

The Carbon-Tax Shell Game

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SUPPORT FOR A CARBON TAX has become the height of fashion among some on the right, and an express pass to “strange new respect” from the left. It even earned former congressman Bob Inglis (a Republican from South Carolina) the 2015 JFK Profile in Courage Award. Supposedly, the tax is at once a free-market economist’s efficient approach to combatting climate change, a savvy fiscal reform for promoting economic growth, and a statesman-like grand bargain poised to break through the political gridlock. But as with most fads, it makes little sense when scrutinized closely.

Simply put, the carbon tax is a shell game. The range of designs, prices, rationales, and claimed benefits varies so widely—even within many individual arguments for the tax—that assessing the actual validity of most discrete proposals becomes nearly impossible. The insubstantial effect on emissions gets obscured by discussions of the fiscal benefits. The negative fiscal effects get offset by claims of environmental efficacy. The tax’s simplicity and practicality are touted, even as new complexity is introduced to address each flaw. The same revenues are rhetorically spent to achieve multiple ends, even as the different promises made to each constituency would be rejected by the others.

If we grabbed the wrists of carbon-tax advocates and demanded they turn over the shells all at once, we would find there was never a marble to begin with. *Implementing a US Carbon Tax*, a book released on Earth Day by the American Enterprise Institute, the Brookings Institution, the International Monetary Fund, and Resources for the Future, provides a particularly transparent example. Chapter 4, “Carbon Taxes to Achieve Emissions Targets,” studies carbon taxes that would cut U.S.

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emissions in half by 2050 and finds an average price of \$35 per ton of carbon dioxide (CO₂) in 2020, rising to \$163 in the final year. Chapter 5, “Macroeconomic Effects of Carbon Taxes,” studies the impact of carbon taxes on the economy but reviews taxes with an average starting value below \$20 per ton of CO₂ and a 2050 value averaging less than \$90 per ton. A “carbon tax” helps the environment, and a “carbon tax” has manageable economic effects—but the two are not at all the same tax.

The problem with carbon taxes is not a function of what you make of climate science or of Congress. Even stipulating that the conclusions of the United Nations Intergovernmental Panel on Climate Change (IPCC) are flawless and that the political process would not distort a hypothetical policy proposal (two very big assumptions, to be sure), a carbon tax is not good policy. By reviewing the capacity of a carbon tax to tackle the threat of climate change, its potential economic efficiency in doing so, its fiscal characteristics, and the variety of purely political arguments made in its favor, we can see the winning strategy is to walk quickly away from the table.

THINK GLOBALLY, ACT LOCALLY?

The international community has established a goal of limiting the increase in average global temperature to 2 degrees Celsius, believing that warming above this threshold poses unacceptable risks of climate-related catastrophe. Achieving this goal requires reductions in global CO₂ emissions on the order of 50% by 2050, according to the IPCC. With emissions still increasing rapidly in the developing world, developed nations are typically expected to make substantially sharper cuts. According to the Obama White House, the U.S. government’s official goal for 2050 is an 80% emissions reduction. Annual U.S. emissions represent less than one-fifth of the global total, however, and our share shrinks every year, so even a zeroing out of our emissions would achieve little without dramatic changes in global behavior.

The effectiveness of a carbon tax, as a matter of environmental policy, would therefore depend not only on how it would directly alter the trajectory of American emissions, but also on its ability to affect global emissions by driving globally applicable technological innovation or by influencing the behavior of foreign governments. On each of these dimensions, the carbon tax fails. It would not, at the levels contemplated, come close to achieving America’s own targeted reductions.

On the global stage, it would not make an already-implausible international agreement more likely, and, if anything, it would hinder those prospects. In the absence of such an agreement, the only route to lower global emissions runs through technological innovation that makes low-carbon fuels cheaper than conventional ones, but a carbon tax is poorly tailored to achieve that objective as well. For those serious about climate change, a carbon tax is not the answer.

To their credit, carbon-tax supporters rarely claim that their proposals have the potential to deliver on U.S. emissions goals. The models for tax proposals frequently indicate reductions in the range of 15% to 30% by 2050, as compared to the official 80% target or the more moderate 50% goal sometimes advanced by researchers. Indeed, carbon-tax proponents tend not to link their proposals to any estimate of reduced warming, because the reductions amount to rounding errors. One might think this *prima facie* failure would represent a fatal flaw, but such naïveté only flags one as an easy mark; the shells are just beginning their delicate dance.

Placing domestic emissions to the side, the pro-tax case quickly shifts to the international scene, where U.S. “leadership” in the form of a unilateral domestic carbon tax is described as necessary for and perhaps even the lynchpin of global action. As a preliminary matter, conceding in advance and then arriving at the table without any bargaining chips is a very poor negotiating strategy. To the extent such an agreement could move forward, moreover, it makes little sense to suggest that our weak domestic action would serve as the basis for a strong global agreement.

The larger problem, of course, is that under no theory of negotiation will developing countries accept costly policies that would slow their economic growth and hinder their populations’ climb out of crushing poverty. Rapid electrification is a critical economic and social priority for these countries, and rightly so. A 2012 study from the World Resources Institute, for instance, identified 1,200 new coal power plants on drawing boards worldwide with more than three-quarters of that capacity in China and India. Just last month those two countries issued a joint communiqué demanding more action and financial support from developed nations but made no emissions-related commitments of their own.

Developing countries will pursue pollution reduction and invest in alternative energy technologies where it is in their interest to do so, and they may even sign on to politically attractive and non-enforceable agreements. But there is neither evidence nor logical reason to suggest

that the United States can alter other countries' rational negotiating positions by displaying "leadership." If one truly believed a domestic carbon tax could serve as an instrument for fostering a global deal, its implementation should be suspended pending execution of a deal that met the desired parameters. Establishing those parameters would no doubt be difficult, but laying them out would be a valuable exercise in itself. No such proposals are forthcoming.

Sensibly, most carbon-tax proponents spend little time on the likelihood of achieving enforceable international commitments and instead move on to yet another claim: that a carbon tax will spur innovation. How to encourage innovation is precisely the right question—for developing countries, economic self-interest must rank above global climate concerns, so reducing emissions there will require low-emission technologies cheap enough to make rational economic sense. But when it comes to spurring innovation, a carbon tax is, once again, the wrong answer.

A carbon tax would promote innovation, advocates say, by altering price signals in the energy market. If coal-powered electricity can be generated for five cents per kilowatt-hour while solar power costs ten cents, solar power will have difficulty gaining any market share. But if a tax drives the coal-power cost up to eight cents, one might expect solar power to become more attractive and investors to become more enthusiastic about investing in further improvements to the technology.

But empirical evidence demonstrates that the price signal generated by the kinds of carbon taxes under consideration will not lead to technological breakthroughs. That evidence comes from Europe, a comparably sized market to ours, where taxes and related policies have already pushed energy costs far above the levels that a carbon tax would take them in the United States. For instance, \$1 of tax on a ton of CO₂ emissions adds approximately one cent to the cost of a gallon of gas. With gas prices typically at least \$4 higher than U.S. prices, Europe already has the equivalent of a carbon tax on the order of \$400 per ton of CO₂. Similarly, taxes and fees drive Europe's electricity costs up to more than double U.S. rates, the equivalent of a carbon tax of more than \$200 per ton. To the extent that large price signals will produce innovation, the United States could presumably free-ride on the incentives offered and paid for by the European market. But such innovation has not been forthcoming, and it is unclear why more of the same signals in the American market would change the dynamic.

Absolute value aside, a tax is uniquely ill-suited to the task of spurring the desired innovation. If the goal is to develop products that can compete head-to-head with fossil fuels, a well-designed program would support a nascent technology as it pursued commercialization and scale but phase out as it matured, to ensure that producers remained focused on a cheaper-than-carbon endgame. A carbon tax does exactly the opposite: It provides no disproportionate support at the early stages where government intervention is most justified, and it never phases out to apply full competitive pressure. To the contrary, most carbon-tax designs actually *increase* dramatically over time, guaranteeing innovators an ever-greater advantage over the fossil fuels they are supposed to be driving out of the global market with competitive costs.

Ultimately, the carbon tax is a poor tool of innovation policy because it is not designed to be one. It is an attempt to correct the market inefficiency created by fossil-fuel consumption's failure to account for the entire cost of CO₂ emissions. As a result, it imposes significant costs on the economy as a whole while doing very little to boost the fortunes of not-yet-adopted technologies. It is indifferent to whether people respond through innovation, through a reduction in demand, or through a willingness to pay the tax. And it actively attempts to obscure the real, untaxed cost of fossil fuels, when it should be holding that cost up as the goal or critical cost threshold for any new technology that aims to deliver global impact.

If a carbon tax can't claim to produce significant emissions reductions directly on either the national or international level, and if it is not the right policy tool for promoting innovations that could themselves achieve sufficient emissions reductions, its credentials would seem rather thin. But then the shells spin again, and tackling climate change moves to the side. Instead, proponents suggest, each marginal unit of emissions reduction is an end unto itself for which the American people should gladly pay. But without a convincing claim to global impact, the argument for marginal benefits does not hold up either.

ABUSING PIGOU

Economists think of carbon taxes as “Pigovian” taxes. Named for the British economist Arthur Pigou, who argued for such an approach to taxation in his 1920 book, *The Economics of Welfare*, a Pigovian tax charges people for the social costs (or “externalities”) associated with their activities. Most taxes increase the cost of what they tax, and so

when society taxes things it values (like income or consumption), the effect tends to be to depress those activities below their socially optimal level, creating deadweight loss. A Pigovian tax is levied on activities society wants to discourage (like pollution) and so uses the increased cost to push an activity toward its socially optimal level, eliminating the deadweight loss otherwise created by the externality. It can therefore promote rather than inhibit economic efficiency.

At first glance, a carbon tax would appear admirably Pigovian. If CO₂ emissions lead to climate change that imposes substantial costs on society, taxing the emitter for each ton of CO₂ emitted forces him to internalize those costs and reduce emissions accordingly, while yielding revenue for the government.

Unfortunately, the assumptions that underlie the logic of Pigovian taxation as drawn elegantly on the Economics 101 blackboard do not apply all that well to carbon taxes in the real world. Because the expected costs of climate change are so indeterminate and so far in the future, it is not possible to assign a cost to current emissions with an acceptable level of certainty. Even if they were adequately defined, the costs are decidedly non-linear and characterized by catastrophic impacts beyond uncertain thresholds. As a result, applying a constant marginal rate to emissions reductions that do not meaningfully reduce the chance of crossing those thresholds is inappropriate. Justifying such an approach as an “insurance policy” only serves to further undermine its claim to efficiency.

An efficient tax on CO₂ emissions would require a valid estimate for the cost such emissions impose on society. But any estimate of this “Social Cost of Carbon” (SCC), which is the marginal cost of an additional ton of CO₂, involves what economists call an integrated assessment model (or IAM) that stacks assumptions upon assumptions upon assumptions. The result of such modeling is not much better than a guess. “Calling these models ‘close to useless,’” says MIT economist Robert Pindyck, “is generous.”

To model a relationship between CO₂ emissions and costs, IAMs must first assume a climate “sensitivity” — that is, how quickly the climate will respond to a doubling of CO₂ in the atmosphere. The IPCC offers a range of assumptions from 1.5 to 4.5 degrees Celsius, and that range has actually grown *wider* in recent years. The modelers then have to translate a temperature increase into tangible impacts like sea-level rise, storm intensity, and crop yields, and then translate those impacts into economic costs. The relationships must be layered atop 100-plus

year projections of global economic development, and then a rate must be selected at which to discount the year-by-year costs back to present day.

Consider the federal government's official effort to develop an SCC assessment. The marginal cost of one ton of CO₂, even after averaging out the range of hypothetical climate behaviors, varies from \$0 to \$129. (Marginal-cost estimates for the full range of modeling between the fifth and 95th percentiles vary from -\$12 to \$515.)

The choice of discount rate, meaning the relative importance of future costs versus current costs, overwhelms all other model attributes. Outputs generated with a 3% discount rate (the heaviest weighting typically used in regulatory analyses) are generally at least three times higher than comparable outputs for a 5% discount rate (a moderate weighting); one could more closely approximate the costs implied by a 5% rate with a tax of \$0 than with a tax derived using the 3% rate. An assumption about how society values costs 100 years from now swings the result by more than an assumption about whether climate change exists at all.

Economic analyses of social cost are inherently uncertain, which does not preclude the formulation of sensible policy, but one must have some minimum standards of certainty for government action, particularly if that action is the creation of a large new tax. For instance, there should be virtual certainty that a measurable negative externality exists, and very high confidence that the proposed tax will improve rather than reduce efficiency. Costs should be calculated on a reasonable time horizon (the federal government's SCC incorporates costs through the year 2300). Calculations should be driven primarily by quantitative estimates, not by factors like a discount rate that represent fundamentally political judgments. The carbon tax fails every one of these tests.

Of course, climate change often seems like a singular issue to which the regular rules of policy do not apply. But in assessing its eligibility for such an exemption, two very different scenarios must be kept separate. In Scenario A, climate change is held in check and average global temperatures rise less than 3 degrees Celsius without catastrophic effects (a range within which IAMs focus). In Scenario B, temperatures go higher and catastrophe likely ensues. For neither scenario is a carbon tax an appropriate policy response.

IAMs considering Scenario A attempt to link their outputs to considered scientific and economic assessments of impact. But these

projected impacts are both very uncertain and very small. Richard Tol of the University of Sussex reviewed 11 different studies estimating the economic impact associated with warming of 2.5 degrees Celsius and found that the annual loss in global GDP averaged 1.1%. Output from the three IAMs that the U.S. government used in 2010 to estimate the consequences of a warming of 2.5 degrees Celsius ranged from below zero to about 2% of GDP. But the models disagreed so much that the average outputs for models A and B fell outside of the 5% to 95% interval for model C—in opposite directions.

While an annual loss of global GDP in the year 2100 of 1% or 2% may sound substantial, its irrelevance in the scheme of most policy debates is best illustrated in two ways: First, it implies a difference in growth trajectory between now and 2100 of less than 0.02% per year—essentially a rounding error, and one dwarfed by the uncertainty involved. (Chapter 5 of *Implementing a US Carbon Tax* helpfully notes, in the context of downplaying the fiscal impact of a tax, that a 0.03% reduction in annual growth is “small enough that it would be impossible to notice.”) Second, it implies that the level of global wealth achieved in 2100 may, as a result of climate change, not be achieved until... 2101. Effects will not be distributed uniformly and even minute shifts could imply severe harm for some individuals or even countries. But the scale of impact pales in comparison with issues from national security to financial regulation to education to infrastructure to tax and budget policy that otherwise occupy policymakers’ time and have long-term implications. If a new tax is warranted here, where is it not?

But Scenario A is not what concerns policymakers, motivates carbon-tax proponents, or drives the calculation of the SCC. Scenario B—with the threat of dramatic warming, unpredictable climate disruptions, and economic collapse—is what yields demands for action. It is also where the Pigovian rationale breaks down entirely.

The practical obstacle is that dollar-value estimates of the potential cost are guesswork unsupported by quantitative evidence. “In reality, estimates of damage functions are virtually non-existent for temperature increases above 3°C,” writes Bill Nordhaus of Yale University, who developed one of the three IAMs used in the U.S. government estimate.

But the philosophical obstacle is perhaps even larger. A Pigovian tax assumes a linear relationship between activity and cost, with each unit of activity imposing an equivalent economic cost on society. But

in Scenario B, policymakers are not concerned with incremental damages; they are concerned with the probability of passing a tipping point. On the current trajectory, global emissions blow past those identified points regardless of whether the United States adopts a carbon tax or even eliminates its emissions entirely. Holding international behavior constant (at its current level or any other level), the marginal reduction of a unit of U.S. emissions delivers virtually none of the benefit that is sought and that is assumed for purposes of setting the tax.

Even if climate change were an exclusively American problem (or, conversely, if policymakers had authority to establish a global tax), a Pigovian tax would remain fundamentally inconsistent with a primary objective of risk avoidance. While an efficient Pigovian tax internalizes the expected value of the cost of an activity, it does not hold out any particular level of that activity as an objective. That is, if you are willing to pay, you are welcome to pollute. Where the objective is to avoid a “tail risk,” such pollution is not desirable even though it remains “efficient.” This is one reason why today’s carbon-tax proposals, based roughly on the SCC estimates, do not produce emissions reductions commensurate with the goal of avoiding catastrophe. Recalibrating the SCC or the tax level to emphasize this risk-avoidance objective could produce a “better” price, but as with the challenge of selecting a discount rate, the selection of an acceptable risk tolerance is fundamentally political and does not have a claim to economic efficiency.

It is here that the notion of a carbon tax as an “insurance policy” will often arise. The metaphor is terribly inapt. An insurance policy is a contract under which one pays slightly more than the expected value of an unlikely catastrophe, and the asset pool created by many such payments is used to compensate those who are ultimately struck. A carbon tax is arguably the opposite: Each dollar spent and every lost opportunity for economic growth today leaves society with fewer resources to cope with any catastrophe that might occur, without providing a commensurately valuable reduction in its likelihood.

The insurance-policy argument appears to be a more emotional one, arising from the notion that the United States should do whatever it can, and that any emissions reduction that can be achieved affordably should be pursued for whatever marginal benefit it might offer. If that is in fact the argument, the detachment from any conception of Pigovian efficiency is complete. But often, before abandoning altogether a rational

assessment of environmental trade-offs, one more shell appears from out of nowhere: local air pollution.

Clean air is the last refuge of the carbon-tax advocate. Like patriotism, it can be a noble cause, but both are subject to misuse and abuse when all other arguments have failed. The misuse here comes with the claim that a co-benefit of reductions in CO₂ emissions, particularly thanks to the shuttering of coal plants, will be a reduction in emissions of pollutants like particulate matter and ozone precursors that cause substantial and immediate detriment to human health. Even if the costs of climate change cannot be properly valued, or even if a carbon tax will not do anything to avoid those costs, these health costs can be valued and thus the tax can be justified as an efficient way to tackle them.

But particulate matter and ozone are not CO₂, nor are their emissions necessarily correlated. Natural-gas plants, for instance, eliminate some types of pollution almost entirely but still emit half the CO₂ of coal. A carbon tax heavily preferences expensive solar, wind, and nuclear energy over cheap natural gas, which would not be the top priority of someone most concerned for public health.

Moreover, because the pollutants that harm human health have primarily local effects (unlike CO₂), one part of the country might be suffering no harm from their minor presence while other parts struggle with excessive concentrations. The United States already has a robust regulatory regime, the Clean Air Act, tailored to managing these pollutants and this challenge. The Act sets air-quality standards for each pollutant at the level deemed safe for human health, and imposes stringent restrictions in areas of the country where pollution exceeds those levels.

Most Americans live in areas of the country where no pollutant exceeds the public-health standard. Yet the carbon tax would suppress all economic activity where they live to the same degree it might in areas with poor local air quality. Using a nationwide tax to compensate for externalities the costs of which are concentrated where less than half the population lives is plainly inefficient, and certainly not Pigovian. Applying that tax to the wrong type of emissions only adds insult to injury.

It requires real gall to begin with the claim that one's policy proposal is the height of economic efficiency and end with the defense that its benefits come from inadvertent side effects that are already being achieved through other, better-tailored means. Pigou must be rolling in his grave. In a world where a carbon tax delivered far-reaching climate benefits, it

would be appropriate to note these side benefits as well. But where the policy does not deliver meaningful climate benefits, it cannot be justified post hoc on the basis of other ends for which it is poorly designed.

The Pigovian framework is too simplistic for the realities of climate change. It assumes an actor making a discrete decision with a fixed marginal cost, whereas climate change demands long-term investments and international action across varied policy arenas in the face of massive uncertainty and overriding tail risks. If the definitive test for a policy is not its compliance with economic theory but rather the results that it delivers, a carbon tax fails.

And yet, there are still more shells to turn over. Even once climate-related rationales are off the table entirely, the game continues with the prospect of a carbon tax as fiscal reform.

FISCAL CONFUSION

Properly assessing the fiscal efficacy of a carbon tax requires carefully separating arguments about carbon as an appropriate tax base from analytically distinct arguments about the potential uses of revenue raised by such a tax. There are of course many ways of spending money that can look attractive—be it to reduce other taxes, pay down the deficit, or fund useful government services. Indeed, if one's goal is to raise and spend money, there are a number of taxes that many people would gladly increase. But an attractive use cannot by itself justify carbon as the most appropriate source of the revenue. And without the justification of substantial environmental benefits, a tax on carbon is plainly undesirable in a number of crucial respects.

The primary fiscal problem with a carbon tax is its uneven burden. Its regressivity with respect to income is well known. As with any consumption tax, it both falls more heavily than an income tax on lower-income households (who consume a higher proportion of their income) and lacks a means to impose the progressive structure that an income tax can offer. Even as compared to other consumption taxes, though, a carbon tax is particularly regressive because energy consumption increases less quickly with income than other forms of consumption. A 2012 report by scholars at the American Enterprise Institute and the Brookings Institution, for instance, found a carbon-tax burden as a share of income to be more than five times higher on the lowest income decile than on the highest, the equivalent of proposing a new income tax with a rate of 10% for the

poorest Americans but only 2% for the richest. Even as a share of consumption (and thus relative to other consumption taxes), the burden was nearly two times higher on the lowest decile than on the highest.

A carbon tax is also regressive along dimensions besides income, benefiting those already thriving in the current economy at the expense of those facing the greatest struggles. For instance, while the regional distortion is far less dramatic than the income distortion, a tax would fall disproportionately on the South, Midwest, and Appalachia as compared to the Northeast, Northwest, and California. At least as important, within any given region such a tax would be biased substantially in favor of cities at the expense of suburban and rural communities. Urban living and working spaces are smaller, requiring less heating and lighting. They are closer together, requiring less travel. Travel that does occur is more likely to occur via public transit.

Finally, the tax favors knowledge-based work at the expense of heavy industry. The fossil-fuel sector and those manufacturing industries that rely on low-cost energy, which have been responsible for so much recent economic growth, would bear the brunt of the burden. Generally speaking, labor-intensive energy sources would lose out to capital-intensive ones. Social media start-ups would win; agricultural workers would lose.

On each of these dimensions, the regressivity as measured by tax dollars paid also understates the full effect, which by design includes a reduction in energy consumed. While less frequently subjected to formal analysis, one might presume it is the struggling family rather than the wealthy one that is likely to turn the thermostat down in response to rising energy prices. One might also presume it is a drive to visit the grandparents in Dayton that is more likely to be forgone than a private flight to Davos. Free-market analyses rarely account for these costs because the price system and a reliance on expressed preferences are regarded as the best mechanism for allocating scarce goods. But here the scarcity is artificially imposed by government, in pursuit of objectives its proponents concede it will not achieve. Under those conditions, shrugging off the fact that the poor are the “least-cost avoiders” and thus should be the ones to cut back on energy use is a morally questionable proposition — doubly so if that logic is not extended on the international stage to impositions on developing countries.

When evaluated as a source of revenue, then, a carbon tax is a highly distortionary consumption tax whose burden skews heavily toward the

rural, the industrial, and the poor for the benefit of wealthy, urban symbol manipulators. But its case is weaker still, because even if perfectly distributed in society, carbon would be a poor choice of tax base.

A good tax base is fairly constant, ideally growing in proportion to government spending. Those attached to GDP, despite the problems of cyclicity, are usually best. Tax bases like income and consumption thus make sense, though they have the drawback of creating deadweight loss by taxing a societal good. Pigovian taxes adopt less stable tax bases but have the benefit of eliminating deadweight loss rather than creating it. To actually fund government through a Pigovian tax, though, one needs to tax activities that will not only continue but grow over time despite the tax.

Carbon, by contrast, is a declining-by-design tax base. Regardless of climate policies, carbon consumption has declined and will continue to decline relative to GDP as the economy's energy efficiency improves. Implicit in the design of a carbon tax is the assumption that its use will decline in absolute terms as well. And most tax designs increase the tax rate over time with the intention of accelerating that decline. In the short to medium run, it is possible if not probable that an increasing tax rate would overwhelm declining emissions and lead to increasing rather than decreasing revenues. Indeed, in a range of proposals studied by Roberton Williams and Casey Wichman, revenue forecasts at least doubled from 2015 to 2050, typically ending in a range between \$200 and \$400 billion per year.

But counting on continued rate increases to offset a declining tax base is a Ponzi scheme. The further emissions fall, the higher rates must go. And because the revenue is equal to the base multiplied by the rate, as the base declines toward zero the rate must increase toward infinity to hold revenue constant. If the United States does not find itself on a trajectory toward eliminating CO₂ emissions, then the issue is moot (much like the case for a carbon tax). But if U.S. emissions do decline continuously, the Ponzi scheme will inevitably collapse, and one can only hope it happens quickly. The longer the scheme continues, the tighter the death spiral of higher tax rates driving less efficient technologies into the market to eliminate ever-costlier marginal units of emissions, necessitating yet higher tax rates.

Regardless of the time horizon of the tax-base collapse, programming a collapse into the tax code is a substantive and political error of enormous proportion. Substantively, it is simply bad fiscal policy to

rely on something so unpredictable and ultimately unstable for revenue. One could of course sequester the revenue — put it directly toward deficit reduction, say, or the Social Security trust fund — but then one must grapple with the macroeconomic effects of simply imposing a major tax increase. Politically, a major source of tax revenue programmed to eventually vanish is a ticking time bomb. Any proposal for entering into a carbon-tax regime must also address how to exit it; so far, none do.

A carbon tax is also fundamentally at odds with the objective of “simplification,” a goal that most reformers recognize as a critical priority for tax-code updates and a valuable end in itself. No carbon-tax proposal eliminates any other tax entirely, so the net result is the introduction of yet another new tax base, set of rates and interaction effects, and administration. Its basic functioning — even assuming no exceptions, waivers, and other political handouts — would likely require offset payments for not only carbon capture and sequestration but also the *negative* emissions that IPCC models often assume. As an added bonus, proposals that incorporate a household rebate to offset regressivity implicitly create a basic income for all Americans and would require the construction of a federal infrastructure to deliver it.

Carbon-tax proponents will often allude to a system of “border adjustments” to offset the trade distortions created by the tax, avoid damage to energy-intensive exporters, and avoid emissions leakage to other countries. But such adjustments are extraordinarily complex for imports (how does one value non-tax carbon policies in other countries?), are likely prohibited by trade agreements with respect to exports, and would offer an enormously lucrative opportunity for inefficient, rent-seeking distortions.

In short, if one has a spending priority so worthy as to deserve the raising of new revenue, a carbon tax may be the single worst proposal for doing so under serious discussion today.

And yet, talk of how the revenue from a carbon tax might be spent has somehow become one of the most prominent arguments in favor of this particular approach to taxation. This should go without saying, but identification of an attractive tax cut or spending program is not an argument for a carbon tax. When one claims that pairing a carbon tax with a corporate-tax reduction produces economic growth, one has demonstrated nothing about a carbon tax; only that a corporate-tax reduction is good for the economy. One could just as well propose a tax on people whose last names start with the letter B, put the revenue to

the same use, and declare victory. The most attractive proposal will pair the best use of revenue to the best source, but as we have already seen, a carbon tax is not that source.

Rather than resting on any economic basis, the fiscal argument for the carbon tax devolves into the purely political: Proponents have identified what they believe are attractive uses of revenue and see a carbon tax as the most politically plausible source of that revenue. But here again the shells are flying fast, because those uses of the carbon tax that might produce economic growth (likely a reduction in taxes on capital) are not politically plausible at all.

Ian Parry and Robertson Williams have summarized the challenge succinctly: “There are stark trade-offs between cost-effectiveness and distribution in the design of market-based climate control policies.” In other words, the more that revenue is used to offset the tax’s regressivity, the more it costs. This effect can be seen plainly in Williams and Wichman’s survey of various proposals, which found that any approach other than using the revenue for a capital tax cut (lowering the corporate-tax rate) would reduce GDP on the order of 1%. And recall, these proposals all have tax rates far too low to achieve the emissions reductions considered necessary from an environmental perspective. The scenario that sets a tax rate high enough to achieve the official domestic 80% emission-reduction goal literally falls off the bottom of the chart with a net negative impact greater than 3% of GDP by 2050. Another study by Jared Carbone and colleagues found a similar benefit from a corporate-tax cut and substantially larger losses for other uses of the revenue (with losses up to 3.5% of GDP by the 2030s for a policy of rebating the revenue directly back to households).

But the benefits of a capital tax cut fall disproportionately to wealthier households, compounding the regressivity of the carbon tax and making it a uniquely ill-suited financing mechanism. Note that this complaint is not the typical trope that the wealthy get some large percentage of the benefit of a proposed tax cut, which is an unavoidable reality in a world where the wealthy already pay most of almost any tax that might be cut. Rather, the point is that when raising revenue on a terribly regressive tax base such as carbon, one should not spend it on a use that is more regressive still. To the extent that one views the source and use of revenue as linked, the argument cuts against the carbon-tax structure rather than in its favor.

Nor does describing a carbon tax as “revenue neutral” do anything to improve its appeal. Promising to use the revenue for tax cuts or a rebate

does not guarantee its best use or a net positive economic impact, nor does it make the policy somehow free. To the contrary, a revenue-neutral tax is guaranteed to be costly precisely because it holds government revenue constant while also increasing costs to private actors by driving them toward higher-cost energy technologies. The effect is most obvious in a world where the tax has driven emissions to zero, and government revenue comes from all of its pre-tax sources, except consumers also find themselves motivated by the tax's existence to pay the full cost of electric vehicles and solar panels. In this respect, the tax operates much like the minimum wage; it imposes large and plainly government-created costs in the form of "off-budget" spending for which the government is never held accountable.

Tax reform should be a critical policy priority, but the carbon tax is not a good example of such reform. Almost any reform proposal advanced with a carbon tax as its revenue source would be substantively better and more politically palatable if funded instead by the elimination of existing tax expenditures, the creation of a more straightforward consumption tax, or perhaps even an increase in existing income-tax rates. Each of those offers a more reasonable distribution, a more stable tax base, and fewer market distortions—all with an equal or better claim to low economic drag. The selling of the carbon tax then becomes an almost purely political exercise, to no greater effect.

A NOT-SO-GRAND BARGAIN

In the face of confusion over what environmental or fiscal benefits it might actually provide, the carbon tax continues to gain momentum among some on the right as a political maneuver that could, in various tellings, seize the political upper hand on the climate issue, facilitate the swap-out of costlier regulations and spending programs, or forge a fiscal grand bargain that lowers marginal tax rates. These hopes suffer from a common set of mistaken assumptions and bear little relation to reality.

The first mistake is to view support for a carbon tax as a means of out-flanking the environmental movement on climate change. This proposition brings to mind the caution against mud-wrestling with a pig—you'll both get dirty, but the pig likes it. Principled opposition to costly and ineffective climate policy has always rested on the principle of opposition to costly and ineffective policy in general. Once one moves forward with the logic of climate action for the sake of appearances, one discovers that the out-flanking maneuver has instead left one surrounded

in unfriendly territory. If the Social Cost of Carbon provides a plausible value against which to take domestic action, any number of government policies instantly becomes extraordinarily cost-effective.

This first mistake leads directly to the second, which is a belief that a carbon tax can be traded for the removal of existing subsidies and regulations. But under whatever environmental rationale a carbon-tax proponent might advance—international agreement, innovation, Pigovian efficiency, risk avoidance, local air pollution—many other policies make sense as well, especially given how poorly the tax itself performs and how far short of targeted emissions reductions it falls. Why not also have a renewable portfolio standard, which will display “leadership” and spur innovation? Why not continue to subsidize promising technologies? Why not impose the Clean Power Plan, which offers significant health benefits under the approach to cost-benefit analysis being embraced? If the principle of risk avoidance commands the reduction of emissions in pursuit of the internationally established thresholds regardless of economic rationality, almost any policy has a credible claim to inclusion.

In many respects, the negotiating position of “I will support a carbon tax, but only if you repeal your other regulations” suffers from the same logical flaw as the fiscal argument for pairing the carbon tax with attractive tax cuts. The two parts of the sentence need to be separated: Either a carbon tax is a good idea or it is not; either the other regulations are good ideas or they are not. If those other regulations frustrated the tax’s purpose, then a trade might seem a reasonable demand. But because the two policies actually share complementary rationales, the refusal to “play nice” is difficult to defend. The demand for a trade appears more like a playground taunt than a reasoned approach to policymaking.

The related argument that carbon regulation is inevitable and a carbon tax the least-worst option for such regulation is thus triply wrong. It is not the least-worst option, particularly for spurring the innovation that might actually reduce emissions worldwide. Accepting inevitable regulation does not entitle one to choose a single regulatory response. And accepting ineffective regulation as inevitable is neither the right political decision nor one supported by the evidence from current political battles.

The mistaken hope that a carbon tax will enable repeal of other climate-related regulation illustrates the third, more general mistake of overestimating support for a policy that actually has very little of it. Because the phrase “carbon tax” encompasses the wide range of inconsistent and

even incompatible policies described above, many groups across the political spectrum can find something to love. But when one actually plots concrete positions, the areas of overlapping support disappear. Thus, for instance, the American Enterprise Institute this past April hosted a forum where former congressman Inglis sang the praises of a revenue-neutral carbon tax with regulatory repeal while seated next to Congressman John Delaney (a Democrat from Maryland) who that same day was introducing a not-revenue-neutral carbon tax without regulatory repeal.

The misreading of support extends to public opinion as well, where enthusiasm is almost purely a function of the question asked. *ClimateWire* headlined a recent article on a Stanford University/*New York Times*/Resources for the Future poll “Support for carbon tax reaches almost 70%.” The results showed that 61% of respondents supported requiring “companies to pay a tax to the government for every ton of greenhouse gases the companies put out.” Support jumped to 67% if “this tax money would be given to all Americans equally by reducing the amount of income taxes they pay.” But only 36% favored “increasing taxes on gasoline so people either drive less, or buy cars that use less gas” and only 25% favored “increasing taxes on electricity so people use less of it.”

The almost total lack of support for a price on carbon by elected representatives across the political spectrum, including by President Obama in his re-election campaign, is perhaps the best evidence for the true level of public support and likelihood of an attractive deal. As White House press secretary Jay Carney explained, days after the President had secured a second term, “We would never propose a carbon tax.”

A good policy does not repeatedly hide in the alternative. When the carbon-tax shells finally stop moving, one turns them over to find a sharply regressive tax likely to harm the economy while failing to meaningfully reduce emissions or insure against catastrophe, poorly suited to the important goals of spurring innovation and protecting public health, and deeply unpopular and inconsistent with basic principles of policymaking. Supporters inevitably commit themselves to the project of costly and superficial climate action while achieving no concessions in return. And this is before Congress gets involved.

If one is looking for a poorly designed consumption tax to pair with a corporate-tax cut in a politically implausible package, a carbon tax might be the answer. But surely no one is looking for that.