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## WOULD A REVENUE-NEUTRAL CARBON TAX LEAD TO BIGGER GOVERNMENT?

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### INTRODUCTION

A carbon tax is widely acknowledged as one of the most economically efficient means of reducing greenhouse gas emissions. Aside from reducing emissions, a carbon tax also provides a source of revenue that can be put to beneficial purposes, such as funding cuts to other existing taxes. By using the revenue from a carbon tax to replace existing ones, such a revenue neutral “tax swap” would greatly reduce or eliminate the economic costs of the tax. Indeed, in some cases, even if benefits from reduced emissions are not considered, a tax swap could be a net positive for the economy.<sup>1</sup>

Despite this, many critics of a carbon tax are skeptical as to whether a revenue-neutral carbon tax could be enacted. Some critics go further, arguing that even if a carbon tax started out as revenue neutral, it would not remain so. This

1. See, e.g., Catrina Rorke, “A Carbon Bargain for Conservatives,” *R Street Policy Study* No. 68, September 2016. <https://2o9ub0417ch2lg6m43em6psi2i-wpengine.netdna-ssl.com/wp-content/uploads/2018/04/68-1.pdf>.

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position is best encapsulated by Robert Murphy of the Institute for Energy Research:

Even if the carbon tax revenues are initially devoted 100 percent to reducing the burden of other taxes, it would be quite naïve to trust the government to honor this deal forever. It is far more likely that during the next fiscal crisis, the government would raise payroll, income, and/or other tax rates, while keeping the new carbon tax in place. Over time, we would likely see an increase in the amount of tax receipts (relative to GDP), and a more inefficient tax structure.<sup>2</sup>

These are bold claims but whether or not they are accurate remains a topic of debate. Accordingly, this paper examines several arguments used to support the idea that a revenue-neutral carbon tax deal would unravel and considers some historically analogous cases. While there are no guarantees, the existing evidence suggests that a revenue-neutral carbon tax would not lead to larger government over the long term and could even shrink it.

### REVENUE NEUTRAL CARBON TAX: OVERVIEW AND POSSIBLE CHALLENGES

Under a revenue-neutral swap, the revenue expected to be generated from a carbon tax is matched with cuts to existing taxes in the same amount, so that government revenue overall remains the same both before and after the tax. While this sounds promising, there is no guarantee that what Congress enacts today, it will not alter tomorrow. Therefore, it is important to address how such a swap deal might unravel.

2. Robert P. Murphy, “Carbon ‘Tax Swap’ Deals: A Review and Critique,” Institute for Energy Research, November 2012. <https://www.instituteforenergyresearch.org/wp-content/uploads/2012/11/IER-Murphy-Carbon-Tax-Swap-Deals-A-Review-and-Critique.pdf>.

One possibility would be that a future Congress might repeal the entire deal. Alternatively, it might decide to keep the tax cuts from the deal while either repealing the carbon tax altogether, lowering the rate or carving out new exemptions. While these scenarios would be unfortunate from a carbon mitigation perspective, they would not lead to bigger government and do not appear to be the scenarios carbon-tax skeptics worry about.

By contrast, there are two ways that a carbon-tax deal could be altered to result in higher taxes overall.

First, a future Congress might keep the carbon tax while undoing the tax-cut portion of the deal or otherwise raising taxes overall. This concern was expressed by Veronique de Rugy, who writing about the possibility of a revenue-neutral carbon tax asked if anyone knew “of a way to make sure future Congresses will not simply reinstate the old taxes, if by some miracle the trade were to be successfully executed today.”<sup>3</sup>

De Rugy is, of course, correct that there is no piece of legislation enacted by Congress that cannot be undone in the future. She also correctly notes that “politicians are always revenue-hungry” and thus would like to raise taxes. Yet, the desire for more revenue is not something that is created by the existence of a carbon tax. If elected officials’ appetite for more revenue alone was sufficient to raise taxes, they would already be much higher than they are today.

Indeed, despite such desire, politicians are often unable to raise taxes for a simple reason: they are unpopular. And thus the risk of a political backlash is often too great to muster the necessary political support. This is particularly true given the significant procedural hurdles that any Congressional action has to pass in order to become law. Since a tax-swap deal would not alter any of the procedural obstacles to increasing taxes, it can result in bigger government only if it somehow makes raising taxes less unpopular—a topic that will be considered in more depth below. As it turns out, historical evidence suggests that overall tax revenues are driven primarily by spending decisions, rather than by the composition of taxes.

Even if a carbon-tax deal does not make it easier to raise taxes in general, there might be something special about a carbon tax that makes it easier to increase. Once established, a future Congress, for example, might be able to increase carbon-tax rates on the grounds that environmental damages were worse than previously recognized. De Rugy expresses this concern as well, writing that “even if [revenue-hungry politicians] actually knew the optimal price for carbon emissions,

they would have very strong incentives to jack up that tax rate well above the optimal price, making it counterproductive economically (and, by the way, also environmentally).”<sup>4</sup>

As it turns out, however, a carbon tax has natural limitations that preclude it from being used to generate ever-increasing amounts of tax revenue. This is because higher carbon-tax rates induce a more rapid fall in greenhouse gas emissions. This, in turn, limits the overall revenue collected from the tax. In fact, unlike revenue from income, sales or property taxes, which tends to increase over time even at a constant tax rate, revenue from a carbon tax is likely to remain stable or fall gradually as emissions decline.

## TAX SWAPS IN GENERAL

Most major tax reforms include tax swaps at least as elements of a larger package. The 2017 tax law, for example, eliminated multiple tax deductions while simultaneously raising the standard deduction to offset this effect. In general, tax swaps are recognized as a legitimate part of tax reform plans, even by very conservative individuals and organizations. For example, in the Taxpayer Protection Pledge, signed by Congressmen who wish to establish their anti-tax credentials, the signatory promises that they will:

ONE, oppose any and all efforts to increase the marginal income tax rates for individuals and/or businesses; and TWO, oppose any *net reduction* or elimination of deductions and credits, *unless matched dollar for dollar by further reducing tax rates*.<sup>5</sup>

Whether a particular tax swap deal remains revenue neutral over the long term is a difficult question to answer. The system is complex and significant changes to the tax code are made frequently. While one can project the effects of a given tax bill when it is passed, that projection is only valid, at most, until the next significant tax reform.

A couple of historical examples may give a sense of the difficulty. The Tax Reform Act of 1986, for instance, made fundamental changes to America’s income and business taxes. Many tax deductions and exemptions were eliminated and new taxes were applied to business. In exchange, several tax credits were expanded and marginal tax rates were reduced from 50 to 28 percent.<sup>6</sup>

The 1986 deal was designed to be revenue neutral. Over time,

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4. Ibid.

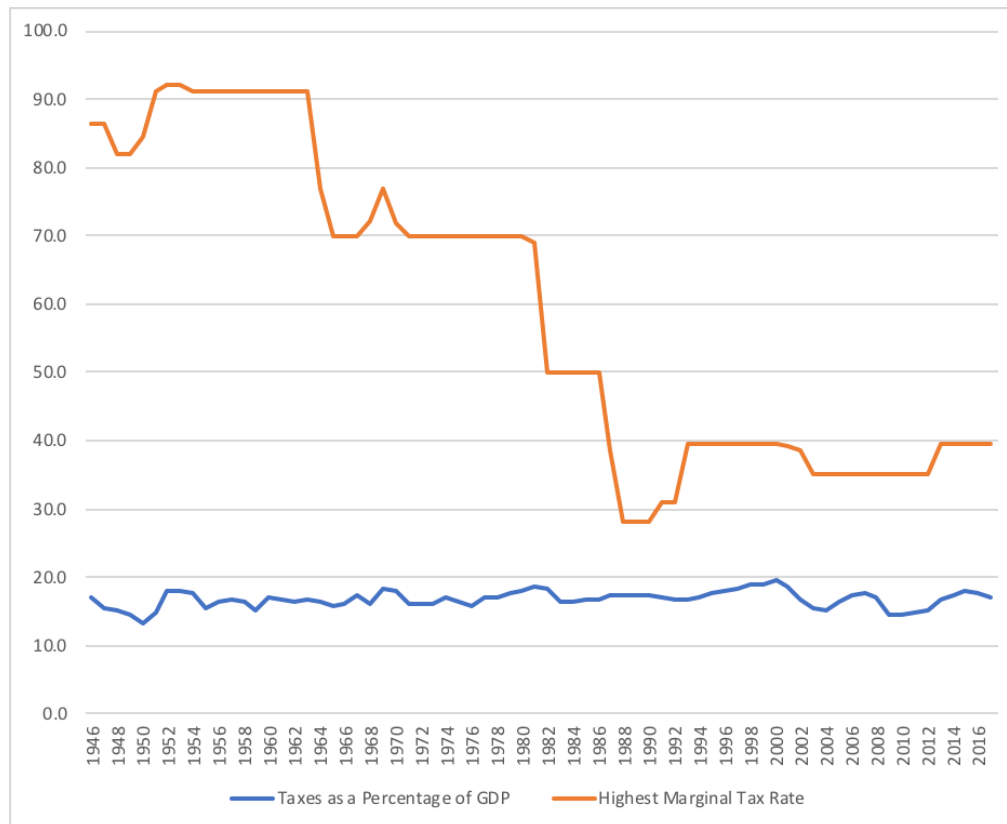
5. “U.S. House: Taxpayer Protection Pledge” Americans for Tax Reform, 2011 (archived from the original). [https://web.archive.org/web/20100601152143/http://www.atr.org/userfiles/Congressional\\_pledge%281%29.pdf](https://web.archive.org/web/20100601152143/http://www.atr.org/userfiles/Congressional_pledge%281%29.pdf).

6. See, e.g., Alan S. Murray and Jeffrey H. Birnbaum, *Showdown at Gucci Gulch: Lawyers, Lobbyists, and the Unlikely Triumph of Tax Reform* (Vintage 1988), passim.

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3. Veronique de Rugy, “A Carbon Tax is Still a Bad Idea,” American Institute for Economic Research, July 27, 2018. <https://www.aier.org/article/carbon-tax-still-bad-idea>.

TABLE I: TAXES AS A PERCENTAGE OF GDP VS. HIGHEST MARGINAL TAX RATE (1946-2017)



SOURCE: Compiled from data provided by the Tax Foundation and the Federal Reserve.

however, subsequent tax changes altered some elements of the original structure. New deductions were added; others were eliminated. In 1991 marginal tax rates were raised to 31 percent and then raised again, in 1994, to 39.6 percent. Between 2001 and 2003, a series of tax cuts lowered top rates temporarily to 35 percent, after which they returned to 39.6 percent in 2013.<sup>7</sup>

However, these subsequent tax changes do not necessarily mean that the 1986 Tax Deal was not revenue neutral. In fact, in order to assess whether or not that was the case, one would need to know not only the subsequent tax changes but also what would have happened to taxes had the 1986 bill not been passed. In the absence of the 1986 reforms, marginal rates might have stayed at 50 percent. They might even have later been lowered to the current 39.6 percent. On the other hand, the same political forces that succeeded in raising income tax rates by more than 11 points in the early 1990s might still have been able to do so if the 1986 reform had not been passed. As a result, top tax rates might now be 61.6 percent.

A similar case of uncertainty surrounds British Columbia's carbon tax. In 2008, the Canadian province became the first jurisdiction in North America to impose such a tax. BC's tax was also specifically designed to be revenue neutral, with revenue used to replace revenue from cuts to income and business taxes, as well as credits for low-income households. During the early years of the program, the tax was widely accepted as being revenue neutral. In fact, the system delivered \$500 million more in tax cuts than it collected in carbon tax revenues during its first five years in operation.<sup>8</sup>

However, as the program entered its second half-decade, controversy developed. As noted by the Fraser Institute, starting in 2013/2014, some of the tax credits designated by the government as offsetting the revenue from the carbon tax had originally been enacted prior to 2008.<sup>9</sup> As a result, many argued that the government could not claim that it was using revenue from the carbon tax to offset the credits when the credits were in place before the tax. By contrast, others

7. "Federal Income Tax Rates History," Tax Foundation, accessed June 8, 2018, <https://2o9ub0417chl2lg6m43em6psi2i-wpengine.netdna-ssl.com/wp-content/uploads/2018/04/68-1.pdf>.

8. Stewart Elgie and Jessica McClay, "BC's Carbon Tax Shift After Five Years," Sustainable Prosperity, July 2013, <http://institute.smartprosperity.ca/sites/default/files/bcs-carbon-tax-shift-after-5-years-results.pdf>.

9. Charles Lammam and Taylor Jackson, "Examining the Revenue Neutrality of British Columbia's Carbon Tax," Fraser Institute, February 2017, <https://www.fraserinstitute.org/studies/examining-the-revenue-neutrality-of-british-columbias-carbon-tax>.

argued that the credits in question had been set to expire and therefore that extending them was a legitimate way of allocating the carbon tax revenue. The government itself took a similar view, stating that: “We look at the entire tax system every year as part of the budget process, and it’s reasonable that deciding to continue providing a tax cut is as legitimate a tax measure to include as an entirely new tax reduction.”<sup>10</sup>

To gauge which of these perspectives is the more valid, one would have to know whether the credits would have been renewed in the absence of the carbon tax. Even that might not be enough, however, because in a world without one, British Columbia might have decided to increase other taxes rather than to eliminate the credits. Since tax money is fungible, the impact of a given tax or credit cannot be assessed without looking at the tax burden as a whole. To do so, one needs to look at the trend in the overall tax burden, which is best represented by tax revenues as a percentage of GDP (Table 1).<sup>11</sup>

When we look at trends in taxes as a percentage of GDP, something strange emerges: tax changes—even major ones—appear to have quite a limited effect on the long-term amount of taxes collected.

Since World War II, federal tax revenue has stayed in a fairly narrow band, rarely going above 20 percent or below 15 percent of GDP, with an average of 19.5 percent. This constancy is all the more remarkable considering that over 30 major tax changes have taken place over the same period. Marginal tax rates have varied wildly since World War II, from a high above 90 percent in the 1950s, to a low of 28 percent during the late 1980s. The post-war period has also seen several large-scale tax reforms, including the elimination or creation of significant deductions, shifts in brackets and the creation of new taxes. And while it would be an overstatement to say that none of these changes had any appreciable effect on the tax-to-GDP ratio, despite it all, tax revenues as a percentage of GDP have remained within the same range.

The seeming imperviousness of tax revenues to changes in the tax code is known as Hauser’s Law, named after investment analyst and Hoover Institution fellow W. Kurt Hauser, who first noted the regularity. A similar constancy in taxes as a percentage of GDP has been noted for Canada.<sup>12</sup>

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10. “Fraser Institute challenges revenue neutral claim of BC’s carbon tax,” *The Canadian Press*, Feb. 17, 2017. <http://www.cbc.ca/news/canada/british-columbia/fraser-institute-carbon-tax-1.3987504>.

11. Looking at taxes as a percentage of the GDP rather than at absolute tax dollars is necessary because revenues from most taxes tend to grow along with the economy, even if tax rates remain unchanged. Interestingly (as discussed below), this tendency may not be true for carbon taxes.

12. “Is there a Hauser’s Law for Canada Too?” *Worthwhile Canadian Initiative*, July 12, 2011. <http://worthwhile.typepad.com/worthwhile-canadian-initi/2011/07/economics-has-a-number-of-laws-floating-around-that-are-rooted-in-empirical-observation-and-then-put-forth-as-natural.html>.

What explains this seemingly mysterious regularity? Clearly, it is not an iron law of economics that tax revenues must fall within this range. Indeed, for much of America’s history, federal tax revenues were less than five percent of GDP. In fact, it was only upon America’s entry into World War II that federal revenues as a percentage of GDP reached Hauser’s range. Tax revenues as a percentage of GDP are also much higher in other developed countries. And, as a practical matter, it is implausible to think that changes in tax rates *can’t* affect overall revenue. If the government decided tomorrow to repeal all taxes, federal tax revenue would not magically remain at 15 percent of GDP.

Hauser himself sought to explain the regularity in terms of another idea common in the economics of taxation: the Laffer Curve. Articulated by economist Art Laffer, the Laffer Curve suggests that because taxes discourage economic activity, it is possible that a higher tax rate could generate less revenue than a lower marginal rate.<sup>13</sup>

While the Laffer Curve is controversial, most economists would admit that it can apply sometimes. For our purposes, however, the important point is that it cannot explain Hauser’s Law. This is because the Laffer Curve describes the effect of tax rates on the absolute amount of tax revenue collected, whereas Hauser’s Law is about taxes as a percentage of GDP.

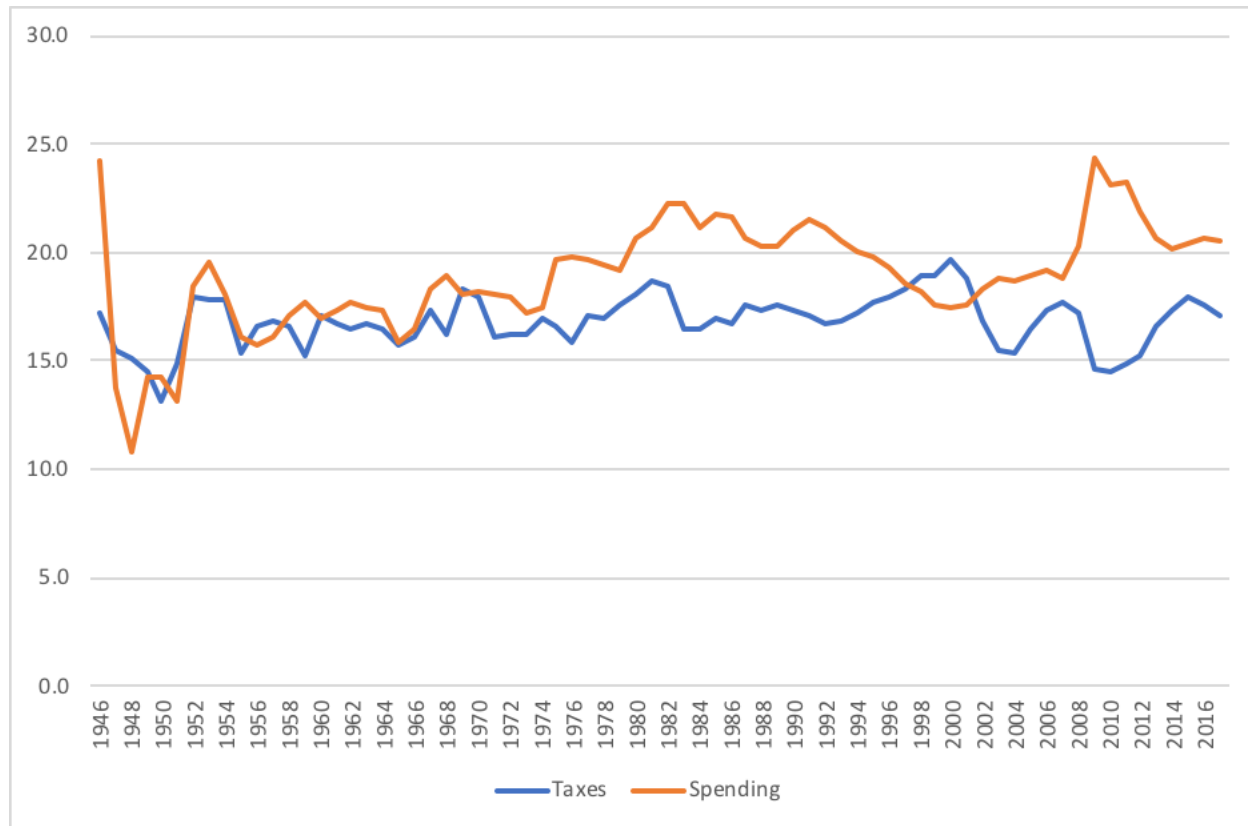
To see why this difference matters, imagine a fictional country, Hauserland, that has a GDP of \$1 trillion and collects \$200 billion a year in taxes through a comprehensive 20 percent tax. Now suppose that the leaders of Hauserland, being as ignorant as they are greedy, decide to double the tax rate from 20 to 40 percent. Disaster strikes. The economy contracts by 50 percent, leaving Hauserland with a total GDP of only \$500 billion. As a result, the government collects no more in taxes under the new, higher tax rate than it did under the old, lower one (\$200 billion). Yet while dollar amount of taxes has not changed, taxes as a percentage of GDP have gone up. In fact, they have doubled from 20 to 40 percent (\$200 billion is 20 percent of \$1 trillion, but 40 percent of \$500 billion). Since Laffer effects work by shrinking GDP, they cannot explain a constant ratio of GDP to taxes collected.

Instead, the cause of Hauser’s Law is likely political. Over the long term, the ultimate driver of tax revenues is government spending. When revenues and spending diverge, political pressure mounts to bring them back into line, either by cutting taxes (when more revenue is coming in than is needed to pay for spending) or by raising them (when revenues fall too far below what is needed). Since World War II, government

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13. For a fuller description of the Laffer Curve, see Arthur Laffer, “The Laffer Curve: Past, Present, and Future,” *Heritage Foundation*, June 2004. <https://www.heritage.org/taxes/report/the-laffer-curve-past-present-and-future>.

TABLE 2: FEDERAL TAX REVENUE AND NET OUTLAYS AS PERCENTAGE OF GDP (1946-2017)



SOURCE: Created by author based on Federal Reserve data.

spending as a percentage of GDP has itself remained fairly constant and thus so have taxes (Table 2).

That spending is driving taxes and not the other way around can be seen by looking at even longer-term trends.

Just because taxes are ultimately driven by spending, does not make tax reform pointless. Positive tax reform can still boost economic growth and may keep revenues from outstripping spending. In the case of a carbon tax, it may also help to achieve environmental goals. Further, given that Hauser's Law is not an iron law of economics, it would be imprudent to put too much weight on it when considering the effects of a tax swap. Still, Hauser's law provides some evidence that while a carbon tax swap may increase the rate of economic growth, it would be unlikely to increase taxes' share of the overall economy.

## ARE CARBON TAXES UNIQUE?

Even if tax swaps generally do not raise overall tax revenues over the long term, some critics have suggested that carbon taxes are unique in that a carbon tax swap would lead to bigger government even if a typical one would not. According to Robert Murphy: "Even if the carbon tax revenues are initially

devoted 100 percent to reducing the burden of other taxes [...] over time, we would likely see an increase in the amount of tax receipts (relative to GDP), and a *more* inefficient tax structure."<sup>14</sup>

To see how serious a charge this is, consider the situation in reverse. Suppose, for example, that the United States currently had a carbon tax. Following the assessment above, it would be desirable to eliminate the carbon tax, even if doing so required raising other taxes (e.g. income tax rates) enough to offset the loss of revenue from the carbon-tax repeal. After all, income-tax rates can always be lowered later, and without a carbon tax, the total amount of taxes as a share of the economy is likely to fall.

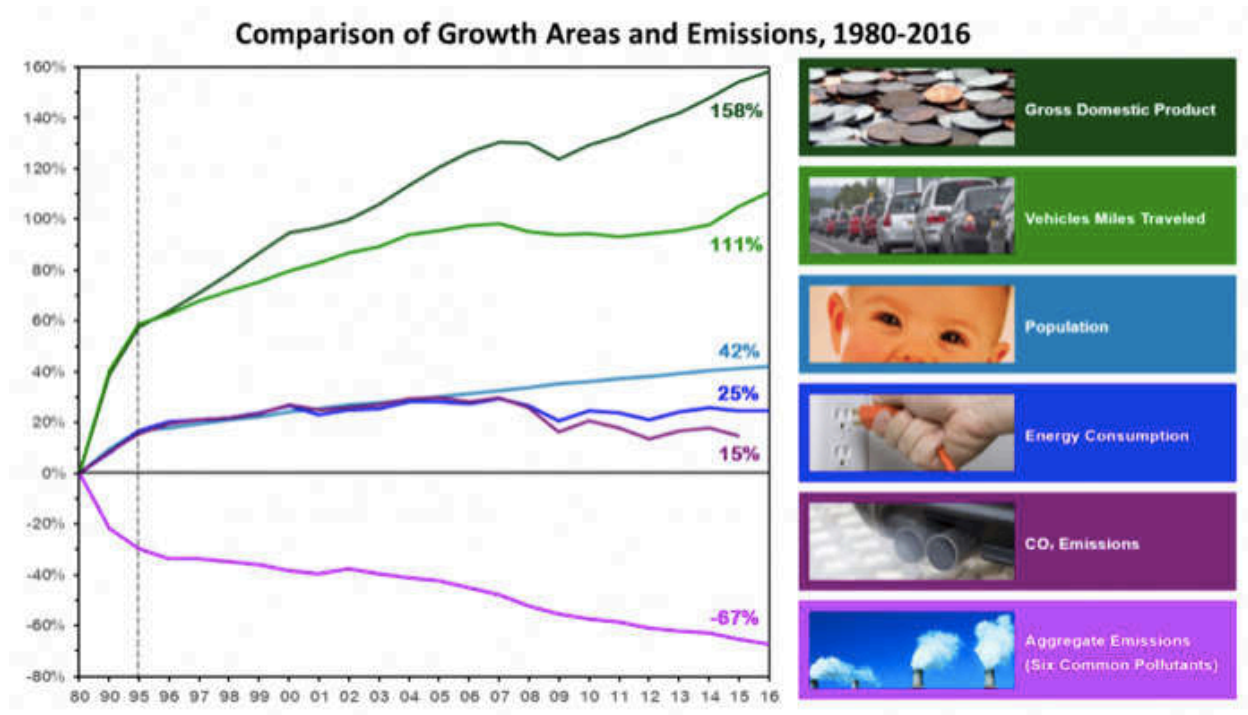
To support his contention, Murphy cites America's experience with the income tax as evidence that a carbon tax would grow government over the long term: "The most obvious parallel to today's calls for a carbon tax swap is the introduction of (our modern) federal income tax in 1913."<sup>15</sup> Murphy goes on to note that, the income tax introduced that year

14. Murphy. <https://www.instituteforenergyresearch.org/wp-content/uploads/2012/11/IER-Murphy-Carbon-Tax-Swap-Deals-A-Review-and-Critique.pdf>.

15. Ibid.



TABLE 3: COMPARISON OF GROWTH AREAS AND EMISSIONS (1980-2016)



SOURCE: "Air Quality—National Summary," U.S. Environmental Protection Agency, 2016.

was justified on the grounds that it allowed the government to reduce economically burdensome tariffs and other excise taxes. Yet, despite starting at a low rate that applied only to a small percentage of wealthy households, the income tax was soon expanded to cover almost all households and at far higher rates.

However, the very features of the income tax that made it easy to expand after 1913 are not shared by a carbon tax. Because the 1913 income tax thresholds excluded large portions of the population, it was possible to expand the tax rapidly simply by lowering the thresholds. By contrast, since the goal of a carbon tax is to discourage emissions, most carbon-tax proposals have the tax apply to most emissions from the beginning, which leaves politicians little room to expand them further.

In addition, as noted above, politicians are limited in their ability to increase revenues from a carbon tax simply by raising rates, because a higher carbon tax rate will result in a quicker decline in emissions. Economists have long recognized that Laffer Curve effects can mean that an increase in tax rates results in lower revenue because of disincentive effects. These are likely to be more constraining in the case of carbon taxes, as low- or zero-carbon substitutes exist for many activities.

Indeed, revenues from a carbon tax may be less likely to grow

over time than traditional taxes. Even if tax rates do not rise, income tax receipts tend to increase over time, along with the size of the economy. The same is true for sales taxes, property taxes and taxes on capital. Carbon emissions, on the other hand, do not necessarily grow with the economy and, as such, an increasing rate would probably be necessary to keep revenues constant.

As demonstrated in Table 3 below, real GDP rose by 158 percent between 1980 and 2016, while CO<sub>2</sub> emissions grew by a mere 15 percent over the same period. Indeed, CO<sub>2</sub> emissions actually declined over the last 20 years, even as the economy continued to grow. By contrast, inflation-adjusted, income-tax receipts grew by 117 percent from 1980 to 2016, and by 41 percent over the last 20 years.<sup>16</sup> This contrast is all the more striking when one recalls that the United States currently has no carbon tax. Had one been in place over this period, carbon dioxide emissions almost certainly would have declined by an even larger amount. Thus, carbon taxes are a poor candidate for a tax that will grow the size of government.

The same conclusion is reached if one looks at the historical experience with taxes that are more analogous to a carbon tax than income ones. Gasoline taxes, for example, have

16. Author calculations based on data from Office of Management and Budget, Historical Tables 2.1 <https://www.whitehouse.gov/omb/historical-tables/>

effects that are broadly similar to a carbon tax, at least with respect to transportation. While not intended as a way to reduce emissions, gasoline taxes raise the price of transportation-related emissions, encouraging consumers to seek lower-emissions alternatives. The gasoline tax, however, has not proven to be a convenient source of increased government revenue. On the contrary, at the federal level, the tax has not been increased at all in the last 25 years, not even to account for inflation. Due to increases in fuel efficiency and other factors, revenue from the gas tax has actually declined since the turn of the century even before accounting for inflation.<sup>17</sup>

Taxes on energy production have also helped several states avoid the imposition of an income tax. Alaska, for example, imposes a 35 percent severance tax on oil and gas production in the state. While not intended as a response to climate change, this tax is similar to a carbon tax in several respects. As with many proposed carbon taxes, the tax is imposed at the point of production on a segment of activities that result in greenhouse gas emissions. After the completion of the Trans-Alaska Pipeline in 1977, tax revenue from Alaska's severance tax grew rapidly. In 1980, Alaska responded by abolishing its state income tax. Since that time, multiple attempts to reinstitute a state income tax have failed.<sup>18</sup>

Another state that receives significant revenues from severance taxes on oil and gas production is Texas. Natural gas produced in Texas is subject to a 7.5 percent tax based on the market value of the gas sold. Crude oil produced in Texas, meanwhile, is subject to a 4.6 percent tax based on the value of the gas sold.<sup>19</sup> Like Alaska, Texas does not have a state income tax, though unlike Alaska, it never had one. Still, the existence of Texas' severance tax has helped undercut any move to institute an income tax in the state.

## CONCLUSION

The above evidence suggests that a revenue-neutral carbon tax would not lead to bigger government over the long term. To reduce the share of the economy that goes to taxes over the long term, one must look to control spending. This fact, however, does not mean that tax reform proposals such as a revenue-neutral carbon tax are not worthwhile. Even if a carbon tax is unlikely to have a significant effect on the amount of taxes collected, it can still make the overall tax system

less burdensome, boost economic growth and achieve environmental goals more efficiently than regulatory mandates.

### ABOUT THE AUTHOR

**Josiah Neeley** is senior fellow, energy policy director and Southwest region director for the R Street Institute.

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17. Justin Fox, "Why Gas Taxes Aren't Paying the Bills Anymore," Bloomberg, Feb. 15, 2018. <https://www.bloomberg.com/view/articles/2018-02-15/gas-taxes-aren-t-paying-the-bills-for-roads-anymore>.

18. Rod Boyce, "Alaska House approves first personal income tax since 1980," *Daily News-Miner*, April 17, 2017. [http://www.newsminer.com/news/alaska\\_news/alaska-house-approves-first-personal-income-tax-since/article\\_be88a6c8-2252-11e7-811f-5fcd5135efaa.html](http://www.newsminer.com/news/alaska_news/alaska-house-approves-first-personal-income-tax-since/article_be88a6c8-2252-11e7-811f-5fcd5135efaa.html).

19. Josiah Neeley, "Texas Already Has a Carbon Tax," *R Street Blog*, May 23, 2018. <https://www.rstreet.org/2018/05/23/texas-already-has-a-carbon-tax>.