HOW SHOULD GOVERNMENTS USE REVENUE FROM CORRECTIVE TAXES?

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ABSTRACT

Corrective taxes can encourage healthier, safer, and less polluting behavior. But how should governments use their revenue? Options abound to cut other taxes, boost spending, or reduce borrowing. We organize those uses into four categories: offsetting new burdens created by the tax, furthering the goal of the tax, compensating people who bear costs from the taxed activity, or funding unrelated public priorities. We illustrate these approaches with examples of taxes on greenhouse gas emissions, unhealthy foods and drinks, financial transactions, tobacco, gasoline, and other products and activities. We discuss the pros and cons of competing revenue uses and describe tradeoffs across their social benefits and political appeal.

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INTRODUCTION

Most taxes, even if they fund valuable public programs, introduce costly distortions into personal and business decisions. Well-designed corrective taxes, however, can reduce distortions that already exist. For example, cigarette taxes reduce health risks from smoking, alcohol taxes reduce drunk driving, and carbon taxes reduce climate-damaging emissions from burning fossil fuel.[1]

Corrective taxes can therefore be an attractive way to raise revenue. They inspire people and businesses to live healthier, behave more safely, and pollute less while raising public revenue. But how should governments use that revenue? Governments have myriad options for cutting other taxes, boosting spending, or reducing borrowing.

To help policymakers, analysts, advocates, and the public assess these options, we organize them into four categories, each reflecting a specific policy perspective: (1) offset new burdens the tax creates; (2) pursue the same goal as the corrective tax; (3) cover costs related to the taxed activity; and (4) allocate revenue to general public activities, much like other taxes. We illustrate these approaches with actual and proposed taxes on carbon emissions, unhealthy foods and drinks, financial transactions, tobacco, gasoline, and other products and activities.

First, governments can use revenue to offset new burdens a corrective tax creates. By raising the price of energy, food, and other products, new taxes can squeeze household budgets, particularly for families with lower incomes. Shrinking the market for targeted products may also disproportionately burden specific workers, industries, and communities. If a tax is large enough, moreover, it may slow overall economic activity. Tax cuts, expansions in transfer programs, or other spending increases may offset some of these harms while leaving the incentives intact.

Second, governments can use revenue to pursue the same or related goals as the corrective tax. For instance, carbon tax revenues might subsidize energy efficiency, clean energy, energy research and development, climate change adaptation, or efforts to reduce emissions that are not covered by the tax. Cigarette tax revenues might fund smoking cessation efforts. Revenues from soda and junk food taxes might subsidize healthier food or nutrition information programs.

Third, governments can use revenue to cover costs related to the taxed activity. This includes assisting victims of pollution or other external costs or funding public services or infrastructure necessary for the taxed activity. For example, a US tax on coal funds assistance to workers who develop black lung disease. Fuel taxes paid by drivers, airplane passengers, and maritime shippers help fund the creation and maintenance of the associated infrastructure.

[1] See, for example, CBO (2012), Marron, Toder, and Austin (2015), and Wagenaar, Livingston, and Staras (2014).

Finally, governments can use revenue for general public activities or specific, but unrelated priorities. Governments could treat corrective tax revenue like any revenue, using it to cut taxes or boost spending in ways unrelated to the objectives of the tax or to reduce borrowing. In this approach, the government would apply ordinary budget processes, as the city of Berkeley, California does with its soda tax revenue, or earmark revenues to specific, but unrelated, efforts, as France does by directing some of its financial transactions tax revenue to international aid.

These four broad approaches have different implications for the net benefits or costs of corrective taxation and for the politics of trying to enact or change such taxes. Policymakers, analysts, advocates, and the public should consider carefully what uses best promote social welfare, what uses may build political and public support to enact beneficial taxes or reduce harmful ones, and the tradeoffs that exist across different goals. Those evaluations will necessarily depend on policy and political specifics. Nonetheless, we can offer several general conclusions:

- Efforts to develop corrective taxes should consider a broad range of potential revenue uses. Some observers may want to limit potential uses, for example, by requiring that revenues be used for the same goal as the tax or by insisting on strict revenue neutrality. On both policy and political grounds, however, it makes sense to consider a wide range of possibilities to determine which may deliver the greatest social benefits or build necessary political constituencies.

- Ordinary budget and appropriations processes allow explicit tradeoffs across spending priorities and tax levels. Circumventing these normal rules with earmarks or other constraints may result in funding inefficient programs or priorities.

- Corrective taxes have significant distributional effects, creating both winners and losers. Using some revenue to soften the new burden on consumers and, possibly, the transitory burden on producers can make sense on both policy and political grounds.

- Using some revenue to offset new consumer tax burdens can make particular sense when taxes are intended to help people who suffer from internalities—health risks and other costs they unintentionally impose on themselves. In those cases, rebating revenue to affected consumers can help ensure that a tax actually helps the people who pay it.

- Corrective taxes often reduce the potential benefits of other policies aimed at the same goal. If policymakers want to devote revenues to the same or similar goals, they should focus on filling in gaps—addressing parts of the problem the tax may miss—rather than funding belt-and-suspenders changes that the tax itself would bring about. Indeed, to the extent that existing, less-efficient policies address the same market failure, policymakers should consider supplanting them with corrective taxes.

- Recycling corrective tax revenue into offsetting tax cuts can assuage concern that such taxes are a ploy to grow government. But revenue neutrality has downsides as well. Revenue neutrality may be difficult to accomplish given uncertainties in future revenues from a corrective tax and any offsetting tax cuts. In addition, it may be easier to achieve some distributional goals through spending than tax reductions. People who generally oppose wholesale revenue increases from corrective taxes should thus be open to modest deviations from revenue neutrality when they offer a more effective way to accomplish policy goals.

CORRECTIVE TAXES

Economists have long argued that taxes can reduce pollution and other externalities—situations in which some costs of an economic activity are borne by bystanders, not just buyers and sellers (Pigou 1932). When external costs exist, market prices do not reflect all social costs. Prices are too low, and consumption is too high. By imposing a tax that reflects any external costs, the government can make them visible and tangible, encouraging firms and households to cut back on targeted products and to develop alternatives that impose fewer external costs. Externality taxes thus "correct" market failures and get consumers and producers to make more efficient use of society's scarce resources.[2]

This correction, however, has a cost. Corrective taxes impose new burdens on consumers who pay them or switch to less-preferred or more costly alternatives and on businesses and workers who have lower profits and pay.[3] Large corrective taxes can even slow overall economic activity, spreading the burden broadly. If an externality tax is properly calibrated, however, those costs should be more than offset by the benefit of reducing external costs. One advantage of corrective taxes relative to other approaches is that the corrective tax provides revenue that can help cushion the burdens on those who disproportionately bear the costs.

A related idea, also of long pedigree, is to tax products that are (or are perceived to be) harmful to consumers' health or morals. Such taxes discourage unwise habits, another kind of correction. Some proponents favor such taxes as a way for society to express disapproval for otherwise legal behaviors—taxing "sin." Others favor them on behavioral economic grounds, noting that consumers may make decisions without fully weighing all the costs they bear or may discount future costs too heavily in favor of near-term rewards (O'Donoghue and Rabin 2006). That view has come to be known as taxing "internalities" (Gruber 2002–03; Marron 2015).

Some products and activities create both externalities and internalities. Excessive drinking, for example, can hurt a person's health (an internality) and lead to injuries and deaths from drunk drinking (externalities). When unhealthy behaviors increase health care spending, moreover, they impose costs on everyone in the same insurance pool, if it is private, or on the taxpayers financing the insurance pool, if it is public.

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[2] Taxes are not the only way to reduce external or internal costs. Governments can also use direct regulations, bans, voluntary programs, labeling requirements, subsidies, and mandates, among other policies. Taxes are particularly attractive when overlooked costs are relatively uniform (so a tax can be a good proxy), when consumers and producers are diverse (so direct regulation is difficult and inefficient), and when collecting and enforcing a tax is administratively straightforward.

[3] How the tax burden is shared between consumers and producers depends on how much they respond to prices. In general, the more responsive side of the market bears less of the tax. If consumers can easily purchase from neighboring jurisdictions or other untaxed sources, for example, the tax will fall primarily on producers. In the long run, capital and labor are sufficiently mobile that most of the tax burden will typically be borne by consumers through higher retail prices.

Many governments have enacted corrective taxes because of externalities, internalities, or both. The United States federal government, for example, uses taxes to discourage the use of alcohol, tobacco, indoor tanning, "gas guzzling" vehicles, and ozone depleting chemicals.[4] State governments use taxes to discourage the use of alcohol and tobacco and, in some cases, marijuana. Some local governments use taxes to discourage the consumption of sugar-sweetened beverages, the use of shopping bags, carbon emissions, and purchases of guns and ammunition. And the Navajo Nation uses an excise tax to discourage the consumption of sugary drinks and junk food.

Outside the United States, corrective taxes are common on alcohol, tobacco, and transportation fuels (OECD 2012). Finland, France, Hungary, and Mexico tax unhealthy foods and drinks (Marron, Gearing, and Iselin 2015). France, Hong Kong, Switzerland, Singapore, South Africa, and the United Kingdom tax financial transactions (Burman et al. 2015). And a growing number of jurisdictions have carbon taxes, including British Columbia, Norway, Sweden, and the United Kingdom (Marron, Toder, and Austin 2015).

Governments also tax products to raise revenue for specific purposes. In the United States, federal and state gasoline taxes fund transportation projects. To the extent the revenue goes toward highway maintenance and construction, these taxes can be viewed as a way for drivers to contribute toward publicly provided roads and to perceive the full cost of inputs to driving. In short, they are approximate user fees. But some people favor such taxes because they reduce gasoline consumption and driving, which they view as harmful to others through congestion, accidents, and pollution. Still others support the earmarking of gasoline tax revenue for public transit, bike trails, and other transportation methods.

Other examples of taxes with revenues directed to related purposes include taxes on large vehicles directed to highway maintenance, aviation fuel charges directed to air transportation infrastructure, maritime fuel charges directed to inland waterway facilities, federal firearm taxes directed to wildlife conservation, securities trading fees that fund financial regulators, various energy taxes that fund nuclear fuel disposal, assistance to miners suffering from black lung disease, mine remediation, and oil spill clean up, and royalties imposed on certain recording devices and media to compensate copyright holders for infringement.[5]

Finally, governments sometimes enact targeted taxes primarily on fiscal grounds. For example, some states tax mineral production, hotel stays, gaming, and other activities because they can provide significant revenue and because the burdens may fall primarily on people who

[4] The federal government also has a scheduled tax on high-cost health insurance plans, often known as "Cadillac" plans, but it is unclear whether it will ever go into effect. Employer-provided health insurance is exempt from the taxes that apply to most other forms of compensation. The excise tax on high-cost insurance plans is an effort to offset that subsidy. This tax thus acts to address a distortion created by another government policy, rather than a market failure.

[5] Masur and Posner (2015) offer a useful survey of existing US policies that use Pigouvian taxes to address externalities. They note that deposit-refund systems and state workers' compensation systems also have some Pigouvian aspects.

live outside the state. To some observers, however, such taxes may also serve a corrective purpose, such as discouraging mineral development or gambling.

A TAXONOMY OF REVENUE USES

There are myriad ways that governments can use revenue from corrective taxes, whether by cutting other taxes, increasing spending, or reducing borrowing. Those options can be conveniently summarized, however, in a simple four-part taxonomy (table 1): using the revenue to offset new burdens the tax creates, pursuing the same goal as the tax, compensating people who bear costs from the taxed activity, or funding unrelated public priorities. These options are not mutually exclusive; policies often combine two or more approaches.

OFFSETTING THE BURDEN OF THE TAX

Corrective taxes have substantial distributional effects, creating losers as well as winners. Some people pay more for products they buy, switch to less preferable alternatives, or earn less from their business and work, even while they benefit from reduced pollution, health risks, and other costs. If the tax is well designed, the overall benefits should outweigh the overall costs. But some individuals will still come out behind. Policymakers may therefore want to use some revenue to soften the blow.[6]

By raising the prices of energy, food, and other products, corrective taxes can squeeze household budgets. This is particularly true for families with lower incomes since corrective taxes are often regressive, weighing more heavily, relative to income, on lower-income households than on richer ones.[7] Even though lower-income households benefit from lower external costs (such as reductions in pollution), arguably the poor should be held harmless financially. Policymakers may therefore want to use some revenue to fund policies that provide financial assistance to these households, preferably without undermining the goal of the tax. Options include supplementing existing social safety net systems, such as food stamps and refundable tax credits, lowering other regressive taxes, such as sales taxes, or directly rebating the revenues to qualified recipients. In some cases, recipients of existing transfer programs will be protected through the automatic indexing of their benefits to price levels. In other cases, holding lower-income households harmless would require targeted benefits.

By shrinking the market for targeted products, taxes may fall heavily on specific workers and their communities. For example, a substantial economy-wide carbon tax would sharply reduce US coal use, thus harming coal workers and coal-reliant communities.[8] In the long-run,

[6] In economics jargon, using revenue this way would move the policy closer to the Pareto ideal—helping some while harming none—and away from a strict Kaldor-Hicks emphasis on overall benefits and costs.

[7] Bento et al. (2009) measure this regressivity for gasoline taxes; Morris and Mathur (2013) and Marron, Toder, and Austin (2015) do so for carbon taxes; and Marron, Gearing, and Iselin (2015) do the same for taxes on sugar-sweetened soft drinks.

[8] This result is consistent across modeling studies of carbon taxes. For example, see McKibbin et al. (2015, figure 1), and EIA (2014, D-13, GHG25 side case, table D5).

workers and economic resources will move into other industries, just as has happened with many declining occupations. In the nearer term, however, policymakers may want to use some tax revenue to speed the adjustment for affected workers and communities. This can be particularly important in isolated rural areas in which a single industry may dominate the economic base.

Taxes may also make some industries less competitive in world markets. By boosting fossil fuel prices, for example, a carbon tax can raise input costs for domestic manufacturers of chemicals, metals, glass, cement, and paper. Those companies may not be able to pass those costs along to customers if foreign firms are not subject to similar policies. It may be possible to address such concerns through border adjustments to the tax. If that is not feasible, however, it may be possible to reduce their competitive disadvantages by rebating some of the revenue to these firms based on their output (Fischer and Fox 2012).

TABLE 1

How Can Governments Use Revenue from a Corrective Tax?

Offset the tax burden	Pursue the same goal
Assist affected consumers	Support belt-and-suspenders policies
Assist affected producers and communities	Address remaining gaps
Counter macroeconomic drag	Invest in new opportunities
Offset costs of the taxed activity	**Pursue other public goals**
Compensate victims	Recycle into tax cuts
Reimburse funders	Spend on existing or new programs
	Reduce public borrowing

Finally, if a tax is large enough, it may slow overall economic activity. To offset that drag, policymakers can apply some revenues to fund reductions in existing taxes that hamper growth. Macroeconomic analyses suggest that cutting distortionary taxes on labor and capital income could offset some, perhaps all, of the drag from introducing a carbon tax; of particular interest is the potential to cut corporate income taxes (Morris 2013; Marron, Toder, and Austin 2015).[9] Another option is investing in infrastructure or other projects that will enhance future economic activity. Using revenue to reduce government borrowing would also boost long-run growth, but low interest rates in much of the developed world may currently attenuate that effect.

PURSUING THE SAME GOAL AS THE TAX

[9] Cutting distortionary taxes would offset what is known as the "tax interaction effect," the inefficiency that arises when an excise tax raises prices, thus, lowering the real wage and consequently exacerbating the existing disincentives to work and save that arise from taxes on income. (Goulder 2013; Parry 1995). Most modeling studies of a carbon tax suggest that such tax swaps can significantly lower the overall macroeconomic burden of the policy relative to rebating the revenues lump sum to households. (McKibbin et al. 2015).

Corrective taxes typically reduce, but do not eliminate, the problem they address. Even when substantial taxes are in place, people will still smoke, drink, and take other risks, and business and consumers will still pollute. People concerned about these problems thus often recommend the revenue be used to reduce the problem further. Carbon tax revenues might subsidize efforts to reduce greenhouse gas emissions (Cottrell et al. 2013; Esch 2013), cigarette revenues might fund antismoking programs (World Health Organization 2011), and soda tax revenues might fund nutrition education and antiobesity efforts (British Medical Association 2015; Friedman and Brownell 2012; Mozaffarian, Rogoff, and Ludwig 2014).

Some proposals would pursue a belt-and-suspenders approach, using revenue to encourage the same changes a tax is intended to create. Revenue from a carbon tax might be used, for example, to subsidize new solar and wind electricity facilities. As we discuss below, such efforts can be needlessly duplicative because a carbon tax also encourages such facilities. Such efforts may be particularly attractive, however, to people who doubt that businesses and consumers will actually respond to taxes or who believe those responses will be insufficient.

Other proposals would fill in gaps that a corrective tax leaves behind. For example, the tax might apply to only some pollution sources, or there may be other, related market failures. It may not be feasible, for example, to extend a carbon tax to agricultural emissions of nitrous oxide, a potent greenhouse gas (Millar, Doll, and Robertson 2014). Thus, there may be a potential benefit from using revenue to promote environmentally friendly cropping practices. In many cases, moreover, there may be a case for public funding of basic scientific research, whether on energy or health issues, as the knowledge this produces has broad public benefits.

In a few cases, finally, the introduction of a corrective tax may open up new, beneficial opportunities to use revenues. The introduction of a carbon tax, for example, might improve the prospects for some future technologies enough to warrant new research investments, whereas, absent a carbon tax, the technology would have no market.

COMPENSATING PEOPLE WHO BEAR COSTS FROM THE TAXED ACTIVITY

Corrective taxes can often be viewed as prices a government imposes when private markets are missing. In essence, the government levies a tax where a price ought to exist but does not. In regular markets, prices play multiple roles. They give consumers and businesses an incentive to strike an efficient balance in buying and selling. In addition, prices are the way consumers compensate producers for their costs. If the purpose of corrective taxes is to act as a proxy for a missing market, it thus makes sense for their revenues to be distributed to whoever is bearing the relevant costs.

Such compensation arises in two circumstances. First, governments can use revenue to compensate people who are harmed by the taxed activity. The United States taxes certain types

of coal, for example, to fund compensation to mine workers who develop black lung disease. The now-expired Superfund tax raised money from industrial manufacturers to restore damaged sites when responsible parties could not be held fully accountable. Seattle recently enacted taxes on guns and ammunition to fund assistance to victims of gun violence, and several states apply some revenues from gaming taxes to fund treatment for problem gambling (Brainerd 2015).

Second, governments can use the revenue to provide publicly funded goods or services related to the taxed activity. Such taxes, which are often characterized as user fees rather than corrective taxes, include the fuel taxes that finance much transportation infrastructure, including highways, airports, and inland waterways and the security trading fees that fund financial regulators.

FUNDING OTHER PUBLIC GOALS

A final approach is to use corrective tax revenue in ways unrelated to the intent or effects of the tax. Governments could cut taxes, increase spending, reduce borrowing, or any combination, just as they might with any new tax revenue. Those uses could be specified at the time the corrective tax is enacted, with or without specific earmarking, or determined over time through normal budget processes.

All three approaches are common. The United States, for example, enacted a tax on indoor tanning (which is linked to skin cancer) to help finance the health reform enacted in 2010. France earmarks some of its financial transaction taxes to fund international assistance. The city of Berkeley, California, taxes sugar-sweetened beverages and uses the receipts as general revenue.

THE PROS AND CONS OF COMPETING REVENUE USES

Each of the four potential revenue uses reflects coherent policy perspectives. Compensating people who face new burdens from a corrective tax can manage distributional outcomes. Using revenue to pursue the same or similar goals as the tax itself may reflect a desire to address problems that lawmakers previously overlooked and might not revisit even if the results of the tax are insufficient. Compensating people who bear external costs or taxpayers who fund services reflects the idea that corrective taxes can proxy for prices that would exist if relevant markets existed. Using revenues for unrelated purposes, finally, can reflect the view that tax and spending decisions should be made independently and be evaluated on their individual merits.

If the only concern is economic efficiency—maximizing the net benefits of policy without regard to how they are distributed in society—the best approach is to put as few limits on the use of corrective tax revenue as possible other than to deploy them to maximize net benefits. The corrective tax should be set to optimally target any externalities or internalities policymakers wish to address, and the resulting revenue should be put to its best use through normal budget processes, whether that be offsetting tax cuts, new spending, or reduced borrowing.

Surveys suggest, however, that the public is often skeptical of corrective taxes if potential revenue uses are not specified, even if they are unrelated. However, identifying a portfolio of uses that best promotes the passage and perpetuation of the tax is challenging. For some voters, the corrective intent of a tax, such as reducing pollution or improving health, may seem like a cover for policymakers' real goal of growing government. For that constituency, specifying that the revenue will be tied to tax cuts might be most attractive plan. In contrast, some people are skeptical that taxes will actually change behavior and want the revenue targeted for further investment in solutions. Finally, the corrective tax could be a way to fund unrelated but popular programs that need new revenue anyway. Although in general people appear more supportive of corrective taxes when the potential revenue uses are specified at the time the tax is adopted, the political sweet spot for any one tax is hard to know.

Preferences for specifying the use of the revenue have been found in surveys in numerous countries. Somerville and colleagues (2015), for example, found that many people in the United Kingdom opposed proposals to improve health by taxing cigarettes, alcohol, and unhealthy foods because they did not believe that prices change behavior or they believe governments are principally interested in raising revenue, not improving health. The first concern could be softened, however, by spending some revenues on health promotion efforts, and the second could be softened by recycling the revenue into tax cuts that offset the new burden. In Norway, survey respondents favored corrective taxes when revenues would be used for environmental investments and expressed concern that taxes alone might not change behavior (Kallbekken and Aasen 2010; Kallbekken and Saelen 2011). In the United States, survey respondents preferred

fuel taxes that would fund infrastructure or environmental improvements over those going into general revenues (Agrawal and Nixon 2010). In a nationwide US poll, opposition to a carbon tax fell sharply when respondents were told the revenue would be used for renewable energy programs (Amdur, Rabe, Borick 2014). And, in California, support for a tax on sugar-sweetened beverages increased when respondents were told that revenues would fund educational programs about the health risks of such drinks and jumped even more when respondents were told revenue would support improved school nutrition and physical activity programs (DeCamillo and Field 2013).

It is not surprising, therefore, that policymakers usually choose to identify revenue uses at the same time they consider a potential corrective tax. Using the revenue for the same goal as the tax may be particularly attractive if some members of the public are skeptical that a tax alone will have significant effects. But several challenges arise in ensuring that such spending is cost effective.

First, the potential value of additional spending on correction likely goes down if the tax is effective, particularly in cases in which the incremental damages of the taxed activity go up with the level of the activity. Using corrective tax revenues to promote further correction could thus be both less effective than proponents hope and may reward people and businesses for actions they would take anyway in response to the tax. The spending may also induce corrective actions that are more costly than simply paying the tax. If the tax is set at a reasonable estimate of the damages from the taxed activity, then additional adjustments would cost more than they are worth.

If a tax does not do enough "correcting," it would often be better to raise the tax than to subsidize more correction.[10] In fact, the introduction of a tax may allow policymakers to repeal existing subsidies that are made largely redundant by a tax. Morris (2013), for example, argues that the revenue gains from introducing a carbon tax in the United States could be modestly amplified by the budget savings from rolling back duplicative clean energy spending and tax credit programs.

Of course, stakeholders may disagree on how much correction is enough, and that is often the underlying source of conflict over overlapping policies. Some people worry that that the tax can never be high enough to get the job done, and others object to the very idea of duplicative policies. One compromise is to use some of the revenue to address gaps the tax leaves behind and confine spending to approaches that address market failures that remain after the tax is imposed.

[10] A broader point here is that subsidy programs can be much less efficient at correcting externalities than a corresponding tax. McKibbin, Morris, and Wilcoxen (2011) found, for example, that a US carbon tax could produce 20 times more emissions reductions than a comparable subsidy for energy efficient household goods. That gaps arises because an energy-efficient product subsidy does not promote lower-carbon ways to produce electricity, does not affect the use of existing products (only their characteristics), and saves consumers money they use in part for more spending on energy.

One challenge in such instances is that there is no natural relationship between the quantity of revenue from the corrective tax and the optimal spending on remaining corrective activities. Earmarking a specific amount of revenue to a particular purpose will likely provide too much or too little funding, relative to a level that maximizes net benefits.

An enormous literature examines the pros and cons of earmarking (also known as hypothecating) corrective tax revenues to specific uses (Soares 2012). We will not attempt to summarize that literature here, except to note, consistent with the foregoing discussion, that earmarking is problematic from a public finance perspective except in those relatively rare cases where there is a strong link between monies received and desired spending levels. On the other hand, earmarking is often attractive from a public opinion perspective. As a result, the path of least resistance is often to link revenues to particular uses rhetorically or to put both the corrective tax and new spending into the same piece of legislation without strictly earmarking one to the other. For example, the US tax on indoor tanning helped pay for the 2010 health reform in a budget and political sense, but administratively it is considered general revenue.

Finally, although a corrective tax may bring in substantial revenue, the best ways to fill the remaining gaps or address related concerns may not involve much public spending. For example, it may be difficult to tax methane (a greenhouse gas) and other pollutants that leak from old or poorly constructed oil and gas wells because the emissions are hard to find and quantify. In theory, this could raise the case for using corrective tax revenues to find and fix the faulty wells. However, it may be more efficient to adopt policies that mandate green well completion, assign liabilities for leaky wells, and use federal dollars only for enforcing the regulations. Given these challenges, in most cases it is probably best to address the gaps left by the corrective tax under normal regulatory and appropriations processes, recognizing that new revenues are available to ameliorate any budgetary impacts.

Policymakers should consider how options for using revenues may affect both broad measures of social welfare and their ability to enact or modify corrective taxes. Policymakers must assemble a coalition that supports a corrective tax, and stakeholder positions, as well as broader popular opinion, may depend on how the revenue will be used. Efficiency and distributional considerations are, of course, part of that calculus. Policymakers may want to increase efficiency and redistribute resources toward groups necessary to win passage.

One way to use the revenue is to compensate potential losers from the corrective tax, thus reducing opposition to the policy. We have discussed burdens on the poor and industry workers, but other potential factions may block the policy. For example, many have little concern over the risk of global climatic disruption, so they believe a carbon tax is all cost and no benefit. However, if the carbon-tax revenue is used to solve a different problem that is of concern to them, such as lowering uncompetitive corporate income tax rates, perhaps a deal is possible.

However, taking this political logic too far can turn the discussion of an efficiency-enhancing corrective tax into a festival of rent seeking, resulting in an unwieldy legislative process that collapses under the weight of stakeholder squabbling.[11] Policymakers would also do well to avoid a process that turns corrective tax revenue into a slush fund for their pet priorities. Doing so may leave the tax vulnerable to changing political winds and feed skepticism that the corrective tax can be a beneficial tool to address real harms to society. Using corrective tax revenue to fund risky, visible investment projects, for example, should probably be avoided—regardless of their merits—because high-profile failures may weaken support for the tax itself. In cases like a carbon tax, the correction requires large long-run shifts in the investment of long-lived capital. Approaches that might lead investors to discount the probability the tax will endure will make it harder to achieve the goal. Long-run changes result from expected prices, not statutory prices; to the extent that the use of revenue promotes expectations that the corrective tax will endure, the policy will be more effective.

In light of these concerns, revenue neutrality has understandable appeal. Under revenue neutrality, all net revenues from a corrective tax would be used to lower other taxes rather than increase spending or reduce borrowing. Revenue neutrality appeals to those who fear that a new revenue source will lead to greater spending and a larger government and is especially salient for elected officials who have committed to not raise taxes.[12]

Designing a strictly revenue-neutral approach poses some challenges, however. First, a new tax typically reduces the revenues from other existing taxes, but by an uncertain amount. In the United States, the Congressional Budget Office and the Joint Economic Committee estimate that revenues from federal excise taxes (such as corrective taxes) will be offset roughly 25 percent by reductions in income and payroll taxes; this offset happens because excise taxes directly reduce personal and business income (CBO 2009). Any effort to match incoming corrective tax revenues and associated tax cuts over time must account for these automatic offsets. Second, future revenues from a tax and future revenue losses from tax cuts are uncertain. Lawmakers may be able to calibrate estimates of tax increases and tax cuts when a corrective tax is first implemented, but their actual amounts will likely differ in the future. As a result, net revenues may be higher or lower than policymakers expect. The marijuana tax in Colorado, for example, produced more revenue than projected. Because Colorado has a law that restrains growth in government, policymakers had to obtain voter approval to keep the revenue.[13] Finally, the trajectory of revenues from a corrective tax may not easily match the trajectory of desired tax reductions. A successful tobacco tax, for example, may eventually result in declining revenues, making it difficult to pair with any permanent tax reductions.

[11] This is arguably a phenomenon that plagued the allocation of emissions allowances in the debate over cap-and-trade legislation in Congress in 2009.

[12] Some observers use a looser definition of revenue neutrality, which would also allow for cash payments to families. In standard US budgeting rules, however, such payments would typically count as spending unless specifically designed as tax credits.

[13] John Frank, "Colorado Allowed to Spend Marijuana Tax Money, as Voters Reject Refunds," Denver Post, November 3, 2015.

Finally, the question arises of how to achieve distributional goals within the context of a revenue neutral approach. For example, it may not be possible to compensate poor households or displaced workers for their corrective tax burdens by lowering payroll or income tax rates because many already have little to no payroll or income tax liabilities and federal tax rates are blunt instruments where fine ones are needed to target specific groups. In principle, poor households could be protected through refundable tax credits similar to the earned income tax credit. However, many poor households, including the unemployed, students, and seniors, do not file income tax returns. It may be more administratively efficient to provide direct rebates or bolster existing social safety net systems such as food stamps and Social Security benefits, even if it breaks from strict revenue neutrality.[14]

[14] Stone (2015) elaborates an approach like this.

CONCLUSION

Corrective taxes can inspire people and businesses to live healthier, behave more safely, and pollute less. They can also assign financial responsibility for private harms and publicly funded activities and generate substantial revenues to serve other purposes.

Governments can use those revenues in four basic ways: to offset burdens the tax creates, to pursue the same or similar goals as the tax, to compensate people who bear costs from the taxed activity, or to fund general government purposes unrelated to the tax. The strengths and weaknesses of these options depend on the specifics of the policy and political environment. One revenue use may make sense in one context, while another may make sense in another. For that reason, it is not possible to offer a blanket assessment of their appropriateness. We can, however, offer some general conclusions.

First, policymakers, analysts, and advocates who favor corrective taxes should consider a broad range of potential revenue uses. Proponents of such taxes are often motivated by concern about particular social problems, such as climate change, smoking, or obesity. Given that focus, they often recommend that revenue be used to address that problem. On both policy and political grounds, however, it makes sense to consider other uses that could deliver greater social benefits or build necessary political constituencies for a tax.

Second, proponents of corrective taxes should recognize that taxes have significant distributional effects, creating losers as well as winners. If costs are particularly concentrated on certain people, such as the coal miners and communities who would be disrupted by a substantial carbon tax, or fall particularly heavily on low-income families, as is true of many proposed taxes on energy, food, and other consumer products, proponents should consider using some revenue to offset new tax burdens, at least temporarily until they can adjust. Large corrective taxes can slow overall economic activity; in such cases, they should also consider ways to use the revenue to promote economic growth, such as by reducing corporate income taxes or by making pro-growth investments. Using corrective tax revenue to lower other distortionary taxes can greatly reduce the economic cost of the new tax, not counting the benefit of the correction.

Third, corrective taxes often reduce the potential benefits of other policies aimed at the same goal. A sizable carbon tax, for example, would reduce the benefit from subsidies and direct regulations favoring renewable energy and other low-carbon technologies. Policymakers should therefore be skeptical of belt-and-suspenders proposals that would use corrective tax revenue to pay for the same behavioral changes that the tax is intended to induce. Indeed, they should be open to rolling back existing regulations and subsidies that may be made redundant by introduction of a tax. That does not mean, however, that revenues should never be used toward the same goal. Corrective taxes rarely address all aspects of a problem. Using corrective tax

revenue to help fill those gaps—for example investing in efforts to reduce greenhouse gases that a carbon tax does not cover—may make sense as part of an overall package. The challenge would be to ensure that such spending is as cost effective as activities induced by the tax and that the revenue does not become a slush fund for politically polarizing measures, which undermines both the efficiency and political sustainability of the tax.

Fourth, the case for compensating the victims of internalities is particularly strong. People who engage in harmful activities face health risks and pay taxes on them. If the purpose of a corrective tax is making them better off, it makes sense to return revenue to them rather than deploy it for other social goals (Marron 2015). The challenge is to find ways to target the revenue to those particular consumers without offsetting the incentives created by the tax.

Finally, requiring that corrective taxes be revenue neutral can assuage public concern that such taxes are just a ploy to grow government, but revenue neutrality may be hard to implement perfectly given uncertainties in the outcomes of different tax shifts. In addition, it could be easier to achieve some distributional goals through spending than tax reductions. People who generally oppose wholesale revenue increases from corrective taxes should thus be open to modest deviations from revenue neutrality when they offer a more effective way to accomplish policy goals.

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