

DON'T FEAR THE DEFICIT:

WHY WE CAN AFFORD A GREEN NEW DEAL

REPORT BY **J.W. MASON** AND **KRISTINA KARLSSON** | OCTOBER 2019

INTRODUCTION

As of October 2019, most Democratic presidential candidates have released policy proposals for major public investment programs to combat the mounting climate crisis. These involve government spending on the order of 2 percent of gross domestic product (GDP) per year over 10 to 15 years on average, ranging from half of a percent for Beto O'Rourke up to 3.7 percent for Sen. Bernie Sanders, with Sen. Kamala Harris, Sen. Elizabeth Warren, Sen. Cory Booker, Joe Biden, and Gov. Jay Inslee (who has since left the race) falling somewhere in between. And there are good reasons to turn to public spending when it comes to the scale of decarbonization that is necessary to combat climate change. First, meeting the international goal of keeping global warming to less than 1.5 degrees Celsius will require a massive reorientation of the economy away from carbon in the next decade. Second, there is increasing recognition that decarbonization cannot be accomplished solely or primarily through a carbon tax, but that it requires a major public investment program. So, the scale of all the plans explored here is entirely reasonable. Given the urgency of the climate crisis and the conditions of our current economy, candidates, policymakers, and the public more broadly should feel emboldened to push for even more.

Even those who understand the importance of mobilizing our economic capabilities in order to fight climate change, however, may have reservations about the potential costs. Reporters, academics, and politicians worry that these programs will require broad-based taxes that will hit working and middle-class Americans, that financing them by borrowing would put the national debt on an unsustainable path, or that investment in climate action will deprive the economy of the resources needed for productive investment in other sectors. These fears, while understandable, are not justified given the economic conditions we face today.

Thanks to persistently low interest rates, all of these plans could be entirely financed through debt. They could also be financed through taxes on the very rich, with the added benefit of redistributing wealth and power in our society away from the 1 percent. Or, of course, they could be financed through some combination of the two.



In this issue brief, we argue that every candidate’s plan to combat the climate crisis is affordable, and we show that each can be paid for without imposing broad-based taxes on working and middle-class Americans. In fact, thanks to persistently low interest rates, all of these plans could be entirely financed through debt. They could also be financed through taxes on the very rich, with the added benefit of redistributing wealth and power in our society away from the 1 percent. Or, of course, they could be financed through some combination of the two. In addition, ongoing slack and weak demand in our economy following the Great Recession mean that there is plenty of untapped potential to be put toward a public investment program as part of a Green New Deal (GND). Thus, the notion that climate investment will pull limited resources away from other important activities is unfounded. Indeed, in an economy operating persistently below capacity, increased government spending programs can help stimulate demand, which may actually raise private spending, catalyzing lasting growth and moderating future recessions.

To be clear, no candidate has proposed financing their climate plan entirely with debt or entirely through new taxes on very high incomes and wealth; each proposes a variety of financing solutions, including ending fossil fuel subsidies, and, in some cases, a carbon tax. The purpose of this brief is to explore the economic feasibility of these plans by showing that, in principle, any of them could be funded in today’s economic environment without any broad-based taxes on working and middle-class Americans or cuts to other spending programs.

- The recent Roosevelt paper *Decarbonizing the US Economy: Pathways Toward a Green New Deal* (Paul, Fremstad, and Mason 2019) argues that we can add at least 5 percent GDP in new debt-financed spending for 10-15 years without putting the federal debt on an unsustainable path, and that historical evidence suggests that debt at this level would not impose significant costs on the economy. Here, we show that the new federal spending plans from Biden, Harris, Booker, Warren, Inslee, O’Rourke, and Sanders¹ fall well within this threshold—even if no additional revenue is raised, and even if increased investment has no growth effects. (In fact, it is likely that public investment in decarbonization will boost economic growth.)
- It is also possible to fund the proposed plans with taxes that are narrowly targeted at the top 1 percent. Building off of a new report by Lily Batchelder and David Kamin (2019) that outlines the projected earnings from wealth, financial transactions, and high-end income taxes, we show that, taken together, these taxes can pay for the all of the candidates’ plans. We briefly outline the ways in which targeted tax increases are—in addition to providing revenue—good for the economy and our democracy.

¹ The language of Sander’s climate plan claims that it will “pay for itself over 15 years” (Sanders 2019). Absent additional details about the timing of his spending, we assume for our purposes that Sanders’s \$16.3 trillion in spending will occur over 15 years.



- Finally, we present evidence that due to weak demand and continued slack in our economy, the real resources for a Green New Deal are available—and without having to reduce investment in other areas or household consumption. In fact, increasing public spending to this degree is likely to create jobs, raise wages, and increase growth.

In short, we can afford to pay for climate policy mobilization at the scale that candidates are proposing; it can be paid for through debt, through taxes, and through economic growth. Ultimately, we should not be debating the cost of candidates' various plans. What we should be debating is which proposals will most effectively achieve the urgent goals of reducing carbon emissions and promoting equity and economic security.

The Question Everyone's Asking

The question “How do we pay for it?” is really two distinct questions. The first is: How can the federal government finance it? That is, what new money coming in will match the new money going out? The second question is: Are the real resources available, or will we have to sacrifice production in other areas? On both accounts, public investment at the scale that these Green New Deal plans propose can be paid for.

PAYING FOR A GREEN NEW DEAL: THROUGH DEBT

At first glance, financing public spending on the scale that some candidates propose with additional deficit spending sounds extreme. Policy choices, however, should not be guided by instinctive reactions but by careful analysis. The sustainability of deficits is highly dependent on prevailing interest rates; the same deficit implies a very different path for the debt ratio depending on whether interest rates are high or low.

Any discussion of public debt has to begin with two key facts. First, what we care about is not the absolute amount of debt in dollars but its ratio to GDP. And second, the change in this ratio depends not only on current spending and tax revenue, but also on interest on existing debt and the growth rate of GDP. Together, these two facts carry an important implication. When interest rates are above growth rates, a high deficit in one year can cause the debt ratio to rise without limit, at least until the government runs a surplus to make up for it—and the longer it waits to do so, the larger the required surplus will be. But when interest rates are below GDP growth rates, as they are today, the debt-to-GDP ratio stabilizes on its own, even if you run deficits forever. And a temporary increase in borrowing, such as the 10-15-year spending plans that some candidates have proposed, will have only temporary effects on the debt ratio. It will gradually return to its old value once the period of temporarily higher borrowing is over. This means that we don't need to worry about the



debt rising without limit. We should, of course, still be interested in the projected path of the debt ratio.

Given that low interest rates now seem to be a permanent feature of the economy, we do not have to worry about the debt ratio spiraling out of control.

Many discussions of public debt implicitly assume we are in a high-interest-rate world, where stabilizing the debt means that deficits need to be paid for, and where it is costly to put off the adjustment. But this is not the world we live in today. The interest rate on 10-year Treasury bonds is currently 1.5 percent. Not only is this well below average GDP growth rates, but it is also lower than rates of even a few years ago. It seems that rather than “normalizing,” interest rates are continuing to decline—a trend visible around the world. Given that low interest rates now seem to be a permanent feature of the economy, we do not have to worry about the debt ratio spiraling out of control. Though higher deficits do cause debt to rise temporarily, they cannot cause it to grow without limit. Thus, we do not have to worry about the costs of debt until the debt ratio gets very large. As an illustration: At these interest rates, the debt ratio could *double*, and debt service would still account for a smaller share of the federal budget than the average share over the past 40 years.² None of the climate plans proposed would raise debt this much.

In today’s low-interest-rate environment, additional borrowing on the scale of 2, 3, or even 4 percent of GDP a year over 10 or 15 years would still leave debt-service costs lower than they were at any point in the 1980s or 1990s. And the evidence suggests that it’s highly unlikely that borrowing on this scale would be economically costly or unsustainable in other ways.

It’s important to assess whether interest rates will remain below growth rates. The future is never certain, but history suggests that this situation is in fact the norm and that the high interest rates of the 1980s and 1990s are the exception. Over the course of the 20th century, GDP growth was, on average, 2.4 percentage points greater than the average interest rate on government debt—almost exactly the gap that exists today. And there is strong evidence to support that this relationship between interest and growth rates will continue. As of October 2019, the 5-year, 10-year, and 30-year Treasury bonds are trading at 1.3 percent, 1.5 percent, and 2.0 percent, respectively. The average maturity of federal debt is just under

² Debt service costs accounted for an average of 10.5 percent of total federal spending from 1978 to 2018. At the average interest rate on newly issued federal debt of around 1.4 percent, a debt ratio of 144 percent—double the current level of 77 percent—would imply debt service costs of 10.1 percent of current federal spending.



six years, so the average interest rate on borrowing at today's interest rates is around 1.4 percent. Meanwhile, nominal GDP growth rates have been around 5 percent since the end of the recession. If our default assumption is that the relationship between interest and growth rates going forward will be similar to that that has prevailed historically, then we can expect growth rates to be 2 to 3 points above interest rates based on the evidence of the past decade. There is no reason to expect the future interest rate environment to be less favorable to public borrowing than it is today.

It's worth noting that bond markets themselves incorporate forecasts of future interest rates. Bond prices and interest rates move inversely; when one goes up, the other goes down. So, when someone buys a bond, they face a capital loss if interest rates rise before the bond matures. If, for example, the interest rates on 30-year bonds were to go back up to 5 percent in a few years, today's bondholders would see half of the value of their investment wiped out. Thus, they will not buy bonds at today's rates unless they are very confident that this will not happen. If bond market participants believed that our currently low interest rates are an aberration, we would see longer bonds trading at much higher interest rates than short ones. The fact that interest rates are low at all maturities, and that there is very little difference between 5- and 10-year bonds, is a clear indication that bond markets expect today's low rates to continue for the indefinite future.

There is no reason to expect the future interest rate environment to be less favorable to public borrowing than it is today.

The idea that there is a tipping point—where deficits are no longer sustainable and can lead to debt spiraling out of control—made a certain amount of sense in the 1980s and 1990s when interest rates on public debt were indeed greater than GDP growth rates. But for the past 15 years, the opposite has been true. And over this time, contrary to predictions that they would soon “normalize,” interest rates around the world have continued to fall. Globally, over \$17 trillion in debt now trades at *negative* interest rates (Ainger 2019). As this reality has become clearer, an increasing number of prominent macroeconomists have pointed out that this new low-interest-rate environment fundamentally changes the calculations around debt sustainability. This was the central point of the talk that Olivier Blanchard, former International Monetary Fund (IMF) chief economist and current president of the American Economic Association (AEA), gave at the AEA's annual meeting in January 2019: In a world of low interest rates, the costs of high government debt are much lower than many economists had previously believed. “Put bluntly,” he said, “public borrowing may have no fiscal cost” (Blanchard 2019). Economists Lawrence Summers and Jason Furman recently made a similar argument in an article in *Foreign Affairs* subtitled,



“How Washington Should End Its Debt Obsession” (Furman and Summers 2019). Even economist Kenneth Rogoff, best known for a paper arguing that high government debt could have serious negative effects on the economy, recently repudiated its conclusions in a column titled, “Never Mind the Debt” (Rogoff 2019). The central argument of all of these eminent economists is the same: We cannot take an analysis of the dangers of high public debt developed in the 1980s and 1990s and apply it to budget questions today.

In a world of low interest rates, the costs of high government debt are much lower than many economists had previously believed.

This growing chorus of mainstream economists has strongly argued that we have overestimated the risks associated with high levels of public debt. *Decarbonizing the US Economy: Pathways Toward a Green New Deal* demonstrates that we can increase public borrowing by at least 5 percent of GDP annually for 10 to 15 years without taking the debt-GDP ratio above levels that could put the economy at risk. Assuming interest rates will remain low—about 2.9 percent³—into the future, our analysis here shows that each of these plans, if financed entirely with debt, would raise the debt-GDP ratio to between 96 percent and 125.5 percent in the next 10 years, after which the ratio for all but Sanders’s plan will gradually return to the baseline level; Sanders’s plan begins to return to baseline levels at the 15 year mark. The most recent Congressional Budget Office (CBO) forecasts assume interest rates of around this level, with longer-term rates converging to 2.9 percent. We believe that, if anything, this is a conservative forecast; actual interest rates are more likely to be lower than to be higher. But even using the CBO’s interest assumption, all of the plans could be fully debt-financed, and the debt-GDP ratio would stay well within the range that the US and other countries have experienced in the past without incurring significant economic costs.

The Projected Debt-GDP Trajectory of Candidates’ Climate Policies if Financed Entirely Through Debt

Figure 1 shows the debt-GDP trajectory for each of the candidates’ proposals if the full cost was financed through debt, as well as the baseline case of no additional spending on a climate plan. We follow the CBO’s assumptions for interest rates and growth rates; as of their most recent forecast, these assumptions are close to the average values of the past

³ In earlier drafts of this report, we criticized the CBO for assuming that interest rates on government debt would soon rise to close to 4 percent—an assumption that we think is not grounded in any economic evidence. But in their most recent forecast, the CBO sharply reduced its forecast for future interest rates to a much more realistic 2.9 percent. So, as noted in the text, we use this value in our calculations.



decade. For Biden, Warren, O'Rourke, Harris, Inslee, and Booker who propose spending over the course of 10 years, we can see that as soon the additional spending program is finished, the primary deficit begins to converge toward the baseline case. In Sanders's case, we see that same shift occur at the 15-year mark.

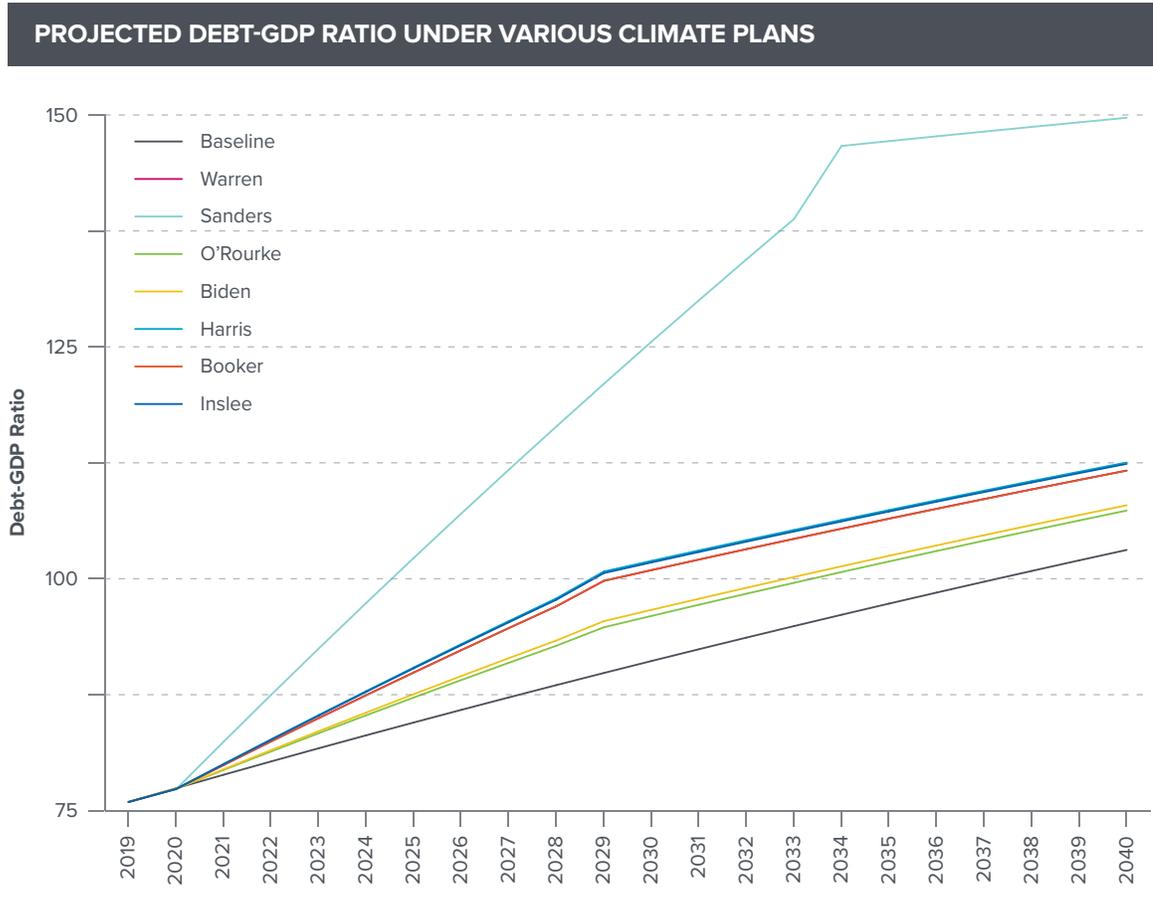


FIGURE 1 The debt-GDP ratio with additional borrowing equal to the spending proposed in various candidates' climate change proposals, given the GDP growth and interest rates assumed in the Congressional Budget Office's August 2019 forecasts. This assumes that all demand effects from the increased spending are temporary, lasting only as long as the spending itself does. *Source: Campaign documents, Congressional Budget Office, authors' analysis.*



DEBT RATIOS UNDER VARIOUS CLIMATE PLANS AND INTEREST RATE ASSUMPTIONS		
As of 2019	Debt-GDP ratio (%)	
Baseline	77	
As of 2030	At CBO interest rate (2.9%)	At current interest rate (1.4%)
Baseline	91.1	82.5
With fully debt-financed decarbonization spending (annual % of GDP/year)		
Warren (1.1)	100.9	91.7
Sanders (3.7)	125.5	115.4
O'Rourke (0.6)	96	87.1
Biden (0.6)	96.6	87.7
Harris (1.2)	101.9	92.6
Booker (1.1)	100.9	91.7
Inslee (1.2)	101.8	92.5

TABLE 1 The rise in the debt-GDP ratio from an increase in spending depends on the interest rate facing the federal government as well as on the magnitude of the spending. This shows the debt ratio in 2030 given current federal spending and revenues (“baseline”), and with additional borrowing equal to the spending proposed in each of the candidates’ climate plans. The first column shows the 2030 debt ratio given the CBO’s assumed average 2.9 percent interest rate; the second column shows the 2030 debt ratio if the federal government continues to borrow at the current rate of 1.4 percent. *Source: Campaign documents, authors’ analysis.*

As displayed in Sanders’s plan, 15 years of additional borrowing equal to 3.7 percent of GDP brings the debt ratio to 125.5 percent by 2030 and 147 percent by 2035 when the spending would end. Besides Sanders, no candidate has put forth a plan that would raise the debt-GDP level above 102 percent by 2030. Both Warren’s and Booker’s plans add 1.1 percent of GDP and bring the ratio to just 101 percent in 10 years before it begins to converge with the baseline; Harris has the second-highest proposed public spending number after Sanders at \$3.3 trillion, and this brings the debt level to 102 percent in 2030. These levels, while high, are not unprecedented. None of these plans bring the debt level above 150 percent, which Furman and Summers recently suggested as a reasonable long-run target for the debt ratio for the US (Furman and Summers 2019). Looking around the world, or at history, there is no evidence that debt at the levels implied by these plans has any economic costs. The US ended World War II with a debt ratio of about 120 percent of GDP, with the United Kingdom over 200 percent. Japan today has a debt ratio of 250 percent of GDP, while France and



Belgium have debt ratios around 100 percent.⁴ None of these countries have seen any of the negative consequences—spiking interest rates, rising inflation, a collapsing exchange rate—that are supposed to follow from excessive government debt. Of course, this does not mean that the debt ratio could rise without limit without economic consequences. However, it does suggest that even 100-percent debt financing of the climate plans proposed by these Democratic candidates would leave the debt ratio within a range that many countries have experienced without noticeable economic costs.

What About Hysteresis?

Additionally, the debt ratios given above assume that additional spending has no effect on economic growth. But an increasing number of macroeconomists believe that modern economies are subject to “hysteresis”—permanent effects on potential output from shifts in aggregate demand. If the US economy exhibits substantial hysteresis, as the evidence suggests that it does, then more public spending would raise long-term growth as well as short-run output.⁵

For example, conventional wisdom suggests that increased spending might raise the share of the labor force currently working, but that it would have no effect on the size of the labor force itself. If this were true, then the employment benefits of the higher spending would end as soon as the spending itself did, and, in any case, it would not be able to increase total employment beyond the limits of labor force growth (as determined by demographics and other structural factors). If hysteresis is real, however, then increased spending raises not only current employment but also the size of the labor force (i.e., the population of people potentially available for work). This might happen because a strong labor market encourages people who might choose to leave the labor force (e.g., older people) to continue looking for jobs, or because it makes employers willing to hire from stigmatized groups (e.g., people without college degrees or with criminal records) who might otherwise not be considered for jobs. More broadly, if a strong labor market allows people to maintain or even upgrade their job skills, that would effectively increase the size of the labor force. A weak labor market, of course, can have the opposite effect, leading people to retire early or otherwise drop out of the labor force. There is strong evidence that this explains much, if not all, of the decline in the labor force after 2007 (Yagan 2017). All of these effects last beyond the period of strong or weak demand itself, with lasting effects on growth and not just on current output.

⁴ See here: <https://fred.stlouisfed.org/graph/?g=p4Sg>

⁵ For a brief summary of the literature on hysteresis, see Fatás and Summers (2016).



Analogous effects are possible if we think that strong demand doesn't just encourage businesses to produce more with current capital and technology but also encourages investment, innovation, and entry of new businesses. If these kinds of productivity-raising responses are common responses to strong demand (and conversely to weak demand), then increased public spending may raise growth as well as current output. There is an increasingly widespread view among macroeconomists that this dynamic has held back growth over the past decade, as weak demand has discouraged investment and innovation (Obstfeld and Duval 2018).

If these kinds of effects are important, then the rise in the debt ratio would be even smaller. In this case, while public spending raises the numerator of the debt ratio, it would also raise the denominator. In general, the more persistent the effects of demand are, the greater the fraction of debt-financed public spending that pays for itself through higher growth (Delong et al. 2012). A standard estimate of the multiplier—the boost to GDP from an additional dollar of public spending—is 1.5, meaning that increasing public spending by, say, 1 percent of GDP will increase GDP by 1.5 percent. Textbook discussions of fiscal policy normally assume that this additional demand has no effect on the economy's productive potential, so the additional output goes away as soon as the additional spending does. Instead, suppose that 50 percent of the rise in GDP took the form of a permanent increase in the economy's productive potential, thanks to higher business investment, new workers entering (or remaining in) the labor force, and so on. In that case, debt-financed public spending would mostly pay for itself, even without any new revenue. The increase in the debt-GDP ratio would be less than half of what we would see in a world without hysteresis. About 60 percent of the increase in debt would be offset by faster GDP growth.

This is only a benchmark, not a forecast. Still, while it is difficult to predict the exact amount of output generated by \$1 of public investment, it is entirely reasonable to assume that a large-scale public investment program could substantially raise the economy's productive potential.



To be clear: This is only a benchmark, not a forecast. Still, while it is difficult to predict the exact amount of output generated by \$1 of public investment, it is entirely reasonable to assume that a large-scale public investment program could substantially raise the economy’s productive potential. Because 2020 candidates’ decarbonization programs emphasize public investment, research and development (R&D), labor force retraining, and other productivity-boosting forms of spending, they are likely to see greater hysteresis than ordinary public spending. So even though Figure 1 displays the highest possible debt-GDP levels for each candidate’s plan, the actual numbers—even with fully debt-financed programs—would likely be well below those upper bounds due to off-setting growth.

PROJECTED DEBT-GDP RATIO UNDER VARIOUS CLIMATE PLANS, WITH 50% HYSTERESIS

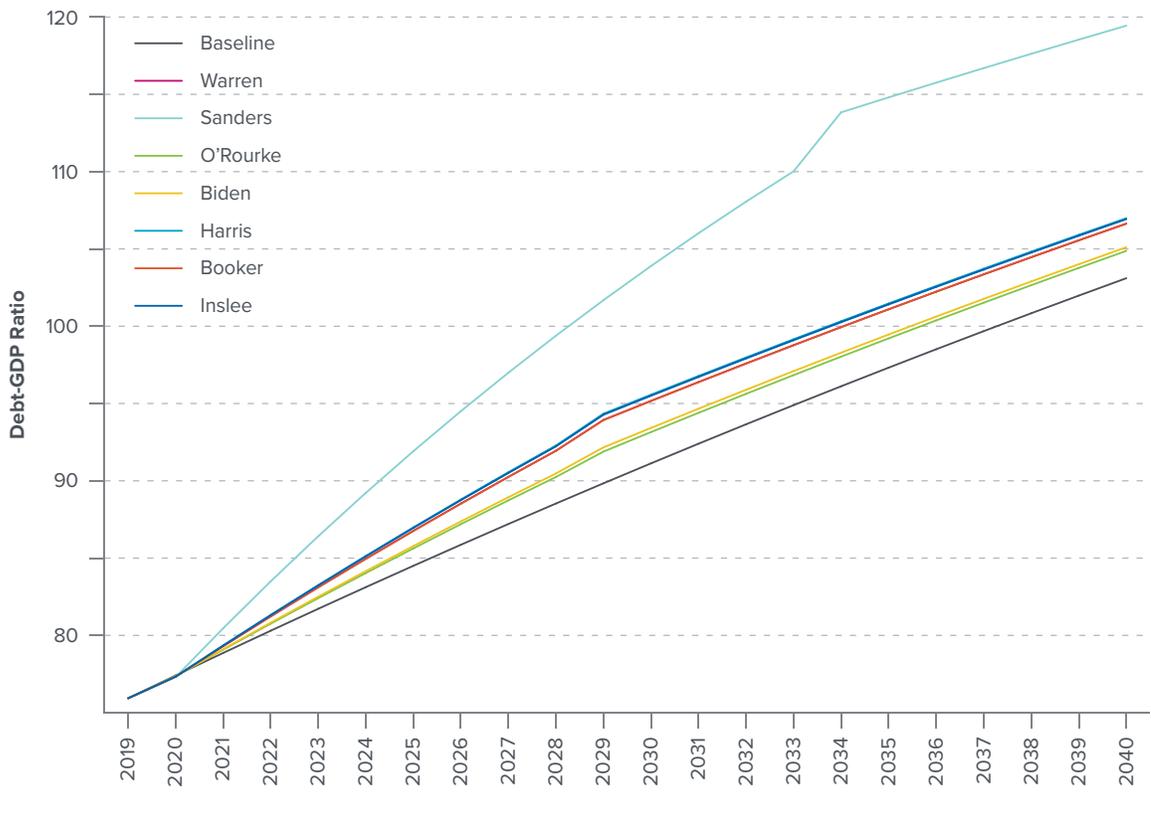


FIGURE 2 The debt-GDP ratio with additional borrowing equal to the spending proposed in various candidates’ climate change proposals, given the GDP growth and interest rates assumed in the Congressional Budget Office’s August 2019 forecasts. Unlike Figure 1, this assumes that half of the demand boost also permanently raises potential GDP. *Source: Campaign documents, Congressional Budget Office, authors’ analysis.*



Again, it is important to keep in mind that no candidate has proposed entirely financing a Green New Deal through public debt; only Warren’s plan explicitly calls for new borrowing, amounting to \$700 billion over 10 years.⁶ Some of the plans are unclear on the financing, while others explicitly identify revenue streams that will be used to fund their spending. The point of this discussion is not that decarbonization actually will or should be financed entirely through debt, but that investment on this scale could, in principle, be financed that way without an unsustainable rise in the country’s debt burden. In short, these plans are affordable.

PAYING FOR A GREEN NEW DEAL: THROUGH PROGRESSIVE TAX POLICY

In addition to debt spending, much of the financing need outlined in these plans could be paid for by implementing new taxes on very high incomes and wealth. A very thorough recent study of the space for high-end income and wealth taxes by Batchelder and Kamin (2019) identified new taxes that could raise a total \$11.9 trillion over 10 years—or roughly 4.5 percent of GDP per year—on a very targeted base of the highest incomes. If we break this down, a 2 percent wealth tax on the top 1 percent alone could raise 2.5 percent of GDP per year, which is enough to pay for every single climate plan outlined here with the exception of Sanders’s. An accrual tax on capital gains—which means taxing them as they occur rather than only when the assets are sold—would fall almost entirely on the top 1 percent and yield 1 percent GDP per year; eliminating the \$250,000 maximum earnings threshold in the Social Security tax above would yield 0.5 percent of GDP per year; and a financial transactions tax would yield another 0.3 percent of GDP each year and, again, would fall almost entirely on the wealthiest households who own the vast majority of financial assets. These are major structural changes that would face major challenges in passage and implementation. A less-demanding measure would be to simply repeal the 2017 tax law. This would yield 0.6 percent of GDP per year, enough to entirely pay for O’Rourke’s public investment plan—the least expensive of the proposals described here.

A 2 percent wealth tax on the top 1 percent alone could raise 2.5 percent of GDP per year, which is enough to pay for every single climate plan outlined here with the exception of Sanders’s.

Figure 3 shows how each of these tax revenues over 10 years compares to the proposed

⁶ As part of Warren’s climate proposal, she shares a Moody’s Analytics analysis of her spending plan where the sources of funding are outlined in detail (Zandi 2019).



10 year spending numbers each candidate has proposed. We also display the earnings of all of these tax reforms combined and show that they sum to well in excess of any of the decarbonization plans, even Sanders’s (the largest one). So, in principle it is possible to pay for decarbonization without either increased borrowing or broad-based taxes on the middle class.

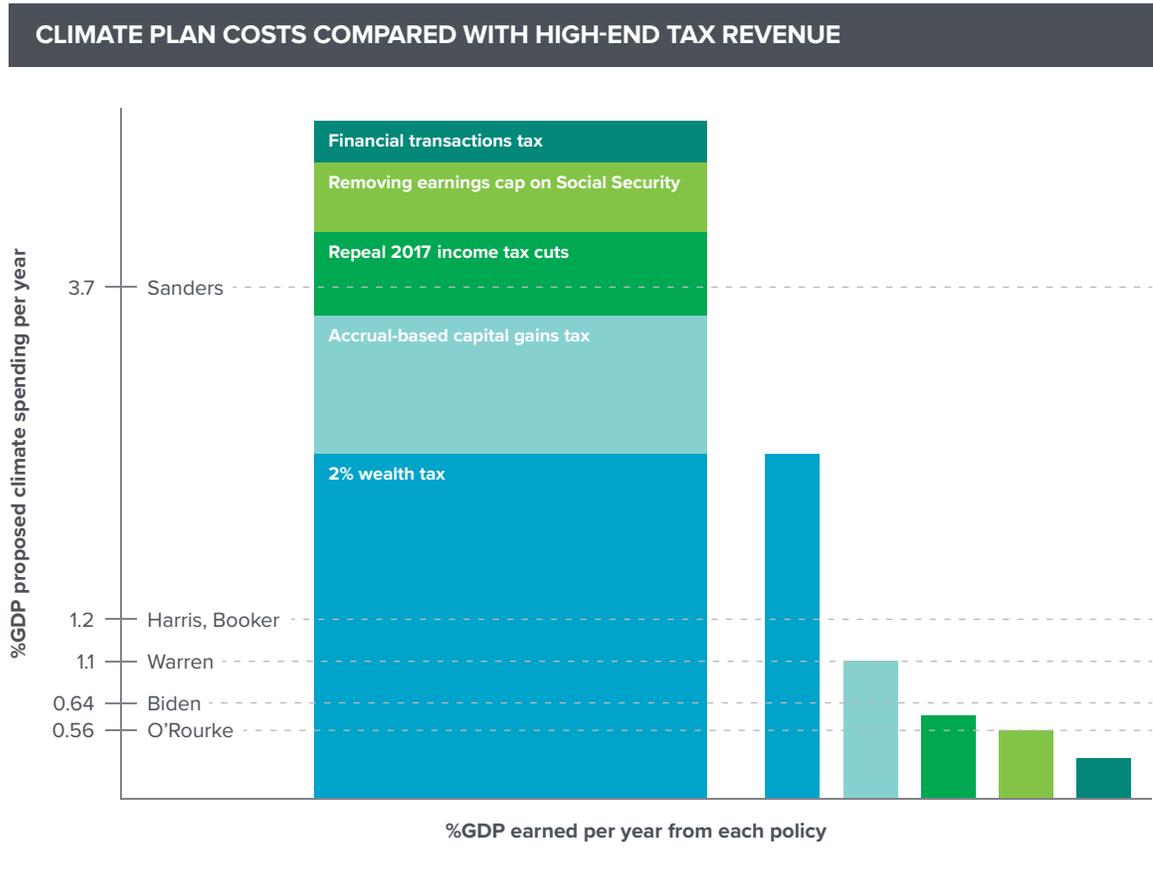


FIGURE 3 The annual spending proposed by various candidates’ climate plans, compared with the revenue raised by a range of taxes targeted at the wealthiest households. All quantities are annual, in percent of GDP. *Source: Campaign documents, Batchelder and Kamin 2019, authors’ analysis.*

The revenue raised from these taxes is valuable, but these taxes are also valuable in and of themselves regardless of the revenue. For example, taxing financial transactions can reduce speculative short-term trading, and taxing the largest concentrations of wealth can reduce the influence of money in politics. Each of these taxes helps to dismantle great concentrations of economic and political power—gained through outsized income and wealth—that are destructive for our economy, democracy, and society (Abernathy, Hamilton, Margetta Morgan 2019).



Candidates have explicitly called for several of these revenue-raising measures. To pay for decarbonization, Warren and Biden call for reform of the corporate tax code (Warren 2019; Biden 2019). O’Rourke has alluded to increased income and corporate taxes, stating that his plan will be paid for, in part, with “structural changes to the tax code that ensure corporations and the wealthiest among us pay their fair share” (O’Rourke 2019). Similarly, Sanders plans to “make the wealthy and large corporations pay their fair share” (Sanders 2019). Booker and Harris have both proposed carbon or pollution “fees” that we have not attempted to quantify here (Booker 2019; Harris 2019).

Putting a price on carbon has the potential to disincentivize consumption and raise revenues, but it’s important to note that candidates need be careful that such a tax does not fall disproportionately on lower-income families. Paul and Fremstad propose a carbon cap-plus-dividend model for this policy to offset the regressive impact of a carbon tax (Paul, Fremstad, and Mason 2019). Booker specifies that his carbon-pricing model would include such a dividend. Each candidate has also committed to ending fossil fuel subsidies that currently equal roughly \$650 billion annually (Coady et al. 2019).

All of the climate plans on the table can be fully financed through some mix of public borrowing, taxes on high-income households, and carbon taxes. The exact mix of financing will depend on the political situation, as well as on other economic and social goals. In general, a higher share of debt financing will do more to boost aggregate demand, while tax financing—if taxes fall on the economically best off—will allow for a greater degree of redistribution, reversing some of the upward concentration of income and wealth that has taken place over the past generation. Whatever the mix, it is entirely possible for these plans to be financed without raising broad-based taxes on working and middle-class Americans. In the end, it is not the case that preserving a habitable planet for future generations requires economic sacrifice by the majority of people today.

PROVIDING THE REAL RESOURCES NECESSARY FOR CLIMATE ACTION

The second part of the “pay for it” question is whether we can provide the real resources—especially labor—needed to undertake the projects outlined in candidates’ climate proposals. The short answer is yes. The critical point is that the US economy has, by almost any measure, operated below potential for a large majority of the time in recent decades. Taking official statistics at face value, there have been 192 months since 1980 when the unemployment rate was more than 1 percentage point above the non-accelerating inflation rate of unemployment (NAIRU)—the unemployment rate targeted by the Federal Reserve (the Fed). There have been only 18 months when it was more than



one point below. A similar pattern applies to GDP: It took a full decade from the start of the last downturn for GDP to return to the official estimate of potential output. The total shortfall equaled 25 percent of GDP (CBO 2019; BEA 2019).

Only the most ambitious climate plan (Sanders’s \$16.3 trillion in proposed spending) would have been enough spending to fill that gap; the rest would fall well short of it. In other words, if one of these plans had been adopted a decade ago, with no taxes or other spending cuts to pay for it, total spending in the economy would likely still have been too little to bring GDP up to the official measure of potential. And there are good reasons to believe that these official measures understate true economic potential. While GDP today is, officially, at potential, it is still more than 10 percent below what was forecast a decade ago (Mason 2017). Additionally, labor force participation among prime working-age adults (i.e., people aged 25 to 54) is still down a full point a decade ago, and two points from the late 1990s. (St. Louis Fed n.d.). Inflation is still below target. Wage growth is still slow. Almost any alternative measure of economic potential suggests that the economy is running well below it, even today, and that there is enough slack for a substantial public investment decarbonization program without the need to reduce production of anything else.

To bring wages at the bottom of the distribution back in line with economic growth, we need an extended period of strong demand—which requires more public spending.

Even if we ignore these indicators and assume that the economy is operating at normal capacity today, there are major social benefits to increasing demand and closing the capacity gap—or to “running the economy hot.” There is strong evidence that the only way we will see a rise in the wage share, and especially a rise in wages at the lower end, is with very low unemployment that is sustained—what people call a high-pressure economy (Bivens 2017). And in fact, as unemployment has decreased in the past couple years, there has been some recovery in wages at the bottom end of the distribution.⁷ Despite this rising trend in wages, it is still far short of the losses experienced by lower-wage workers in previous years. To bring wages at the bottom of the distribution back in line with economic growth, we need an extended period of strong demand—which requires more public spending.

If the economy enters recession in the next few years, as many experts expect, the need for more public spending will increase in the future. It’s crucial to consider the prospect

⁷ See the Atlanta Federal Reserve Bank wage growth tracker by wage level at <https://www.frbatlanta.org/chcs/wage-growth-tracker.aspx>.



of another downturn when assessing the economics of candidates' decarbonization proposals because we have to examine our economic position not just today but also 10 years into the future when evaluating the “cost” of and need for these plans. Many people today are talking about the possibility of a recession within the next year or so; in a recent survey by the National Association of Business Economists (NABE), 75 percent of the respondents expected a recession by the end of 2021 (Greene, Jankowski, and Simonson 2019). If there is a recession, the ability of the Fed and other central banks to offset a fall in demand is going to be even more limited this time than it was during the last recession. In past recessions, the Fed has typically reduced interest rates by 5 percentage points, and this has still not been enough to stabilize demand. Now, we will be starting from a federal funds rate of only 2 percent, giving room for only 2 points of cuts. Additionally, there is good reason to think that the economy is less sensitive to changes in the policy rate than we used to believe. Fiscal tools, such as more government spending, have more firepower to jumpstart a weakening economy.

Central bankers themselves are also quite clear that we will need more public spending in a recession. When Fed Chair Jay Powell testified before Congress in the summer of 2019, he said that monetary policy would not be enough to combat a recession; that the Fed would need help from fiscal policy—or from the federal government spending more (Mason 2019). Christine Lagarde, in her first public comments after being appointed as head of the European Central Bank, said the same thing: that governments in the eurozone needed to spend more to boost demand. The central bank can't be “the only game in town,” she noted (Arnold and Khan 2019).

One of the key lessons of stimulus debates in the last recession is that it is very hard to ramp up public spending in a hurry. The common critique of fiscal policy—that is slow to take effect—was evidently true in the last recession. This was because “shovel-ready” projects—public investment projects that could be initiated as soon as funds were available—were not out there and waiting for someone to quickly set into action. However, that critique is not an argument against fiscal policy as a tool; instead, it is a strong argument for laying out an expansive public spending program now before it becomes macroeconomically urgent in the next recession to do so immediately.

A lesson of the ARRA is the importance of planning for public investment projects well in advance of the need for fiscal stimulus.

Most observers today agree that the stimulus in last recession was too small. Though the American Recovery and Reinvestment Act (ARRA) did boost demand in the immediate wake of the financial crisis, there is a broad consensus that, relative to the scale of the downturn, it was too small and ended too soon; the “ARRA's magnitude and duration



were insufficient,” in the words of one recent assessment (Boushey et al. 2019). And even if the ARRA might have been big enough in the abstract, it was offset by massive anti-stimulus policies at the state and local levels. One major constraint was the absence of “shovel-ready” projects, as outlined above. Thus, a lesson of the ARRA is the importance of planning for public investment projects well in advance of the need for fiscal stimulus. It is much easier to move planned spending forward than to begin a new project from scratch.

Meanwhile, in Europe, we see deep austerity almost everywhere, even in countries facing high unemployment and deeply depressed output. Even when mainstream economists say that there is a clear case for deficit spending, it is hard to get the political system to listen. There is a longstanding idea in macroeconomics that elected governments suffer from deficit bias, and that fiscal policy rules need to be designed to restrain the political system from spending too much. But modern governments seem to suffer more from austerity bias, spending too little even when there is no economic argument for balanced budgets. Given the costs of deep economic downturns, the risks of falling short when it comes to public spending are greater today than the risks of overshooting. In preparation for any future fall in private demand, there is a strong argument for a public investment program that involves more spending, and less revenue, than might seem ideal under present conditions.

Given the costs of deep economic downturns, the risks of falling short when it comes to public spending are greater today than the risks of overshooting.

CONCLUSION

Paying for the climate proposals put forth by Democratic presidential candidates should not be a point of debate or contention. The fact is: We can afford to pay for all of these plans. We can finance the level of public investment they require through debt, through taxes on the 1 percent, or through a combination of the two. There is no need to raise broad-based taxes on the general population; the fear that the middle and working classes would bear the brunt of the cost of decarbonization is not supported by economic evidence. It is true, however, that the working and middle class will bear the brunt of consequences related to continued weak demand and slack in our economy, as well as the consequences of climate change. The real resources needed to execute the current climate proposals are ready and waiting, and the money we need is available to us. The greatest mistake we can make in this moment is inaction.



APPENDIX: SOURCES FOR CANDIDATES' SPENDING PROPOSALS

This section provides the sources used in this issue brief for the cost of each candidate's climate plan. We present brief excerpts from relevant documents and discuss various ambiguities in the amounts and timing of new climate spending that the candidates propose.

Bernie Sanders

In Sanders's "[Green New Deal](#)," he outlines 14 goals in the introduction. Third on that list is his projected public spending investment:

"Directly invest an historic \$16.3 trillion public investment toward these efforts, in line with the mobilization of resources made during the New Deal and WWII, but with an explicit choice to include black, indigenous and other minority communities who were systematically excluded in the past."

Based on this text, we used the number \$16.3 trillion for total spending under Sanders's plan. The 14th point on his list outlines how this plan will "pay for itself":

"This plan will pay for itself over 15 years. Experts have scored the plan and its economic effects. We will pay for the massive investment we need to reverse the climate crisis by:

- *Making the fossil fuel industry pay for their pollution, through litigation, fees, and taxes, and eliminating federal fossil fuel subsidies.*
- *Generating revenue from the wholesale of energy produced by the regional Power Marketing Authorities. Revenues will be collected from 2023-2035, and after 2035 electricity will be virtually free, aside from operations and maintenance costs.*
- *Scaling back military spending on maintaining global oil dependence.*
- *Collecting new income tax revenue from the 20 million new jobs created by the plan.*
- *Reduced need for federal and state safety net spending due to the creation of millions of good-paying, unionized jobs.*
- *Making the wealthy and large corporations pay their fair share."*

Absent further detail regarding the period over which the money will be spent (rather than paid for), we assumed that the spending would also take place over 15 years.



Kamala Harris

In Harris’s “[Climate Plan for the People](#),” she describes her plan for total—public and private—investment to reach her climate goals:

“My plan sets out a bold target to exceed the Paris Agreement climate goals and achieve a clean economy by 2045, investing \$10 trillion in public and private funding to meet the initial 10-year mobilization necessary to stave off the worst climate impacts.”

Because this statement does not specify how much money will come from public versus private investment, we did not use the \$10 trillion figure in our analysis. Instead, we reference a [Vox article](#) that cites a “Harris spokesperson” who provides more clarity on the amount of public spending:

“In all, the shift to clean energy infrastructure is expected to cost a \$10 trillion investment from public and private sources. According to a Harris spokesperson, \$3.3 trillion of that money is estimated to be federal spending, though it’s not immediately evident what the sources of funding would be.”

We used the \$3.3 trillion public investment figure in our analysis, but we acknowledge that it is not stated in her climate plan.

Elizabeth Warren

In Warren’s “[Plan for 100% Clean Energy](#),” she states her plan for federal investment:

“Today, I’m announcing I’ll commit an additional \$1 trillion over 10 years—fully paid for by reversing Trump’s tax cuts for the wealthiest individuals and giant corporations—to match Governor Inslee’s commitment, and to subsidize the economic transition to clean and renewable electricity, zero emission vehicles, and green products for commercial and residential buildings. All told, a federal investment of \$3 trillion will leverage additional trillions in private investment and create millions of jobs.”

We used the \$3 trillion public investment figure in our analysis and calculated this spending based on a 10-year timeline. Previous versions of her climate plan, which involved lower total spending, cite an independent Moody’s Analytics report, “[The Macroeconomic Impact of Senator Elizabeth Warren’s Clean Energy Plan](#),” that analyzes the impact of her proposed spending. This report includes the requirement of \$700 billion of additional federal borrowing, which we mention in our brief:

“Senator Warren’s clean energy plan thus results in a static increase in the federal budget deficit of \$700 billion over the next decade.”



We are not aware of an update to this analysis since she released the plan with total federal spending of \$3 trillion.

Beto O'Rourke

In O'Rourke's plan on "[Climate Change](#)," he outlines his plan for direct public investment:

"That is why, in the very first bill he sends to Congress, Beto will launch a 10-year mobilization of \$5 trillion directly leveraged by a fully paid-for \$1.5 trillion investment—the world's largest-ever climate change investment in infrastructure, innovation, and in our people and communities."

For our analysis, we used the \$1.5 trillion figure as it refers to direct public investment, rather than the total \$5 trillion, which includes leveraged private investment. We also use the 10-year period he provides.

Joe Biden

In Biden's "[Plan for a Clean Energy Revolution and Environmental Justice](#)," he describes his proposed spending:

"Biden's climate and environmental justice proposal will make a federal investment of \$1.7 trillion over the next ten years, leveraging additional private sector and state and local investments to total to more than \$5 trillion."

We used the \$1.7 trillion figure in our analysis, as well as the 10-year timeline given here. Once again, we do not use the \$5 trillion figure, as it includes private investment.

Cory Booker

In Booker's "[Plan to Address the Threat of Climate Change](#)," he describes his public investment goal:

"Cory's plan will: ... Directly invest over \$3 trillion dollars by 2030 to fund the transition to a 100% carbon-neutral economy by no later than 2045 and spurring economic activity, creating millions of jobs where they are needed most, and empowering communities to have control and ownership over their energy systems and local environments."

We used the \$3 trillion figure for our analysis and the 10-year spending timeline he gives here.



Jay Inslee

We included Inslee’s plan, even though he has since dropped out of the race, because it was one of the first comprehensive plans announced on climate change and has played an important role in shaping the subsequent debate. In Inslee’s “[Evergreen Economy Plan](#)” introduction, he outlines his 10-year plan:

“Governor Jay Inslee’s Evergreen Economy Plan is a comprehensive vision to build a clean energy economy that will create 8 million good jobs during the next 10 years.”

Based on this, we conducted our analysis of his projected debt-GDP ratio using a 10-year spending timeline. He later outlines the spending his plan would entail:

“Governor Inslee’s 100% Clean Energy for America Plan calls for 100% carbon-neutral electricity by 2030, and a fully clean, renewable and zero-emission electricity sector by 2035—a new standard that could alone catalyze more than \$600 billion in additional clean energy investment between 2020-2030, as part of approximately \$3.25 trillion in overall additional investment in Igniting America’s Clean Energy Economy. Smart public investment by the federal government will efficiently leverage enormous private capital to meet that spending level in a way that creates millions more good clean-energy jobs.”

We use the \$3.25 trillion figure in our analysis, as it refers to his “overall additional investment.”



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