are both unclear); Mazur, *supra* note 10, at 298 (indicating the European Union's definition arguably excludes many types of labor-displacing automation while at the same time includes many forms of labor-enhancing technologies); Oberson, *Taxing Robots?*, *supra* note 111, at 249–50 (discussing the difficulty of developing a legal definition of a robot and how the common thread of the proposals thus far focus on autonomy and the decisionmaking process of robots); Englisch, *supra* note 16, at 18–19 (discussing that defining a robot is an almost insurmountable challenge as it would have to create legal certainty as well as definitional flexibility).

310. See *United States v. Kintner*, 216 F.2d 418 (9th Cir. 1954) (finding that a medical practice, which was a state law partnership, was an association and thus a corporation for federal tax purposes). In reaction to losing the *Kintner* case, the Treasury promulgated the *Kintner* regulations in an attempt to make it difficult for unincorporated entities to be taxed as an association, and thus a corporation. See Treas. Reg. § 301.7701-2 (1960).

311. 296 U.S. 344 (1935).

312. Treas. Reg. § 301.7701-2(a)(1) (1960). These six factors derive from *Morrissey*, 296 U.S. 344.

313. Treas. Reg. § 301.7701-2(a)(1) (1960).

314. Patrick E. Hobbs, *Entity Classification: The One Hundred-Year Debate*, 44 CATH. U. L. REV. 437, 486 (1995).

315. Elaine Waterhouse Wilson, *Better Late than Never: Incorporating LLCs into Section 4943*, 48 AKRON L. REV. 485, 509 (2015).

characteristics.³¹⁶ To maneuver around this four-part test, taxpayers structured their entities in such a way to achieve federal partnership or corporate status, whichever was most advantageous.³¹⁷

This was especially the case when limited liability companies (LLC) entered the scene, which share characteristics with corporations.³¹⁸ Once the first LLC statute was adopted in Wyoming, other states followed suit.³¹⁹ Taxpayers organized their entities in such a way as to reap the benefits of pass-through tax status.³²⁰ The IRS engaged in several protracted battles with taxpayers, resulting in the creation of safe harbor rulings that taxpayers relied on to structure their entities.³²¹

The IRS and Treasury eventually grew exhausted over the battleground to define an association and in 1997 promulgated the check-the-box regulations.³²² The current regulations now provide unincorporated business entities with the option to elect classification as an “association” or instead, remain under their default classification.³²³ Such an elective regime allows the IRS, Treasury, and taxpayers to avoid the definitional quagmire. The regulations and the aforementioned Customs Court cases stand as a testament and warning that some things simply cannot be defined.

Technological innovation is advancing too rapidly, and automation is continuously evolving. While there is little doubt that automation will have some tangible impact on employment, jobs will likely evolve in an attempt to keep pace.³²⁴ Just a few decades

316. Susan Kalinka, *The Louisiana Limited Liability Company Law After “Check-the-Box,”* 57 LA. L. REV. 715, 720 (1997).

317. Thomas A. Hayes, *Checkmate, the Treasury Finally Surrenders: The Check-the-Box Treasury Regulations and Their Effect on Entity Classification*, 54 WASH. & LEE L. REV. 1147, 1156–57 (1997). *Kintner* indicated that certain taxpayers wanted to be classified as federal tax corporations in order to qualify under certain pension plan rules. See *United States v. Kintner*, 216 F.2d 418, 420 (9th Cir. 1954). The *Kintner* regulations were the Treasury’s attempt to make classification as an association more difficult in response. See *Treas. Reg. § 301.7701-2(a)(1)* (1960). In 1982, Congress mainly equalized the pension rules between corporations and partnerships. Many taxpayers therefore desired partnership treatment to avoid double taxation if classified as a corporation. See, e.g., *Larson v. Comm’r*, 66 T.C. 159, 185–86 (1976) (applying the regulation’s mechanical approach, indicating an entity was an association only when more than two of the factors were satisfied).

318. See Scott Kapusta & Brian Nichols, *Limited Liability Companies: The Optimal Business Organization For the Twenty-First Century?*, 9 ST. JOHN’S J.L. COMM. 803, 803 (1994) (noting similar characteristics between LLCs and corporations).

319. Dale W. Cottam, Thomas N. Long, Scott W. Meier, Timothy O. Beppler & Whitney M. Agopian, *The 2010 Wyoming Limited Liability Company Act: A Uniform Recipe with Wyoming “Home Cooking,”* 11 WYO. L. REV. 49, 51 (2011).

320. See Rev. Rul. 88-76, 1988-2 C.B. 360.

321. See, e.g., Rev. Rul. 93-5, 1993-1 C.B. 227 (determining that a Virginia LLC was a federal tax partnership because it had more noncorporate factors than corporate); Rev. Rul. 93-49, 1993-2 C.B. 308 (finding an Illinois LLC was a federal tax partnership because while it had centralized management and limited liability, it lacked the other corporate characteristics); Rev. Rul. 93-53, 1993-2 C.B. 312 (determining that a Florida LLC was a federal tax partnership because it lacked continuity of life and free transferability of interests).

322. See Carter G. Bishop, *Forgotten Trust: A Check-the-Box Achilles’ Heel*, 43 SUFFOLK U. L. REV. 529, 529–30 (2010); see also *Treas. Reg. § 301.7701-2* (as amended in 2019).

323. See Alice G. Abreu, *Paradise Kept: A Rule-Based Approach to the Analysis of Transactions Involving Disregarded Entities*, 59 SMU L. REV. 491, 515 n.111 (2006).

324. See WORLD ECON. FORUM 2018 REPORT, *supra* note 228, at 8.

ago, smartphones, laptops, tablets, Facebook, Twitter, and Instagram did not exist.³²⁵ Yet, by 2014, a Deloitte study found that Facebook had created 4.5 million jobs globally.³²⁶ Occupations that were once unfamiliar, like Uber drivers, social media managers, cloud service specialists, YouTube content creators, app developers, and driverless car engineers are part and parcel in today's economy.³²⁷ One estimate predicts that 65% of children entering primary school today will work in jobs that do not yet even exist.³²⁸

The employment market is changing. Rather than enacting fear-based tax legislation to compensate for potential job losses, society should give today's technological advancements the same chance it gave the tractor. Workers in the agricultural and manufacturing sectors simply shifted to other economic sectors after the tractor's introduction.³²⁹ The industrial society—driven by technological breakthroughs—has created new and unforeseen jobs that are now commonplace.³³⁰ Today's information age could provide human workers with similar evolving opportunities. History demonstrates that humans can and will adapt to change.³³¹

CONCLUSION

Following Bill Gates's recommendation to tax robots, numerous academics have advanced the idea of a robot tax, with some suggesting that the Code be revised to address the robotic revolution.³³² The media coverage, in conjunction with McKinsey's and others' predictions that a significant percentage of current jobs will be permanently displaced, has led to fears about the sustainability of the U.S. Treasury's finances.³³³

With 86% of the federal government's total receipts deriving from payroll and income taxes, substantial declines in the human workforce would devastate federal

325. Zachary Mesenbourg, *Voir Dire in the #LOL Society: Jury Selection Needs Drastic Updates To Remain Relevant in the Digital Age*, 47 J. MARSHALL L. REV. 459, 478 (2013) (noting the nonexistence of select technologies only a few decades ago); *The Evolution Of Digital Marketing: 30 Years in the Past & Future*, DIGITAL MARKETING INST.: DMI BLOG <http://digitalmarketinginstitute.com/blog/the-evolution-of-digital-marketing-30-years-in-the-past-and-future> [https://perma.cc/FRQ4-AJZD] (last visited Feb. 1, 2021).

326. David Goldman, *Facebook Claims It Created 4.5 Million Jobs*, CNN BUS. (Jan. 20, 2015, 5:54 AM), <http://money.cnn.com/2015/01/20/technology/social/facebook-jobs/index.html> [https://perma.cc/3D9H-MBTU].

327. Ellen Bowers, *10 Jobs Created by Tech That Didn't Exist 10 Years Ago*, NASSTARIAN (Jan. 25, 2017), <http://blog.nasstar.com/10-jobs-created-by-tech-that-didnt-exist-10-years-ago/> [https://perma.cc/PUP2-8XWS].

328. WORLD ECON. FORUM, *THE FUTURE OF JOBS: EMPLOYMENT, SKILLS AND WORKFORCE STRATEGY FOR THE FOURTH INDUSTRIAL REVOLUTION* 3 (2016).

329. See Ranko Shiraki Oliver, *In the Twelve Years of NAFTA, the Treaty Gave to Me . . . What, Exactly?: An Assessment of Economic, Social, and Political Developments in Mexico Since 1994 and Their Impact on Mexican Immigration into the United States*, 10 HARV. LATINO L. REV. 53, 89 (2007).

330. See Bowers, *supra* note 327.

331. Shmulik Shapiro, *Artificial Intelligence Touches Almost Everything Automotive*, INT'L BUS. TIMES (Oct. 26, 2019, 5:41 PM), <http://www.ibtimes.com/artificial-intelligence-touches-almost-everything-automotive-2854321> [https://perma.cc/T6QC-KMVC].

332. See *supra* Parts II.A–II.F for a discussion and examination of proposed tax solutions to address the automation revolution.

333. See *supra* notes 8–14 and accompanying text for articles and statistics expressing fears of job displacement and its effect on the economy.

resources.³³⁴ However, amid these doomsayer predictions, data supplied by the U.S. Bureau of Labor Statistics, PricewaterhouseCoopers, the Brookings Institution, and the World Economic Forum support the conclusion that technology is labor-augmenting, rather than labor-reducing.³³⁵ While these studies do not suggest that automation will have no impact on the global workforce, they render a more positive outlook.

This Article maintains that implementing any kind of tax legislation premised on protecting labor at all costs is unsound. The paradox in data with respect to the impact that automation may have on employment suggests that revising the Code at this juncture is unwise.³³⁶ Placing human labor over technology would diminish the United States' global positioning and ignore innovation efficiencies, labor market statistics, and the benefits that technology offers society.³³⁷

Likewise, Congress should not impose a tax on an object that cannot be defined.³³⁸ While robots may enter your hallways, participate in meetings, run company data, and perhaps even give presentations, tax legislation should not be enacted simply because we cannot envision a world devoid of our beloved friend—labor.

334. See *supra* notes 11–14 and accompanying text.

335. See *supra* notes 224–31 and accompanying text.

336. See *supra* Part II.G for an examination of the complexities and potential pitfalls of fear-based legislation.

337. See *supra* Part II.G.

338. See *supra* Section III.