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## Borrowing from Millennials to Pay Boomers: Can Tax Policy Create Sustainable Intergenerational Equity?

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## BORROWING FROM MILLENNIALS TO PAY BOOMERS: CAN TAX POLICY CREATE SUSTAINABLE INTERGENERATIONAL EQUITY?†

**Jonathan Barry Forman\* & Roberta F. Mann\*\***

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## INTRODUCTION

This Article explores the relationship between taxes and intergenerational equity. Tax policy has traditionally been analyzed using three metrics: equity, efficiency, and administrability.<sup>1</sup> Equity contemplates fairness and is generally viewed as having two dimensions: vertical equity and horizontal equity.<sup>2</sup> Under vertical equity principles, differently situated taxpayers should be taxed appropriately given their individual situation. Progressive tax rates, in which higher income taxpayers are taxed at a higher rate than lower income taxpayers, reflect vertical equity by recognizing the superior “ability to pay” of higher income taxpayers.<sup>3</sup> Despite a progressive tax rate structure,<sup>4</sup> income and wealth inequality have significantly increased in the U.S. and other countries over the past thirty years.<sup>5</sup> Future taxpayers may well be in a very different situation than current taxpayers, both from increasing income and wealth inequality and from the anticipated increasing burden of government deficits.

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1. See, e.g., U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-05-1009SP, UNDERSTANDING THE TAX REFORM DEBATE: BACKGROUND, CRITERIA, & QUESTIONS 4, 24 (2005), <https://www.gao.gov/assets/210/202725.pdf> [<https://perma.cc/4THE-K9TT>]; see also JOINT COMM. ON TAXATION, JCX-37-08, A RECONSIDERATION OF TAX EXPENDITURE ANALYSIS 1 (2008), <http://www.jct.gov/x-37-08.pdf> [<https://perma.cc/BD98-CVZC>]; ASS'N OF INT'L CERTIFIED PROF'L ACCOUNTANTS, GUIDING PRINCIPLES OF GOOD TAX POLICY: A FRAMEWORK FOR EVALUATING TAX PROPOSALS 3 (2017), <https://www.aicpa.org/ADVOCACY/TAX/downloadabledocuments/tax-policy-concept-statement-no-1-global.pdf> [<https://perma.cc/99HJ-2NBT>].

2. See, e.g., JOINT COMM. ON TAXATION, JCX-48-15, FAIRNESS AND TAX POLICY 4 (2015), <https://www.jct.gov/publications.html?func=startdown&id=4737> [<https://perma.cc/TEG3-VAJP>].

3. *Id.* at 2.

4. See, e.g., JOINT COMM. ON TAXATION, JCX-6-01, OVERVIEW OF PRESENT LAW AND ECONOMIC ANALYSIS RELATING TO MARGINAL TAX RATES AND THE PRESIDENT'S INDIVIDUAL INCOME TAX RATE PROPOSALS 44 (2001), <http://www.jct.gov/x-6-01.pdf> [<https://perma.cc/4B85-49HX>]. It should be noted that the progressivity of the income tax has decreased markedly since 1979. See Michael Linden, *The Federal Tax Code and Income Inequality: How Federal Tax Policy Changes Have Affected and Will Affect Income Inequality*, CTR. FOR AM. PROGRESS (Apr. 19, 2012, 9:00 AM), <https://www.americanprogress.org/issues/economy/reports/2012/04/19/11404/the-federal-tax-code-and-income-inequality/> [<https://perma.cc/23JD-XXT6>] (“From 1979 to 2007 there were a number of major tax changes, but the cumulative effect was to render the federal tax code less progressive and therefore less able to dampen income inequality. By one measure of inequality, the federal tax code in 2007 was about one-third less effective at reducing income inequality than it had been in 1979.”).

5. See, e.g., CONG. BUDGET OFFICE, THE DISTRIBUTION OF HOUSEHOLD INCOME, 2014, at 3–4 (2018), <https://www.cbo.gov/system/files/115th-congress-2017-2018/reports/53597-distribution-household-income-2014.pdf> [<https://perma.cc/6RM4-Z3CY>].

Moreover, government investments in education and infrastructure have declined, which may impact the productivity of the future economy and the future taxpayers' ability to pay.<sup>6</sup> Furthermore, the current and past generations have prospered by free riding on the environment, leading to the highest-measured carbon concentrations in the atmosphere.<sup>7</sup> Climate change threatens the existence of many communities and may result in significant economic impact on future generations.<sup>8</sup>

In an attempt to stem this rising tide of generational inequity, we developed a concept of “sustainable intergenerational justice,” and we use it as a lens for examining tax policy. Equity and justice are interrelated. Both involve considerations of fairness. Resolving inequity may require redistribution. To achieve consensus on distributional goals, the distribution must seem just or equitable. In our view, to attain sustainable intergenerational justice, the current generation must ensure that future generations have adequate resources to sustain life and prosperity. This Article shows how tax system design could help achieve sustainable intergenerational justice. To be clear, tax policy is only one tool for achieving intergenerational justice, but we will show that it can be a powerful tool. In exploring this topic, this Article uses the U.S. tax system for most of its examples.

At the outset, Part I of the Article provides an overview of sustainable intergenerational justice and tax policy. Part II then provides an overview of the U.S. tax system, deficits, and public debt. Part III then considers how taxes can influence the level of resources that are available to future generations, and Part IV considers how taxes can influence the mix of resources that are available to future generations.

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6. See MICHAEL LEACHMAN, KATHLEEN MASTERSON & ERIC FIGUEROA, CTR. ON BUDGET & POLICY PRIORITIES, A PUNISHING DECADE FOR SCHOOL FUNDING 1 (2017), <https://www.cbpp.org/sites/default/files/atoms/files/11-29-17sfp.pdf> [<https://perma.cc/DP42-PAHD>].

7. See *infra* note 114 and accompanying text.

8. See, e.g., 2 U.S. GLOB. CHANGE RESEARCH PROGRAM, FOURTH NATIONAL CLIMATE ASSESSMENT 25 (rev. ed. 2018), [https://nca2018.globalchange.gov/downloads/NCA4\\_2018\\_FullReport.pdf](https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf) [<https://perma.cc/LEA3-4BDU>] [hereinafter NATIONAL CLIMATE ASSESSMENT].

## I. Sustainable Intergenerational Justice and Tax Policy

### A. What Is Sustainable Intergenerational Justice?

Intergenerational justice involves comparing the well-being of one generation with that of other generations. In that regard, intergenerational justice can be seen as the logical result of a Rawlsian experiment in which the decisions about societal rules are based on the choices made by individuals from an original position—one that lies behind a veil of ignorance that includes generational blindness.<sup>9</sup> For example, as baby boomers, we might ask whether we are “better off” than our parents.<sup>10</sup> We have color TVs and personal computers, but perhaps they had cleaner air and water.<sup>11</sup> We may live longer, but their lives may have been less hectic.<sup>12</sup>

If we ask whether our children will be “better off” than us, the answer is not clear. On the one hand, technology continues to improve lives.<sup>13</sup> On the other hand, we cannot even say that our children will live longer than we do.<sup>14</sup> In the U.S., life expectancy has stagnated,

9. JOHN RAWLS, A THEORY OF JUSTICE 118 (1971); Clark Wolf, *Intergenerational Justice*, in A COMPANION TO APPLIED ETHICS 1, 279 (R.G. Frey & Christopher Heath Wellman eds., 2003).

10. Neil H. Buchanan, *What Do We Owe Future Generations?*, 77 GEO. WASH. L. REV. 1237, 1258 (2009); Robert M. Solow, *What Do We Owe to the Future?*, 13 NEB. J. ECON. & BUS. 3, 6 (1974).

11. It is not clear whether air and water pollution was less of a problem in the 1950s and 1960s. See generally RACHEL CARSON, SILENT SPRING (1962) (describing the hazards to human and animal health posed by increasing use of chemical pesticides and herbicides). Although pesticides had been federally regulated since 1910, the legislation was substantially revamped and strengthened in 1972. Federal Environmental Pesticide Control Act of 1972, Pub. L. No. 92-516, § 2, 86 Stat. 973, 973; see LINDA-JO SCHIEROW & ROBERT ESWORTHY, CONG. RESEARCH SERV., RL31921, PESTICIDE LAW: A SUMMARY OF THE STATUTES 2–3 (2012), <https://nationalaglawcenter.org/wp-content/uploads/assets/crs/RL31921.pdf> [<https://perma.cc/FCN3-X7A2>].

12. In 2000, the average worker spent 7% more time at work than the average worker in 1950. Ellen R. McGrattan & Richard Rogerson, *Changes in Hours Worked, 1950–2000*, 28 FED. RES. BANK MINNEAPOLIS Q. REV. 14, 16 (2004). Moreover, the percentage of dual-earner households increased from less than half in the 1960s to two-thirds in 2010. Scott A. Hodge & Andrew Lundeen, *America Has Become a Nation of Dual Earner Couples*, TAX FOUND. (Nov. 21, 2013), <https://taxfoundation.org/america-has-become-nation-dual-income-working-couples/> [<https://perma.cc/UH6E-REZJ>].

13. Mark Strauss, *Four-in-Ten Americans Credit Technology for Improving Life Most in the Past 50 Years*, PEW RES. CTR. (Oct. 12, 2017), <https://www.pewresearch.org/fact-tank/2017/10/12/four-in-ten-americans-credit-technology-with-improving-life-most-in-the-past-50-years/> [<https://perma.cc/7LQF-EGH8>].

14. Jessica Y. Ho & Arun S. Hendi, *Recent Trends in Life Expectancy Across High-Income Countries*:

even relative to other countries with developed economies like Sweden.<sup>15</sup>

Creating a formal accounting model of intergenerational justice would probably require us to take all of the resources that relate to individual utility into account. Indeed, a thousand different valuations might be needed to truly compare the utility of different generations.<sup>16</sup> To be sure, it may be appropriate to try to make those thousand different valuations. The focus of this Article is on tax policy, however, and not on intergenerational justice per se. Accordingly, this Article is less concerned with comparing the absolute utility of different generations and more concerned with how taxes might affect the *relative* positions of present and future generations. Pertinent here, recent research links income inequality with declining life expectancy.<sup>17</sup> Other research links geography to social mobility.<sup>18</sup> In the U.S., the income inequality gap began to grow in the 1980s when the authors were young adults.<sup>19</sup>

In any event, we believe that the problem of intergenerational justice can be simplified. Certainly, most of us would agree that to attain intergenerational justice, the current generation must ensure that future

*Retrospective Observational Study*, 362 *BMJ* 1, 8 (Aug. 15, 2018), <https://www.bmj.com/content/bmj/362/bmj.k2562.full.pdf> [<https://perma.cc/38EW-Q362>].

15. Claudia Nau & Glenn Firebaugh, *A New Method for Determining Why Length of Life Is More Unequal in Some Populations than in Others*, 49 *DEMOGRAPHY* 1207, 1208–10 (2012), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4104684/> [<https://perma.cc/ZG9R-4NPD>].

16. See Michael Doran, *Intergenerational Equity in Fiscal Policy Reform*, 61 *TAX L. REV.* 241, 263–65 (2008).

17. Eric Neumayer & Thomas Plümer, *Inequalities of Income and Inequalities of Longevity: A Cross-Country Study*, 106 *AM. J. PUB. HEALTH* 160, 164 (2016), <https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2015.302849> [<https://perma.cc/H594-TNFC>].

18. See, e.g., Raj Chetty, John N. Friedman, Nathaniel Hendren, Maggie R. Jones & Sonya R. Porter, *The Opportunity Atlas: Mapping the Childhood Roots of Social Mobility* 2–3 (Nat'l Bureau of Econ. Research, Working Paper No. 25147, 2020), [https://opportunityinsights.org/wp-content/uploads/2018/10/atlas\\_paper.pdf](https://opportunityinsights.org/wp-content/uploads/2018/10/atlas_paper.pdf) [<https://perma.cc/3NR5-X7X5>]; Christopher Ingraham, *Downward Mobility: Where Middle-Class Kids Are Worse Off than Their Parents*, *WASH. POST* (Oct. 2, 2018, 1:48 PM), [https://www.washingtonpost.com/business/2018/10/02/downward-mobility-where-middle-class-kids-are-worse-off-than-their-parents/?utm\\_term=.b1fff142c369](https://www.washingtonpost.com/business/2018/10/02/downward-mobility-where-middle-class-kids-are-worse-off-than-their-parents/?utm_term=.b1fff142c369) [<https://perma.cc/6LQJ-KTUZ>].

19. See, e.g., CHAD STONE, DANILO TRISI, ARLOC SHERMAN & JENNIFER BELTRÁN, *CTR. ON BUDGET & POLICY PRIORITIES, A GUIDE TO STATISTICS ON HISTORICAL TRENDS ON INCOME INEQUALITY* 13 (2020), [https://www.cbpp.org/sites/default/files/atoms/files/11-28-11pov\\_0.pdf](https://www.cbpp.org/sites/default/files/atoms/files/11-28-11pov_0.pdf) [<https://perma.cc/7RWR-67Q9>].

generations have adequate resources to sustain life and prosperity. This Article goes further by assuming that, at a minimum, intergenerational justice demands that future generations should be able to live at least as well as we do, and in addition, we hope that the future will bring us a more equal society. All in all, intergenerational justice means that the current generation should not impose economic and resource burdens on future generations.

We recognize that the world is already in an environmental and economic crisis caused by the overuse of certain resources, but our conception of intergenerational justice does not focus on preserving particular resources; although, tax policy could have an impact on both the use and preservation of resources.<sup>20</sup> Intergenerational justice does not demand that the current generation use less depletable resources (like coal or oil) today so that future generations can have a “fair share” of those resources tomorrow; nor does intergenerational justice require that the current generation preserve the current sea level, particular species of animals and plants, or even current air quality. Instead, our concept of sustainable intergenerational justice requires that the current generation use resources at the same rate that it replaces them or develops economic substitutes for them, along the lines of the so-called Lockean proviso of leaving “enough, and as good, left in common for others.”<sup>21</sup> Sustainable intergenerational justice also encompasses the idea that the current generation should leave the Earth in a survivable condition so that future generations can thrive.<sup>22</sup> Current investment by today’s generations may be necessary to achieve that result, for example, through investment in sustainable energy and transportation systems.

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20. See, e.g., Roberta F. Mann, *Like Water for Energy: The Water-Energy Nexus Through the Lens of Tax Policy*, 82 U. COLO. L. REV. 505, 508 (2011).

21. JOHN LOCKE, SECOND TREATISE OF GOVERNMENT 11 (Jonathan Bennett ed., 2017) (1690).

22. See generally, e.g., JOHN DERNBACH, ACTING AS IF TOMORROW MATTERS (2012).



*B. How Can Tax Policy Influence Sustainable Intergenerational Justice?*

Government choices about the level of taxation and spending will clearly have an impact on the well-being of future generations. Moreover, government choices about the mix of taxes that are used to raise revenue will affect the resources available to future generations. These propositions are outlined in this section and then further explored in later parts of this Article. At the outset, however, this section provides a brief overview of the resources of U.S. households.

*1. The Resources of U.S. Households*

In 2018, the median household income in the U.S. was \$63,179,<sup>23</sup> and the median per capita income was \$36,080.<sup>24</sup> In 2016, U.S. median household net worth was \$94,670.<sup>25</sup> Unfortunately, however, the U.S. does not rank very high on measures of intergenerational justice. For example, according to a 2013 study of Organization for Economic Cooperation and Development countries, the U.S. was found to have one of the largest ecological footprints, the highest level of child poverty, a high level of public debt per child, and a fairly high level of bias in favor of the elderly in social spending.<sup>26</sup> The U.S. also received low grades on infrastructure.<sup>27</sup>

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23. JESSICA SEMEGA ET AL., U.S. CENSUS BUREAU, P60-266, INCOME AND POVERTY IN THE UNITED STATES: 2018, at 1 (2019), <https://www.census.gov/content/dam/Census/library/publications/2019/demo/p60-266.pdf> [<https://perma.cc/U67H-L25J>].

24. U.S. CENSUS BUREAU, CPS POPULATION AND PER CAPITA MONEY INCOME, ALL RACES: 1967 TO 2018 tbl.P-1, <https://www2.census.gov/programs-surveys/cps/tables/time-series/historical-income-people/p01ar.xls> [<https://perma.cc/Z846-6TDB>] (last visited Dec. 30, 2019).

25. JONATHAN EGGLESTON & ROBERT MUNK, U.S. CENSUS BUREAU, P70BR-166, NET WORTH OF HOUSEHOLDS: 2016, at 1, 2 tbl.2 (2019), <https://www.census.gov/content/dam/Census/library/publications/2019/demo/p70br-166.pdf> [<https://perma.cc/6KV5-Q5X9>].

26. PIETER VANHUYSSSE, BERTELSMANN STIFTUNG, INTERGENERATIONAL JUSTICE IN AGING SOCIETIES: A CROSS-NATIONAL COMPARISON OF 29 OECD COUNTRIES 10–28 (Daniel Schraad-Tischler & Najim Azahaf eds., 2013), [https://www.bertelsmann-stiftung.de/fileadmin/files/BSt/Publikationen/GrauePublikationen/GP\\_Intergenerational\\_justice\\_in\\_aging\\_societies.pdf](https://www.bertelsmann-stiftung.de/fileadmin/files/BSt/Publikationen/GrauePublikationen/GP_Intergenerational_justice_in_aging_societies.pdf) [<https://perma.cc/L5CK-RXRY>]. See generally C. EUGENE STEUERLE, DEAD MEN RULING: HOW TO RESTORE FISCAL FREEDOM AND RESCUE OUR FUTURE (2014).

27. AM. SOC'Y OF CIVIL ENG'RS, 2017 INFRASTRUCTURE REPORT CARD 2 (2018),

2. *Taxes Can Influence the Level of Resources that Are Available to Future Generations*

Governments use taxes to raise the revenue they need to pay for government programs. Net government resources can be expressed by the following equation:

$$G = R - S$$

where  $G$  represents government resources,  $R$  represents revenues, and  $S$  represents spending.

When a government spends more on government programs than it collects in revenue, it creates a deficit, which can be expressed by flipping the previous equation:

$$G \text{ (Deficit)} = S - R$$

The federal government funds deficit spending by borrowing. Although deficit spending can be beneficial in times of recession by creating a short-term economic stimulus, in times of robust economic growth, deficit spending can crowd out private investment.<sup>28</sup>

Economic output can be described as the sum of private consumption, private savings, and net government activity, as expressed by the following equation:

$$Y = C + I + G + X$$

where  $C$  represents private consumption,  $I$  represents private investment,  $G$  represents net government investment, and  $X$  represents net exports. If net economic output,  $Y$ , remains constant, increases in  $G$  must therefore reduce either private investment or net exports, or

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<https://www.infrastructurereportcard.org/wp-content/uploads/2016/10/2017-Infrastructure-Report-Card.pdf> [<https://perma.cc/PE8G-9638>].

28. See, e.g., GRANT A. DRIESSEN, CONG. RESEARCH SERV., R44383, DEFICITS, DEBT, AND THE ECONOMY: AN INTRODUCTION 7 (2019), <https://fas.org/sgp/crs/misc/R44383.pdf> [<https://perma.cc/D53C-EPFU>].

some combination of the two, hence the anticipated crowding-out effect.

Over time, deficits can lead to a large and growing public debt that can have adverse consequences on the well-being of future generations.<sup>29</sup> Inevitably, deficits represent a transfer from later generations to the current one, as money borrowed now will eventually require repayment with interest. The Center for a Responsible Federal Budget calls the national debt “fundamentally a generational issue.”<sup>30</sup> A major concern is loss of “fiscal space,” which represents the government’s ability to borrow to cushion a future recession.<sup>31</sup> However, scholars differ on the significance of deficits. As described by New York University law professor Daniel Shaviro, the generational equity concern about budget deficits rests on the following belief:

[D]eficit spending reduces the perceived (whether or not the actual) cost of government spending to current consumers and voters, thus inducing them to feel wealthier. They therefore consume more, leave less for subsequent generations, and accept a higher level of government spending than they would have otherwise.<sup>32</sup>

Harvard economics professor N. Gregory Mankiw noted that although temporary deficit spending may be justified in the case of an economic recession, the current deficit trajectory is unsustainable.<sup>33</sup>

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29. *Id.* at 6–10.

30. *Why Should We Worry About the National Debt*, COMMITTEE FOR RESPONSIBLE FED. BUDGET (Apr. 16, 2019), <http://www.crfb.org/papers/why-should-we-worry-about-national-debt> [https://perma.cc/4CQZ-SF9X].

31. Christina D. Romer & David H. Romer, *Fiscal Space and the Aftermath of Financial Crises: How It Matters and Why*, BROOKINGS PAPERS ON ECON. ACTIVITY 1, 1 (2019), <https://www.brookings.edu/wp-content/uploads/2019/03/Fiscal-Space-and-the-Aftermath-of-Financial-Crises.pdf> [https://perma.cc/J3U4-TJUG].

32. DANIEL SHAVIRO, DO DEFICITS MATTER? 3 (1997).

33. N. Gregory Mankiw, *The National Debt Is Still a Problem*, N.Y. TIMES (June 20, 2019), <https://www.nytimes.com/2019/06/20/business/national-debt-trump.html> [https://perma.cc/UDH6-N4KR].

Tax systems can also influence economic growth,<sup>34</sup> and faster growth can result in more economic resources for future generations. Of course, some wonder whether economic growth will necessarily lead to an enhanced quality of life, particularly in high-income societies.<sup>35</sup> However, regardless of views on the sustainability of economic growth, taxes can influence individual decisions about working, saving, and consumption,<sup>36</sup> and each of these decisions can influence the level of resources that are available to future generations.

### *3. Taxes Can Influence the Mix of Resources that Are Available to Future Generations*

Because tax systems can influence individual decisions about working, saving, and consumption, tax systems can also influence the mix of resources that are available to future generations. For example, by encouraging education, tax systems can increase human capital and thus promote economic growth.<sup>37</sup> Also, by taxing negative externalities like pollution, a tax system can save depletable resources and preserve the environment for future generations.<sup>38</sup>

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34. See, e.g., WILLIAM MCBRIDE, TAX FOUND., NO. 207, WHAT IS THE EVIDENCE ON TAXES AND GROWTH? 1–2 (2012), <https://files.taxfoundation.org/legacy/docs/sr207.pdf> [<https://perma.cc/X4CX-36BD>].

35. Richard B. Howarth, *Sustainability, Well-Being, and Economic Growth*, MINDING NATURE, Sept. 2012, at 32, 33.

36. William G. Gale & Andrew A. Samwick, *Effects of Income Tax Changes on Economic Growth*, in ALAN J. AUERBACH & KENT SMETTERS, THE ECONOMICS OF TAX POLICY 13, 31 (2017) (arguing that tax increases stifle economic growth). For a contrary view, see Chad Stone, *Economic Growth: Causes, Benefits, and Current Limits*, CTR. FOR BUDGET & POL'Y PRIORITIES (Apr. 27, 2017), <https://www.cbpp.org/economy/economic-growth-causes-benefits-and-current-limits> [<https://perma.cc/98QJ-XU2R>] (testimony before the U.S. House of Representatives Committee on Small Business arguing that no relationship between economic growth and tax cuts has been shown).

37. See, e.g., JOINT COMM. ON TAXATION, JCX-47-15, ECONOMIC GROWTH AND TAX POLICY 23–26 (2015), [https://www.jct.gov/publications.html?func=download&id=4736&chk=4736&no\\_html=1](https://www.jct.gov/publications.html?func=download&id=4736&chk=4736&no_html=1) [<https://perma.cc/SZ24-TNA2>]; Jonathan Temple, Org. for Econ. Co-operation & Dev. [OECD], *Growth Effects of Education and Social Capital in the OECD Countries*, at 5, OECD Doc. ECO/WKP(2000)36 (Oct. 12, 2000).

38. See *infra* Section IV.A. for an explanation of the term “externality.”

## II. An Overview of U.S. Taxes, Deficits, and Debt

### A. Taxes

The U.S. federal government raises virtually all of its revenue from individual income taxes, payroll taxes, corporate income taxes, estate and gift taxes, and excise taxes on selected goods and services.<sup>39</sup> State and local governments raise most of their tax revenue from income taxes, sales taxes, and property taxes.<sup>40</sup> Taxes amount to about 30% of the U.S. gross domestic product (GDP),<sup>41</sup> and federal taxes are about two-thirds of that.<sup>42</sup> For example, in 2017, when the GDP of the U.S. was around \$19.4 trillion, the federal government collected around \$3.3 trillion in taxes, and state and local governments collected around \$1.6 trillion in taxes.<sup>43</sup> More specifically, in fiscal year 2018, the U.S. federal government collected \$3.329 trillion in revenue, including \$1.684 trillion in individual income taxes (8.3% of GDP), \$1.171 trillion in payroll taxes (5.8% of GDP), \$205 billion in corporate income taxes (1.0% of GDP), \$95 billion in excise taxes (0.5% of GDP), and \$23 billion in estate taxes (0.1% of GDP).<sup>44</sup> In fiscal year 2017, state and local governments collected more than \$1.6 trillion in taxes, including \$574 billion in sales and gross receipts taxes, \$526

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39. COUNCIL OF ECON. ADVISERS, ECONOMIC REPORT OF THE PRESIDENT 627, 688 tbl.B-45, 690 tbl.B-47 (2019), <https://www.whitehouse.gov/wp-content/uploads/2019/03/ERP-2019.pdf> [<https://perma.cc/FJS4-RCTP>]; JOINT COMM. ON TAXATION, JCX-9-19, OVERVIEW OF THE FEDERAL TAX SYSTEM AS IN EFFECT FOR 2019, at 1 (2019), [https://www.jct.gov/publications.html?func=download&id=5172&chk=5172&no\\_html=1](https://www.jct.gov/publications.html?func=download&id=5172&chk=5172&no_html=1) [<https://perma.cc/H4X8-WM33>].

40. COUNCIL OF ECON. ADVISERS, *supra* note 39, at 693 tbl.B-50.

41. *See, e.g.*, BUREAU OF ECON. ANALYSIS, U.S. DEP'T OF COMMERCE, WHAT IS GDP? (2018), <https://www.bea.gov/sites/default/files/2018-04/GDP-Education-by-BEA.pdf> [<https://perma.cc/DA5S-L78Y>].

42. COUNCIL OF ECON. ADVISERS, *supra* note 39, at 634 tbl.B-2, 660 tbl.B-20; U.S. CENSUS BUREAU, TABLE 1. STATE AND LOCAL GOVERNMENT FINANCES BY LEVEL OF GOVERNMENT AND BY STATE: 2017 (2017), <https://www2.census.gov/programs-surveys/gov-finances/tables/2017/summary-tables/17slstab1a.xlsx?#> [<https://perma.cc/V9U6-6ZUG>] [hereinafter U.S. CENSUS BUREAU, TABLE 1].

43. COUNCIL OF ECON. ADVISERS, *supra* note 39, at 634 tbl.B-2, 660 tbl.B-20; U.S. CENSUS BUREAU, TABLE 1, *supra* note 42.

44. CONG. BUDGET OFFICE, THE BUDGET AND ECONOMIC OUTLOOK: 2019 TO 2029, at 1, 91 tbl.4-1 (2019), <https://www.cbo.gov/system/files?file=2019-01/54918-Outlook.pdf> [<https://perma.cc/38VW-92Y9>].

billion in property taxes, \$384 billion in individual income taxes, and \$53 billion in corporate income taxes.<sup>45</sup>

### 1. *Income Taxes*

The largest of the U.S. federal taxes is the income tax imposed on individuals.<sup>46</sup> Taxpayers file returns as unmarried individuals, heads of household, married couples filing joint returns, or married couples filing separate returns.<sup>47</sup> As a starting point, taxpayers first determine the amount of their gross income.<sup>48</sup> Gross income includes all income from whatever source derived, including (but not limited to) the wages, salary, tips, gains, dividends, interest, rents, and royalties received by taxpayers during the taxable year.<sup>49</sup> From gross income, taxpayers subtract certain deductions to determine their adjusted gross income and then taxable income.<sup>50</sup> Most taxpayers simply claim a standard deduction,<sup>51</sup> but some taxpayers can claim certain itemized deductions in lieu of the standard deduction.<sup>52</sup> Also, certain other deductions are allowed without regard to whether the taxpayer chooses to itemize.<sup>53</sup> By historical standards, the present income tax rates are relatively low: the top individual income tax rate is 37%, but most Americans face marginal tax rates of 10%–22%.<sup>54</sup> The amount that a taxpayer must actually pay (or, alternatively, will receive as a refund) is equal to the taxpayer's income tax liability minus her allowable tax credits.<sup>55</sup> Most

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45. U.S. CENSUS BUREAU, TABLE 1, *supra* note 42.

46. JOINT COMM. ON TAXATION, JCX-9-19, OVERVIEW OF THE FEDERAL TAX SYSTEM AS IN EFFECT FOR 2019, at 2–11, 25 tbl.A-1, 26 tbl.A-2, 27 tbl.A-3 (2019).

47. *See, e.g., Choosing the Correct Filing Status*, INTERNAL REVENUE SERV. (Jan. 15, 2020), <https://www.irs.gov/newsroom/correct-filing-status> [<https://perma.cc/QW3G-TLQ4>].

48. *See* 26 U.S.C. § 61 (2018).

49. *Id.*

50. *Id.* §§ 62–63.

51. *Id.* § 63(c).

52. *Id.* § 63(d).

53. *Id.* § 62.

54. 26 U.S.C. § 1 (2018); *Historical Highest Marginal Tax Rates*, TAX POL'Y CTR. (Jan. 18, 2019), <https://www.taxpolicycenter.org/statistics/historical-highest-marginal-income-tax-rates> [<https://perma.cc/BDB2-NQQY>].

55. 26 U.S.C. § 1.

states and many local governments also levy income taxes on individuals.<sup>56</sup>

The U.S. federal government also imposes an income tax on corporations.<sup>57</sup> The taxable income of a corporation generally is made up of gross income less allowable deductions.<sup>58</sup> Allowable deductions include ordinary and necessary business expenditures, such as salaries, wages, interest expense, depreciation, certain losses, selling expenses, and other expenses. The U.S. statutory corporate tax rate is 21%<sup>59</sup> although effective corporate tax rates vary widely.<sup>60</sup> Many states also levy corporate income taxes.<sup>61</sup>

## 2. Payroll Taxes

Payroll taxes are used to finance Social Security, Medicare, and the federal unemployment insurance program.<sup>62</sup> Payroll taxes are levied on earnings in employment and self-employment covered by Social Security with portions of the total tax allocated by law to the Old-Age and Survivors Insurance trust fund, the Disability Insurance trust fund, and the Medicare Hospital Insurance trust fund.<sup>63</sup> In 2020, employees and employers each pay a payroll tax of 7.65% on the first \$137,700 of wages and 1.45% on wages over that amount, and self-employed individuals pay comparable amounts.<sup>64</sup>

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56. *Tax Policy Center Briefing Book: The State of State (and Local) Tax Policy*, TAX POL'Y CTR., <https://www.taxpolicycenter.org/briefing-book/what-are-sources-revenue-state-governments> [<https://perma.cc/4Q2W-DFRP>] (last visited Apr. 17, 2020).

57. JOINT COMM. ON TAXATION, JCX-9-19, OVERVIEW OF THE FEDERAL TAX SYSTEM AS IN EFFECT FOR 2019, at 12–17 (2019).

58. 26 U.S.C. § 63(a).

59. 26 U.S.C. § 11 (2018).

60. *See generally* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-13-520, CORPORATE INCOME TAX: EFFECTIVE TAX RATES CAN DIFFER SIGNIFICANTLY FROM THE STATUTORY RATES (2013), <https://www.gao.gov/assets/660/654957.pdf> [<https://perma.cc/8GRL-LACB>].

61. TAX POL'Y CTR., *supra* note 56.

62. JOINT COMM. ON TAXATION, JCX-9-19, OVERVIEW OF THE FEDERAL TAX SYSTEM AS IN EFFECT FOR 2019, at 20–21.

63. *Id.*

64. SOC. SEC. ADMIN., FACT SHEET: 2020 SOCIAL SECURITY CHANGES (2020), <https://www.ssa.gov/news/press/factsheets/colafacts2020.pdf> [<https://perma.cc/3722-MEQW>].

Employers are also subject to a 6% unemployment insurance payroll tax on the first \$7,000 in wages paid to each covered employee.<sup>65</sup>

### 3. *Consumption Taxes*

The U.S. federal government also collects modest excise taxes on various consumer products and services, including alcoholic beverages, tobacco products, motor fuels, air transportation, and telephone service.<sup>66</sup> For example, the U.S. federal government collects 18.3 cents per gallon of gasoline and 24.3 cents per gallon of diesel motor fuel.<sup>67</sup> To be sure, motor fuel taxes do not go into the general budget but rather are dedicated to the Highway Trust Fund, which funds both federal and state road construction.<sup>68</sup> Nonetheless, the fuel taxes, which have not been increased since 1993, are insufficient for the needs of U.S. road infrastructure, requiring additional transfers from the general budget.<sup>69</sup>

### 4. *Wealth and Property Taxes*

Many state and local governments collect property taxes.<sup>70</sup> The U.S. federal government also imposes estate and gift taxes on lifetime transfers and transfers at death made by wealthy Americans.<sup>71</sup> Some states also impose modest taxes on estates or inheritances.<sup>72</sup>

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65. JOINT COMM. ON TAXATION, JCX-9-19, OVERVIEW OF THE FEDERAL TAX SYSTEM AS IN EFFECT FOR 2019, at 20.

66. *Id.* at 22–23.

67. *Id.* at 23 tbl.3.

68. ROBERT S. HIRK & WILLIAM J. MALLET, CONG. RESEARCH SERV., R45350, FUNDING AND FINANCING HIGHWAYS AND PUBLIC TRANSPORTATION 1 (2019), <https://fas.org/sgp/crs/misc/R45350.pdf> [<https://perma.cc/5948-ZGR6>].

69. Roberta F. Mann, *Sustainably Funding Transportation Infrastructure: Tax Fuel or Miles?*, 31 AUSTL. TAX F. 609, 617–18 (2016).

70. TAX POL'Y CTR., *supra* note 56.

71. JOINT COMM. ON TAXATION, JCX-9-19, OVERVIEW OF THE FEDERAL TAX SYSTEM AS IN EFFECT FOR 2019, at 18–19.

72. Morgan Scarboro, *Does Your State Have an Estate or Inheritance Tax?*, TAX FOUND. (Apr. 5, 2018), <https://taxfoundation.org/state-estate-tax-inheritance-tax-2018/> [<https://perma.cc/J5F4-XB65>].



*B. Spending and Deficits*

The U.S. federal government is not required to balance its operating budget, and it rarely does.<sup>73</sup> For example, in fiscal year 2018, when the U.S. federal government raised \$3.329 trillion in revenue (16.4% of GDP), it spent \$4.108 trillion (20.3% of GDP), creating a deficit of \$779 billion (3.8% of GDP).<sup>74</sup> Moreover, the Congressional Budget Office projects that annual deficits over the next ten years will average 4.4% of GDP.<sup>75</sup>

State and local governments generally are required to balance their operating budgets.<sup>76</sup> Accordingly, state and local governments typically spend about what they raise. For example, in fiscal year 2017, state and local governments actually spent just a little more than the \$3.4 trillion that they raised from all taxes and other revenue sources; that year they spent almost \$3.7 trillion, much of it on education (\$1.012 trillion), public welfare (\$673 billion), highways (\$181 billion), and public safety (\$115 billion).<sup>77</sup>

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73. U.S. CONST. art. 1, § 2, cl. 2; CONG. BUDGET OFFICE, THE BUDGET AND ECONOMIC OUTLOOK: 2019 TO 2029, at 6 fig.1-1 (2019).

74. CONG. BUDGET OFFICE, THE BUDGET AND ECONOMIC OUTLOOK: 2019 TO 2029, at 7 tbl.1-1.

75. *Id.*; see also *The Decade in the Federal Budget*, COMMITTEE FOR RESPONSIBLE FED. BUDGET: BLOG (Dec. 30, 2019), <http://www.crbf.org/blogs/decade-federal-budget> [<https://perma.cc/DS8P-3BPA>] (showing trillion-dollar-plus budget deficits in coming years).

76. See, e.g., NAT'L CONFERENCE OF STATE LEGISLATORS, NCSL FISCAL BRIEF: STATE BALANCED BUDGET PROVISIONS 2 (2010), <http://www.ncsl.org/documents/fiscal/StateBalancedBudgetProvisions2010.pdf> [<https://perma.cc/W3W2-W4B6>]; KIM S. RUEBEN & MEGAN RANDALL, URBAN INST., BALANCED BUDGET REQUIREMENTS: HOW STATES LIMIT DEFICIT SPENDING (2017), [https://www.urban.org/sites/default/files/publication/94891/balanced-budget-requirements\\_5.pdf](https://www.urban.org/sites/default/files/publication/94891/balanced-budget-requirements_5.pdf) [<https://perma.cc/6G9F-C43C>].

77. U.S. CENSUS BUREAU, TABLE 1, *supra* note 42.

### C. Debt

#### 1. U.S. Federal Government Debt

##### a. Explicit Debt

Measuring the total debt of a government is always a little challenging. One approach is to determine how much a government has borrowed. For example, on December 26, 2019, the U.S. federal government had a total public debt outstanding of \$23.087 trillion (i.e., explicit debt).<sup>78</sup> Another approach is to look at that portion of the government's indebtedness that is held by the public. For example, on December 26, 2019, the U.S. federal government had a total debt held by the public of \$17.115 trillion.<sup>79</sup> According to the Congressional Budget Office, the debt held by the public was \$15.751 trillion at the end of fiscal year 2018, and it is projected to grow to \$28.739 trillion by fiscal year 2029.<sup>80</sup> Over the long term, this public debt is projected to grow from 78% of GDP in fiscal year 2019 to 144% in fiscal year 2049,<sup>81</sup> and then to 530% of GDP in fiscal year 2093.<sup>82</sup>

##### b. Implicit Debt

In addition to its explicit public debt, the U.S. federal government has a great deal of implicit debt, including unfunded liabilities for the pension and other post-employment benefits (OPEBs) of government employees, as well as its unfunded liabilities for programs such as Social Security and Medicare. For example, as of January 1, 2019, the

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78. *The Debt to the Penny and Who Holds It*, TREASURY DIRECT, <https://www.treasurydirect.gov/NP/debt/current> [<https://perma.cc/8TE5-5X7F>] (last visited Dec. 30, 2019).

79. *Id.*

80. CONG. BUDGET OFFICE, *THE BUDGET AND ECONOMIC OUTLOOK: 2019 TO 2029*, at 7 tbl.1-1.

81. CONG. BUDGET OFFICE, *THE 2019 LONG-TERM BUDGET OUTLOOK* 6 tbl.1-1 (2019), <https://www.cbo.gov/system/files/2019-06/55331-LTBO-2.pdf> [<https://perma.cc/P9J8-7ZL8>].

82. U.S. DEP'T OF THE TREASURY, *FINANCIAL REPORT OF THE UNITED STATES GOVERNMENT: FISCAL YEAR 2018*, at 6 (2019), [https://fiscal.treasury.gov/files/reports-statements/financial-report/2018/03282019-FR\(Final\).pdf](https://fiscal.treasury.gov/files/reports-statements/financial-report/2018/03282019-FR(Final).pdf) [<https://perma.cc/FJA3-V4G7>] [hereinafter *FINANCIAL REPORT FOR 2018*].

unfunded liability of the Social Security system over the seventy-five-year projection period was estimated to be \$13.9 trillion (0.9% of GDP or 2.61% of taxable payroll).<sup>83</sup> Also, as of January 1, 2019, the unfunded liability of Medicare over the seventy-five-year projection period was estimated to be \$5.3 trillion (0.91% of taxable payroll).<sup>84</sup>

As of September 30, 2018, the U.S. government's civilian employee pension plans were underfunded by \$968.1 billion in fiscal year 2018,<sup>85</sup> and its military pensions were underfunded by \$767.9 billion in fiscal year 2017.<sup>86</sup> A number of U.S. federal government agencies have also been identified as being at a "high risk" of generating significant financial losses for the U.S. federal government.<sup>87</sup> For example, the Pension Benefit Guaranty Corporation, which insures the pension benefits of around 37 million American workers and retirees who participate in defined benefit pension plans, had a net accumulated deficit of more than \$51 billion for fiscal year 2018.<sup>88</sup> Also, for fiscal year 2017, the U.S. federal government's estimated environmental liability was \$465 billion.<sup>89</sup>

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83. BD. OF TRS. OF THE FED. OLD-AGE & SURVIVORS INS. & FED. DISABILITY INS. TR. FUNDS, THE 2019 ANNUAL REPORT OF THE BOARD OF TRUSTEES OF THE FEDERAL OLD-AGE AND SURVIVORS INSURANCE AND FEDERAL DISABILITY INSURANCE TRUST FUNDS 15 (2019), <https://www.ssa.gov/oact/TR/2019/tr2019.pdf> [<https://perma.cc/77JQ-9YV8>].

84. BDS. OF TRS. OF THE FED. HOSP. INS. & FED. SUPPLEMENTARY MED. INS. TR. FUNDS, 2019 ANNUAL REPORT OF THE BOARDS OF TRUSTEES OF THE FEDERAL HOSPITAL INSURANCE AND FEDERAL SUPPLEMENTARY MEDICAL INSURANCE TRUST FUNDS 67–69 (2019), <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2019.pdf> [<https://perma.cc/G67G-BDQA>].

85. U.S. OFFICE OF PERS. MGMT., CIVIL SERVICE RETIREMENT AND DISABILITY FUND ANNUAL REPORT: FISCAL YEAR ENDED SEPTEMBER 30, 2018, at 25 tbl.1 (2019), <https://www.opm.gov/about-us/budget-performance/other-reports/fy-2018-csrdf-annual-report.pdf> [<https://perma.cc/HE9N-MJCP>].

86. OFFICE OF THE ACTUARY, U.S. DEP'T OF DEF., VALUATION OF THE MILITARY RETIREMENT SYSTEM AS OF SEPTEMBER 30, 2017, at 24 tbl.6A (2018), [https://media.defense.gov/2019/Apr/26/2002122105/-1/-1/0/MRF%20VALRPT%202017%20\[APRIL%202019\]%20FINAL.PDF](https://media.defense.gov/2019/Apr/26/2002122105/-1/-1/0/MRF%20VALRPT%202017%20[APRIL%202019]%20FINAL.PDF) [<https://perma.cc/J8KQ-692S>].

87. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-19-157SP, HIGH-RISK SERIES: SUBSTANTIAL EFFORTS NEEDED TO ACHIEVE GREATER PROGRESS ON HIGH-RISK AREAS 25 (2019), <https://www.gao.gov/assets/700/697245.pdf> [<https://perma.cc/5GC4-5NF8>].

88. *Id.* at 267; *see also* PENSION BENEFIT GUAR. CORP., ANNUAL REPORT 2019, at 21 (2019), [https://www.pbgc.gov/sites/default/files/pbgc-fy-2019-annual-report.pdf?utm\\_medium=email&utm\\_source=govdelivery](https://www.pbgc.gov/sites/default/files/pbgc-fy-2019-annual-report.pdf?utm_medium=email&utm_source=govdelivery) [<https://perma.cc/7RPQ-8KK7>].

89. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-19-157SP, HIGH-RISK SERIES: SUBSTANTIAL EFFORTS NEEDED TO ACHIEVE GREATER PROGRESS ON HIGH-RISK AREAS 138.

*c. Measuring the Fiscal Gap*

All in all, some form of generational accounting is needed to measure the fiscal burdens facing present and future generations.<sup>90</sup> One way to quantify a government's long-term fiscal path is by calculating the fiscal gap. The fiscal gap measures the difference between government revenue and spending as a share of GDP over a given period, and it can be calculated as a percentage of GDP or as a present dollar amount.<sup>91</sup> For example, the U.S. Treasury estimated the U.S. government's seventy-five-year fiscal gap at 4.1% for 2018, up from 2.0% in 2017.<sup>92</sup> In 2016, a Peter G. Peterson Foundation report estimated that the seventy-five-year fiscal gap was anywhere from \$30 trillion under current law to \$103 trillion under current policy.<sup>93</sup>

Also, Boston University economist Laurence J. Kotlikoff has calculated the fiscal gap over the infinite horizon at more than \$200 trillion.<sup>94</sup> The infinite-horizon fiscal gap equals the present value of all projected future expenditures less the present value of all projected future receipts.<sup>95</sup> The infinite-horizon fiscal gap includes all spending and receipts, however they are labeled, including so-called "off budget" items. A positive fiscal gap shows that the government is attempting to spend more than it can afford and thus is a "direct measure of the unsustainability of . . . fiscal policy."<sup>96</sup> The fiscal gap

90. DANIEL SHAVIRO, TAXES, SPENDING, AND THE U.S. GOVERNMENT'S MARCH TOWARD BANKRUPTCY 221 (2007); Alan J. Auerbach, Jagadeesh Gokhale & Laurence J. Kotlikoff, *Generational Accounting: A Meaningful Way to Evaluate Fiscal Policy*, J. ECON. PERSP., Winter 1994, at 73, 75.

91. EY, ANALYZING THE US GOVERNMENT'S FISCAL GAP, at i (2016), <https://www.pgpf.org/sites/default/files/EY-Analyzing-Fiscal-Gap.pdf> [<https://perma.cc/A9Q2-DGZ3>]; SHAVIRO, TAXES, SPENDING, AND THE U.S. GOVERNMENT'S MARCH TOWARD BANKRUPTCY, *supra* note 90, at 218.

92. FINANCIAL REPORT FOR 2018, *supra* note 82, at 7, 10.

93. EY, *supra* note 91, at ii. Current law estimates are based on the Congressional Budget Office's extended baseline scenario, and current policy estimates are based on Congressional Budget Office's alternative fiscal scenario. *Id.* at iii.

94. LAURENCE J. KOTLIKOFF, AMERICA'S FISCAL INSOLVENCY AND ITS GENERATIONAL CONSEQUENCES 5 (2015), <https://kotlikoff.net/wp-content/uploads/2019/04/AmericasFiscalInsolvency.pdf> [<https://perma.cc/LK9Q-4YQK>]; Laurence J. Kotlikoff & Nils Lehr, *The 2019 US Fiscal Gap*, KOTLIKOFF (Feb. 2, 2019), <https://kotlikoff.net/wp-content/uploads/2019/03/The-2019-U.S.-Fiscal-Gap-Calculated-by-Laurence-Kotlikoff-and-Nils-Lehr.pdf> [<https://perma.cc/4N33-K7WT>].

95. KOTLIKOFF, *supra* note 94, at 4–5.

96. *Id.* at 4.

illustrates the fiscal burden that will be borne by future generations. It also informs us about the size of the adjustment that would be needed to close the gap and how the magnitude of the adjustment depends on when that adjustment begins. However, Professor Shaviro disputes whether the fiscal gap is the true issue for generational equity. In his view, the real issue is “the overall distribution of lifetime consumption between succeeding generations.”<sup>97</sup> Intergenerational consumption depends not only on fiscal policy but also on savings and the productivity of investments, as well as on household decisions on education, marriage, and child-rearing.

Table 1 shows Professor Kotlikoff’s comparison of his estimate of the 2012 fiscal gap in the U.S. with his estimates of the fiscal gaps of a number of European countries the same year.<sup>98</sup> In that regard, Kotlikoff suggested that there is little correspondence between public-debt-to-GDP ratios and fiscal gaps.<sup>99</sup> As an example, he noted that in 2012 both the U.S. and the Netherlands had public-debt-to-GDP ratios of roughly 70%, but he estimated that the true U.S. fiscal gap was actually over twice that of the Netherlands.<sup>100</sup>

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97. SHAVIRO, DO DEFICITS MATTER?, *supra* note 32, at 9.

98. KOTLIKOFF, *supra* note 94, at 8.

99. *Id.*

100. *Id.*

Table 1: 2012 Fiscal Gaps in Major Developed Countries<sup>101</sup>

<i>Country</i>	<i>Fiscal Gap as a Share of the Present Value of GDP</i>
U.S.	13.7
Germany	1.4
United Kingdom	5.4
Netherlands	5.9
France	1.6
Spain	4.8
Italy	-2.3
Sweden	1.7

## 2. *State and Local Government Debt*

As already mentioned, state and local governments in the U.S. are typically required to balance their operating budgets.<sup>102</sup> Consequently, state and local governments tend to have relatively little in the way of operating deficits, but they do have extensive bonded indebtedness in connection with the building of schools, roads, and other projects. All in all, state and local governments had almost \$3.1 trillion in explicit debt outstanding in 2017.<sup>103</sup> That explicit debt should not be much of a concern here, as the related collateral is often worth more than the related debt, and much of that debt relates to investments that will benefit both present and future generations.

State and local governments also have significant implicit debt. In particular, many state and local governments offer traditional pensions to their public employees, and these state and local government pension plans have an aggregate unfunded liability of more than \$4.5 trillion.<sup>104</sup> Many state and local governments also provide their

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101. *Id.*

102. *See supra* note 76 and accompanying text.

103. NAT'L CONFERENCE OF STATE LEGISLATORS, *supra* note 76, at 3.

104. BD. OF GOVERNORS OF THE FED. RESERVE SYS., FIRST QUARTER 2019 FEDERAL RESERVE STATISTICAL RELEASE Z.1 FINANCIAL ACCOUNTS OF THE UNITED STATES 1, 100 (2019), <https://www.federalreserve.gov/releases/z1/20190606/z1.pdf> [<https://perma.cc/4D44-9G6L>].

employees with retiree health benefits and OPEBs, and the unfunded liability associated with providing these benefits was estimated to be \$862 billion as of 2013.<sup>105</sup> All in all, this roughly \$5.4 trillion in unfunded liabilities for state and local government pensions and OPEBs is quite large compared to their 2017 explicit debt of \$3.1 trillion and their 2017 total revenue of just \$3.4 trillion.<sup>106</sup>

Aside from pension liabilities, it may be good for intergenerational equity to borrow to fund infrastructure and long-lived assets. As noted by the Center for Budget and Policy Priorities:

States and localities borrow to pay for infrastructure, rather than use annual tax collections and other revenues, for sound reasons. Public buildings, roads, and bridges are used for decades but entail large upfront costs; borrowing enables the state to spread out those costs. As a result, taxpayers who will use the infrastructure in the future help pay for it, which promotes intergenerational equity.<sup>107</sup>

In addition to those “sound reasons,” taxpayers and legislatures tend to resist tax increases, even those that would fund schools; thus, borrowing might offer a more realistic solution.<sup>108</sup>

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105. ALICIA H. MUNNELL, JEAN-PIERRE AUBRY & CAROLINE V. CRAWFORD, CTR. FOR RETIREMENT RES. B.C., HOW BIG A BURDEN ARE STATE AND LOCAL OPEB BENEFITS? 1 (2016), [https://crr.bc.edu/wp-content/uploads/2016/03/slp\\_48.pdf](https://crr.bc.edu/wp-content/uploads/2016/03/slp_48.pdf) [<https://perma.cc/327D-SP3K>].

106. NAT’L CONFERENCE OF STATE LEGISLATORS, *supra* note 76, at 1.

107. CTR. FOR BUDGET & POLICY PRIORITIES, POLICY BASICS—STATE AND LOCAL BORROWING 1–3 (2018), <https://www.cbpp.org/sites/default/files/atoms/files/policybasics-sfpebt-1-15-15.pdf> [<https://perma.cc/A27X-FKGH>].

108. *See, e.g.*, Jeff Stein, *In Blow to Liberal Efforts, Voters Across the Country Reject Tax Increases (California Is the Exception.)*, WASH. POST (Nov. 7, 2018, 3:55 PM), [https://www.washingtonpost.com/business/2018/11/07/blow-liberal-efforts-voters-across-country-reject-tax-increases-california-proves-exception/?noredirect=on&utm\\_term=.473581d25875](https://www.washingtonpost.com/business/2018/11/07/blow-liberal-efforts-voters-across-country-reject-tax-increases-california-proves-exception/?noredirect=on&utm_term=.473581d25875) [<https://perma.cc/6WSZ-YTX2>].

### 3. *Infrastructure*

The U.S. is also falling behind in keeping up its infrastructure (e.g., roads and bridges, airports and rails, schools, and sewers).<sup>109</sup> According to a recent report by the American Society of Civil Engineers, the U.S. needs another \$2.06 trillion to meet its cumulative infrastructure needs.<sup>110</sup> Adequate infrastructure is essential for future prosperity. Improvements in infrastructure enable businesses to be more productive in the long-term:

For example, a new bridge may greatly shorten commute times and distances for truck drivers, allowing them to deliver goods to consumers more quickly and at lower cost to themselves, and allowing businesses to produce and deliver more goods to consumers. These changes result in productivity growth for the economy as a whole, which is the most important determinant of long-term economic growth.<sup>111</sup>

As in the case of the fiscal gap, delaying investment in infrastructure increases future costs.<sup>112</sup>

### 4. *The Carbon Budget*

The U.S. and other countries also need to address climate change. The global greenhouse gas (GHG) budget (often described as the carbon budget) is the amount of GHG that can be emitted in order to keep global temperatures within a specified range—usually limited to an increase of two degrees Celsius.<sup>113</sup> As of November 16, 2019, the

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109. AM. SOC'Y OF CIVIL ENG'RS, *supra* note 27.

110. *Id.* at 5.

111. JEFFREY M. STUPAK, CONG. RESEARCH SERV., R44896, ECONOMIC IMPACT OF INFRASTRUCTURE INVESTMENT 9 (2018), <https://fas.org/sgp/crs/misc/R44896.pdf> [<https://perma.cc/3X7U-FAAC>].

112. AM. SOC'Y OF CIVIL ENG'RS, *supra* note 27, at 4.

113. *Infographic: The Carbon Budget*, WORLD RESOURCES INST. (Mar. 2014), <https://www.wri.org/resources/data-visualizations/infographic-global-carbon-budget> [<https://perma.cc/EXW5-8469>].



concentration of carbon dioxide in the global atmosphere measured 412 parts per million.<sup>114</sup> Even though estimates for the remaining carbon budget vary widely, scientists almost universally recognize the problem of human-caused climate change.<sup>115</sup>

As with closing the fiscal gap and the infrastructure gap, the longer we delay in curbing GHG emissions, the higher the cost of mitigation.<sup>116</sup> Scientists expect climate change to significantly reduce economic growth in the U.S. and beyond.<sup>117</sup> In that regard, a comprehensive report issued by the National Climate Change Group in 2018 noted that “[w]ithout substantial and sustained global mitigation and regional adaptation efforts, climate change is expected to cause growing losses to American infrastructure and property and impede the rate of economic growth over this century.”<sup>118</sup> Moreover, annual economic losses in some sectors are projected to be in the hundreds of billions of dollars by the end of the century.<sup>119</sup>

Carbon pricing can be a cost-effective way to ease the transition to a low-carbon world.<sup>120</sup> According to a recent report, fifty-seven carbon pricing initiatives have already been implemented or are scheduled to be implemented worldwide: twenty-eight emission trading systems in regional, national, and subnational jurisdictions as well as twenty-nine carbon taxes, primarily applied on a national level.<sup>121</sup> Of note, carbon pricing systems can be structured to provide government revenue,

114. See *Facts: Carbon Dioxide*, NASA: GLOB. CLIMATE CHANGE, <https://climate.nasa.gov/vital-signs/carbon-dioxide/> [<https://perma.cc/JR6K-JDY3>] (last visited Dec. 30, 2019) (measured at mid-troposphere levels).

115. Zeke Hausfather, *Analysis: How Much ‘Carbon Budget’ Is Left to Limit Global Warming to 1.5 C?*, CARBONBRIEF (Apr. 9, 2018, 1:00 PM), <https://www.carbonbrief.org/analysis-how-much-carbon-budget-is-left-to-limit-global-warming-to-1-5c> [<https://perma.cc/2AUU-8UAH>].

116. COUNCIL OF ECON. ADVISORS, EXEC. OFFICE OF THE PRESIDENT, *THE COST OF DELAYING ACTION TO STEM CLIMATE CHANGE* 4 (2014), [https://obamawhitehouse.archives.gov/sites/default/files/docs/the\\_cost\\_of\\_delaying\\_action\\_to\\_stem\\_climate\\_change.pdf](https://obamawhitehouse.archives.gov/sites/default/files/docs/the_cost_of_delaying_action_to_stem_climate_change.pdf) [<https://perma.cc/R9DS-TH6Z>].

117. *Id.* at 10.

118. NATIONAL CLIMATE ASSESSMENT, *supra* note 8.

119. *Id.* at 26.

120. World Bank Grp. [WBG], *State and Trends of Carbon Pricing 2019*, at 1, 8 (June 6, 2019), <https://openknowledge.worldbank.org/handle/10986/31755> [<https://perma.cc/L4YQ-224M>].

121. *Id.* at 9.

whether by auctioning carbon emissions permits or by imposing carbon taxes.<sup>122</sup>

### *III. How Taxes Influence the Level of Resources for Future Generations*

#### *A. Taxes, Deficits, and Public Debt*

As Part II above showed, the U.S. federal government is spending far more than it is raising in revenue.<sup>123</sup> In fact, if current laws generally remain unchanged, the U.S. federal government's deficit is projected to grow from 4.2% of GDP in fiscal year 2019 to an average of 7.9% of GDP in fiscal years 2040–2049, and the public debt will grow from 78% of GDP in fiscal year 2019 to 144% in fiscal year 2049.<sup>124</sup>

To be sure, occasional deficits can make sense when government spending is used to smooth out the effects of business cycles.<sup>125</sup> Modest borrowing and deficits may also make sense when governments want to spread the costs of long-term projects and investments across generations. On the other hand, sustainable intergenerational justice norms will be violated if government deficits and debt impose burdens on future generations.<sup>126</sup>

We believe that sustainable intergenerational justice norms require each generation of taxpayers to pay for the government programs that benefit that generation. Similarly, we recognize that certain types of government investment, while benefiting current generations, have a significant impact on the prosperity of future generations. Some believe that U.S. taxes should be raised (or spending cut) so that

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122. *Id.* at 9.

123. FINANCIAL REPORT FOR 2018, *supra* note 82, at 10.

124. CONG. BUDGET OFFICE, THE 2019 LONG-TERM BUDGET OUTLOOK 6 tbl.1-1 (2019). These estimates were prepared prior to the recent enactment of the Further Consolidated Appropriations Act, 2020, Public Law No. 116-94, which added billions more to future deficits. *See, e.g., The Decade in the Federal Budget*, COMMITTEE FOR RESPONSIBLE FED. BUDGET (Dec. 30, 2019), <http://www.crfb.org/blogs/decade-federal-budget> [<https://perma.cc/NP8N-HDMF>] (noting that the Further Consolidated Appropriations Act 2020 has a ten-year cost of \$426 billion).

125. *See, e.g., DRIESSEN, supra* note 28.

126. Buchanan, *supra* note 10.

deficits and the public debt do not grow out of control and burden future generations. At the same time, however, we recognize that spending now on investments that will benefit future generations can be justifiably financed by current deficits and future taxes on those future generations. For example, borrowing today in order to build a school for today's students can be justified as an investment that will benefit those students. Borrowing to defeat a pandemic or to create a sustainable energy system can also be justified. Moreover, there is a significant school of thought that holds that in an environment where rates exceed the cost of borrowing, deficits can be maintained indefinitely without negative consequences.<sup>127</sup>

Pertinent here, the Congressional Budget Office recently estimated that about 12% of federal government spending goes toward investments that can be expected to contribute to the economy for some years into the future (\$492 billion in 2018; 2% of GDP).<sup>128</sup> These investments fall into three broad categories: physical capital (including government buildings, transportation infrastructure, water and power projects, and computers and software), research and development (including basic research, applied research, and development of new products and technology), and education and training (including early childhood, elementary, secondary, and postsecondary education).<sup>129</sup> The federal government accounts for its investment spending on a cash basis—that is, it records its expenditures as they are made.<sup>130</sup> This method of accounting for investment spending is transparent, but it can overestimate the costs of investments because the benefits associated with those investments do not “arrive” until later periods.<sup>131</sup> All in all,

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127. See, e.g., Olivier Blanchard, *Public Debt and Low Interest Rates*, 109 AM. ECON. REV. 1197, 1198 (2019) (“[T]he signal sent by low rates is not only that debt may not have a substantial fiscal cost, but also that it may have limited welfare costs.”).

128. CONG. BUDGET OFFICE, FEDERAL INVESTMENT, 1962 TO 2018, at 1, 10 (2019), [https://www.cbo.gov/system/files/2019-06/55375-Federal\\_Investment.pdf](https://www.cbo.gov/system/files/2019-06/55375-Federal_Investment.pdf) [<https://perma.cc/C4AY-8FGU>].

129. *Id.* at 3.

130. *Id.* at 4.

131. *Id.*

some 60% of federal investments are for nondefense purposes and 40% are for defense.<sup>132</sup>

On the other hand, programs like Social Security and Medicare, which benefit current generations, should be fully funded, and the pensions and OPEBs of federal, state, and local government workers should also be fully funded. With respect to Social Security, several recent proposals have called for various combinations of tax increases and benefit cuts to bring the program into actuarial balance over the seventy-five-year projection period.<sup>133</sup> For example, the Social Security 2100 Act would ensure that the Social Security system would remain solvent for the rest of the century.<sup>134</sup> Similarly, we believe that the U.S. federal government should also raise taxes (or cut benefits) to bring Medicare's finances into balance.

Moreover, federal, state, and local governments should generally fully fund their pensions and OPEBs. For example, when it comes to funding traditional pensions, we believe that each generation of taxpayers should pay the full cost of the salaries and the pensions of the public employees who work for that generation.<sup>135</sup> Currently, state and local government employers frequently fall behind in their pension contributions and then make up the shortfall in installments over the

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132. *Id.* at 7.

133. *Office of the Chief Actuary's Estimates of Proposals to Change Social Security*, SOC. SECURITY ADMIN., <https://www.ssa.gov/oact/solvency/index.html> [<https://perma.cc/5UM8-5G39>] (last visited July 17, 2019).

134. H.R. 860, 116th Cong. (2019) (introduced on Jan. 30, 2019 by Representative John B. Larson [D-CT]); Memorandum from the Office of the Chief Actuary to Chairman John Larson, Senator Richard Blumenthal, and Senator Chris Van Hollen 8 (Jan. 30, 2019), [https://www.ssa.gov/oact/solvency/LarsonBlumenthalVanHollen\\_20190130.pdf](https://www.ssa.gov/oact/solvency/LarsonBlumenthalVanHollen_20190130.pdf) [<https://perma.cc/6M7P-XVQH>]. The bill would actually raise benefits for many elderly Americans, but it would also raise payroll taxes—especially on those Americans who earn more than \$400,000 a year. *Id.* *But see* Sylvester J. Schieber, *Alice in Wonderland . . . or Is It Plunderland? The Generational Implications of Social Security Financing Policy and New Proposals to Expand Benefits*, J. RETIREMENT, Fall 2019, at 8 (criticizing the Social Security 2100 Act for shifting the costs of benefit increases to future generations).

135. To be sure, we recognize that the services provided by today's teachers and other public employees can sometimes represent investments that might be "justifiably financed" by taxes on the future taxpayers that benefit from those services. CONG. BUDGET OFFICE, *THE UNDERFUNDING OF STATE AND LOCAL PENSION PLANS* 9 (2011), <https://www.cbo.gov/sites/default/files/112th-congress-2011-2012/reports/05-04-pensions.pdf> [<https://perma.cc/8BNZ-4LH8>].

following ten, twenty, or even thirty years.<sup>136</sup> Instead, each year state and local government employers should contribute, on an employee-by-employee basis, the amount actually needed to fully cover the pension liability attributable to each employee's salary.<sup>137</sup>

It might also make sense for the U.S. federal government to move back to pay-as-you-go style budgeting rules that could make it more difficult to enact new tax or spending legislation that increases budget deficits.<sup>138</sup> This view is supported by the Committee for a Responsible Federal Budget, which recently sent a letter to Congress urging compliance with pay-as-you-go rules.<sup>139</sup> Budget balancing, however, is a complex issue because deficit spending may be necessary in the short-term to provide benefits in the long-term.

### *B. Tax Systems and Economic Growth*

Taxes can influence individual decisions about working, saving, and consumption, and each of these decisions can influence the level of resources that are available to future generations.<sup>140</sup> More specifically, tax policy can create sustainable economic growth through four specific channels: labor supply, physical capital, human capital, and technological innovation.<sup>141</sup> For example, while high marginal tax rates may discourage work and savings, subsidies for education can encourage people to enhance their skills; and subsidies for research may promote technological innovation.

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136. BD. OF GOVERNORS OF THE FED. RESERVE SYS., *supra* note 104, at 100.

137. Jonathan Barry Forman & Michael J. Sabin, *Full Funding of Traditional State and Local Government Pensions: The Entry-Age-Service-Cost Method*, 2019 N.Y.U. REV. OF EMP. BENEFITS & EXECUTIVE COMPENSATION 11-1, 11-4.

138. ROBERT KEITH, CONG. RESEARCH SERV., R41157, THE STATUTORY PAY-AS-YOU-GO ACT OF 2010: SUMMARY AND LEGISLATIVE HISTORY 14 (2010), <https://budget.house.gov/sites/democrats.budget.house.gov/files/documents/CRS-stat-paygo.pdf> [<https://perma.cc/G7CM-NUNN>].

139. Maya MacGuineas, Letter to Congress to Abide by PAYGO, COMMITTEE FOR A RESPONSIBLE FED. BUDGET (May 1, 2019), <https://www.crfb.org/sites/default/files/PAYGO%20Letter.pdf> [<https://perma.cc/G83K-QE7E>].

140. See, e.g., Gale & Samwick, *supra* note 36.

141. JOINT COMM. ON TAXATION, JCX-47-15, ECONOMIC GROWTH AND TAX POLICY 23-26 (2015).

### 1. *Lower Rates and Broader Tax Bases*

High marginal tax rates can create disincentives for taxpayers to work or save, and those disincentives can distort taxpayer choices and lead to an inefficient allocation of labor and capital resources.<sup>142</sup> Accordingly, most economists favor broad tax bases to keep marginal tax rates as low as possible.<sup>143</sup>

#### a. *Lowering Marginal Tax Rates*

The empirical evidence suggests that high marginal tax rates on labor income can lead individuals to work fewer hours or to withdraw from the workforce completely.<sup>144</sup> To be sure, the adverse effects of high marginal tax rates can vary greatly depending upon factors such as age and family type. For example, research has found that “secondary earners” in two-earner households are more responsive to high marginal tax rates than “primary earners.”<sup>145</sup>

The Congressional Budget Office recently estimated that the economy-wide marginal tax rate on labor income in the U.S. was 27% in 2018—18% from individual income taxes and 9% from payroll taxes.<sup>146</sup> Of course, marginal tax rates vary greatly depending upon income level and family type. For example, higher income individuals tend to face higher marginal tax rates on their labor earnings than lower income individuals. Also, marginal tax rates can vary greatly within income classes. In particular, the marginal income tax rates on labor income that low-income individuals and families face can vary

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142. JOINT COMM. ON TAXATION, JCX-6-01, OVERVIEW OF PRESENT LAW AND ECONOMIC ANALYSIS RELATING TO MARGINAL TAX RATES AND THE PRESIDENT’S INDIVIDUAL INCOME TAX RATE PROPOSALS 40–44 (2001).

143. JOINT COMM. ON TAXATION, JCX-47-15, ECONOMIC GROWTH AND TAX POLICY 4.

144. CONG. BUDGET OFFICE, MARGINAL FEDERAL TAX RATES ON LABOR INCOME: 1962 TO 2028, at 1 (2019), <https://www.cbo.gov/system/files/2019-01/54911-MTRchartbook.pdf> [<https://perma.cc/Y5V9-HKZE>].

145. JOINT COMM. ON TAXATION, JCX-6-01, OVERVIEW OF PRESENT LAW AND ECONOMIC ANALYSIS RELATING TO MARGINAL TAX RATES AND THE PRESIDENT’S INDIVIDUAL INCOME TAX RATE PROPOSALS 41.

146. CONG. BUDGET OFFICE, MARGINAL FEDERAL TAX RATES ON LABOR INCOME: 1962 TO 2028, at 1.

dramatically because their earned income tax credits phase in and out.<sup>147</sup>

Additionally, high marginal tax rates can distort individual decision-making about saving and investment.<sup>148</sup> Marginal tax rates on capital income also vary rather dramatically depending on the nature of the investment and the income tax level of the individual or family.<sup>149</sup> Investment income is generally subject to federal income tax rates of up to 37% in 2020; however, capital gains and dividends are generally taxed at a preferential tax rate of 0%, 15%, or 20%, depending on the income tax rate that would be assessed on the same amount of ordinary income.<sup>150</sup> Also, there are various tax advantages associated with investments in homes, state and local bonds, annuities, and life insurance.<sup>151</sup> Moreover, marginal tax rates can vary dramatically depending on the form of the organization (e.g., partnerships versus taxable corporations), the source of financing (e.g., debt versus equity), and the nature of the underlying assets (e.g., real estate versus machinery).<sup>152</sup> To be sure, high marginal tax rates are not necessarily inconsistent with economic growth: in the 1950s, the top U.S. marginal tax rate was over 90%, and yet the real GDP growth rate averaged 4.2%.<sup>153</sup> Economic analysis shows no strong relationship between high tax rates and overall economic growth.<sup>154</sup>

A more steeply progressive income tax structure with higher marginal rates on wealthy taxpayers could reduce income inequality. A report published by the Center for American Progress in 2012 found

147. 26 U.S.C. § 32 (2018); Elaine Maag, C. Eugene Steuerle, Ritadhi Chakravarti & Caleb Quakenbush, *How Marginal Tax Rates Affect Families at Various Levels of Poverty*, 65 NAT'L TAX J. 759, 761 (2012).

148. JOINT COMM. ON TAXATION, JCX-47-15, ECONOMIC GROWTH AND TAX POLICY 10–17.

149. *Id.*

150. 26 U.S.C. §§ 1(a), (h) (2018); Rev. Proc. 2019-44, 2019-47 I.R.B. 1093.

151. See 26 U.S.C. §§ 163(a), 121, 103, 72, and 101(a) (2018).

152. See generally CONG. BUDGET OFFICE, TAXING CAPITAL INCOME: EFFECTIVE MARGINAL TAX RATES UNDER 2014 LAW AND SELECTED POLICY OPTIONS (2014), <https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/49817-taxingcapitalincome0.pdf> [<https://perma.cc/F3VH-2CVL>].

153. THOMAS L. HUNGERFORD, CONG. RESEARCH SERV., R42729, TAXES AND THE ECONOMY: AN ANALYSIS OF THE TOP TAX RATES SINCE 1945, at 9 (2012), <https://fas.org/sgp/crs/misc/R42729.pdf> [<https://perma.cc/MRF5-RA6U>].

154. *Id.*

that the cumulative effect of federal income tax changes from 1979 through 2007 reduced progressivity, and that the federal tax code was one-third less effective in reducing income inequality in 2007 than in 1979.<sup>155</sup> The top individual marginal tax rate in 1979 was 70%, applying to incomes over \$215,400 for married joint filers.<sup>156</sup> For perspective, the Tax Foundation calculated that amount to be equivalent to \$681,192 in 2013.<sup>157</sup> In January 2019, Representative Alexandria Ocasio-Cortez proposed a 70% tax rate on incomes over \$10 million.<sup>158</sup> Billionaires like Microsoft founder Bill Gates objected to the plan, arguing that while tax rates could be more progressive, the proposals of “some politicians” are too extreme and would lead to tax dodging.<sup>159</sup> Economist William Gale, while supporting the idea of increasing taxes on wealthy Americans, noted that unless tax loopholes were closed at the same time, the proposal would create “massive tax sheltering activity.”<sup>160</sup> Another way of saying “close loopholes” is “broaden the base,” which will be discussed next.

*b. Broadening the Tax Bases*

The U.S. federal government collects almost all of its revenue from individual income taxes, payroll taxes, and (to a much lesser extent) corporate income taxes,<sup>161</sup> and state and local governments get most

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155. Linden, *supra* note 4.

156. TAX FOUND., FEDERAL INDIVIDUAL INCOME TAX RATES HISTORY: NOMINAL DOLLARS, INCOME YEARS 1913–2011 (2011), [https://files.taxfoundation.org/legacy/docs/fed\\_individual\\_rate\\_history\\_nominal&adjusted-20110909.pdf](https://files.taxfoundation.org/legacy/docs/fed_individual_rate_history_nominal&adjusted-20110909.pdf) [<https://perma.cc/Q9P2-9U57>].

157. TAX FOUND., FEDERAL INDIVIDUAL INCOME TAX RATES HISTORY: INFLATION ADJUSTED (REAL 2012 DOLLARS) USING AVERAGE ANNUAL CPI DURING TAX YEAR, INCOME YEARS 1913–2013, [https://files.taxfoundation.org/legacy/docs/fed\\_individual\\_rate\\_history\\_adjusted.pdf](https://files.taxfoundation.org/legacy/docs/fed_individual_rate_history_adjusted.pdf) [<https://perma.cc/UKD4-7YEP>].

158. Glenn Kessler, *Ocasio-Cortez's 70-Percent Tax Rate: Not So Radical?*, WASH. POST (Jan. 31, 2019, 3:00 AM), <https://www.washingtonpost.com/politics/2019/01/31/ocasio-cortezs-percent-tax-rate-not-so-radical/> [<https://perma.cc/Q343-KCZX>].

159. Nilay Patel, *Bill Gates Says Tax Policies Like Alexandria Ocasio-Cortez's Are 'Missing the Picture'*, VERGE (Feb. 12, 2019, 8:00 AM), <https://www.theverge.com/2019/2/12/18220756/bill-gates-tax-rate-70-percent-marginal-modern-monetary-theory> [<https://perma.cc/9Q22-QEM6>].

160. William G. Gale, *Ocasio-Cortez's Tax on the Super Rich Won't Happen. Here's a Better Way to Do It*, CNN BUS. (Jan. 22, 2019, 5:35 PM), <https://www.cnn.com/2019/01/22/perspectives/alexandria-ocasio-cortez-tax-plan-alternative/index.html> [<https://perma.cc/K8MG-5CAH>].

161. CONG. BUDGET OFFICE, THE BUDGET AND ECONOMIC OUTLOOK: 2019 TO 2029, at 91 tbl.4-1



of their tax revenue from property taxes, income taxes, and sales taxes.<sup>162</sup> Exclusions, deductions, credits, and many other tax expenditures shrink each of these tax bases.<sup>163</sup> As a result, tax rates must be higher on each taxable base to collect the revenues needed.

For example, in 2018, the U.S. had a GDP of \$20.494 trillion, gross domestic income of \$20.542 trillion, and personal income of \$16.125 trillion,<sup>164</sup> but the individual income tax is imposed on just a fraction of GDP.<sup>165</sup> To illustrate, the U.S. imposed the individual income tax on just \$9.0 trillion of 2017 adjusted gross income less deductions (just \$11.2 trillion of 2017 total income).<sup>166</sup> In that regard, each year the U.S. federal government identifies more than \$1 trillion of individual income tax expenditures.<sup>167</sup>

The payroll tax base is also somewhat narrow. For example, in 2018, taxable payroll for the U.S. payroll tax was \$7.262 trillion, just 35% of GDP that year ( $0.3542 = \$7.262 \text{ trillion} / \$20.502 \text{ trillion}$ );<sup>168</sup> and in 2017, the ratio of taxable payroll to covered earnings was 83.2%.<sup>169</sup>

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(2019).

162. U.S. CENSUS BUREAU, G19-QTAX1, QUARTERLY SUMMARY OF STATE AND LOCAL GOVERNMENT TAX REVENUE FOR FIRST QUARTER 2019, at 2 (2019), <https://www.census.gov/content/dam/Census/library/publications/2019/econ/g19-qtax1.pdf> [<https://perma.cc/J3QW-93V4>].

163. The Congressional Budget and Impoundment Control Act of 1974 defines tax expenditures as “revenue losses attributable to provisions of the Federal tax laws[,] which allow a special exclusion, exemption, or deduction from gross income[,] or which provide a special credit, a preferential rate of tax, or a deferral of tax liability.” JOINT COMM. ON TAXATION, JCX-55-19, ESTIMATES OF FEDERAL TAX EXPENDITURES FOR FISCAL YEARS 2019–2023, at 2 (2019), <https://www.jct.gov/publications.html?func=startdown&id=5239> [<https://perma.cc/E953-J9EK>].

164. BUREAU OF ECON. ANALYSIS, U.S. DEP’T OF COMMERCE, BEA 19-29, GROSS DOMESTIC PRODUCT, FIRST QUARTER 2019 (THIRD ESTIMATE) CORPORATE PROFITS, FIRST QUARTER 2019 (REVISED ESTIMATE) 9–10 tbl.3, 15 tbl.8 (2019), [https://www.bea.gov/system/files/2019-06/gdp1q19\\_3rd\\_1.pdf](https://www.bea.gov/system/files/2019-06/gdp1q19_3rd_1.pdf) [<https://perma.cc/339J-E4XG>] [hereinafter GROSS DOMESTIC PRODUCT & CORPORATE PROFITS]. Gross domestic income is conceptually similar to GDP. *Id.* at 4.

165. *See generally* INTERNAL REVENUE SERV., PUB. NO. 1304 (REV. 09-2019), INDIVIDUAL INCOME TAX RETURNS: COMPLETE REPORT 2017 (2019), <https://www.irs.gov/pub/irs-pdf/p1304.pdf> [<https://perma.cc/H5KG-W83H>].

166. *Id.* at 6 tbl.A.

167. *See* JOINT COMM. ON TAXATION, JCX-55-19, ESTIMATES OF FEDERAL TAX EXPENDITURES FOR FISCAL YEARS 2019–2023, at 20–32 tbl.1.

168. BD. OF TRS. OF THE FED. OLD-AGE & SURVIVORS INS. & FED. DISABILITY INS. TR. FUNDS, *supra* note 83, at 216 tbl.VI.G6.

169. *Id.* at 143; *see also* CONG. BUDGET OFFICE, OPTIONS FOR REDUCING THE DEFICIT: 2019 TO 2028, at 255–57 (2018), <https://www.cbo.gov/publication/54667> [<https://perma.cc/8P33-HL5Z>]. Covered earnings are the sum of wages and self-employment earnings in employment covered by the payroll tax.

Also, U.S. labor's share of gross domestic income (GDI) was estimated to be just 57% in 2017.<sup>170</sup>

State and local sales taxes are also quite limited in their scope. In particular, they tend to reach only the sales of tangible goods, not services.<sup>171</sup> In that regard, only forty-five states have sales taxes, and the median state sales tax base reaches just 23% of personal income.<sup>172</sup> All in all, however, personal consumption expenditures in 2018 totaled \$13.949 trillion.<sup>173</sup>

State and local property taxes and estate, gift, and inheritance taxes are also quite limited: they are imposed on only a small fraction of U.S. property and property transfers. In that regard, most state and local property taxes are imposed only on tangible real property and not on tangible personal property or intangibles, and there are numerous tax expenditures associated with property tax systems.<sup>174</sup> Pertinent here, the net worth of U.S. households was almost \$104 trillion at the end of 2018, but just over \$29 trillion was in real estate.<sup>175</sup> The U.S. does not

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BD. OF TRS. OF THE FED. OLD-AGE & SURVIVORS INS. & FED. DISABILITY INS. TR. FUNDS, *supra* note 83, at 141–42.

170. Didem Tüzemen, W. Blake Marsh & Thao Tran, *Trends in the Labor Share Post-2000*, FED. RES. BANK KAN. CITY (Dec. 7, 2018), <https://www.kansascityfed.org/en/publications/research/mb/articles/2018/trends-labor-share-post> [<https://perma.cc/D7B2-8NJK>]. That would make labor's share around \$11.7 trillion in 2018 (\$11.717 trillion = 0.57 × \$20.542 trillion GDI). GROSS DOMESTIC PRODUCT & CORPORATE PROFITS, *supra* note 164, at 9–10 tbl.3. Moreover, compensation paid to employees in 2018 was just \$10.84 trillion, including \$8.821 trillion in wages and salaries. *Id.* at 14 tbl.7.

171. NICOLE KAEDING, TAX FOUND., NO. 563, SALES TAX BASE BROADENING: RIGHT-SIZING A STATE SALES TAX (2017), <https://files.taxfoundation.org/20171026101536/Tax-Foundation-FF563.pdf> [<https://perma.cc/KJ2F-AFHJ>].

172. *Id.* at 2–3.

173. GROSS DOMESTIC PRODUCT & CORPORATE PROFITS, *supra* note 164, at 9 tbl.3.

174. *See, e.g.*, M. DAVID GELFAND, JOEL A. MINTZ & PETER W. SALSICH, JR., STATE AND LOCAL TAXATION AND FINANCE IN A NUTSHELL 36–47 (2d ed. 2000); Katrina D. Connolly & Michael E. Bell, *Strengthening the Local Property Tax: The Need for a Property Tax Expenditure Budget 4* (Lincoln Inst. of Land Policy, Working Paper 2011), [https://www.lincolnst.edu/sites/default/files/pubfiles/2017\\_1341\\_connolly\\_wp11kc1.pdf](https://www.lincolnst.edu/sites/default/files/pubfiles/2017_1341_connolly_wp11kc1.pdf) [<https://perma.cc/3K4D-M76P>].

175. BD. OF GOVERNORS OF THE FED. RESERVE SYS., *supra* note 104, at 8 tbl.B.1; *Households and Nonprofit Organizations; Net Worth, Level*, FED. RES. BANK ST. LOUIS, <https://fred.stlouisfed.org/series/TNWBSHNO> [<https://perma.cc/2H95-FA4G>] (last visited Dec. 30, 2019).

have a wealth tax,<sup>176</sup> and the estate and gift taxes apply only to the very wealthiest Americans.<sup>177</sup>

By broadening these tax bases, an increasing amount of economic activity could be subjected to taxation and marginal tax rates could be reduced. Accordingly, the economic distortion caused by high marginal tax rates would be reduced, and that should lead to more economic growth and more economic resources for future generations.

## 2. *Choosing the Right Mix of Taxes for Economic Growth*

### a. *Choosing Between Income and Consumption Taxes*

Supporters of consumption taxes often argue that relative to income taxes, consumption taxes would encourage investment and thus promote economic growth.<sup>178</sup> On the other hand, opponents of consumption taxes note that, because a consumption tax base is theoretically smaller than an income tax base, tax rates would have to be higher under a consumption tax than under an income tax.<sup>179</sup> While personal income in the U.S. in 2018 was \$17.6 trillion, personal consumption expenditures that year totaled \$13.9 trillion.<sup>180</sup> Consequently, if the U.S. federal government wanted to raise the roughly \$4.1 trillion that it spent that year<sup>181</sup> with a comprehensive consumption tax, the average consumption tax rate would need to be about 29.5% ( $0.2949 = \$4.1 \text{ trillion} / \$13.9 \text{ trillion}$ ), compared with an average comprehensive income tax rate of just 25.4% ( $0.2547 = \$4.1 \text{ trillion} / \$16.1 \text{ trillion}$ ).

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176. See EDWARD N. WOLFF, *TOP HEAVY: THE INCREASING INEQUALITY OF WEALTH IN AMERICA AND WHAT CAN BE DONE ABOUT IT* 48 (1999); Dawn Johnsen & Walter Dellinger, *The Constitutionality of a National Wealth Tax*, 93 IND. L.J. 111, 111 (2018), <https://www.repository.law.indiana.edu/cgi/viewcontent.cgi?article=11279&context=ilj> [<https://perma.cc/ZV3A-V782>].

177. JOINT COMM. ON TAXATION, JCX-9-19, *OVERVIEW OF THE FEDERAL TAX SYSTEM AS IN EFFECT FOR 2019*, at 18–19 (2019).

178. JONATHAN BARRY FORMAN, *MAKING AMERICA WORK* 147 (2006).

179. *Id.*

180. See GROSS DOMESTIC PRODUCT & CORPORATE PROFITS, *supra* note 164, at 15 tbl.8, 9 tbl.3.

181. CONG. BUDGET OFFICE, *THE BUDGET AND ECONOMIC OUTLOOK: 2019 TO 2029*, at 150 tbl.F-1 (2019).

The U.S. federal government does not have a broad-based consumption tax. In that regard, however, if the federal government adopted a 5% value-added tax, it could raise \$2.970 trillion over ten years.<sup>182</sup> Of course, sales taxes and value-added taxes tend to be regressive.<sup>183</sup> That is, the burden falls more heavily on low-income individuals than on higher income individuals (who tend to save a greater portion of their incomes).<sup>184</sup> One way to offset that regressivity would be to provide rebates to low-income individuals.<sup>185</sup>

Another way to offset the regressivity of a consumption tax would be to use the revenue generated to provide generous public benefits and services. For example, Sweden is a country with relatively low poverty rates, a low level of economic inequality, and much better prospects for upward economic mobility than the U.S.<sup>186</sup> Sweden does not have particularly redistributive tax policies; instead, all Swedes face a relatively high rate of tax, yet Sweden achieves greater equality by providing generous public benefits and services to all Swedes—paid for by those high taxes.<sup>187</sup> The average individual in Sweden faces a 42.9% tax burden, while corporations only pay an average 19.8% tax, and although there is no estate tax, there is a robust national sales tax.<sup>188</sup>

Yet another approach for reducing the regressivity inherent in taxing consumption would be to adopt a progressive personal consumption tax instead of a value-added tax or a broader sales tax.<sup>189</sup> Under a

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182. CONG. BUDGET OFFICE, *OPTIONS FOR REDUCING THE DEFICIT: 2019 TO 2028*, at 289 (2018).

183. See, e.g., ERIC TODER, JIM NUNNS & JOSEPH ROSENBERG, URBAN-BROOKINGS TAX POLICY CTR., *USING A VAT TO REFORM THE INCOME TAX 2* (2012), <https://www.urban.org/sites/default/files/publication/25031/412489-Using-a-VAT-to-Reform-the-Income-Tax.PDF> [<https://perma.cc/W8S5-N7AP>].

184. *Id.* at 1.

185. *Id.* at 3.

186. ORG. FOR ECON. CO-OPERATION & DEV., *GROWING UNEQUAL? INCOME DISTRIBUTION AND POVERTY IN OECD COUNTRIES* 25 fig.1.1, 127 fig.5.1, 205 fig.8.1 (2008), [http://www.oecd.org/document/53/0,3343,en\\_2649\\_33933\\_41460917\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/53/0,3343,en_2649_33933_41460917_1_1_1_1,00.html) [<https://perma.cc/N877-UYBE>].

187. Monica Prasad, *How to Think About Taxing and Spending Like a Swede*, N.Y. TIMES (Mar. 7, 2019), <https://www.nytimes.com/2019/03/07/opinion/europe-taxes-sweden.html> [<https://perma.cc/CFA3-NCE4>].

188. *Id.*

189. See generally William D. Andrews, *A Consumption-Type or Cash Flow Personal Income Tax*, 87

personal consumption tax, each individual would add up all of her wages, dividends, interest, gains, and other income; subtract her net savings; and pay tax on the balance, with higher marginal tax rates applying to those with higher balances.

#### *b. Taxing Wealth*

In passing, it is worth noting that a broad-based tax on wealth could generate significant revenues with relatively little economic distortion.<sup>190</sup> However, some scholars have noted that wealth taxes may face constitutional challenges.<sup>191</sup>

### *IV. How Taxes Influence the Mix of Resources for Future Generations*

#### *A. Externalities*

Taxes can also be used to correct for market failures in the consumption or production of goods.<sup>192</sup> An externality exists when the price of a product does not reflect the total cost to society of production and consumption. An externality is negative when these costs are greater than the price the consumer pays.<sup>193</sup> For example, if the price of coal does not take into account the pollution costs that result from burning that coal, we say there is a negative externality, and it can be appropriate to impose a pollution tax on the sale of coal to help pay for

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HARV. L. REV. 1113 (1974); Michael J. Graetz, *Implementing a Progressive Consumption Tax*, 92 HARV. L. REV. 1575 (1979).

190. See generally THOMAS PIKETTY, *CAPITAL IN THE 21ST CENTURY* (2014); WOLFF, *supra* note 176; Emmanuel Saez & Gabriel Zucman, *Progressive Wealth Taxation*, BROOKINGS PAPERS ON ECON. ACTIVITY 1, 4 (2019), [https://www.brookings.edu/wp-content/uploads/2019/09/Saez-Zucman\\_conference-draft.pdf](https://www.brookings.edu/wp-content/uploads/2019/09/Saez-Zucman_conference-draft.pdf) [<https://perma.cc/5LTK-3778>].

191. See Daniel Hemel & Rebecca Kysar, *The Big Problem with Wealth Taxes: Proposals by Senators Warren and Sanders May Not Pass Constitutional Muster. Then What?*, N.Y. TIMES (Nov. 7, 2019), <https://www.nytimes.com/2019/11/07/opinion/wealth-tax-constitution.html> [<https://perma.cc/23XN-DLHD>]. But see Reuven Avi-Yonah, *The Shaky Case Against Wealth Taxation*, AM. PROSPECT (Aug. 28, 2019), <https://prospect.org/economy/shaky-case-wealth-taxation/> [<https://perma.cc/BF6T-9FTQ>].

192. JOINT COMM. ON TAXATION, JCX-47-15, ECONOMIC GROWTH AND TAX POLICY 4 (2015).

193. *Id.*

the health and environmental costs associated with the burning of that coal.

On the other hand, an externality is positive when the social benefits from a certain activity exceed their private costs.<sup>194</sup> For example, when the benefit to society from educating an individual is greater than the cost of her education, there is a positive externality, and it can be appropriate to use subsidies to help her pay for her education. All in all, as individuals largely ignore the social benefits (and costs) of their individual consumption decisions, they may consume goods at levels that are not socially optimal, and taxes and tax expenditure subsidies are tools that can correct those suboptimal externalities. Such taxes and subsidies can make the economy more efficient, lead to greater economic growth, and change the mix of resources that are available for future generations.<sup>195</sup>

### 1. *Oil, Gas, and Coal Tax Expenditures*

The U.S. federal tax system has a number of provisions that provide favorable treatment for investments in oil, gas, and coal production projects, including so-called expensing of intangible drilling costs, percentage depletion, and accelerated amortization for geological and geophysical expenses.<sup>196</sup> These are costly tax expenditures,<sup>197</sup> and it would make sense to curtail them. In that regard, the Congressional Budget Office has often included repealing the expensing of intangible drilling costs and percentage depletion among its options for reducing the U.S. federal deficit,<sup>198</sup> and President Barack Obama repeatedly

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194. *Id.*

195. *Id.* at 4–5.

196. 26 U.S.C. §§ 263(c), 613, 167(h) (2018); *see also* JOINT COMM. ON TAXATION, JCX-27-11, DESCRIPTION OF PRESENT LAW AND SELECT PROPOSALS RELATING TO THE OIL AND GAS INDUSTRY 1 (2011), <https://www.jct.gov/publications.html?func=startdown&id=3787> [<https://perma.cc/B384-9YHG>].

197. JOINT COMM. ON TAXATION, JCX-55-19, ESTIMATES OF FEDERAL TAX EXPENDITURES FOR FISCAL YEARS 2019–2023, at 20–31, 32 tbl.1. (2019).

198. *See, e.g.*, CONG. BUDGET OFFICE, OPTIONS FOR REDUCING THE DEFICIT: 2015 TO 2024, at 43 (2014), <https://www.cbo.gov/sites/default/files/cbofiles/attachments/49638-BudgetOptions.pdf> [<https://perma.cc/K6QY-LWT6>].

called for repeal of these fossil fuel tax preferences.<sup>199</sup> Also, in 2017, a number of Democratic members of Congress cosponsored the “Keep It in the Ground Act of 2017,” a bill noting that, to avoid global warming in excess of two degrees Celsius, 80% of carbon from proven fossil fuel reserves should be kept in the ground.<sup>200</sup>

## 2. *Other Aspects of Energy Policy*

Energy policy is always a major concern for government. Over the years, Congress has enacted many laws related to energy production (including oil and gas and renewables) and conservation. Energy tax policy involves using taxes and tax expenditures to alter the allocation or configuration of energy resources and their use.<sup>201</sup> Of course, decisions about energy tax policy in the U.S. are political decisions that embody compromises between economic and political goals. With respect to economic goals, the International Renewable Energy Agency predicted in its 2017 report that by 2020, electricity from renewable energy will be consistently cheaper than electricity from most fossil fuels.<sup>202</sup> In the short term, however, U.S. President Donald Trump supports a pro-fossil-fuel political agenda.<sup>203</sup>

### a. *The Gas Tax*

The U.S. government could increase the excise taxes on motor fuels and index them for inflation,<sup>204</sup> and even the conservative U.S.

199. *See, e.g.*, U.S. DEP’T OF THE TREASURY, GENERAL EXPLANATIONS OF THE ADMINISTRATION’S FISCAL YEAR 2017 REVENUE PROPOSALS 89–95 (2016), <https://www.treasury.gov/resource-center/tax-policy/Documents/General-Explanations-FY2017.pdf> [<https://perma.cc/SL34-KDVG>].

200. H.R. 2242, 115th Cong. (2017) (introduced on April 28, 2017 by Rep. Jared Huffman [D-CA]).

201. SALVATORE LAZZARI, CONG. RESEARCH SERV., RL33578, ENERGY TAX POLICY: HISTORY AND CURRENT ISSUES 1 (2008), <https://fas.org/sgp/crs/misc/RL33578.pdf> [<https://perma.cc/3GBL-VDP6>].

202. INT’L RENEWABLE ENERGY AGENCY, RENEWABLE POWER GENERATION COSTS IN 2017, at 3 (2018), [https://www.irena.org/media/Files/IRENA/Agency/Publication/2018/Jan/IRENA\\_2017\\_Power\\_Costs\\_2018\\_summary.pdf?la=en&hash=6A74B8D3F7931DEF00AB88BD3B339CAE180D11C3](https://www.irena.org/media/Files/IRENA/Agency/Publication/2018/Jan/IRENA_2017_Power_Costs_2018_summary.pdf?la=en&hash=6A74B8D3F7931DEF00AB88BD3B339CAE180D11C3) [<https://perma.cc/433L-HNUR>].

203. David Roberts, *Donald Trump Is Handing the Federal Government over to Fossil Fuel Interests*, VOX (June 14, 2017, 7:56 AM), <https://www.vox.com/energy-and-environment/2017/6/13/15681498/trump-government-fossil-fuels> [<https://perma.cc/ES48-TVNX>].

204. CONG. BUDGET OFFICE, OPTIONS FOR REDUCING THE DEFICIT: 2019 TO 2028, at 282–83 (2018).

Chamber of Commerce now seems interested in raising these taxes, at least to help pay for infrastructure improvements.<sup>205</sup> Some U.S. states are also considering mileage taxes in an effort to maintain budgets in the face of increasing fuel efficiency and the advent of electric vehicles.<sup>206</sup> In a 2018 report, the White House Council of Economic Advisers cited the State of Oregon's pilot program for vehicle miles traveled taxes as an innovative program that can increase efficiency and raise revenues needed to pay for infrastructure improvements.<sup>207</sup>

*b. A Carbon Tax*

Alternatively, Congress could raise revenue and reduce emissions of carbon dioxide (CO<sub>2</sub>) by establishing a carbon tax (on those emissions directly or on fuels that release CO<sub>2</sub> when they are burned, such as coal, oil, and natural gas). According to the Congressional Budget Office, a tax of \$25 per metric ton on most energy-related emissions of CO<sub>2</sub> would raise \$1.1 trillion over ten years.<sup>208</sup>

Taxing carbon would likely have a regressive effect, as low-income individuals spend a greater portion of their income on energy-intensive goods, such as home heating and transportation.<sup>209</sup> However, the regressivity of a carbon tax could be mitigated with rebates.<sup>210</sup> Moreover, as already noted,<sup>211</sup> experts predict that climate change will

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205. John Wagner, *U.S. Chamber of Commerce to Push Trump, Congress to Raise the Gas Tax to Fund Infrastructure*, WASH. POST (Jan. 16, 2018, 10:50 AM), [https://www.washingtonpost.com/politics/u-s-chamber-of-commerce-to-push-trump-congress-to-raise-the-gas-tax-to-fund-infrastructure/2018/01/16/e11345f0-fac8-11e7-a46b-a3614530bd87\\_story.html?utm\\_term=.22802a32acdd](https://www.washingtonpost.com/politics/u-s-chamber-of-commerce-to-push-trump-congress-to-raise-the-gas-tax-to-fund-infrastructure/2018/01/16/e11345f0-fac8-11e7-a46b-a3614530bd87_story.html?utm_term=.22802a32acdd) [<https://perma.cc/KKB7-XKW7>].

206. Mann, *supra* note 69, 640–42.

207. COUNCIL OF ECON. ADVISERS, ECONOMIC REPORT OF THE PRESIDENT 160 (2018), [https://www.whitehouse.gov/wp-content/uploads/2018/02/ERP\\_2018\\_Final-FINAL.pdf](https://www.whitehouse.gov/wp-content/uploads/2018/02/ERP_2018_Final-FINAL.pdf) [<https://perma.cc/Z769-PURK>].

208. CONG. BUDGET OFFICE, OPTIONS FOR REDUCING THE DEFICIT: 2019 TO 2028, at 292.

209. DONALD MARRON, ERIC TODER & LYDIA AUSTIN, TAX POLICY CTR., TAXING CARBON: WHAT, WHY, AND HOW 15 (2015), <https://www.taxpolicycenter.org/publications/taxing-carbon-what-why-and-how/full> [<https://perma.cc/G6SV-6TB9>].

210. *See, e.g.*, DONALD MARRON & ELAINE MAAG, TAX POLICY CTR., HOW TO DESIGN CARBON DIVIDENDS 1–2 (2018), [https://www.taxpolicycenter.org/sites/default/files/publication/156300/how\\_to\\_design\\_carbon\\_dividends.pdf](https://www.taxpolicycenter.org/sites/default/files/publication/156300/how_to_design_carbon_dividends.pdf) [<https://perma.cc/9XTB-DN8B>].

211. *See supra* note 8 and accompanying text.



have a major economic impact on future generations, so mitigating climate change would be important for intergenerational justice.<sup>212</sup>

*c. Renewable Energy and Energy Conservation*

Federal tax laws could also be used to promote the use of renewable energy from the Sun or wind.<sup>213</sup> Existing tax incentives for generating electricity from wind and solar energy are in the form of non-refundable tax credits.<sup>214</sup> The two most significant of these tax credits are the investment tax credit (ITC) for solar energy and the production tax credit (PTC) for wind energy.<sup>215</sup> PTCs provide a tax credit that is measured by unit of electricity generated by the qualifying project over a period of years. ITCs provide a tax credit based on the cost of building the qualifying project.<sup>216</sup>

In contrast to carbon taxes, tax credits for renewable energy are, for a variety of reasons, an inefficient way of encouraging sustainable energy use. Tax credits reduce the average cost of electricity, increasing demand for electricity. Congress does not allow the “sale” of tax credits, so to reap the benefits of non-refundable tax credits, complex structures must be used to share the tax credits with so-called tax equity investors.<sup>217</sup> The use of tax equity reduces the amount of the incentive that flows directly to the renewable energy sector.<sup>218</sup>

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212. See NATIONAL CLIMATE ASSESSMENT, *supra* note 8, at 25–26; Neil Irwin, *Climate Change’s Giant Impact on the Economy: 4 Key Issues*, N.Y. TIMES (Jan. 17, 2019), <https://www.nytimes.com/2019/01/17/upshot/how-to-think-about-the-costs-of-climate-change.html> [<https://perma.cc/8Y53-FJRM>].

213. JOINT COMMITTEE ON TAXATION, JCX-46-16, PRESENT LAW AND ANALYSIS OF ENERGY-RELATED TAX EXPENDITURES 27–31 (2016), [https://www.jct.gov/publications.html?func=download&id=4915&chk=4915&no\\_html=1](https://www.jct.gov/publications.html?func=download&id=4915&chk=4915&no_html=1) [<https://perma.cc/9V96-9HS2>]; Roberta F. Mann, *Smart Incentives for the Smart Grid*, 43 N.M. L. REV. 127, 136–41 (2013).

214. 26 U.S.C. §§ 45, 48 (2018).

215. ROBERTA F. MANN & TRACEY M. ROBERTS, TAX LAW AND THE ENVIRONMENT 49 (2018).

216. *Id.*

217. MARK P. KEIGHTLY, DONALD J. MARPLES & MOLLY F. SHERLOCK, CONG. RESEARCH SERV., R45693, TAX EQUITY FINANCING: AN INTRODUCTION AND POLICY CONSIDERATIONS 7–9 (2019), <https://fas.org/sgp/crs/misc/R45693.pdf> [<https://perma.cc/LRX2-BC6H>].

218. MOLLY F. SHERLOCK, CONG. RESEARCH SERV., R43453, THE RENEWABLE ELECTRICITY PRODUCTION TAX CREDIT: IN BRIEF 10 (2018), <https://fas.org/sgp/crs/misc/R43453.pdf> [<https://perma.cc/WV5G-CCT6>].

Inefficient incentives might be better than no action at all given the urgency of climate change and its economic impact on future generations, but carbon taxes would be a more effective policy choice.<sup>219</sup>

Tax incentives for homeowners and businesses can also promote energy conservation.<sup>220</sup> The Energy Policy Act of 2005 created a small individual income tax credit for 10% of the cost of qualified energy improvements to existing homes.<sup>221</sup> Designed as a temporary tax credit, it was extended several times before expiring in 2017.<sup>222</sup> The credit was worth a maximum of \$500 for all years combined, from 2006 to 2017. The qualifying energy improvements included efficient windows, electric heat pumps, and insulation.<sup>223</sup> From 2006 through 2013, manufacturers of qualifying energy-efficient appliances could also claim tax credits.<sup>224</sup> Residential energy use makes up about one-fifth of total energy use in the U.S., so conserving energy in the residential sector could significantly increase future sustainability.<sup>225</sup>

### 3. *Subsidies for Education and Research*

The private benefits of investments in education and research are significant. For example, research has shown that college graduates

219. See SHI-LING HSU, THE CASE FOR A CARBON TAX: GETTING PAST OUR HANG-UPS TO EFFECTIVE CLIMATE POLICY 25–115 (2011), for a comprehensive discussion of carbon taxes.

220. LYNN J. CUNNINGHAM, CONG. RESEARCH SERV., R40913, RENEWABLE ENERGY AND ENERGY EFFICIENCY INCENTIVES: A SUMMARY OF FEDERAL PROGRAMS 1 (2018), <https://fas.org/sgp/crs/misc/R40913.pdf> [<https://perma.cc/AL4T-Q8RR>]; see also Roberta F. Mann & Mona L. Hymel, *Getting into the Act: Enticing the Consumer to Become “Green” Through Tax Incentives*, 36 ENVTL. L. REP. NEWS & ANALYSIS 10419, 10419 (2006).

221. 26 U.S.C. § 25C (2018).

222. MARGOT L. CRANDALL-HOLLICK & MOLLY F. SHERLOCK, CONG. RESEARCH SERV., R42089, RESIDENTIAL ENERGY TAX CREDITS: OVERVIEW AND ANALYSIS 16–19 (2018), <https://fas.org/sgp/crs/misc/R42089.pdf> [<https://perma.cc/3ZAY-8AE9>].

223. *Id.* at 14.

224. 26 U.S.C. § 45M (2018) (repealed Mar. 23, 2018).

225. CRANDALL-HOLLICK & SHERLOCK, *supra* note 222, at 1. Unfortunately, the current U.S. President, Donald J. Trump, has not been supportive of energy conservation measures. At a campaign rally in Michigan in December 2019, the President complained about energy-efficient dishwashers and lightbulbs. Brittany Shammas, *Trump Was Impeached. But Dishwashers that Go ‘Boom’ Are on His Mind.*, WASH. POST (Dec. 29, 2019, 10:51 AM), <https://www.washingtonpost.com/business/2019/12/19/trump-was-impeached-dishwashers-that-go-boom-are-his-mind/> [<https://perma.cc/TJH6-T7D6>].

have significantly higher lifetime incomes than high school graduates.<sup>226</sup> But there are also societal benefits (i.e., positive externalities). Because private actors largely ignore those societal benefits, levels of investment in education and research are lower than optimal. Accordingly, it can be appropriate for governments to promote education and research.<sup>227</sup>

For example, with respect to education, while most subsidies for education are made through appropriations, tax preferences can also be used to encourage individuals to obtain more education. In particular, the U.S. federal government could increase the tax benefits available to individuals for tuition, fees, and books under the American Opportunity Tax Credit.<sup>228</sup> Pertinent here, the American Opportunity Tax Credit was greatly expanded in 2015; unfortunately, however, those changes primarily made the credit more valuable for high-income taxpayers—for example, by doubling the dollar threshold for the credit's phase-out.<sup>229</sup> As a result, the American Opportunity Tax Credit is now more heavily used by higher income households than ever before.<sup>230</sup> As children of higher income households were already more likely to attend college than those from low-income households,<sup>231</sup> the 2015 expansion probably did little to reduce

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226. See, e.g., Christopher R. Tamborini, ChangHwan Kim & Arthur Sakamoto, *Education and Lifetime Earnings in the United States*, 52 DEMOGRAPHY 1383, 1386 (2015), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4534330/> [<https://perma.cc/TXY8-5WW3>]; *Education and Lifetime*, SOC. SECURITY ADMIN. (Nov. 2015), <https://www.ssa.gov/policy/docs/research-summaries/education-earnings.html> [<https://perma.cc/NH7P-NUBT>] (noting that men and women with bachelor's degrees earn hundreds of thousands of dollars more than high school graduates).

227. JOINT COMM. ON TAXATION, JCX-47-15, ECONOMIC GROWTH AND TAX POLICY 18–26 (2015).

228. See, e.g., 26 U.S.C. § 25A (2018).

229. *Id.* § 25A(d)(1), amended by the 2015 Protecting Americans from Tax Hikes (PATH) Act (Division Q of Pub. L. No. 114-113) (making the American Opportunity Tax Credit permanent and effectively eliminating the Hope credit).

230. MARGOT CRANDALL-HOLLICK, CONG. RESEARCH SERV., R42561, THE AMERICAN OPPORTUNITY TAX CREDIT: OVERVIEW, ANALYSIS, AND POLICY OPTIONS 12 fig.3 (2018), <https://fas.org/sgp/crs/misc/R42561.pdf> [<https://perma.cc/W46P-EH2Z>].

231. See, e.g., THE PELL INST. & PENN AHEAD, INDICATORS OF HIGHER EDUCATION EQUITY IN THE UNITED STATES 7 (2019), [http://pellinstitute.org/downloads/publications-Indicators\\_of\\_Higher\\_Education\\_Equity\\_in\\_the\\_US\\_2019\\_Historical\\_Trend\\_Report.pdf](http://pellinstitute.org/downloads/publications-Indicators_of_Higher_Education_Equity_in_the_US_2019_Historical_Trend_Report.pdf) [<https://perma.cc/8HKE-PFX6>] (discussing who enrolls in postsecondary education).

inequality, and many of the new tax benefits may have been wasted on higher income students who would have attended college anyway.<sup>232</sup>

Instead, education tax incentives should be designed to provide more help for low-income students. In particular, the American Opportunity Tax Credit should be fully refundable. That change would actually benefit more low-income students, and consequently, it would help reduce income inequality.<sup>233</sup>

### *B. Taxes to Encourage and Discourage Certain Kinds of Consumption*

Just as taxes and subsidies can be used to correct market failures that result in positive and negative externalities, so too can taxes be used to shape individual consumption habits. In that regard, section IV.A above already explained how tax policy can shape consumption choices with energy, conservation, education, and research; but tax incentives can also influence many other consumer choices, including choices about home size and home ownership<sup>234</sup>—and even choices about fertility.<sup>235</sup>

#### *1. Home Ownership*

For example, the current U.S. income tax has numerous subsidies for home ownership. In particular, home mortgage interest is generally deductible, and gains from the sale of a personal residence are often excludable.<sup>236</sup> Not surprisingly, houses in the U.S. have gotten bigger, even as families have gotten smaller.<sup>237</sup> For instance, the average house built in 2017 had 2,631 square feet of floor area, up from just

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232. *Id.*

233. Under present law, the credit is only 40% refundable. 26 U.S.C. § 25A(i)(5).

234. See, e.g., Roberta F. Mann, *The (Not So) Little House on the Prairie: The Hidden Costs of the Home Mortgage Interest Deduction*, 32 ARIZ. ST. L.J. 1347, 1388–89 (2000).

235. See, e.g., Mona L. Hymel, *The Population Crisis: The Stork, the Plow, and the IRS*, 77 N.C. L. REV. 13, 48–67 (1998).

236. 26 U.S.C. §§ 163(a), 121 (2018); JOINT COMM. ON TAXATION, JCX-47-15, ECONOMIC GROWTH AND TAX POLICY 13 (2015).

237. See, e.g., THORSTEIN VEBLÉN, *THE THEORY OF THE LEISURE CLASS* 83–120 (1899) (discussing unnecessary, “conspicuous consumption”).

1,660 square feet in 1973.<sup>238</sup> On the other hand, the average household had just 2.52 people in 2019, down from 3.01 people per household in 1973 and 3.33 in 1960.<sup>239</sup> Tax incentives for home ownership have been justified by arguments that homeowners are better citizens who vote and maintain property values.<sup>240</sup> However, subsidizing homeownership through the tax system has resulted in racial wealth disparities, exacerbating inequality.<sup>241</sup> Indeed, taxpayer dollars spent on subsidizing homeownership through tax expenditures are more than double the amount appropriated for low-income housing programs.<sup>242</sup> In particular, as the mortgage interest deduction is in the form of a deduction (reducing taxable income), it is an upside-down subsidy, providing a greater benefit to higher income taxpayers. For example, a \$10,000 mortgage interest deduction taken by a taxpayer in the 37% tax bracket would reduce tax liability by \$3,700, while the same deduction taken by a taxpayer in the 22% tax bracket would only save \$2,200. It would be appropriate to curb the tax breaks for homeownership and redirect American spending towards investments that would lead to economic growth or to investments in sustainable assets like energy-saving windows and furnaces, or both.

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238. U.S. DEP'T OF COMMERCE, 2017 CHARACTERISTICS OF NEW HOUSING 345 (2018), <https://www.census.gov/construction/chars/pdf/c25ann2017.pdf> [<https://perma.cc/F6ZX-2QWZ>].

239. U.S. CENSUS BUREAU, TABLE HH-6. AVERAGE POPULATION PER HOUSEHOLD AND FAMILY: 1940 TO PRESENT (2019), <https://www.census.gov/data/tables/time-series/demo/families/households.html> [<https://perma.cc/V7AC-X4MZ>]; see also Adela Muresan, *Who Lives the Largest? The Growth of Urban American Homes in the Last 100 Years*, PROPERTYSHARK (Sept. 8, 2016), <https://www.propertyshark.com/Real-Estate-Reports/2016/09/08/the-growth-of-urban-american-homes-in-the-last-100-years/> [<https://perma.cc/733B-595U>] (scroll down to “Evolution of Average US Home Size” figure and click “1910” to restart the interactive figure).

240. Mann, *supra* note 234, at 1354–55.

241. See, e.g., Dorothy A. Brown, *Homeownership in Black and White: The Role of Tax Policy in Increasing Housing Inequity*, 49 U. MEM. L. REV. 205, 223–25 (2018).

242. Andrew Woo & Chris Salviati, *Imbalance in Housing Aid: Mortgage Interest Deduction vs. Section 8*, APARTMENT LIST (Oct. 11, 2017), <https://www.apartmentlist.com/rentonomics/imbalance-housing-aid-mortgage-interest-deduction-vs-section-8/> [<https://perma.cc/KN8F-FYRV>] (noting that the mortgage interest deduction cost the federal government \$71 billion, and that was more than double the \$29.9 billion that was spent on Section 8 housing).

## 2. *Influencing Fertility and Population Size*

Tax policy can also influence individual and family choices about marriage, fertility, and family size. In particular, tax policy can reduce (or increase) the cost of having and raising children.<sup>243</sup> In that regard, various provisions of U.S. tax law provide child-related benefits: the dependent care credit, the credit for adoption expenses, the child tax credit, the American Opportunity Tax Credit, and the earned income tax credit.<sup>244</sup> Pertinent here, until 2018, U.S. tax law also provided for a personal exemption of up to \$4,050 per dependent, but the Tax Cut and Jobs Act of 2017 eliminated that exemption.<sup>245</sup>

## CONCLUSION

This Article developed a concept of sustainable intergenerational justice, and we used it as a lens for examining tax policy. In particular, this Article explained (1) how government choices about the level of taxation and spending can affect the well-being of future generations, and (2) how government choices about the mix of taxes and tax incentives can affect the resources that are available to future generations. All in all, this Article showed some of the ways that well-designed tax incentives could be used to promote sustainable intergenerational justice.

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243. KEVIN J. MUMFORD & PAUL THOMAS, FERTILITY RESPONSE TO THE TAX TREATMENT OF CHILDREN 7 (2016), [https://editorialexpress.com/cgi-bin/conference/download.cgi?db\\_name=NTA2017&paper\\_id=253](https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=NTA2017&paper_id=253) [<https://perma.cc/KBG9-Q8J2>]; see also Kingsley Davis, *Population Policy: Will Current Programs Succeed?*, 158 SCIENCE 730, 732 (1967) (discussing “zero population growth”—i.e., a replacement fertility rate—where the average number of children born per woman would hold the population constant).

244. 26 U.S.C. §§ 21, 23, 24, 25A, 32 (2018).

245. Tax Cut and Jobs Act of 2017, Pub. L. No. 115-97, 131 Stat. 2054.