Yes, We Can Have Improved Medicare for All

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Introduction

Growing public support for universal health coverage through a public program has provoked increasing attention to the question of how to finance such a program.[1] There should not be any controversy about our ability to pay for universal health care. Given the nearly universal agreement that the current health-care system involves administrative waste and monopoly pricing, a system that would be more efficient and would reduce both should certainly be affordable.[2] Studies finding higher costs for universal coverage programs have reached their conclusions by acknowledging efficiency savings but dismissing them by emphasizing, even exaggerating, the higher costs of providing better access to health care.[3] Such studies provide a poor guide to the possibilities for an overhaul of our health-care finance system.

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[1] "Seventy Percent of Americans Support 'Medicare for All' in New Poll | The Hill," accessed November 9, 2018, https://thehill.com/policy/healthcare/403248-poll-seventy-percent-of-americans-support-medicare-for-all.

[2] Even a study funded by a leading conservative group concluded that Improved Medicare for All would cost $200 billion less per year than the current system over the next decade, even while providing universal coverage and access, Charles Blahous, "The Costs of a National Single-Payer Healthcare System," Mercatus Center, July 25, 2018, https://www.mercatus.org/publications/federal-fiscal-policy/costs-national-single-payer-healthcare-system; for earlier studies of national health plans, see Gerald Friedman, "Friedman Analysis of HR 676: Medicare for All Would Save Billions - PNHP's Official Blog," accessed January 24, 2014, http://pnhp.org/blog/2013/07/31/friedman-analysis-of-hr-676-medicare-for-all-would-save-billions; Gerald Friedman, "Universal Health Care: Can We Afford Anything Less?," *Dollars and Sense*, June 29, 2011, http://dollarsandsense.org/archives/2011/0711friedman.html; General Accounting Office, "Canadian Health Insurance: Lessons for the United States," June 1991, http://archive.gao.gov/d20t9/144039.pdf; Alia Paavola, "61% of Hospital Leaders Say Single-Payer Would Help Lower Healthcare Costs," *Becker's Hospital Review*, September 17, 2018, https://www.beckershospitalreview.com/payer-issues/61-of-hospital-leaders-say-single-payer-would-help-lower-healthcare-costs.html; Steffie Woolhandler and David Himmelstein, "Single-Payer Reform: The Only Way to Fulfill the President's Pledge of More Coverage, Better Benefits, and Lower Costs," *Annals of Internal Medicine*, February 21, 2017, http://annals.org/aim/article/2605414/single-payer-reform-only-way-fulfill-president-s-pledge-more; Steffie Woolhandler, David U. Himmelstein, and Adam Gaffney, "Single Payer Is Actually a Huge Bargain," August 10, 2018, https://www.thenation.com/article/single-payer-actually-huge-bargain.

[3] See, for example, the debate around the Sanders health plan in 2016, John Holahan et al., "The Sanders Single-Payer Health Care Plan: The Effect on National Health Expenditures and Federal and Private Spending" (Washington, D. C.: Urban Institute, Health Policy Center, May 2016), http://www.urban.org/sites/default/files/alfresco/publication-pdfs/200785-The-Sanders-Single-Payer-Health-Care-Plan.pdf; Dylan Matthews, "Kenneth Thorpe's Analysis of Bernie Sanders's Single-Payer Proposal.," Scribd, accessed February 5, 2016, https://www.scribd.com/doc/296831690/Kenneth-Thorpe-s-analysis-of-Bernie-Sanders-s-single-payer-proposal; Gerald Friedman, Paul Starr, and Kenneth Thorpe, "Prospect Debate: The Cost of Sanders's Single-Payer Health Plan," February 29, 2016, http://prospect.org/article/prospect-debate-cost-sanders%E2%80%99s-single-payer-health-plan; Paul Starr, "The False Lure of the Sanders Single-Payer Plan," *The American Prospect*, February 1, 2016, http://prospect.org/article/false-lure-sanders-single-payer-plan; Friedman, Starr, and Thorpe, "Prospect Debate: The Cost of Sanders's Single-Payer Health Plan"; Jonathan Cohn, "Bernie Sanders' Health Plan Is Too Good To Be True, Analyst Says," The Huffington Post, accessed January 28, 2016, http://www.huffingtonpost.com/entry/sanders-health-plan-cost_us_56a8ff99e4b0f6b7d5447ee8; David Himmelstein, "What One Critic Gets Wrong About The Sanders Health Care Plan," The Huffington Post, accessed February 1, 2016, http://www.huffingtonpost.com/david-himmelstein/kenneth-thorpe-bernie-sanders-single-payer_b_9113192.html.

In what follows, I discuss the financing of a universal health-care program, beginning with a discussion of current projected spending and the savings to be achieved through administrative efficiency and reducing monopoly pricing. Next, I outline increased spending associated with universal coverage through covering the uninsured and reducing barriers to access. I consider the net cost of universal coverage, after taking account of savings and the cost of extending and improving coverage, under various scenarios with alternative immediate savings and savings over time. Finally, I discuss sources of funding for such a program, beginning with public funds already committed and including possible additional sources of revenue. I develop funding plans under a variety of assumptions regarding the course of the single-payer system, and under alternative assumptions regarding revenue sources.

This work shows that compared with the current system of health-care finance, a program of Improved Medicare for All could save Americans over $1 trillion in the first year, and savings could increase over time. Because some of the savings would be returned to health care through programs of universal coverage and improved access, net savings could be over $700 billion in the first year, rising over the next decade. Depending on the assumptions made and the program details, total financial savings, after taking account of program improvements, would come to $10 trillion or more over the next decade, on top of gains in quality of life and reduced mortality through universal access.

A variety of models are compared, with varying assumptions of the magnitude of administrative savings and savings through reduced monopoly rents, as well as savings from bending the cost curve and maintaining some cost-sharing. Overall, the ten-year national savings on health-care expenditures range from a low of over $6 trillion to a high of over $13 trillion. In every model tested, Improved Medicare for All is cheaper than the current system even while providing improved health care.

The savings dramatically reduce the need for additional revenues beyond the already vast federal and state funds committed to health care. After taking account of savings and these committed funds, an Improved Medicare for All program could be financed with payroll taxes at rates significantly below what most employees now pay for health insurance premiums and cost-sharing. Without even taking account of the cost of employee health insurance for federal workers and retirees, already committed funds amount to over 70% of the cost of Improved Medicare for All. Depending on program design, taxes on non-wage income and payroll could provide enough revenue over ten years to pay for the program with rates ranging from as little as 4%, with cost sharing comparable to a Platinum Plan on the Affordable Care Act exchanges, up to 17% without cost-sharing outside of paying for nonprescription medical products and services not medically necessary.

Current spending and waste
Baseline spending

Projections for current spending come from the Centers for Medicare and Medicaid Services.[4] These come in two parts: personal health expenditures, and the cost of administering the insurance system, including the net cost of private insurance and government administration. Total projected spending is the sum of personal health expenditures and these administrative costs. This spending is shown in Figure 1.

CMS estimates for services have been adjusted to remove the drug component of spending in hospitals, physician offices, and elsewhere. This drug spending is then returned to the prescription drug line. The share of drugs within each service is estimated from IQVIA.[5]

Administrative savings in provider offices

The administrative rate is calculated as the share of employee payroll in the administrative occupations from the occupational employment survey of 2012 by the Bureau of Labor Statistics.[6] Occupations have been coded as administrative or other within each industry within the health-care sector. Total wages for administrative and other workers are summed up within each industry, and administrative expense is the relative share of the administrative wages in each industry.[7] Administrative savings are calculated as the difference between Canadian and US administration rates times total spending within the category.

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[4] Centers for Medicaid and Medicare Services Statistics, "National Health Expenditure Projections 2017-2026" (Washington, D. C.: Centers for Medicare & Medicaid Services, Office of the Actuary, n.d.), https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsProjected.html. Projected spending only runs through 2026. Later years are estimated assuming the same rate of growth as 2017 to 2026.

[5] IQVIA Institute for Human Data Science, "Medicines Use and Spending in the U.S. A Review of 2016 and Outlook to 2021" (IQVIA Institute for human data science, May 2017), https://mail.google.com/mail/u/0/#inbox/FMfcgxvxBjfPnsGrHnMJvhrkZCRxSjPB?projector=1&messagePartId=0.1; Glen T. Schumock et al., "National Trends in Prescription Drug Expenditures and Projections for 2018," *American Journal of Health-System Pharmacy*, May 10, 2018, ajhp180138, https://doi.org/10.2146/ajhp180138.

[6] Bureau of Labor Statistics, "Occupational Employment Statistics: OES Research Estimates by State and Industry, 2017," n.d., http://www.bls.gov/oes/2012/may/oes_research_estimates_2012.htm.

[7] Canadian administrative rates are from Steffie Woolhandler, Terry Campbell, and David Himmelstein, "Costs of Health Care Administration in the United States and Canada," *New England Journal of Medicine* 349, no. 8 (August 21, 2003): 768–75; also see Lawrence P. Casalino et al., "US Physician Practices Spend More Than $15.4 Billion Annually To Report Quality Measures," *Health Affairs* 35, no. 3 (March 1, 2016): 401–6, https://doi.org/10.1377/hlthaff.2015.1258; Dante Morra et al., "US Physician Practices Versus Canadians: Spending Nearly Four Times As Much Money Interacting With Payers," *Health Affairs* 30, no. 8 (2011): 1443–50, https://doi.org/10.1377/hlthaff.2010.0893; Bonnie B. Blanchfield et al., "Saving Billions Of Dollars—And Physicians' Time—By Streamlining Billing Practices," *Health Affairs*, April 29, 2010, 10.1377/hlthaff.2009.0075, https://doi.org/10.1377/hlthaff.2009.0075; Aliya Jiwani et al., "Billing and Insurance-Related Administrative Costs in United States' Health Care: Synthesis of Micro-Costing Evidence," *BMC Health Services Research* 14, no. 556 (2014), http://www.biomedcentral.com/content/pdf/s12913-014-0556-7.pdf; David Himmelstein, "A Comparison of Hospital Administrative Costs in Eight Nations: U.S. Costs Exceed All Others by Far," accessed November 10, 2018, https://www.commonwealthfund.org/publications/journal-article/2014/sep/comparison-hospital-administrative-costs-eight-nations-us; a pharmaceutical group reports that it takes an hour to complete a standard prior authorization form for a patient to receive a new drug, Bruce Buckley, "'Devastating' Delays Persist From

Sensitivity

A range of savings estimates has been estimated assuming first that all savings will be captured, and second that only 80% of savings will be captured.

Savings from pricing at Medicare negotiated rates

It is assumed that a single-payer authority would be able to maintain uniform prices without regard for market power.[8]

Drugs and medical devices

The Veterans Administration negotiates drug prices and buys prescription drugs at a price approximately 40% lower than what the rest of America pays.[9] This is in line with the savings enjoyed by a few Medicaid systems that negotiate prices.[10] Twelve years ago, the McKinsey Global Institute estimated that Americans paid prices approximately 60% higher than the rest of the world; negotiating drug prices and lowering them to world levels would save approximately 37% of our current drug spending.[11] More recently, Health and Human Services estimated that

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Prior Authorizations," accessed December 11, 2018, https://www.pharmacypracticenews.com/Operations-and-Management/Article/11-18/-Devastating-Delays-Persist-From-Prior-Authorizations/53267?ses=ogst.

[8] Increasing consolidation in health care, including the widespread practice of hospitals merging and buying other hospitals and physician practices, has been associated with dramatically higher prices. See, for a small sample of the growing literature, Clark Havighurst and Barak Richman, "The Provider-Monopoly Problem in Health Care," *Oregon Law Review*, January 1, 2011, 847–83; Richard Scheffler, Daniel Arnold, and Christopher Whaley, "California Health System Consolidation Leads Higher Prices | Commonwealth Fund," September 6, 2018, https://www.commonwealthfund.org/publications/journal-article/2018/sep/consolidation-california-health-system-higher-prices?omnicid=EALERT1468268&mid=gfriedma@econs.umass.edu; Brent Fulton, Daniel Arnold, and Richard Scheffler, "Market Concentration Variation of Health Care Providers and Health Insurers in the United States | Commonwealth Fund," accessed July 30, 2018, https://www.commonwealthfund.org/blog/2018/variation-healthcare-provider-and-health-insurer-market-concentration; Cathy Schoen, "The Affordable Care Act and the U.S. Economy," accessed February 17, 2016, http://www.commonwealthfund.org/publications/fund-reports/2016/feb/aca-economy-five-year-perspective; Office of Massachusetts Attorney General Martha Coakley, "Investigation of Health Care Cost Trends and Cost Drivers," January 29, 2010, http://www.mass.gov/Cago/docs/healthcare/Investigation_HCCT&CD.pdf; Robert A. Berenson et al., "The Growing Power Of Some Providers To Win Steep Payment Increases From Insurers Suggests Policy Remedies May Be Needed," *Health Affairs* 31, no. 5 (May 1, 2012): 973–81, https://doi.org/10.1377/hlthaff.2011.0920.

[9] Austin Frakt, Steven D. Pizer, and Roger Feldman, "Should Medicare Adopt the Veterans Health Administration Formulary?," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, April 14, 2011), http://papers.ssrn.com/abstract=1809665; Congressional Budget Office, "Comparing the Costs of the Veterans' Health Care System With Private-Sector Costs," December 2014, https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/49763-VA_Healthcare_Costs.pdf; Charles Good and Michael Valentino, "Editorial: Access to Affordable Medications: The Department of Veterans Affairs Pharmacy Plan as a National Model," *American Journal of Public Health* 97, no. 12 (December 2007): 2129–31.

[10] Jodi L. Liu et al., "An Assessment of the New York Health Act," Product Page, 2018, https://www.rand.org/pubs/research_reports/RR2424.html.

[11] McKinsey Global Institute, "Accounting for the Cost of Health Care in the United States," January 2007, http://www.mckinsey.com/mgi/rp/healthcare/accounting_cost_healthcare.asp; International Federation of Health Plans, "2013 Comparative Price Report: Variation in Medical and Hospital Prices by Country" (International Federation of Health Plans, 2014),

drug prices in the Medicare Part B program are now 80% higher in the United States, suggesting savings of 45%.[12]   I use the lower estimate of savings and assume that the national single-payer system would purchase drugs and medical devices at prices 37% lower than now.

Hospitals and physician practices

Hospitals have been buying up physician practices so that a large majority of American primary care physicians are now employed by larger bodies.[13] Surveys by the Congressional Budget Office and others have found that consolidation is associated with higher prices.[14] Biener and Selden use a large sample of data from the Agency of Healthcare Research and Quality's Medical Expenditure Panel Survey to estimate the cost of physician visits under private health insurance, Medicare, and Medicaid. I use these data to estimate the reduction in spending on the assumption that all physician visits will be paid at the Medicare rate rather than private health insurance rates. This involves a reduction of about 15% in the rate that insurance companies pay

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http://static.squarespace.com/static/518a3cfee4b0a77d03a62c98/t/534fc9ebe4b05a88e5fbab70/1397737963288/2013%20iFHP%20FINAL%204%2014%2014.pdf; Martin Wenzl and Elias Mossialos, "U.S. Hospitals Pay More Than European Hospitals for Cardiac Implants | Commonwealth Fund," October 3, 2018, https://www.commonwealthfund.org/publications/journal-article/2018/oct/us-hospitals-pay-more-european-hospitals-cardiac-implants; comparing the price of drugs under patent with generic prices, Dean Baker estimates the monopoly rent may be as much as 80% of the selling price, Dean Baker, "A Free Market Solution for Prescription Drug Crises," *International Journal of Health Services*: Planning, Administration, Evaluation 34, no. 3 (2004): 517–26, https://doi.org/10.2190/XN5F-XMRA-DUQU-36WW.

[12] Other studies have also found that the relative price of drugs has been rising in the United States compared to other countries; US Department of Health and Human Services, "Comparison of U.S. and International Prices for Top Spending Medicare Part B Drugs" (US Department of Health and Human Services, October 25, 2018), https://aspe.hhs.gov/system/files/pdf/259996/ComparisonUSInternationalPricesTopSpendingPartBDrugs.pdf; Council of Economic Advisers, "Growing the American Economy: The Economic Report of the President," accessed February 26, 2018, https://www.whitehouse.gov/briefings-statements/growing-american-economy-economic-report-president.

[13] David Squires and David Blumenthal, "Do Small Physician Practices Have a Future?," Commonwealth Fund, May 26, 2016, http://www.commonwealthfund.org/publications/blog/2016/may/do-small-physician-practices-have-a-future?omnicid=EALERT1042838&mid=gfriedma@econs.umass.edu; Robert Kocher and Nikhil R. Sahni, "Hospitals' Race to Employ Physicians — The Logic behind a Money-Losing Proposition," *New England Journal of Medicine* 364, no. 19 (May 12, 2011): 1790–93, https://doi.org/10.1056/NEJMp1101959.

[14] Office of Massachusetts Attorney General Martha Coakley, "Investigation of Health Care Cost Trends and Cost Drivers"; Eric Schneider, "Provider Mergers: Will Patients Get Higher Quality or Higher Costs?," accessed December 14, 2015, http://www.commonwealthfund.org/publications/blog/2015/nov/provider-mergers-will-patients-get-higher-quality-or-higher-costs; Nicholas C. Petris Center on Health Care Markets and Consumer Welfare, "Consolidation in California's Health Care Market 2010-2016: Impact on Prices and ACA Premiums" (Berkeley, Calif.: School of Public Health, University of California, Berkeley, March 26, 2018), http://petris.org/wp-content/uploads/2018/03/CA-Consolidation-Full-Report_03.26.18.pdf; Scheffler, Arnold, and Whaley, "California Health System Consolidation Leads Higher Prices | Commonwealth Fund"; Daria Pelech, "An Analysis of Private-Sector Prices for Physician Services" (Congressional Budget Office, June 26, 2017), https://www.cbo.gov/system/files/115th-congress-2017-2018/presentation/52818-dp-presentation.pdf; Adam I. Biener and Thomas M. Selden, "Public And Private Payments For Physician Office Visits," *Health Affairs* 36, no. 12 (December 1, 2017): 2160–64, https://doi.org/10.1377/hlthaff.2017.0749.

for physician visits, or 12% after taking account of the reduction in price already made for these visits due to reduced billing and insurance-related costs (BIR).

Hospital consolidation, including horizontal mergers and the purchase of physician practices, has had an even more dramatic effect on hospital prices. The CBO confirms estimates by the health insurance industry that private health insurance now pays rates approximately 89% above Medicare.[15] After taking account of the savings from eliminating BIR, this leaves a 34% net reduction in hospital prices.[16]

Sensitivity
I have also made conservative estimates that only half of these hospital savings will be realized.

Administrative savings in insurance systems
The cost of administering the health insurance industry is taken from the CMS. Projected to be $261 billion in 2019 for private health insurance (20% private health insurance spending on personal health care), and $53 billion for all public administration. This public figure includes the means tested Medicaid program as well as the public share of administration for Medicare Advantage private programs, and the traditional public Medicare program. Looking only at traditional Medicare, the administrative cost is around 1.6%. I assume that the single-payer agency would be able to administer payments at a rate of 2%.[17] Setting the administration rate at

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[15] Jared Maeda and Lyle Nelson, "An Analysis of Hospital Prices for Commercial and Medicare Advantage Plans" (Congressional Budget Office, June 26, 2017), https://www.cbo.gov/system/files/115th-congress-2017-2018/presentation/52819-presentation.pdf; American Health Insurance Plans, "National Comparisons of Commercial and Medicare Fee-For-Service Payments to Hospitals" (American Health Insurance Plans, February 2016), https://www.ahip.org/wp-content/uploads/2016/02/HospitalPriceComparison_2.10.16.pdf.

[16] Despite this price reduction, hospitals will not experience any reduction in aggregate sectoral income. Increases in income from universal coverage, reductions in barriers to access, Medicaid rate equalization and a 10% across the board increase above Medicare rates will leave them with more income than under the status quo. In addition to savings on billing and insurance-related expenses, they will be also be spared the burden of uncompensated care, worth, in 2019, about $60 billion. American Hospital Association, "AMERICAN HOSPITAL ASSOCIATION UNCOMPENSATED HOSPITAL CARE COST FACT SHEET" (American Hospital Association, December 2016), https://www.aha.org/system/files/2018-09/uncompensatedcarefactsheet.pdf; the benefits to providers of universal coverage helped to grease the path of the Affordable Care Act in 2010. See the discussion in Paul Starr, *Remedy and Reaction the Peculiar American Struggle over Health Care Reform* (New Haven: Yale University Press, 2011), http://site.ebrary.com/lib/amherst/Doc?id=10506565; Steven Brill, *America's Bitter Pill: Money, Politics, Back-Room Deals, and the Fight to Fix Our Broken Healthcare System* (New York: Random House, 2015).

[17] This is in line with the cost of administering traditional Medicare Boards of Trustees, "2017 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds" (Washington, D.C.: BOARDS OF TRUSTEES OF THE FEDERAL HOSPITAL INSURANCE AND FEDERAL SUPPLEMENTARY MEDICAL INSURANCE TRUST FUNDS, July 13, 2017), https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2017.pdf; Diane Archer, "Medicare Is More Efficient Than Private Insurance," *Health Affairs*, accessed September 4, 2017, http://healthaffairs.org/blog/2011/09/20/medicare-is-more-efficient-than-private-insurance; Diane Archer and Theodore Marmor, "Medicare And Commercial Health Insurance: The Fundamental Difference – Health Affairs Blog," *Health Affairs* Blog, February 15, 2012, http://healthaffairs.org/blog/2012/02/15/medicare-and-commercial-health-insurance-the-fundamental-difference/comment-page-1/#comment-165108; Kip Sullivan,

2% instead of 1.6% provides an additional $11 billion to be used for fraud reduction with potentially very large savings; while such savings are not included here, they would further improve the financial viability of the Improved Medicare for All program.[18]

Lowering the cost of insurance administration to 2% would produce approximately $258 billion in savings in 2019.[19]

Sensitivity

It is unknown how much extra administration would be needed for the degree of cost-sharing anticipated (see below). In the models with cost-sharing, however, we assume an additional 1% in administrative expense.

Summary of savings

The distribution of savings in 2019 under the model with full savings is shown in Figure 2.

Additional spending with universal coverage

Universal coverage inevitably involves additional expenses: All residents will be covered by the universal plan, and those providers currently providing care at discounted prices will be paid at the standard rate. In addition, some additional administrative expense will be required for the new system. Depending on the level of coverage provided, there will be additional costs should there be an increase in utilization by those currently covered by plans with considerable cost-sharing. Finally, we are anticipating an increase in hospital rates above the Medicare level to provide support for hospital overhead.

Assumption of Medicare premiums

Because everyone would be covered under the new program, there would be no remaining incentive for Medicare recipients to maintain voluntary payments for premiums under the Medicare program.[20] In some models, we assume that the revenue from these programs (over $100 billion in 2017) would have to be covered under the new program.[21] Note that while this is

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"How to Think Clearly About Medicare Administrative Costs: Data Sources and Measurement," *Journal of Health Politics, Policy and Law* 38, no. 3 (June 1, 2013): 479–504, https://doi.org/10.1215/03616878-2079523.

[18] Kathleen King and General Accounting Office, "Medicare and Medicaid Fraud, Waste, and Abuse" (United States Senate, Subcommittee on Federal Financial Management, March 9, 2011), http://www.gao.gov/new.items/d11409t.pdf; National Health Care Anti-Fraud Association, "Testimony of the National Health Care Anti-Fraud Association to the House Insurance Committee" (Harrisburg, PA: House of Representatives, Commonwealth of Pennsylvania, January 28, 2010), http://www.docucu.com/view/7d4b3344492e717c21f4767dcad3ae16/National-Health-Care-Anti-Fraud-Association.pdf.

[19] I adjust this assumption and raise the administrative rate of 3% in the models with cost sharing. In these cases, the administrative savings are commensurately lower.

[20] Such payments could be made mandatory, of course. Were this to be done, there would be some additional revenue from those who currently do not pay Medicare Part B premiums.

[21] Boards of Trustees, "2018 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds," June 5, 2018, https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2018.pdf.

an expense requiring new revenue, it is not the cost to society, merely a shift in the locus of responsibility from seniors and the disabled to the general population.

Revenue needs have also been estimated under the assumption that Medicare premiums will continue under the Improved Medicare for All program and, because they are mandated, they will be extended to all elderly households.[22] In this case, it is assumed that premiums will also be paid by adults in non-poverty households without wage income. It is estimated that there are 16 million such adults.[23]

Cost of universal coverage

The projected uninsured rate for 2019 from CMS is 9.6%. While the uninsured currently spend about 55% of the national average on health care, we expect that this will rise to 85% if they are insured.[24] Universal coverage will lead to an increase in spending for all services of 2.88%, or 30% of 9.6%.[25] This ratio is applied across the board to all services.

Cost of eliminating barriers to access

A growing part of the American workforce with employer-provided plans face rising deductibles and other forms of cost-sharing.[26] The increase in demand coming from reducing barriers to access is estimated using the induced-demand estimates from CMS and estimates of the average actuarial value of insurance under the current system.[27] The current actuarial value on average is

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[22] Ninety-one percent of Medicare elderly are enrolled in Medicare Part B , Office of Budget (OB), "FY 2017 Budget in Brief - CMS - Medicare," Text, HHS.gov, February 12, 2016, https://www.hhs.gov/about/budget/fy2017/budget-in-brief/cms/medicare/index.html. Because many of these are more affluent, some would be paying higher premiums than the average and we are understating the extra revenue to be captured here.

[23] The number of non-wage earning households with incomes over $25,000 is estimated from Internal Revenue Service, "SOI Tax Stats Historic Table 2," accessed November 24, 2017, https://www.irs.gov/statistics/soi-tax-stats-historic-table-2. The number of non-Medicare adults in such households is estimated assuming the same population age distribution as the population in general.

[24] Their current spending takes account of uncompensated care. They will continue to spend less than the national average because they are younger, and this raises their spending to the average for the population age 18-65, Jack Hadley and John Holahan, "The Cost of Care for the Uninsured: What Do We Spend, Who Pays, and What Would Full Coverage Add to Medical Spending" (Kaiser Commission on Medicaid and the Uninsured, May 10, 2004), http://www.thesoutherninstitute.org/docs/publications/Policy%20Resources/KaiserReport.pdf.

[25] This comes from the assumption that the uninsured currently spend 55% as much as the population average, but, based on the age distribution, would spend 85% as much if insured, see Hadley and Holahan.

[26] Cathy Shoen et al., "How Many Are Underinsured? Trends Among U.S. Adults, 2003 and 2007," *Health Affairs*, June 10, 2008, w298–309; Sara Collins and David Radley, "Cost of Employer Insurance Growing Burden Middle-Income Families | Commonwealth Fund," accessed December 8, 2018, https://www.commonwealthfund.org/publications/issue-briefs/2018/dec/cost-employer-insurance-growing-burden-middle-income-families; Commonwealth Fund, "Insured but Poorly Protected: How Many Are Underinsured? U. S. Adults Trends, 2003 to 2007," June 10, 2008, http://www.commonwealthfund.org/~/media/Files/Publications/In%20the%20Literature/2008/Jun/How%20Many%20Are%20Underinsured%20%20Trends%20Among%20U%20S%20%20Adults%20%202003%20and%202007/Schoen_howmanyareunderinsured_chartpack%20pdf.pdf; Aug Dafny, "2013 Summary of Findings," *Commonwealth Fund* (blog), November 20, 2015, http://kff.org/report-section/2013-summary-of-findings.

[27] Gregory Pope et al., "Risk Transfer Formula for Individual and Small Group Markets Under the Affordable Care Act," *Medicare & Medicaid Research Review* 4, no. 3 (2014): E1–23. Note that this only applies to covered services

88%, which is the ratio of out-of-pocket spending to total spending from insurance and out-of-pocket spending.[28] At this level, the induced demand for the current system compared with a Bronze Plan is +13.5%.[29]

Sensitivity

The impact of an Improved Medicare for All program on utilization, and expense, is modeled for three alternative programs:

No cost-sharing or an actuarial value for covered services of 100%.[30]

This gives induced demand of 22% relative to a Bronze Plan, or an increase of 7.4% in utilization demand relative to the standard current plan. This ratio is applied across the board to all services.[31] In addition to an increase in utilization, compared with the current system, eliminating cost sharing also lowers out-of-pocket spending to only 4% of total health-care spending.[32]

Cost-sharing of 5%, or an actuarial value for covered services of 95%.[33]

The induced demand factor would be 18.5%, or a change of 4.4%. In this model, there is also more out-of-pocket spending. Not accounting for Medicaid, this would be 4.2% of total spending

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which, I assume, amount to 96% of health-care spending. The remaining 4% are not covered under current plans and would not be covered under the proposed plan. This includes nonprescription medical equipment (such as Band-Aids and aspirin) and various elective services, such as cosmetics. The distribution of the population by coverage status is from Kaiser Family Foundation, "Health Insurance Coverage of the Total Population," The Henry J. Kaiser Family Foundation (blog), September 19, 2017, https://www.kff.org/other/state-indicator/total-population/.

[28] This is a little higher than the actuarial value calculated as a weighted average of the actuarial rate for different coverage plans and the distribution of the population by plan, which would be about 85%.

[29] Pope et al., "Risk Transfer Formula for Individual and Small Group Markets Under the Affordable Care Act."

[30] It is assumed that covered services account for 96% of health-care spending. The other 4% is spending on over-the-counter drugs, and elective procedures such as cosmetic surgery.

[31] This is an upper bound because it assumes that utilization would increase across all services, including those with little possibility of "moral hazard." It is a very large utilization increase compared with past experiences when countries have adopted single-payer programs. See, for example, S. H. Cheng and T. L. Chiang, "The Effect of Universal Health Insurance on Health Care Utilization in Taiwan. Results from a Natural Experiment," *JAMA* 278, no. 2 (July 9, 1997): 89–93; Philip E. Enterline et al., "The Distribution of Medical Services before and after Free Medical Care — The Quebec Experience," *New England Journal of Medicine* 289, no. 22 (November 29, 1973): 1174–78, https://doi.org/10.1056/NEJM197311292892206; Tsung-Mei Cheng, "Reflections On The 20th Anniversary Of Taiwan's Single-Payer National Health Insurance System," *Health Affairs* 34, no. 3 (March 1, 2015): 502–10, https://doi.org/10.1377/hlthaff.2014.1332; "The Leap to Single-Payer: What Taiwan Can Teach," The New York Times, December 26, 2017, sec. The Upshot, https://www.nytimes.com/2017/12/26/upshot/the-leap-to-single-payer-what-taiwan-can-teach.html; on the use, and abuse, of moral hazard, see Amy Finkelstein, *Moral Hazard in Health Insurance: Developments since Arrow (1963)*, Kenneth J. Arrow Lecture Series (New York: Columbia University Press, 2014).

[32] Most of this is out-of-pocket spending for over-the-counter materials, including other nondurable medical equipment.

[33] A plan description was developed with copayments but without deductibles, and the actuarial value computed, using the actuarial calculation spread sheet from CMS. The plan description is available upon request.

assuming that co-pays would be waived for low-income households, the 17% accounted for by Medicaid.

Cost-sharing of 10%, or an actuarial value for covered services of 90%.[34]

The induced demand factor would be 15%, an increase of 1.3% over the status quo. The out-of-pocket share then would be 8.3% after accounting for Medicaid share of spending.

Medicaid rate equalization

A single-payer system would have a single rate, which would eliminate the current discrimination against Medicaid providers. Using the data previously cited on relative prices in Biener and Selden[35] and Maeda and Nelson,[36] I have estimated the cost of raising Medicaid rates to the Medicare rate for hospital and physician services as the product of the percentage change in the reimbursement rate and the Medicaid share of payments.

Hospital rate adjustment

We anticipate paying 10% above Medicare rates for hospital services to cover overhead currently supported by overcharging private health insurance above services' actual marginal cost.

Summary of additional costs

The breakdown of the cost of program improvements is shown in Figure 3.

Total spending with Improved Medicare for All

Total spending is spending as projected by CMS minus savings plus additional costs associated with the Improved Medicare for All program. A comparison of spending in 2019 under an Improved Medicare for All program with no co-pays and no premiums is given in Table 1. Even while reducing total spending by $700 billion, it is expected that the Improved Medicare for All program will increase total spending on health-care services by nearly $400 billion. These are additional health-care services to be provided to those currently uninsured and those currently underinsured. While the increased health-care spending will bring benefits in improved health and productivity, it will be financed through reductions in wasteful administration, and by the elimination of monopoly profits extorted from the public by drug companies and consolidated providers.

Sensitivity

The level of savings and additional costs will vary according to program design, and the degree of cost-sharing. Further variation can be expected depending on the assumptions about cost curve over time. Because spending over time may increase at a slower rate under Improved Medicare for All, it would be expected to diverge from the CMS projections. Because of these possibilities, I have estimated 10-year spending under a total of 12 alternative assumptions, including two

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[34] Again, a plan description was developed, and the actuarial value computed, using the actuarial calculation spreadsheet from CMS. The plan description is available upon request.

[35] Biener and Selden, "Public And Private Payments For Physician Office Visits."

[36] Maeda and Nelson, "An Analysis of Hospital Prices for Commercial and Medicare Advantage Plans."

variations in savings estimates, three alternative program designs, and two variations in cost growth over the next decade. Total ten-year spending (2019-2028) on personal health care plus administration is shown for the twelve models in Table 2. A comparison between 10-year spending in CMS versus alternative models is in Figures 4 and 5. Annual spending is given in Figure 6.

- Two alternative savings models are estimated. In one, spending has been estimated assuming full savings. In the other, spending has been estimated assuming only 80% of the savings anticipated are realized from billing and insurance-related administrative expenses, and only half of the savings anticipated from hospital prices are realized.

- Three sets of assumptions about program design are compared. A model with no cost-sharing, where 96% of all health-care spending (100% of medically covered spending) is covered by the plan; a model with 5% cost-sharing, where approximately 91% of total spending is covered; and a model with 10% cost-sharing, where approximately 86% of total spending is covered.

- Two scenarios are considered with different rates of growth in health-care spending.

  o Annual spending is estimated for each service for each year as the 2019 spending number increased for each year 2020- 2028 at the same rate of increase as CMS projections for that service under the status quo. This is the model with *the status quo cost curve.*

  o Almost all the increase in US health-care spending over the last forty-five years has been because of the higher prices paid due to rising administrative costs and increasing monopoly pricing of drugs, and due to hospital consolidations. Other countries have controlled health-care costs better than we have in the US. Within the US health-care system, public programs have controlled costs better than the private sector has: Traditional Medicare has held the cost of services to a rate of increase over a percentage point per year below the rate of increase elsewhere in the health-care sector.[37]

    ▪ Spending is estimated for each service on the assumption that the growth in spending in each year 2020-2028 is the rate of growth projected for that service by CMS: -1.1%.

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[37] Gerald Friedman, "Single-Payer Critics Miss the Point – We're Falling Behind," Huffington Post (blog), October 18, 2017, https://www.huffingtonpost.com/entry/single-payer-critics-miss-the-point-were-falling-behind_us_59e7d2b6e4b08f9f9edcc64f; David U. Himmelstein and Steffie Woolhandler, "Cost Control in a Parallel Universe: Medicare Spending in the United States and Canada," *Archives of Internal Medicine* 172, no. 22 (December 10, 2012): 1764–66, https://doi.org/10.1001/2013.jamainternmed.272; David Blumenthal, Karen Davis, and Stuart Guterman, "Medicare at 50 — Origins and Evolution," *New England Journal of Medicine* 372, no. 5 (January 29, 2015): 479–86, https://doi.org/10.1056/NEJMhpr1411701; Archer, "Medicare Is More Efficient Than Private Insurance."

The impact of alternative Medicare premiums is considered under the heading of funding programs.

Total single-payer health-care spending including administrative expense of operating the system

Within each model, total spending is personal health-care spending +2% for the cost of administering the system. (As was mentioned earlier, in models with cost-sharing, an administrative rate of 3% is assumed.) Total spending for each of twelve alternative models is given in Table 2.

Paying for Improved Medicare for All

The program would be supported using currently dedicated revenues and additional taxes. Available revenues include federal funds committed to Medicare, Medicaid, and other federal programs, plus state revenues currently paid into the Medicaid system and those dedicated to school health and other state programs.

Available revenues

Current spending (including tax expenditures[38]) is estimated for 13 current programs, including eleven federal programs and two programs funded at the state and local level.[39] In twelve cases, these programs involve projected spending that could be diverted to the Improved Medicare for All program; in one case, premiums currently projected to be paid by Medicare recipients, this involves a reduction in anticipated revenue.

- *Revenue from ending the tax deduction of employer-provided health insurance.* The Congressional Budget Office has estimates through 2026. Beyond that, I have made estimates assuming the same annual rate of increase through 2030. Total tax expenditures have been deducted and included in available revenue. However, revenue from any payroll tax has been discounted to take account of the tax deductibility of payroll taxes. The share to be deducted has been calculated by a comparison of the CBO projected tax expenditures and CMS projected private health insurance expenditures.[40]

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[38] "Key Issues: Tax Expenditures," accessed May 25, 2015, http://www.gao.gov/key_issues/tax_expenditures/issue_summary. Expenditure estimates for 2018 are from https://www.treasury.gov/resource-center/tax-policy/Documents/Tax-Expenditures-FY2018.pdf.

[39] We anticipate requiring maintenance of effort for state Medicaid spending at 2019 level. Local public health and school spending are expected to continue.

[40] The projected share deducted hovers around 19%, less than the CBO estimate of the share of corporate income to be paid in corporate taxes under the new tax program enacted in 2018 because some wages are paid by governments and other nonprofit enterprises, Kyle Pomerleau, "US Corporate Income Tax Now More Competitive," Tax Foundation (blog), February 12, 2018, https://taxfoundation.org/us-corporate-income-tax-more-competitive/; The 2018 rate is a substantial cut from earlier law, Congressional Budget Office, "International Comparisons of Corporate Income Tax Rates" (Washington, D.C.: Congressional Budget Office, March 2017), https://www.cbo.gov/sites/default/files/115th-congress-2017-2018/reports/52419-internationaltaxratecomp.pdf.

- *Revenue from ending other tax expenditures.* These include tax expenditures such as health savings accounts, medical savings accounts, and the deductibility of health expenditures. Again, I have relied on the Congressional Budget Office's estimates through 2026 and projected beyond through 2030, assuming the same annual rate of increase.

- *Out-of-pocket spending.* In the model with no cost-sharing, this is assumed to be 4% of expenditures. In models with cost-sharing, this is a greater percentage as discussed above.

- *Medicare.* CMS projections are used through 2023 and later years are projected assuming a constant annual rate of increase.

- *Federal Medicaid.* The projections of the Office of the Actuary, Department of Human Services, have been used through 2025.[41] Later years are projected assuming the same rate of increase as 2019-2025.

- *State Medicaid.* The projections of the Office of the Actuary, Department of Human Services, have been used for 2019.[42] In later years, maintenance of effort it is assumed at that level of spending.

- *Veterans Administration.* Spending in 2019 is from the Department of Veterans Affairs budget.[43] Spending in later years is from the Congressional Budget Office.[44]

- *TRICARE (Military Health Service).* Spending in 2017 and 2018 is from the Department of Defense.[45] The annual increase from 2017 to 2018 is used to project 2019 and later spending.

- *Children's Health Insurance Program (SCHIP).* Spending is from the Congressional Budget Office.[46]

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[41] Office of the Actuary, "2016 ACTUARIAL REPORT ON THE FINANCIAL OUTLOOK FOR MEDICAID" (Department of Health and Human Services, 2016), https://www.medicaid.gov/medicaid/finance/downloads/medicaid-actuarial-report-2016.pdf.

[42] Office of the Actuary.

[43] Department of Veterans Affairs, "Budget in Brief, 2019" (Department of Veterans Affairs, 2018), https://www.va.gov/budget/docs/summary/fy2019VAbudgetInBrief.pdf.

[44] Congressional Budget Office, "The 2015 Long-Term Budget Outlook," Congressional Budget Office, accessed September 21, 2015, https://www.cbo.gov/publication/50250.

[45] Assistant Secretary of Defense, "Evaluation of the TRICARE Program, Fiscal Year 2018 Report to Congress" (Washington DC: Department of Defense, 2018).

[46] Congressional Budget Office, "Federal Subsidies for Health Insurance Coverage for People Under Age 65: 2017 to 2027," Www.Cbo.Gov/Publication/53091 (Congressional Budget Office, September 14, 2017), www.cbo.gov/publication/53091.

- *ACA exchange subsidies.* Spending is from the Congressional Budget Office and includes tax credits, cost-sharing subsidies, and spending on Basic Health Programs.[47]

- *Indian Health Service.* Indian Health Service budget documents.[48]

- *Other spending by state and local governments* including Substance Abuse and Mental Health Services Administration (SAMHSA), maternal and child health programs, vocational rehabilitation, and school health programs.

- *Premiums for Medicare Parts A, B, D.* Premium revenue for 2017 is from the report of the trustees of the Medicare trust funds.[49] Premium growth from 2017 to 2019, and for each year from 2019 forward, is projected at the same rate of growth as the CMS projections for Medicare spending.

These revenue sources are shown in Figure 7 and their share of total expenditures in Figure 8.

New revenues

Revenues from two new levies are considered: a levy on payroll, and a levy on interest, dividends, and capital gains. The required tax rates are estimated over a ten-year period to be equal to the net of expenditures less the available revenues, including remaining out-of-pocket spending. Revenue needs are given in Table 3; the required tax rates are given in Table 4.

The rate of the payroll levy is also considered under the assumption that a levy on non-wage income is only assessed on dividends and capital gains and is fixed at 5%.

Payroll levy

Revenue is estimated from the Internal Revenue Service Sources of Income data. Projections are made assuming the rate of growth in wages continues at the same rate as 1999-2017 in the Bureau of Economic Analysis. Only wage income in households with income above $25,000 is assessed and revenues are counted after taking account of the deductibility of payroll taxes.[50]

Levy on interest, dividends, capital gains

Revenue is estimated from IRS Sources of Income data. Projections are made assuming the rate of growth in these income sources continues at the same rate as 1999-2017 in the Bureau of Economic Analysis. Only interest, dividends, and capital gains income in households with income above $25,000 is assessed.

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[47] Congressional Budget Office.
[48] Indian Health Service, "INDIAN HEALTH SERVICE, Fiscal Year 2018, President's Budget" (Department of Health and Human Services, 2018), https://www.ihs.gov/newsroom/includes/themes/newihstheme/display_objects/documents/2017_Speeches/IHS_FY2018_Presidents_Budget_Overview.pdf.
[49] Boards of Trustees, "2018 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds."
[50] The deductibility of payroll taxes is discussed above.

Needed revenue and rates on payroll and interest, dividends, capital gains

For each of the twelve models, net revenue needs for ten years are calculated as total spending minus revenue from existing revenue sources and out-of-pocket spending. Tax rates are then assessed to generate the revenue needed to balance the program budget over the ten years, 2019-2028. Results are shown in Table 4, which gives the needed tax rates for each of the twelve models considered. Rates with cost-sharing and controls over the rates of growth in cost vary from 7% under the assumption of full savings and the program with 10% cost-sharing, up to 17% with limited savings and no cost-sharing.

A comparison of funding sources for 2019 is given in Table 5, which shows the sources of funding for the status quo with the sources proposed for Improved Medicare for All. While reducing total revenue needs, the Improved Medicare for All program could eliminate funding from all premiums, including those paid for Medicare as well as private health insurance, and out-of-pocket spending by individuals suffering illness, injury, or disability if we raise the payroll premium. Instead of lump-sum payments extracted from individuals regardless of income or co-pays, deductibles, and other out-of-pocket costs incurred when people need health care, Improved Medicare for All will be financed largely through government revenues collected based on ability to pay.

Alternative revenue models

The needed funds for Improved Medicare for All can be raised with a wide variety of revenue programs. One alternative is modeled assuming we cap the levy on property income (dividends and capital gains) at 5%, and exempt interest income. We would more than make up lost revenue by maintaining the current Medicare premiums and extending premiums to adults in households without labor income but with adjusted gross income of over $25,000. This program is compared with the status quo and with the earlier Improved Medicare for All program in Table 5. The tax rates on payroll needed to fund this program are shown in Table 6. Because the premium revenue provided exceeds the reduction in revenue from property, we could reduce the required payroll levies. In the basic model with no cost-sharing and full savings assumed, for example, this funding program has a payroll levy of 8.1% instead of the 10.9% required in the model without premiums (compare Table 4 with Table 6).

Distributive effects of Improved Medicare for All

Improved Medicare for All will redistribute income by reducing the burden of health-care costs on the sick and disabled, redistributing the burden of health-care finance from lump-sum-payment insurance premiums to tax payments associated with income.[51] The redistributive effect will depend, of course, on program design, and the degree of cost-sharing, as well as the level and distribution of taxation.

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[51] Some out-of-pocket costs may remain depending on program design. These will be felt as lump sums, invariant with respect income, and will be greater for the sick and disabled.

In Figure 10, estimates are presented of the percentage change in net income coming from an Improved Medicare for All program financed under the assumption of full savings, no copayments or deductibles, and where the rate of growth in health-care expenditures will slow by 1.1% per annum. Under these assumptions, the greatest savings will go to working people in the middle classes, those with household income between $30,000 and $130,000. These are households receiving relatively little government assistance in covering health insurance costs: They are above the level for Medicaid and do not generally qualify for other means-tested assistance. Because the costs of premiums and lump-sum payments for cost-sharing do not rise with income, higher-income households pay a smaller share of the income for health care than do those in middle income. Therefore, they will save less from Improved Medicare for All, and some, especially at the highest income levels, may even pay more.[52]

Conclusion: We can afford Improved Medicare for All

Long-term viability

Under a variety of assumptions, the total cost to the country of Improved Medicare for All would be substantially less than the current health-care finance system. Americans overall would save between $5.5 trillion and $12.5 trillion over the decade 2019-2028, savings of between 12% and 27% of projected spending under the current system (see Figures 6 and 9). These savings, furthermore, are achieved while reducing the economic burden of health care both by lowering total costs and by shifting the burden away from business and labor. Furthermore, improvements in the health-care system can be expected to improve health and well-being both directly and by raising productivity. Universal coverage, reductions in barriers to access, and the equitable treatment of Medicaid providers will all improve Americans' health by providing enhanced access to health-care providers.

The anticipated cost of an Improved Medicare for All program depends on assumptions made about our ability to capture administrative savings, our ability to lower provider prices to the Medicare rate, and to bend the cost curve. More generous assumptions imply larger savings, and a program design with cost-sharing will require lower taxes. But as is clear from Figure 6, Figure 9, and the discussion above, Improved Medicare for All can be financed because it is a less expensive way to pay for health care than our current system of private health insurance and effectively unregulated monopoly providers. Whether we save $13 trillion over 10 years, $6 trillion, or even the $2 trillion estimated in the Blahous study, Improved Medicare for All is less expensive even while providing universal coverage.[53] If we can pay for the current system, we can pay for one that is cheaper.

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[52] Health-care spending by income is estimated from the Survey of Consumer Finances, Board of Governors, Federal Reserve System, "The Fed - Survey of Consumer Finances (SCF)," Board of Governors of the Federal Reserve System, accessed October 21, 2018, https://www.federalreserve.gov/econres/scfindex.htm; sources of income are from the Internal Revenue Service, Internal Revenue Service, "SOI Tax Stats Historic Table 2."

[53] Blahous, "The Costs of a National Single-Payer Healthcare System"; also see Friedman, "Universal Health Care: Can We Afford Anything Less?"; Friedman, "Friedman Analysis of HR 676"; Adam Gaffney et al., "Moving Forward From the Affordable Care Act to a Single-Payer System," *American Journal of Public Health* 106, no. 6 (May 5,

Improvements in economic efficiency and care will help to sustain Improved Medicare for All because faster economic growth will generate larger tax revenues than we are anticipating here. Local and state governments will also benefit disproportionately because of the relatively heavy burden of health insurance that they carry; this will allow needed and productive investments in education and infrastructure as well as taxpayer relief. Reducing the burden of health-care costs on businesses and labor will encourage businesses to invest and to grow, bringing jobs and economic vitality back to places laboring under the burden of high health-care costs. Eliminating the burden of job lock, where workers fear to change jobs or strike out on their own because of the cost of health care, will encourage a resurgence in entrepreneurship and the growth of more small, creative businesses.[54] The economic case for Improved Medicare for All is settled.

Most important will be the benefits in reduced morbidity and mortality. Americans will live longer and healthier lives even while spending less on health care and enjoying a more productive economy. The purpose of the health-care system is to provide for the health and well-being of Americans. Improved Medicare for All will allow our doctors and nurses to do what they have trained to do: care for the sick and needy. This is what they want to do; it is what we need them to do. It is what they will be able to do again when Improved Medicare for All replaces our current for-profit health-care finance system.

2016): 987–88, https://doi.org/10.2105/AJPH.2015.303157; Dean Baker, "Can We Pay for Single Payer?," *Democracy Journal*, September 14, 2017, http://democracyjournal.org/arguments/can-we-pay-for-single-payer.
[54] The business case for universal access to health care is discussed in David Sterret, Ashley Bender, and David Palmer, "A Business Case for Universal Healthcare: Improving Economic Growth and Reducing Unemployment by Providing Access for All," *Health Law and Policy Brief* 8, no. 2 (Spring 2014): 41–56; a recent Rand study has estimated that the single-payer plan for New York State would create an additional hundred-thousand jobs, Liu et al., "An Assessment of the New York Health Act."
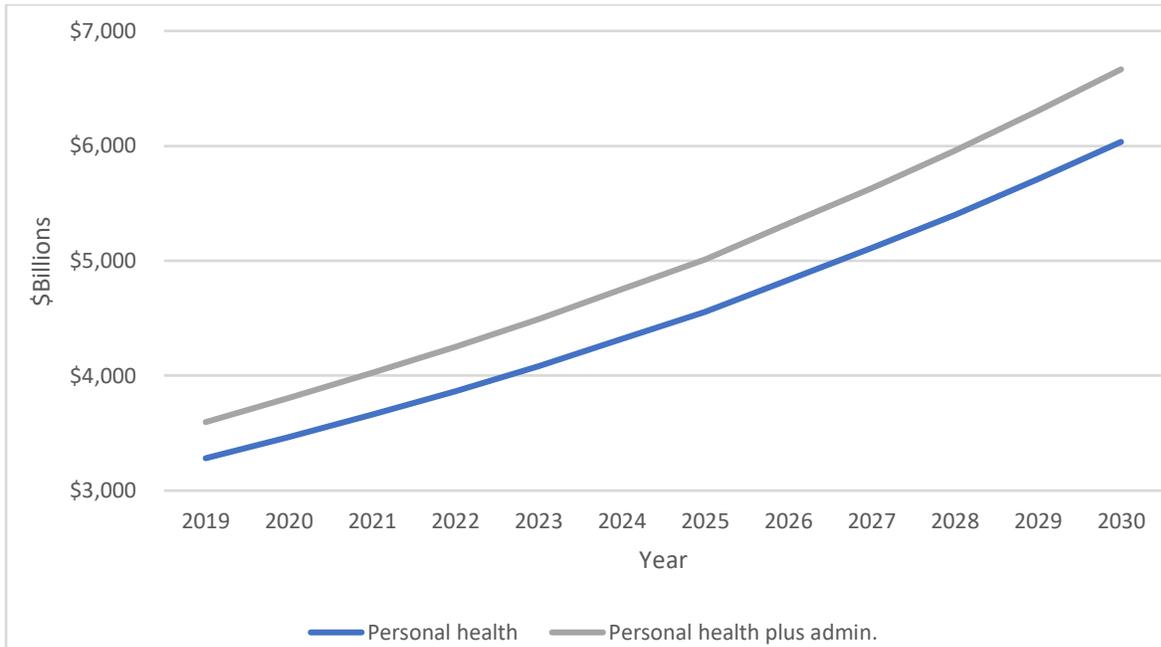
Figures and Tables

Figure 1. CMS projections of US health-care costs, personal health-care spending plus insurance administration.

Note: This figure shows projections by the Centers for Medicare and Medicaid Services of personal health expenditures and personal health expenditures plus for 2019 through 2026. I have extended these projections for 2027 through 2030 on the assumption that spending will increase at the same rate as 2019-2026.
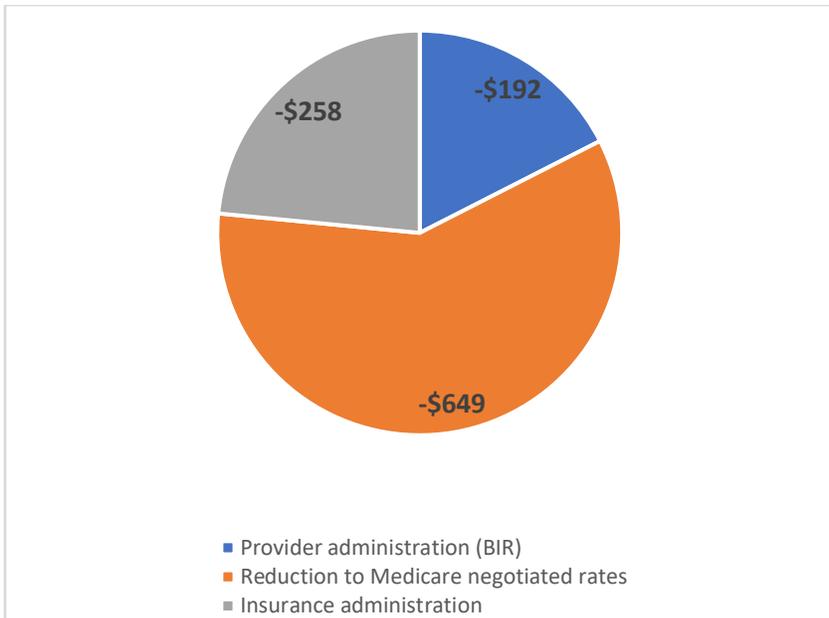
Figure 2. Projected savings (in $billions) from Improved Medicare for All, 2019. Full-savings model.

Note: This figure shows potential savings in 2019 from an Improved Medicare for All program in three categories: billing- and insurance-related activities within provider offices; insurance administration, including government administration; and reducing monopoly pricing of drugs, hospitals, and medical devices. These are potential savings, and lower numbers are used on the assumption that we may not be able to realize all of the potential savings.
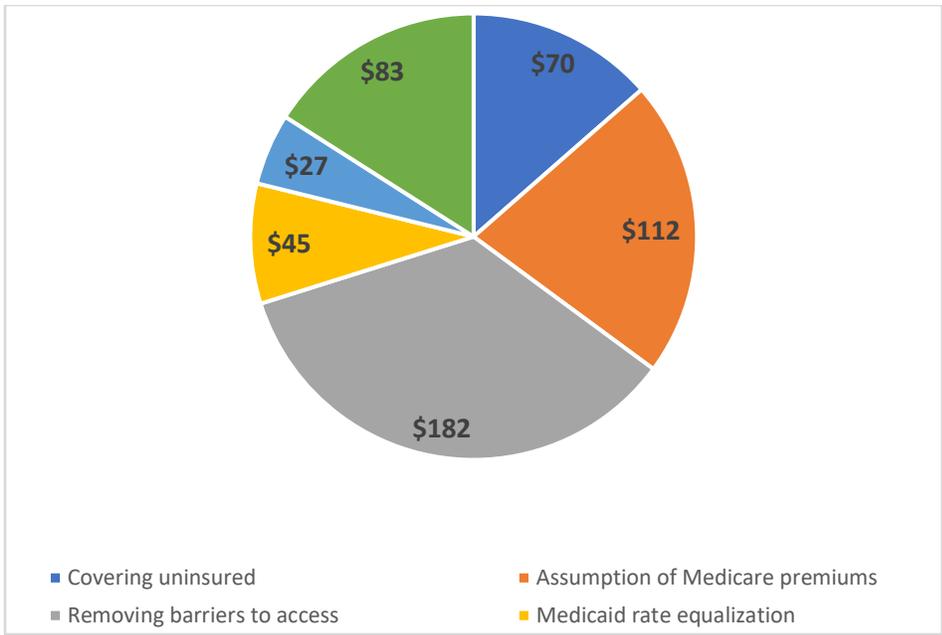
Figure 3a. Additional costs (in $billions) associated with Improved Medicare for All, 2019, basic plan without Medicare premiums.

Note: This figure shows the additional costs to be incurred by a program of universal coverage in 2019 where all financial barriers to access have been eliminated, with no cost-sharing. Higher payroll tax rates are required to cover the cost of the Medicare premiums.
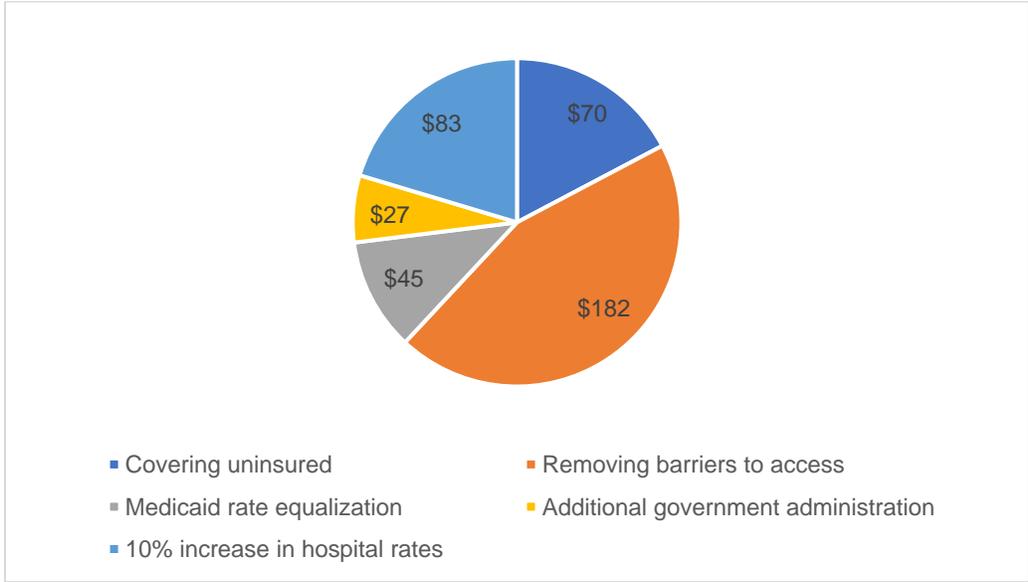

Figure 3b. Additional costs (in $billions) associated with Improved Medicare for All, 2019, basic plan with Medicare premiums.

Note: This figure shows the additional costs to be incurred by a program of universal coverage in 2019 where all financial barriers to access have been eliminated. Revenue from Medicare premiums would allow lower payroll tax rates.

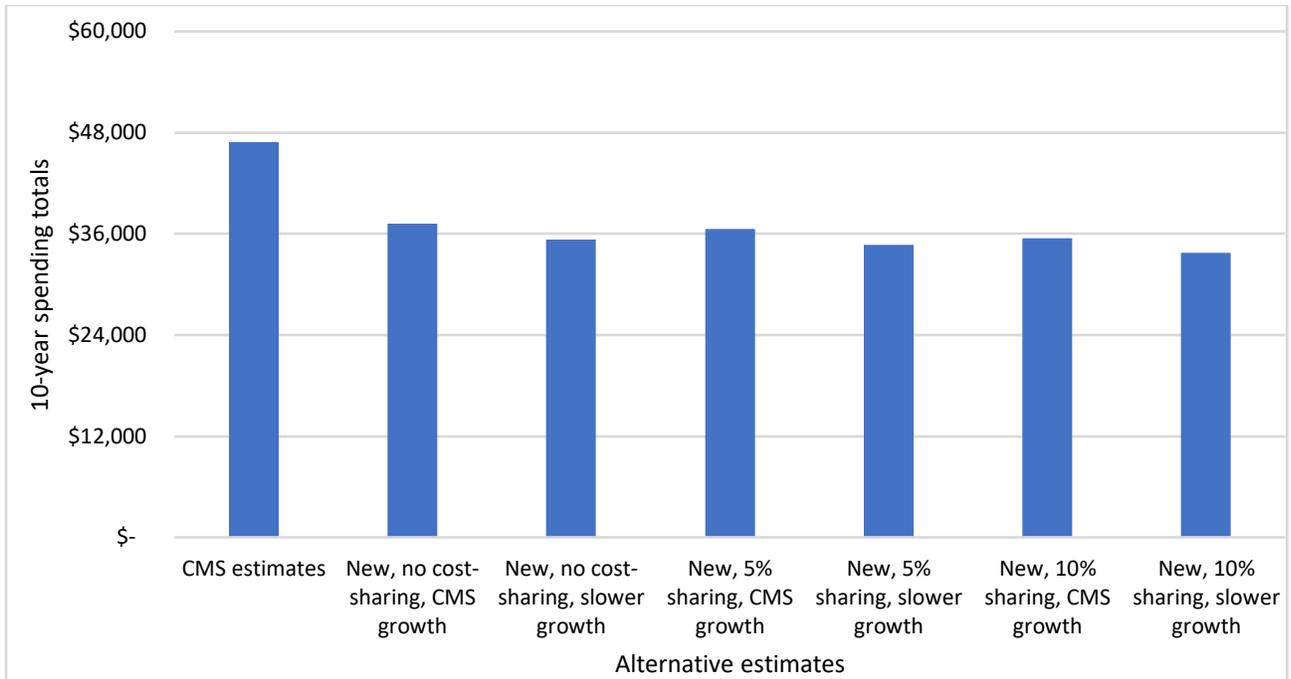*Figure 4. Ten-year spending ($billions) with status quo system projections versus Improved Medicare for All, alternative estimates with full annual savings.*

Note: This figure shows potential spending in 2019-28 comparing current estimates with those projected for an Improved Medicare for All program. These estimates assume full savings, as is discussed in the text.

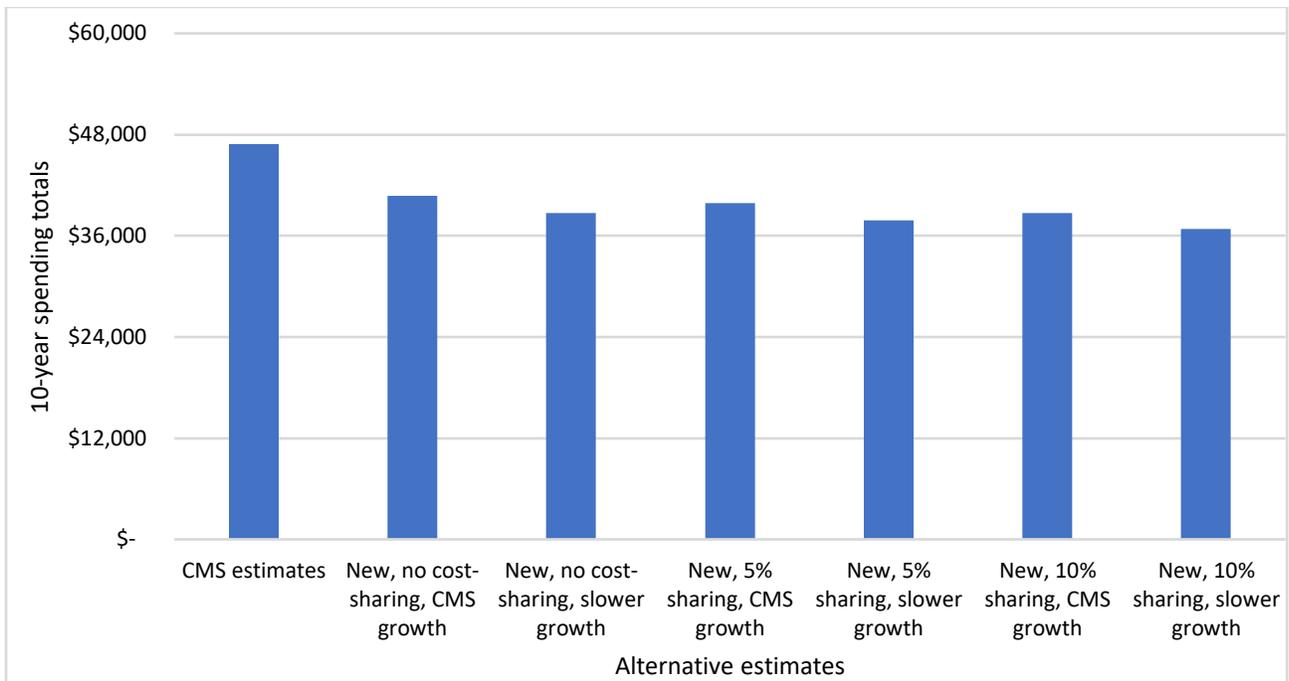*Figure 5. Ten-year spending (in $billions) with status quo system projections versus Improved Medicare for All, alternative estimates with alternative estimates of savings.*

Note: This figure shows potential spending in 2019-28 comparing current estimates with those projected for an Improved Medicare for All program. These estimates assume that not all savings are realized.
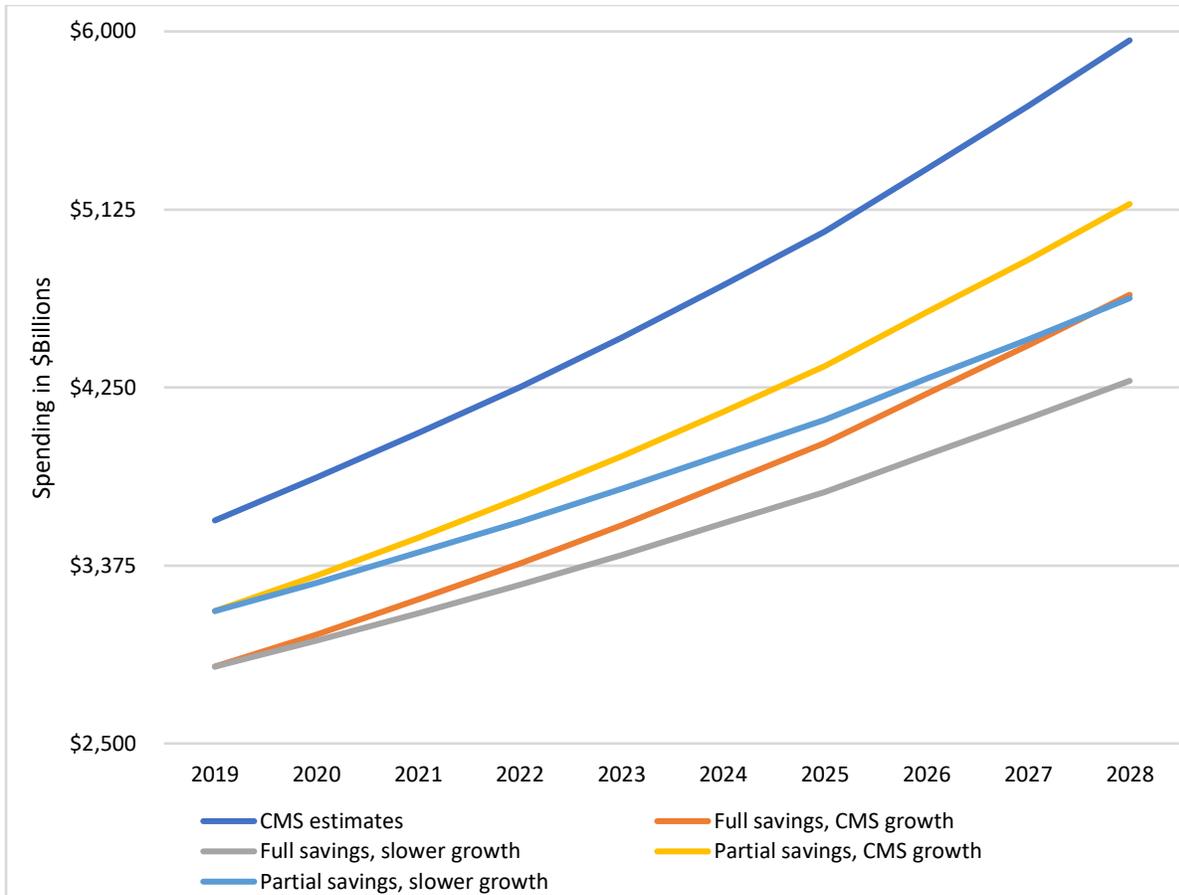
Figure 6. Projected annual spending, Improved Medicare for All programs compared with CMS projections, 2019-28.

Note: This figure shows annual spending projected for an Improved Medicare for All program compared with CMS projections for national health spending (personal health-care spending plus administration). Four different scenarios are shown for Improved Medicare for All, with full savings realized or only some of the potential savings realized, and where the rate of growth in spending slows to the rate of past Medicare spending growth, or where spending growth remains at the higher rate projected by CMS.

Table 1. Health-care spending (in $billions) under the status quo versus Improved Medicare for All, 2019.

	Status quo	Improved Medicare for All
Provider administration	$ 563	$ 371
Private health insurance administration	$ 261	$ -
Government administration	$ 53	$ 56
Reducing provider prices to Medicare level (+10% for hospitals) and reducing drug and device prices to world levels	$ 649	$ -
Health-care services	$ 2,072	$ 2,451
Total personal health care and administration	$ 3,598	$ 2,878

Note: This table compares the distribution of spending by activity for the status quo and an Improved Medicare for All system in 2019 that achieves the full savings anticipated. By reducing provider administration, billing and insurance-related expenses, health insurance administration, and lowering excessive provider prices, the Improved Medicare for All system can provide great health-care services even at a lower cost.

Table 2. Ten-year cost ($billions) of Improved Medicare for All program, alternative models.

Cost sharing assumptions		
No cost-sharing	**5% cost-sharing**	**10% cost-sharing**
Full savings, CMS growth rates	$ 37,206	$ 36,538	$ 35,506
80% of BIR savings and 50% of hospital price savings, CMS growth rates	**$ 40,734**	$ 39,854	$ 38,724
Full savings, CMS growth rates -1.1%	$ 35,342	$ 34,708	**$ 33,728**
80% of BIR savings and 50% of hospital price savings, CMS growth rates -1.1%	$ 38,694	$ 37,858	$ 36,785

Note: This chart gives alternative estimates of the ten-year cost in billions of dollars of an Improved Medicare for All program between 2019-2028. Costs are given under three assumptions: no cost-sharing, 5% cost-sharing, and 10% cost-sharing. (Note that the current average cost-sharing is about 15%. Note as well that this is cost-sharing uncovered activities, not including 4% of health-care spending for over-the-counter drugs, other nonprescription medications, and elective procedures such as cosmetic surgery.) Estimates are also made under two assumptions of the growth rate in spending: the growth rates assumed by CMS and a growth rate 1.1% slower on the assumption that the Improved Medicare for All program will better control costs. Finally, estimates are made assuming all the savings anticipated, and assuming only 80% of the savings anticipated from billing operations and only half the savings from hospital price reductions. Note that the boxes with the maximum and minimum estimates are given in boldface and centered. Finally, note for comparison that ten-year estimates by CMS are for $46,852 billion.
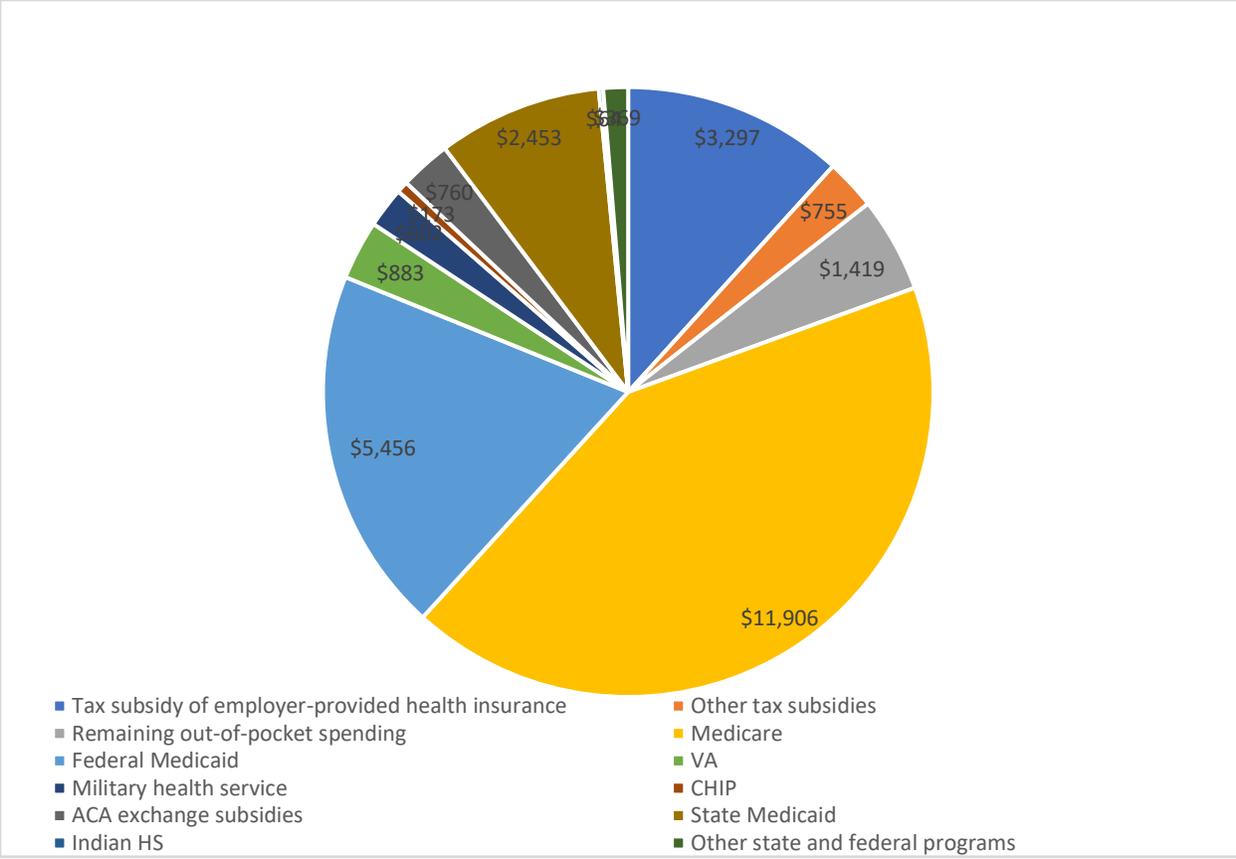
Figure 7. Ten-year projected existing revenues ($billions).

Note: This figure shows projected 10-year spending for existing government health-care programs, funding that could either be shifted over to the Improved Medicare for All program or maintained for programs like the VA and the Indian Health Service. This figure only includes positive revenues. It does not include the cost of eliminating Medicare premiums, at a cost of $1.6 trillion over 10 years.
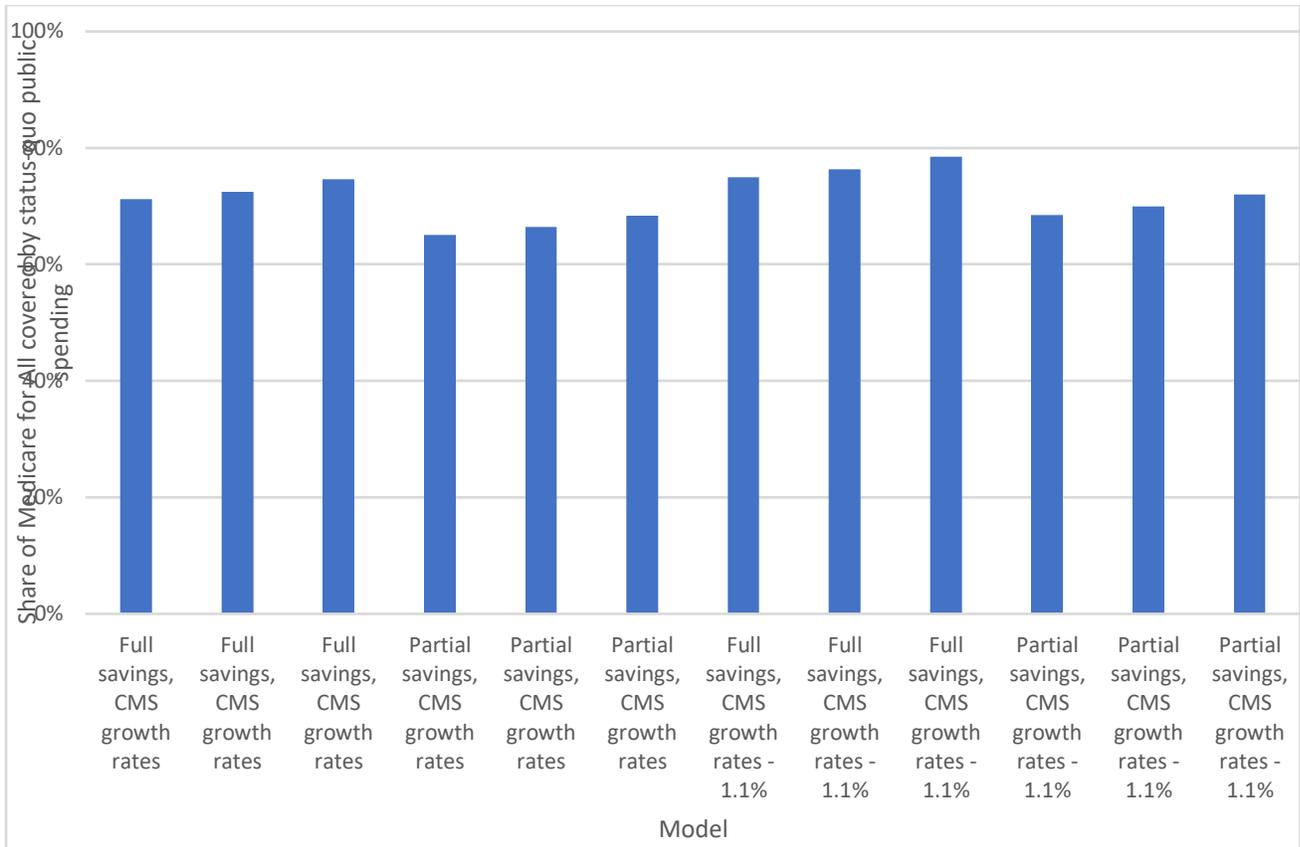
Figure 8. Existing revenue as share of Improved Medicare for All revenue needs, 2019–2028.

Note: This figure shows the share of the cost of Improved Medicare for All covered by existing spending plans including, as a negative, the revenue reduction due to the elimination of Medicare premiums at a cost of $1.6 trillion over 10 years.

Table 3. Ten-year revenue needs ($billions) of Improved Medicare for All programs net of existing revenue and out-of-pocket spending, alternative models.

	Cost-sharing assumptions		
	No cost-sharing	**5% cost-sharing**	**10% cost-sharing**
Full savings, CMS growth rates	$ 10,718	$ 9,996	$ 7,491
80% of BIR savings and 50% of hospital price savings, CMS growth rates	$ 14,247	$ 13,306	$ 10,571
Full savings, CMS growth rates -1.1%	$ 8,855	$ 8,169	$ 5,789
80% of BIR savings and 50% of hospital price savings, CMS growth rates -1.1%	$ 12,207	$ 11,313	$ 8,715

Note: This table gives ten-year revenue (2019-28) needs for a program of Improved Medicare for All under twelve alternative assumptions regarding savings to be achieved, the rate of growth in expenditures, and program design with alternative cost-sharing. Revenue needs are calculated as total expenditures, personal health care plus insurance administration, minus out-of-pocket spending, already committed federal spending, state spending on worksite health programs, school health, and some maternal and child health programs, as well as Medicaid. (It is assumed that states will maintain their 2019 level of spending on Medicaid.)

Table 4. Tax rate on payroll and non-wage income needed to fund Improved Medicare for All, ten-year balance, after taking account of already committed revenue and premiums.

	Cost-sharing assumptions		
	No cost-sharing	**5% cost-sharing**	**10% cost-sharing**
Full savings, CMS growth rates	13.15%	12.27%	9.19%
80% of BIR savings and 50% of hospital price savings, CMS growth rates	17.48%	16.33%	12.97%
Full savings, CMS growth rates -1.1%	10.87%	10.03%	7.11%
80% of BIR savings and 50% of hospital price savings, CMS growth rates -1.1%	14.98%	13.88%	**10.70%**

Note: This table gives the level of taxation on payroll and interest, dividends, and capital gains to achieve budget balance in the Improved Medicare for All program over the ten years 2019-28. Revenue needs are those given in Table 3.

Table 5. Revenue sources ($Billions) to fund status quo and Improved Medicare for All health care, 2019.

Revenue sources alternative funding	Status quo	Improved Medicare for All, basic revenue model	Improved Medicare for All, alternative revenue model
Medicare, Medicaid, other public spending, net of premiums	$ 1,998	$ 1,998	$ 1,998
Private health insurance premiums, net of tax expenditure	$ 1,035	$ -	$ -
Medicare premiums	$ 112	$ -	$ 120
Out-of-pocket spending by individuals	$ 398	$ 115	$ 115
Other (including charity)	$ 55	$ -	$ -
New payroll tax revenue	$ -	$ 636	$ 480
New revenue from tax on property income	$ -	$ 110	$ 42
Premiums on nonelderly adults in non-working households	$ -	$ -	$ 29

Note: This table compares sources of revenue for the current health-care finance system compared with two alternative revenue programs for an Improved Medicare for All. The basic revenue model relies on payroll tax revenue and a tax at the same rate applied to capital gains and dividends. The alternative model has lower tax rates financed by maintaining current premiums paid by Medicare recipients, and extends this premium to all of the elderly as well as to non-elderly adults in households with incomes over $25,000 but without labor income.

Table 6. Tax rate on payroll income needed to fund Improved Medicare for All, ten-year balance, after taking account of already committed revenue, alternative funding program.

	Cost-sharing assumptions		
	No cost-sharing	5% cost-sharing	10% cost-sharing
Full savings, CMS growth rates	10.79%	9.75%	6.15%
80% of BIR savings and 50% of hospital price savings, CMS growth rates	15.86%	14.51%	10.58%
Full savings, CMS growth rates -1.1%	8.11%	7.13%	3.71%
80% of BIR savings and 50% of hospital price savings, CMS growth rates -1.1%	12.93%	11.65%	7.91%

Note: This table gives the level of taxation on payroll to achieve budget balance in the Improved Medicare for All program over the ten years 2019-28. It is assumed that there is a 5% tax on capital gains and dividends, and that current Medicare premiums are maintained, and premiums at the same rate are assessed on non-elderly adults in households without labor income. Revenue needs are those given in Table 3.
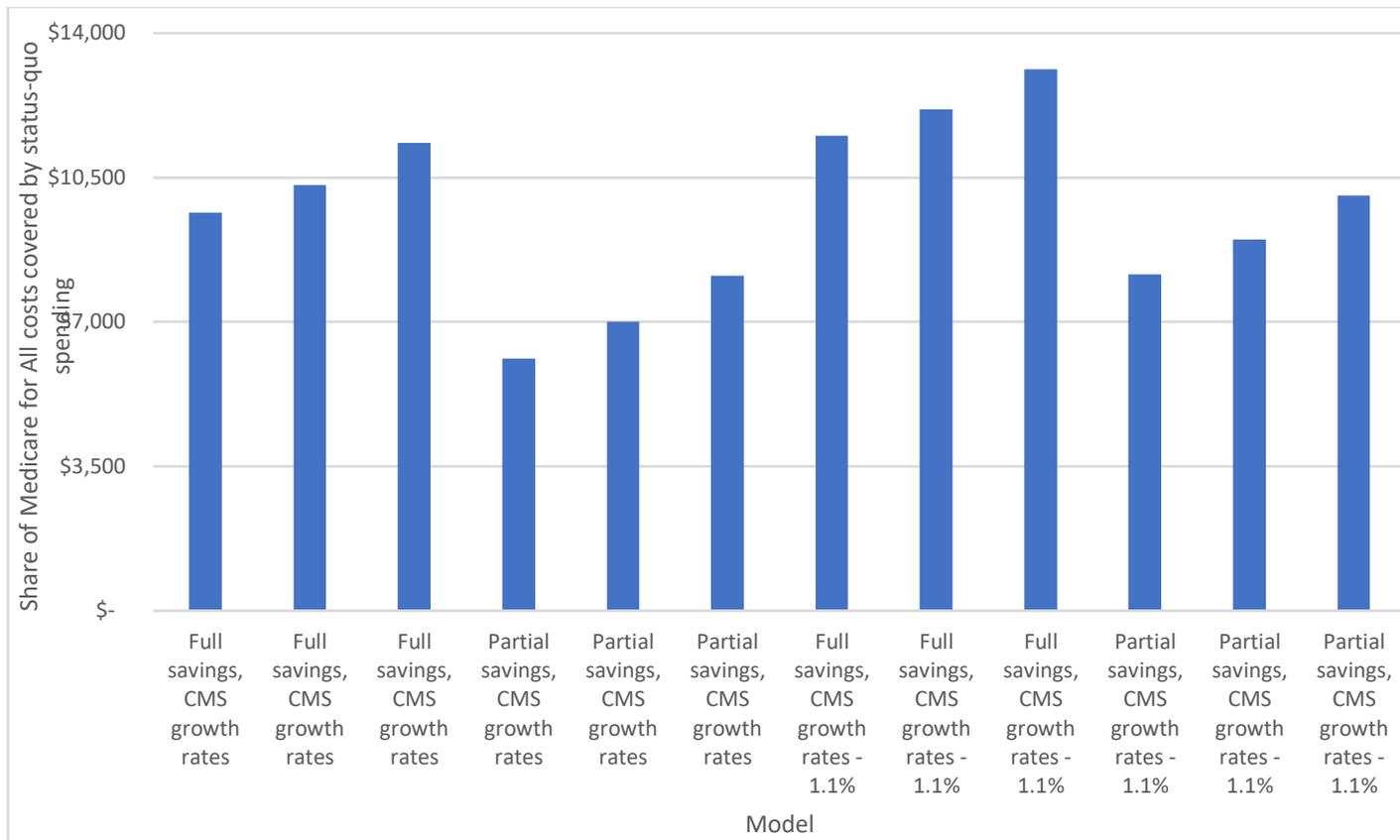
Figure 9. Reduction in national health expenditures with Improved Medicare for All program, 2019-2028 ($billions).

Note: This figure gives the net reduction in health-care spending with implementation of an Improved Medicare for All program for the ten years, 2019-2028. Spending reductions are shown for twelve alternative scenarios involving alternative estimates of the savings to be achieved from reduced administration and reductions in hospital and physician prices to Medicare rates +10% and negotiated pricing of drugs and medical devices. Savings estimates also vary with assumptions about the ability of a national health-care program to slow cost increases to rates comparable to current Medicare or foreign national programs. Finally, alternative programs are modeled with differing degrees of cost-sharing with co-pays: none, 5%, and 10%.
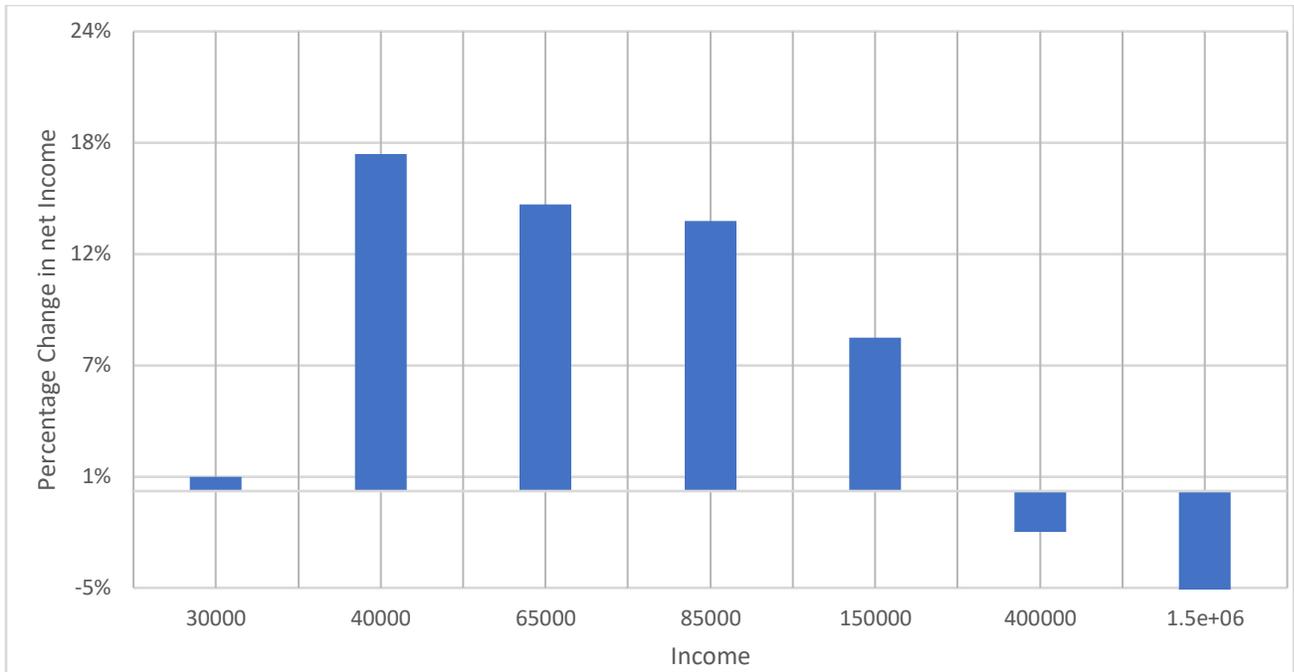
Figure 10. Net change in income, Improved Medicare for All, additional taxation minus reduced spending on health care as percent of income, by income level.

Note: This figure gives percentage change in income for different income levels to be expected from an Improved Medicare for All program with a tax rate of 10.87% on wages and on capital gains, interest, dividends, and without cost-sharing on medically necessary services. Savings will be greater than are shown here for the elderly and disabled because of the elimination of Medicare premiums.

References

American Health Insurance Plans. "National Comparisons of Commercial and Medicare Fee-For-Service Payments to Hospitals." American Health Insurance Plans, February 2016. https://www.ahip.org/wp-content/uploads/2016/02/HospitalPriceComparison_2.10.16.pdf.

American Hospital Association. "AMERICAN HOSPITAL ASSOCIATION UNCOMPENSATED HOSPITAL CARE COST FACT SHEET." American Hospital Association, December 2016. https://www.aha.org/system/files/2018-09/uncompensatedcarefactsheet.pdf.

Archer, Diane. "Medicare Is More Efficient Than Private Insurance." *Health Affairs*. Accessed September 4, 2017. https://www.healthaffairs.org/do/10.1377/hblog20120215.016980/full.

Archer, Diane, and Theodore Marmor. "Medicare And Commercial Health Insurance: The Fundamental Difference – Health Affairs Blog." *Health Affairs* Blog, February 15, 2012. http://healthaffairs.org/blog/2012/02/15/medicare-and-commercial-health-insurance-the-fundamental-difference/comment-page-1/#comment-165108.

Assistant Secretary of Defense. "Evaluation of the TRICARE Program, Fiscal Year 2018 Report to Congress." Washington, D.C.: Department of Defense, 2018.

Baker, Dean. "A Free Market Solution for Prescription Drug Crises." *International Journal of Health Services*: Planning, Administration, Evaluation 34, no. 3 (2004): 517–26. https://doi.org/10.2190/XN5F-XMRA-DUQU-36WW.

———. "Can We Pay for Single Payer?" *Democracy Journal*, September 14, 2017. http://democracyjournal.org/arguments/can-we-pay-for-single-payer.

Berenson, Robert A., Paul B. Ginsburg, Jon B. Christianson, and Tracy Yee. "The Growing Power Of Some Providers To Win Steep Payment Increases From Insurers Suggests Policy Remedies May Be Needed." *Health Affairs* 31, no. 5 (May 1, 2012): 973–81. https://doi.org/10.1377/hlthaff.2011.0920.

Biener, Adam I., and Thomas M. Selden. "Public And Private Payments For Physician Office Visits." *Health Affairs* 36, no. 12 (December 1, 2017): 2160–64. https://doi.org/10.1377/hlthaff.2017.0749.

Blahous, Charles. "The Costs of a National Single-Payer Healthcare System." Mercatus Center, July 25, 2018. https://www.mercatus.org/publications/federal-fiscal-policy/costs-national-single-payer-healthcare-system.

Blanchfield, Bonnie B., James L. Heffernan, Bradford Osgood, Rosemary R. Sheehan, and Gregg S. Meyer. "Saving Billions Of Dollars—And Physicians' Time—By Streamlining Billing Practices." *Health Affairs*, April 29, 2010, 10.1377/hlthaff.2009.0075. https://doi.org/10.1377/hlthaff.2009.0075.

Blumenthal, David, Karen Davis, and Stuart Guterman. "Medicare at 50 — Origins and Evolution." *New England Journal of Medicine* 372, no. 5 (January 29, 2015): 479–86. https://doi.org/10.1056/NEJMhpr1411701.

Board of Governors, Federal Reserve System. "The Fed — Survey of Consumer Finances (SCF)." Board of Governors of the Federal Reserve System. Accessed October 21, 2018. https://www.federalreserve.gov/econres/scfindex.htm.

Boards of Trustees. "2017 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds." Washington, D. C.: BOARDS OF TRUSTEES OF THE FEDERAL HOSPITAL INSURANCE AND FEDERAL SUPPLEMENTARY MEDICAL INSURANCE TRUST FUNDS, July 13, 2017. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2017.pdf.

———. "2018 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds," June 5, 2018. https://www.cms.gov/Research-

Statistics-Data-and-Systems/Statistics-Trends-and-
Reports/ReportsTrustFunds/Downloads/TR2018.pdf.

Brill, Steven. *America's Bitter Pill: Money, Politics, Back-Room Deals, and the Fight to Fix Our Broken
Healthcare System*. New York: Random House, 2015.

Buckley, Bruce. "'Devastating' Delays Persist From Prior Authorizations." Accessed December 11, 2018.
https://www.pharmacypracticenews.com/Operations-and-Management/Article/11-18/-
Devastating-Delays-Persist-From-Prior-Authorizations/53267?ses=ogst.

Bureau of Labor. "Occupational Employment Statistics: OES Research Estimates by State and Industry,
2017,"

Casalino, Lawrence P., David Gans, Rachel Weber, Meagan Cea, Amber Tuchovsky, Tara F. Bishop,
Yesenia Miranda, et al. "US Physician Practices Spend More Than $15.4 Billion Annually To
Report Quality Measures." *Health Affairs* 35, no. 3 (March 1, 2016): 401–6.
https://doi.org/10.1377/hlthaff.2015.1258.

Center for Medicaid and Medicare Statistics. "National Health Expenditure Projections 2017-2026."
Washington, D.C.: Centers for Medicare & Medicaid Services, Office of the Actuary, n.d.
https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-
Reports/NationalHealthExpendData/NationalHealthAccountsProjected.html.

Cheng, S. H., and T. L. Chiang. "The Effect of Universal Health Insurance on Health Care Utilization in
Taiwan. Results from a Natural Experiment." *JAMA* 278, no. 2 (July 9, 1997): 89–93.

Cheng, Tsung-Mei. "Reflections On The 20th Anniversary Of Taiwan's Single-Payer National Health
Insurance System." *Health Affairs* 34, no. 3 (March 1, 2015): 502–10.
https://doi.org/10.1377/hlthaff.2014.1332.

Cohn, Jonathan. "Bernie Sanders' Health Plan Is Too Good To Be True, Analyst Says." The Huffington
Post. Accessed January 28, 2016. http://www.huffingtonpost.com/entry/sanders-health-plan-
cost_us_56a8ff99e4b0f6b7d5447ee8.

Collins, Sara, and David Radley. "Cost of Employer Insurance Growing Burden For Middle-Income
Families | Commonwealth Fund." Accessed December 8, 2018.
https://www.commonwealthfund.org/publications/issue-briefs/2018/dec/cost-employer-
insurance-growing-burden-middle-income-families.

Commonwealth Fund. "Insured but Poorly Protected: How Many Are Underinsured? U. S. Adults
Trends, 2003 to 2007," June 10, 2008.

Congressional Budget Office. "Comparing the Costs of the Veterans' Health Care System With Private-
Sector Costs," December 2014. https://www.cbo.gov/sites/default/files/113th-congress-2013-
2014/reports/49763-VA_Healthcare_Costs.pdf.

———. "Federal Subsidies for Health Insurance Coverage for People Under Age 65: 2017 to 2027."
Congressional Budget Office, September 14, 2017. www.cbo.gov/publication/53091.

———. "International Comparisons of Corporate Income Tax Rates." Washington D.C.: Congressional
Budget Office, March 2017. https://www.cbo.gov/sites/default/files/115th-congress-2017-
2018/reports/52419-internationaltaxratecomp.pdf.

———. "The 2015 Long-Term Budget Outlook." Congressional Budget Office. Accessed September 21,
2015. https://www.cbo.gov/publication/50250.

Council of Economic Advisers. "Growing the American Economy: The Economic Report of the President."
Accessed February 26, 2018. https://www.whitehouse.gov/briefings-statements/growing-
american-economy-economic-report-president.

Dafny, Aug. "2013 Summary of Findings." Commonwealth Fund (blog), November 20, 2015.
http://kff.org/report-section/2013-summary-of-findings/.

Department of Veterans Affairs. "Budget in Brief, 2019." Department of Veterans Affairs, 2018.
https://www.va.gov/budget/docs/summary/fy2019VAbudgetInBrief.pdf.

Enterline, Philip E., Vera Salter, Alison D. McDonald, and J. Corbett McDonald. "The Distribution of Medical Services before and after Free Medical Care — The Quebec Experience." *New England Journal of Medicine* 289, no. 22 (November 29, 1973): 1174–78. https://doi.org/10.1056/NEJM197311292892206.

Finkelstein, Amy. *Moral Hazard in Health Insurance: Developments Since Arrow (1963)*. Kenneth J. Arrow Lecture Series. New York: Columbia University Press, 2014.

Frakt, Austin, Steven D. Pizer, and Roger Feldman. "Should Medicare Adopt the Veterans Health Administration Formulary?" SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, April 14, 2011. http://papers.ssrn.com/abstract=1809665.

Friedman, Gerald. "Friedman Analysis of HR 676: Medicare for All Would Save Billions - PNHP's Official Blog." Accessed January 24, 2014. http://pnhp.org/blog/2013/07/31/friedman-analysis-of-hr-676-medicare-for-all-would-save-billions.

———. "Single-Payer Critics Miss the Point — We're Falling Behind." Huffington Post (blog), October 18, 2017. https://www.huffingtonpost.com/entry/single-payer-critics-miss-the-point-were-falling-behind_us_59e7d2b6e4b08f9f9edcc64f.

———. "Universal Health Care: Can We Afford Anything Less?" *Dollars and Sense*, June 29, 2011.

Friedman, Gerald, Paul Starr, and Kenneth Thorpe. "Prospect Debate: The Cost of Sanders's Single-Payer Health Plan," February 29, 2016. http://prospect.org/article/prospect-debate-cost-sanders%E2%80%99s-single-payer-health-plan.

Fulton, Brent, Daniel Arnold, and Richard Scheffler. "Market Concentration Variation of Health Care Providers and Health Insurers in the United States | Commonwealth Fund." Accessed July 30, 2018. https://www.commonwealthfund.org/blog/2018/variation-healthcare-provider-and-health-insurer-market-concentration.

Gaffney, Adam, Steffie Woolhandler, Marcia Angell, and David U. Himmelstein. "Moving Forward From the Affordable Care Act to a Single-Payer System." *American Journal of Public Health* 106, no. 6 (May 5, 2016): 987–88. https://doi.org/10.2105/AJPH.2015.303157.

General Accounting Office. "Canadian Health Insurance: Lessons for the United States," June 1991. http://archive.gao.gov/d20t9/144039.pdf.

Good, Charles, and Michael Valentino. "Editorial: Access to Affordable Medications: The Department of Veterans Affairs Pharmacy Plan as a National Model." *American Journal of Public Health* 97, no. 12 (December 2007): 2129–31.

Hadley, Jack, and John Holahan. "The Cost of Care for the Uninsured: What Do We Spend, Who Pays, and What Would Full Coverage Add to Medical Spending." Kaiser Commission on Medicaid and the Uninsured, May 10, 2004. http://www.thesoutherninstitute.org/docs/publications/Policy%20Resources/KaiserReport.pdf.

Havighurst, Clark, and Barak Richman. "The Provider-Monopoly Problem in Health Care." *Oregon Law Review*, January 1, 2011, 847–83.

Himmelstein, David. "A Comparison of Hospital Administrative Costs in Eight Nations: U.S. Costs Exceed All Others by Far." Accessed November 10, 2018. https://www.commonwealthfund.org/publications/journal-article/2014/sep/comparison-hospital-administrative-costs-eight-nations-us.

———. "What One Critic Gets Wrong About The Sanders Health Care Plan." The Huffington Post. Accessed February 1, 2016. http://www.huffingtonpost.com/david-himmelstein/kenneth-thorpe-bernie-sanders-single-payer_b_9113192.html.

Himmelstein, David U., and Steffie Woolhandler. "Cost Control in a Parallel Universe: Medicare Spending in the United States and Canada." *Archives of Internal Medicine* 172, no. 22 (December 10, 2012): 1764–66. https://doi.org/10.1001/2013.jamainternmed.272.

Holahan, John, Lisa Clemens-Cope, Matthew Buettgens, Melissa Favreault, Linda Blumberg, and Siyabonga Ndwandwe. "The Sanders Single-Payer Health Care Plan: The Effect on National Health Expenditures and Federal and Private Spending." Washington, D.C.: Urban Institute, Health Policy Center, May 2016. http://www.urban.org/sites/default/files/alfresco/publication-pdfs/200785-The-Sanders-Single-Payer-Health-Care-Plan.pdf.

Indian Health Service. "INDIAN HEALTH SERVICE, Fiscal Year 2018, President's Budget." Department of Health and Human Services, 2018. https://www.ihs.gov/newsroom/includes/themes/newihstheme/display_objects/documents/2017_Speeches/IHS_FY2018_Presidents_Budget_Overview.pdf.

Internal Revenue Service. "SOI Tax Stats Historic Table 2." Accessed November 24, 2017. https://www.irs.gov/statistics/soi-tax-stats-historic-table-2.

International Federation of Health Plans. "2013 Comparative Price Report: Variation in Medical and Hospital Prices by Country." International Federation of Health Plans, 2014.

IQVIA Institute for Human Data Science. "Medicines Use and Spending in the U.S. A Review of 2016 and Outlook to 2021." IQVIA Institute for human data science, May 2017.

Jiwani, Aliya, David Himmelstein, Steffie Woolhandler, and James Kahn. "Billing and Insurance-Related Administrative Costs in United States' Health Care: Synthesis of Micro-Costing Evidence." *BMC Health Services Research* 14, no. 556 (2014). http://www.biomedcentral.com/content/pdf/s12913-014-0556-7.pdf.

Kaiser Family Foundation. "Health Insurance Coverage of the Total Population." The Henry J. Kaiser Family Foundation (blog), September 19, 2017. https://www.kff.org/other/state-indicator/total-population.

"Key Issues: Tax Expenditures." Accessed May 25, 2015. http://www.gao.gov/key_issues/tax_expenditures/issue_summary.

King, Kathleen, and General Accounting Office. "Medicare and Medicaid Fraud, Waste, and Abuse." United States Senate, Subcommittee on Federal Financial Management, March 9, 2011. http://www.gao.gov/new.items/d11409t.pdf.

Kocher, Robert, and Nikhil R. Sahni. "Hospitals' Race to Employ Physicians — The Logic behind a Money-Losing Proposition." *New England Journal of Medicine* 364, no. 19 (May 12, 2011): 1790–93. https://doi.org/10.1056/NEJMp1101959.

Liu, Jodi L., Chapin White, Sarah A. Nowak, Asa Wilks, Jamie Ryan, and Christine Eibner. "An Assessment of the New York Health Act." Product Page, 2018. https://www.rand.org/pubs/research_reports/RR2424.html.

Maeda, Jared, and Lyle Nelson. "An Analysis of Hospital Prices for Commercial and Medicare Advantage Plans." Congressional Budget Office, June 26, 2017. https://www.cbo.gov/system/files/115th-congress-2017-2018/presentation/52819-presentation.pdf.

Matthews, Dylan. "Kenneth Thorpe's Analysis of Bernie Sanders's Single-Payer Proposal." Scribd. Accessed February 5, 2016. https://www.scribd.com/doc/296831690/Kenneth-Thorpe-s-analysis-of-Bernie-Sanders-s-single-payer-proposal.

McKinsey Global Institute. "Accounting for the Cost of Health Care in the United States," January 2007.

Morra, Dante, Sean Nicholson, Wendy Levinson, David N. Gans, Terry Hammons, and Lawrence P. Casalino. "US Physician Practices Versus Canadians: Spending Nearly Four Times As Much Money Interacting With Payers." *Health Affairs* 30, no. 8 (2011): 1443–50. https://doi.org/10.1377/hlthaff.2010.0893.

National Health Care Anti-Fraud Association. "Testimony of the National Health Care Anti-Fraud Association to the House Insurance Committee." Harrisburg, PA: House of Representatives, Commonwealth of Pennsylvania, January 28, 2010.

http://www.docucu.com/view/7d4b3344492e717c21f4767dcad3ae16/National-Health-Care-Anti-Fraud-Association.pdf.

Nicholas C. Petris Center on Health Care Markets and Consumer Welfare. "Consolidation in California's Health Care Market 2010-2016: Impact on Prices and ACA Premiums." Berkeley, Calif.: School of Public Health, University of California, Berkeley, March 26, 2018. http://petris.org/wp-content/uploads/2018/03/CA-Consolidation-Full-Report_03.26.18.pdf.

Office of Budget (OB). "FY 2017 Budget in Brief - CMS - Medicare." Text. HHS.gov, February 12, 2016. https://www.hhs.gov/about/budget/fy2017/budget-in-brief/cms/medicare/index.html.

Office of Massachusetts Attorney General Martha Coakley. "Investigation of Health Care Cost Trends and Cost Drivers," January 29, 2010..

Office of the Actuary. "2016 ACTUARIAL REPORT ON THE FINANCIAL OUTLOOK FOR MEDICAID." Department of Health and Human Services, 2016. https://www.medicaid.gov/medicaid/finance/downloads/medicaid-actuarial-report-2016.pdf.

Paavola, Alia. "61% of Hospital Leaders Say Single-Payer Would Help Lower Healthcare Costs." *Becker's Hospital Review*, September 17, 2018. https://www.beckershospitalreview.com/payer-issues/61-of-hospital-leaders-say-single-payer-would-help-lower-healthcare-costs.html.

Pelech, Daria. "An Analysis of Private-Sector Prices for Physician Services." Congressional Budget Office, June 26, 2017. https://www.cbo.gov/system/files/115th-congress-2017-2018/presentation/52818-dp-presentation.pdf.

Pomerleau, Kyle. "US Corporate Income Tax Now More Competitive." Tax Foundation (blog), February 12, 2018. https://taxfoundation.org/us-corporate-income-tax-more-competitive.

Pope, Gregory, Henry Bachofer, Andrew Pearlman, John Kautter, Elizabeth Hunter, Daniel Miller, and Patricia Keenan. "Risk Transfer Formula for Individual and Small Group Markets Under the Affordable Care Act." *Medicare & Medicaid Research Review* 4, no. 3 (2014): E1–23.

Scheffler, Richard, Daniel Arnold, and Christopher Whaley. "California Health System Consolidation Leads Higher Prices | Commonwealth Fund," September 6, 2018. https://www.commonwealthfund.org/publications/journal-article/2018/sep/consolidation-california-health-system-higher-prices?omnicid=EALERT1468268&mid=gfriedma@econs.umass.edu.

Schneider, Eric. "Provider Mergers: Will Patients Get Higher Quality or Higher Costs?" Accessed December 14, 2015. http://www.commonwealthfund.org/publications/blog/2015/nov/provider-mergers-will-patients-get-higher-quality-or-higher-costs.

Schoen, Cathy. "The Affordable Care Act and the U.S. Economy." Accessed February 17, 2016. http://www.commonwealthfund.org/publications/fund-reports/2016/feb/aca-economy-five-year-perspective.

Schoen, Cathy, Sara Collins, Jennifer Kriss, and Michelle Doty. "How Many Are Underinsured? Trends Among U.S. Adults, 2003 and 2007." *Health Affairs*, June 10, 2008, w298–309.

Schumock, Glen T., JoAnn Stubbings, Michelle D. Wiest, Edward C. Li, Katie J. Suda, Linda M. Matusiak, Robert J. Hunkler, and Lee C. Vermeulen. "National Trends in Prescription Drug Expenditures and Projections for 2018." *American Journal of Health-System Pharmacy*, May 10, 2018, ajhp180138. https://doi.org/10.2146/ajhp180138.

"Seventy Percent of Americans Support 'Medicare for All' in New Poll | The Hill." Accessed November 9, 2018. https://thehill.com/policy/healthcare/403248-poll-seventy-percent-of-americans-support-medicare-for-all.

Squires, David, and David Blumenthal. "Do Small Physician Practices Have a Future?" Commonwealth Fund, May 26, 2016. http://www.commonwealthfund.org/publications/blog/2016/may/do-

small-physician-practices-have-a-future?omnicid=EALERT1042838&mid=gfriedma@econs.umass.edu.

Starr, Paul. *Remedy and Reaction the Peculiar American Struggle over Health Care Reform*. New Haven: Yale University Press, 2011

———. "The False Lure of the Sanders Single-Payer Plan." *The American Prospect*, February 1, 2016. http://prospect.org/article/false-lure-sanders-single-payer-plan.

Sterret, David, Ashley Bender, and David Palmer. "A Business Case for Universal Healthcare: Improving Economic Growth and Reducing Unemployment by Providing Access for All." *Health Law and Policy Brief* 8, no. 2 (Spring 2014): 41–56.

Sullivan, Kip. "How to Think Clearly About Medicare Administrative Costs: Data Sources and Measurement." *Journal of Health Politics, Policy and Law* 38, no. 3 (June 1, 2013): 479–504. https://doi.org/10.1215/03616878-2079523.

"The Leap to Single-Payer: What Taiwan Can Teach." The New York Times, December 26, 2017, sec. The Upshot. https://www.nytimes.com/2017/12/26/upshot/the-leap-to-single-payer-what-taiwan-can-teach.html.

US Department of Health and Human Services. "Comparison of U.S. and International Prices for Top Spending Medicare Part B Drugs." US Department of Health and Human Services, October 25, 2018. https://aspe.hhs.gov/system/files/pdf/259996/ComparisonUSInternationalPricesTopSpendingPartBDrugs.pdf.

Wenzl, Martin, and Elias Mossialos. "U.S. Hospitals Pay More Than European Hospitals for Cardiac Implants | Commonwealth Fund." Commonwealth Fund, October 3, 2018. https://www.commonwealthfund.org/publications/journal-article/2018/oct/us-hospitals-pay-more-european-hospitals-cardiac-implants.

Woolhandler, Steffie, Terry Campbell, and David Himmelstein. "Costs of Health Care Administration in the United States and Canada." *New England Journal of Medicine* 349, no. 8 (August 21, 2003): 768–75.

Woolhandler, Steffie, and David Himmelstein. "Single-Payer Reform: The Only Way to Fulfill the President's Pledge of More Coverage, Better Benefits, and Lower Costs." *Annals of Internal Medicine*, February 21, 2017. http://annals.org/aim/article/2605414/single-payer-reform-only-way-fulfill-president-s-pledge-more.

Woolhandler, Steffie, David U. Himmelstein, and Adam Gaffney. "Single Payer Is Actually a Huge Bargain," August 10, 2018. https://www.thenation.com/article/single-payer-actually-huge-bargain.