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### Appendix to 'The Marginal Revenue Rule in Cost-Benefit Analysis'

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## Appendix to “The Marginal Revenue Rule in Cost-Benefit Analysis”

### Transfers and Redistribution in the Cost-Benefit Analysis of Tax Regulations

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September 10, 2018 – DRAFT

This document is an appendix to *The Marginal Revenue Rule in Cost-Benefit Analysis*, Tax Notes (Sept. 10, 2018). In that publication, we proposed a method of performing cost-benefit analysis of tax related-regulations. The approach—which we called the *marginal revenue rule*—instructs that the social benefit of an increase in revenue generated by a tax regulation is equal to the net increase in revenue *resulting from reporting and behavioral changes induced by the regulation*. The total social benefit of a tax regulation equals the net increase in revenue resulting from reporting and behavioral changes plus any non-revenue-based benefits (e.g., health benefits from a tobacco tax regulation or environmental benefits from a gas tax regulation). The social cost of a tax regulation is the net increase in administrative and compliance costs resulting from the regulation as well as any non-tax-related costs (e.g., health costs, environmental costs). The net effect of the regulation is the difference between the social benefits and the costs.

Tax regulations will often affect the total amount of revenue that the government collects. In analyzing the welfare effects of tax regulations that raise or reduce revenue, regulators must decide when—if ever—a transfer of money from a taxpayer to the government should be counted as a net social benefit or cost. In *The Marginal Revenue Rule in Cost-Benefit Analysis*, we argued that the most transparent approach to the problem is to consider a dollar to be worth the same in private hands and in government hands, and then to estimate the efficiency effects of the proposed regulation under that assumption. The marginal revenue rule allows regulators to identify circumstances in which increases or decreases in taxes paid do affect social welfare, notwithstanding the equal weight placed on revenue in public and private hands. Regulators would then report the efficiency effects of the proposed regulation (estimated via the marginal revenue rule) and would separately state the distributional and revenue effects.

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This Appendix provides a further discussion of the assumption that revenue is worth the same in public and private hands. For ease of exposition, we will use the letter  $g$  to denote the ratio of (a) the social value of a dollar in the government's hands to (b) the social value of a dollar in private hands. If  $g > 1$ , then the social value of a dollar in the government's hands is greater than the social value of a dollar in private hands, and pure transfers from private parties to the government increase social welfare. If  $g < 1$ , then the social value of a dollar in the government's hands is less than the social value of a dollar in private hands, and pure transfers from private parties to the government reduce social welfare. If  $g = 1$ , a dollar is worth the same in private hands as in the government's hands.

The marginal revenue rule can be tailored to any value of  $g$ . To do so, an analyst would calculate the sum of (1) the change in revenue due to behavioral and reporting changes and (2) the total change in revenue multiplied by  $g - 1$ . But although the marginal revenue rule can be implemented for any value of  $g$ , we believe that the best approach for Treasury and the IRS would be to calculate the efficiency effects of changes in tax revenue on the assumption that a dollar is worth the same regardless of who holds it. This implies setting  $g = 1$ .

We elaborate on this argument in the sections that follow. First, we explain why  $g = 1$  when existing tax and spending policies are set optimally. This proposition is firmly rooted in economic theory—we expect that economists and economically trained scholars will accept this statement as true. Second, we explain why Treasury and the IRS should produce estimates of the efficiency effects of changes in tax revenue using the  $g = 1$  assumption even when they do not believe that existing tax and spending policies are set optimally. This argument is a normative claim based upon epistemic limitations, institutional design considerations, and democratic values rather than a statement based upon economic theory alone.

Although we focus here on how to value changes in government revenues that result from tax regulations, the arguments apply equally to any revenue changes from any other regulation. Similar arguments also apply to regulations that affect the distribution of resources among households with different income levels. In the final part, we consider how the arguments for changes to tax revenues apply to other effects of a regulation. In particular, we explain that the logic behind the  $g = 1$  assumption for tax revenues also militates against the use of distributional weights when analyzing the efficiency effects of tax regulations more generally. This is not because inequality and distribution are unimportant—to the contrary, we believe that distributional considerations are, and should be, central to the design of the tax system. Still, we believe that there are better

ways to account for the distributional consequences of tax regulations than to integrate distributional weights into efficiency analysis.

*A1 Transfers to the Government Do Not Affect Social Welfare When Tax and Spending Policies Are Set Optimally*

A widely understood proposition in economics is that the taxation of income, consumption, and wealth generates “excess burden,” or “deadweight loss.” The excess burden is the efficiency loss that results from the substitution effects of a tax. To illustrate using a labor income tax (which is the primary source of revenue for the U.S. federal government): Imagine that a taxpayer is indifferent between (a) allocating an additional hour to work, earning \$100, and paying a tax on labor income of 30%, which would leave her with \$70 after taxes, or (b) allocating an additional hour to leisure. Society is \$30 better off when the taxpayer allocates the hour to work because the government raises revenue of \$30, which it can use to provide public goods or to fund rebates to taxpayers. A small increase in the tax rate will cause the taxpayer to reallocate the hour from work to leisure—i.e., to substitute leisure for labor. The taxpayer is approximately as well off as before, but society is \$30 worse off when the taxpayer chooses to allocate the hour to leisure rather than work. The excess burden of the increase in the labor income tax rate is equal to the sum of the efficiency losses from all taxpayers who substitute leisure for labor as a result of the change.<sup>1</sup>

Not all taxes lead to excess burdens. Lump-sum taxes, or “head taxes,” do not generate any excess burden. If taxpayers have to pay the same amount to the government regardless of how much income they earn, the tax system will not induce taxpayers to substitute leisure for labor. Indeed, the excess burden of a tax often is defined as the difference between total utility when the tax is imposed and total utility when an equivalent amount is raised from each taxpayer through a lump-sum tax.<sup>2</sup>

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<sup>1</sup> The excess burden of an income tax also includes the efficiency losses that occur when taxpayers shift from higher-paying jobs to jobs that pay less but lead to greater enjoyment (because there is no tax on joy).

<sup>2</sup> See, e.g., Alan J. Auerbach, *The Theory of Excess Burden and Optimal Taxation*, in *I Handbook of Public Economics* 61, 67-73 (A.J. Auerbach & M. Feldstein eds., 1985). This definition allows for a distinction between substitution effects and income effects. The substitution effect of a labor income tax is the increase in leisure (reduction in labor) when the tax reduces the after-tax wage and thereby makes leisure relatively more attractive than before. The income effect of a labor income tax is the increase in

Why, then, do societies choose to impose income taxes rather than lump-sum taxes? One answer is that the taxation of income leads to distributional benefits in addition to excess burdens.<sup>3</sup> The marginal utility of income—the benefit that an individual derives from an additional dollar after taxes—is generally thought to be diminishing as income rises. That is, an extra dollar matters less to billionaires Jeff Bezos and Bill Gates than to median-income Americans, and an extra dollar matters less to median-income Americans than to the very poorest individuals. In comparison to lump-sum taxation, a tax system that requires individuals with higher incomes to pay more in taxes *redistributes* income from higher-income to lower-income individuals. Redistribution from high-income individuals (for whom the marginal utility of income is low) to low-income individuals (for whom the marginal utility of income is high) increases total utility (i.e., social welfare). The more progressive a tax system is, the greater the distributional benefit (until the point that the tax system equalizes the marginal utility of income across all individuals).

The design of a tax system therefore involves a tradeoff between excess burdens and distributional benefits. In the optimal income tax system (i.e., the system that maximizes social welfare), tax schedules are set such that the excess burden of a marginal increase in the progressivity of the income tax is precisely equal to the distributional benefit. If the excess burden of an increase in the progressivity of the income tax is less than the distributional benefit, then the government can increase social welfare by making the tax system more progressive. If the excess burden of an increase in the progressivity of the income tax exceeds the distributional benefit, then the government can increase social welfare by making the tax system less progressive (i.e., closer to a lump-sum tax).

For ease of exposition, it is helpful to imagine the optimal tax system as combining a lump-sum component with a proportional tax on income. Let  $k$  represent the lump-sum component (i.e., the amount that each taxpayer transfers to the government regardless of her income); let  $t$  represent the tax rate; and let  $y$  represent each taxpayer's income. Thus,

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labor (reduction in leisure) that arises because the tax has made individuals poorer, thus leading them to work more. Excess burden is a function of the substitution effect, not the income effect.

<sup>3</sup> The discussion in text assumes a utilitarian social welfare function with diminishing marginal utility of income. These assumptions are not strictly necessary to the analysis: the prescriptions of optimal tax theory can be modified for any social welfare function. See J. A. Mirrlees, An Exploration in the Theory of Optimum Income Taxation, 38 Rev. Econ. Stud. 175 (1971); Joel Slemrod, Optimal Taxation and Optimal Tax Systems, 4 J. Econ. Perspectives 157, 163-64 (1990).

each taxpayer transfers  $k + ty$  to the government.<sup>4</sup> (Our actual income tax system is much more intricate than this, and many transfers to individuals take the form of in-kind benefits such as Food Stamps and housing vouchers rather than checks; incorporating these intricacies would make the math more complicated but would not alter the fundamental insight.) To restate the conclusion of the previous paragraph using our new algebraic notation: In the optimal tax system,  $k$  and  $t$  are set such that the excess burden from marginally reducing  $k$  and raising  $t$  so as to hold total revenue constant is precisely equal to the distributional benefit.

So far we have focused solely on the tax side of the equation. We now turn to the spending side. The government uses the revenues it raises from taxation to provide public goods, such as roads, national defense, and environmental protection. The size of government is at the optimum when the social benefit of spending an additional dollar to provide public goods is equal to the social cost of raising an additional dollar in revenue. If the benefit of providing additional public goods exceeds the social cost of raising the requisite revenue, then the government can increase social welfare by spending more and taxing more. If the social benefit of providing additional public goods is less than the social cost, then the government can increase social welfare by spending less and taxing less.

These observations inform our estimate of  $g$ , which—recall—is the ratio of the social value of one dollar in the government’s hands to one dollar in private hands. One possible view is that analysts should proceed on the assumption that  $g > 1$  due to the excess burden of income taxation. To illustrate: Assume, in line with some empirical estimates, that the excess burden of raising an additional dollar in revenue through the income tax is approximately 25 cents.<sup>5</sup> One might therefore think that  $g = 1.25$ : a lump-sum transfer of one dollar from a private party to the government increases social welfare by 25 cents because it allows the government to raise one fewer dollar through distortionary income taxation, and the government should invest in additional public projects only if the social

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<sup>4</sup> Although this simplified tax system involves a flat tax rate, it can be made quite progressive in practice if  $k$  is a negative number. Imagine, for example, that  $k$  is  $-\$10,000$  and  $t$  is 40%. An individual earning  $\$50,000$  would owe  $-\$10,000 + 40\% \times \$50,000 = \$10,000$  in taxes, for an effective rate of 20%. An individual earning  $\$1,000,000$  would owe  $-\$10,000 + 40\% \times \$1,000,000 = \$390,000$  in taxes, for an effective rate of 39%. An individual earning nothing would receive a  $\$10,000$  check from the government.

<sup>5</sup> See, e.g., Edgar K. Browning, On the Marginal Welfare Cost of Taxation, 77 Am. Econ. Rev. 11 (1987); Don Fullerton, Reconciling Recent Estimates of the Marginal Welfare Cost of Taxation, 81 Am. Econ. Rev. 302 (1991).

benefit is at least 1.25 times the budgetary cost. This view is reflected in a 1992 OMB circular, which suggests that agencies should assume a 25 percent excess burden when considering the costs of public projects.<sup>6</sup>

The 1992 OMB circular reflected the then-current state of economic theory. In more recent years, economists have come to understand that  $g = 1$ , not 1.25, as long as the existing tax system is optimal.<sup>7</sup> To understand this reasoning, recall that a lump-sum tax generates no excess burden. In theory, the federal government could raise revenue for a new project by increasing the lump-sum component ( $k$ ). If  $k$  is negative (or equivalently, if the government makes transfers in cash or in kind to individuals with low incomes), then the federal government could offset the cost of the new project by reducing the amount that it transfers. There would be no excess burden if, for example, the government reduced transfers to everyone who receives a net transfer by one dollar and raised taxes on everyone who pays net taxes by one dollar.

What if the federal government does not raise revenue for a new project by increasing the lump-sum component ( $k$ ) but instead increases the income tax ( $t$ )? Still, as long as we assume that the existing tax system is optimal, the social welfare effect of the increase in  $t$  is the same as the welfare effect of a revenue-equivalent increase in  $k$ . Recall that in the optimal tax system,  $k$  and  $t$  are set such that the increase in excess burden from marginally reducing  $k$  and raising  $t$  while holding revenue constant is equal to the distributional benefit—i.e., there is no social welfare gain or loss. Thus, when the government raises an additional dollar in revenue through the income tax, we can think of it as if the government (1) raised an additional dollar in revenue through the lump-sum component, and then (2) reduced the lump-sum component by dollar and raised the income tax to hold revenue constant. The first move generated no excess burden, and the excess burden of the second move was offset by the distributional benefit. It is therefore optimal for the government to spend up to the point that an additional dollar of spending generates social benefits of one dollar (not one dollar plus the excess burden).

This same logic also leads to the conclusion that if tax and spending policies are set optimally, a marginal increase in revenue does not increase social welfare unless it is

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<sup>6</sup> Office of Management and Budget, Circular A-94: Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs 13 (1992).

<sup>7</sup> See Bas Jacobs, The Marginal Cost of Public Funds Is One at the Optimal Tax System, 25 Int'l Tax & Pub. Fin. 1 (2018); Louis Kaplow, The Optimal Supply of Public Goods and the Distortionary Cost of Taxation, 49 Nat'l Tax J. 513 (1996).

associated with behavioral or reporting changes. (We explain above why additional revenues resulting from behavioral or reporting changes *do* translate into net social benefits.) Consider a transfer from taxpayers to the government that is not based upon the taxpayer's income. A transfer unrelated to income is equivalent to an increase in the lump-sum component ( $k$ ). The revenue can be used (1) to reduce the tax on income ( $t$ ) while holding total revenue constant, or it can be used (2) to finance additional public investment. Again, the excess burden and distributional effects of raising  $k$  and lowering  $t$  while holding revenue constant are equal if tax policies are set optimally, so the first option neither increases or decreases social welfare. And again, the social benefit of an additional dollar of public investment is one dollar if spending policies are set optimally, so the second option also does not increase social welfare.

Next, consider a transfer that *is* based upon the taxpayer's income. An income-based transfer is equivalent to a change in the income tax schedule. If the current tax schedule is set optimally, such that the excess burden and distributional effects of marginal changes are offsetting, then a marginal increase in the income tax (or equivalently, an income-based transfer) does not increase social welfare.

To sum up so far: The optimal income tax system is one in which the excess burden from a marginal increase in the income-based component is equal to the distributional benefit. Thus, from a social welfare perspective, it does not matter whether the next dollar of revenue comes through the lump-sum component or the income-based component. For that reason, the size of government is at the optimum when the social benefit of an additional one dollar of public spending is one dollar. Under those conditions, a transfer of one dollar from taxpayers to the government does not affect social welfare unless, as emphasized in the report, it is associated with a behavioral or reporting change.

## *A2 Implications for Treasury and the IRS*

The analysis in the previous section proceeded on the assumption that tax and spending policies are set optimally. This is a very strong assumption. But as noted in the introduction to this Appendix, our argument that Treasury and the IRS should set  $g = 1$  when estimating the efficiency effects of tax regulations does *not* depend upon the assumption that existing tax and spending policies are optimal. In this section, we explain why the case for  $g = 1$  remains compelling even when the optimality assumption is relaxed

### *A2.1 Agnosticism*

Consider the implications for cost-benefit analysis if tax and spending policies are not optimal. Now, a transfer of an additional dollar from taxpayers to the government may have a first-order effect on social welfare. If government spending is too low, and if the one dollar transfer is used to finance additional government spending, then the transfer increases social welfare. If, conversely, government spending is too high, and if the one dollar transfer is used to finance additional government spending, then the transfer decreases social welfare.

But what if instead of going toward additional spending, the one dollar transfer is used to finance an income tax cut? Recall that a one dollar transfer that is not linked to income is equivalent to an increase in the lump-sum component ( $k$ ). A marginal increase in the lump-sum component that is used to lower the tax rate on income reduces the progressivity of the overall tax system. If the level of redistribution is currently too low (i.e., if the distributional benefit of a marginal increase in progressivity is greater than the excess burden), then a change that makes the tax system marginally less progressive also reduces social welfare. If the level of redistribution is currently too high (i.e., if the distributional benefit of a marginal increase in progressivity is less than the excess burden), then a change that makes the tax system marginally less progressive increases social welfare.

No one knows how a one dollar increase in federal government revenue will be allocated. If one believes that government spending is too low *and* that redistribution is too high, then one should conclude that a lump-sum transfer of one dollar from taxpayers to the government will increase social welfare. If one believes that government spending is too high *and* that redistribution is too low, then one should conclude that a lump-sum transfer of one dollar from taxpayers to the government will reduce social welfare. Interestingly, very few people hold either combination of views. Those on the left tend to think that government spending and redistribution are too low. Those on the right tend to think that government spending and redistribution are too high. Traditional liberalism and traditional conservatism both yield ambiguous conclusions regarding the welfare effects of lump-sum transfers.<sup>8</sup>

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<sup>8</sup> The analysis in text assumes that the transfer of an additional dollar from taxpayers to the government will be used either to finance tax cuts or to fund additional spending. A third possibility is that the additional dollar will be used to reduce the deficit. Estimates of the welfare effects of lump-sum transfers would then depend on one's views regarding the desirability of additional deficit spending. Determining the optimal size of the deficit is no more straightforward than determining the optimal amount of public spending or the optimal amount of redistribution. See, e.g., N. Gregory Mankiw & Matthew

## A2.2 *Strategic Considerations*

Even if one has settled views about the desirability of additional government spending and redistribution, and even if these views lead to determinate conclusions regarding the welfare effects of lump-sum transfers, one still might conclude that Treasury and the IRS ought to apply the assumption that  $g = 1$  when estimating the efficiency effects of tax regulations. Imagine, for example, that you believe that the government spends too much *and* redistributes too little, and so you believe that lump-sum transfers from taxpayers to the government are welfare-decreasing. Should you want Treasury and the IRS to incorporate spending and distributional preferences into cost-benefit analysis?

Current policy presumably diverges from your preferences because your preferences do not command majority support. If Treasury and the IRS do incorporate spending and distributional preferences into cost-benefit analysis, there is no reason to expect that they will follow *your* preferences. Indeed, agencies will likely incorporate the preferences of the current administration and—perhaps—the preferences of Congress. The fact that you have failed to convince the President and Congress to implement your preferred tax and spending policies is strong evidence that you also will fail to convince Treasury and the IRS to incorporate your spending and distributional preferences into efficiency analysis.

The  $g = 1$  assumption reflects a recognition that efficiency analysis is not the place to refight battles over the size of government and the desirability of additional redistribution. Over the long run, if Treasury and the IRS adopt inefficient regulations in order to achieve spending and distributional objectives, there is no reason to think that those regulations will move the dial on spending or redistribution any closer to your preferred point. What they will do is reduce efficiency. Put differently, the  $g = 1$  assumption makes sense once one realizes that using regulatory changes to achieve spending and distributional objectives is ultimately a negative-sum game.

## A2.3 *Policy Stability*

The  $g = 1$  assumption further contributes to the stability of regulatory policies. Spending and distributional preferences will change from one administration to the next, and from one Congress to the next. These changes will likely be reflected in adjustments

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Weinzierl, An Exploration of Optimal Stabilization Policy, Brookings Papers on Economic Activity, Spring 2011, at 209.

to tax schedules and budgets. Do we want run-of-the-mill tax regulations (e.g., the reporting threshold for bingo winnings) to be in constant flux as well? Regulatory churn raises compliance costs and saddles taxpayers with additional uncertainty. Ideally, administrations with different spending and distributional preferences will be able to keep regulatory churn to a minimum.

To be sure, this goal can be achieved by assigning any fixed number to  $g$ . We could, for example, arrive at stability if all administrations agreed that  $g = 0.75$  or  $g = 1.25$ . One advantage of the  $g = 1$  assumption is that it functions as a focal point: a natural solution to a coordination game.<sup>9</sup> For example, those who think that the government already is too large might object to a solution that assigns a positive value to lump-sum transfers; those who believe that the government is too small might object to a negative value. The  $g = 1$  assumption—which weighs money in private and public hands equally—has the same focal-point attraction as “down-the-middle” splits in other walks of life.

#### *A2.4 Division of Labor and Specialization*

The  $g = 1$  assumption also recognizes the limits of Treasury and the IRS’s institutional roles. We can imagine a scenario in which each agency comes to its own conclusion about the optimality of additional spending and redistribution. It seems clear that such a scenario does not reflect the most efficient allocation of responsibilities across the federal government. For very good reasons, we divide tasks among different agencies and seek to avoid redundancies. The same logic would suggest that determining the optimal level of spending and redistribution is a task that should be assigned to some part or parts of the government, but not to all.<sup>10</sup>

Some might argue that spending and distributional policies should be left entirely to the legislative process. Others might argue that the President properly plays a role. It is very difficult to argue, though, that spending and distributional policies should be set by a single agency or Cabinet department. And aside from questions of institutional competence, there are strong specialization-related reasons for applying the  $g = 1$  assumption when estimating the efficiency effects of tax regulations. The individuals at Treasury and the IRS who will be responsible for preparing these analyses are experts in the efficient administration of the tax system. They are not, in general, experts on

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<sup>9</sup> See Thomas C. Schelling, *The Strategy of Conflict* 57 (1960).

<sup>10</sup> For an elaboration of this argument, see David A. Weisbach, *Distributionally Weighted Cost-Benefit Analysis: Welfare Economics Meets Organizational Design*, 8 *J. Legal Analysis* 151 (2015).

questions of distributive justice. Delegating judgments about the value of  $g$  to other areas of the federal government acknowledges the scope of Treasury and the IRS's expertise.

#### *A2.5 Transparency and Accountability*

Finally, the  $g = 1$  assumption yields benefits of transparency and accountability. Importantly, the  $g = 1$  assumption does not preclude Treasury and the IRS from including a discussion of spending and distributional effects in their regulatory impact analyses. It simply requires that this discussion be separated from the analysis of the regulation's efficiency effects. Circular A-4 supports this approach: It instructs agencies that “[y]our regulatory analysis should provide a *separate description* of distributional effects . . . so that decision makers can properly consider them along with the effects on economic efficiency.”<sup>11</sup> The alternative of using a value for  $g$  other than one in efficiency analysis would allow Treasury and the IRS to incorporate their spending and distributional preferences without making the role of those preferences clear.

If Treasury and the IRS choose to propose an inefficient regulation because they think it has desirable effects on spending or distribution, they should say so. They should say, for example, that “the monetized costs of the regulation exceed the benefits by \$X, but we have chosen to pursue it anyway because we want to expand (or shrink) the size of government and we think this regulation will help us achieve that goal.” Transparency serves three functions. First, it makes clear to the White House how agencies have arrived at the regulations they propose. It lays bare where the agency's expertise ends and its spending and distributional preferences begin. Second, and relatedly, it allows Congress to evaluate whether agencies have used their statutory authority to implement the tax laws efficiently (which is presumably what Congress wants) or to arrive at spending and distributional results that counteract Congress's own budgetary and tax policy priorities.<sup>12</sup> Third, it clarifies for the public—or, at least, the small segment of the public that reads and digests regulatory preambles—why Treasury and the IRS have done what they have.

#### *A3 The Role of Distributional Effects in Cost-Benefit Analysis*

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<sup>11</sup> Circular A-4, *supra* note 6, at 14.

<sup>12</sup> On cost-benefit analysis as a tool of presidential and congressional control over agencies, see Eric A. Posner, *Controlling Agencies with Cost-Benefit Analysis: A Positive Political Theory Perspective*, 68 U. Chi. L. Rev. 1137 (2001).

So far our discussion has focused on the application of cost-benefit analysis to tax regulations that affect government revenue. In addition to changing government revenues, regulatory actions, tax and non-tax, also may affect distribution by imposing additional compliance costs on some taxpayers and/or relieving burdens on others, or by reallocating tax and non-tax liabilities, or by producing transfers from some individuals or entities to others.<sup>13</sup> Our observations above regarding the appropriate value to use for  $g$  also inform the analysis of regulations that generate distributional effects through channels other than raising or reducing the amount of government revenue.

Consider a regulation that reduces costs for wealthy individuals by  $\$1 + x$  and imposes costs of  $\$1$  on poor individuals. The action in question could be anything from a reconfiguration of a tax form to the re-routing of a highway. Should regulators take distributional effects into account when deciding whether to adopt the rule? Some scholars have argued that regulators should apply “distributional weights” to different individuals based on each individual’s marginal utility of income (or consumption).<sup>14</sup> For example, if the marginal utility of income for poor individuals is double the marginal utility of income for wealthy individuals, the hypothetical rule should be adopted only if the benefit to wealthy individuals is at least two times the cost to poor individuals.

The marginal revenue rule does not preclude the use of distributional weights. The key insight underlying the MRR—that a shift from untaxed to taxed activity or from not reporting to reporting has no first-order effect on the individual welfare of the marginal taxpayer but increases social welfare by the amount of revenue raised—applies regardless of whether distributional weights are applied. Yet for substantially the same reasons that agencies should proceed on the assumption that  $g = 1$ , we think that agencies should estimate the efficiency effects of regulations without using distributional weights.

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<sup>13</sup> Consider, for example, the new mortality tables issued by Treasury and the IRS in October 2017 for determining present value under defined benefit pension plans. See Mortality Tables for Determining Present Value Under Defined Benefit Pension Plans, 82 Fed. Reg. 46,388 (Oct. 5, 2017). These tables will be used, among other purposes, to establish minimum amounts for lump-sum payments that plan sponsors offer to participants in lieu of lifetime annuities. The Internal Revenue Code requires that the lump-sum payment be at least the present value of the lifetime annuity that the participant otherwise would receive. I.R.C. § 417(e)(3). The new tables, which assume longer life expectancies, will require sponsors exercising the lump-sum payment option to offer larger amounts to plan participants. The regulation thereby functions as a wealth transfer from sponsors to participants in defined benefit pension plans with lump-sum payment options.

<sup>14</sup> See, e.g., Matthew D. Adler, Benefit-Cost Analysis and Distributional Weights: An Overview, 10 Rev. Envtl. Econ. & Pol’y 264 (2016).

Agencies then should separately state the efficiency, distributional, and overall revenue effects of the regulation.

First, agencies generally lack the information necessary to assign appropriate distributional weights. To do so, they would need to know whether the distributional benefit from an increase in progressivity is greater than the excess burden (and if so, by how much). If the existing tax system is *too* progressive (i.e., if the excess burden from a marginal increase in progressivity exceeds the distributional benefit), then a regulation that redistributes from the poor to rich would be welfare-enhancing. Unless we know how much redistribution is optimal and how our existing system fares relative to the optimum, it is not even clear which individuals should be assigned a greater distributional weight.

Second, and similar to the strategic argument in Section A2.2, attempts to implement distributional preferences through regulatory changes are likely to be negative sum. Administrations that favor more redistribution will adopt regulations that increase redistribution and reduce efficiency, while administrations that favor less redistribution will adopt regulations that reduce redistribution and reduce efficiency. There is no reason for any of us to believe that these regulations over the long term will bring the total amount of redistribution closer to the amount that we consider to be ideal; there is, however, a strong reason to believe that these regulations will reduce economic efficiency. Put differently: Redistribution through the adoption of inefficient regulations becomes much less attractive once one realizes that the other side will play the game too.

The stability and specialization benefits discussed above apply here as well. The premise that a dollar is worth a dollar regardless of who holds it serves as a focal point for agreement among administrations with different distributional preferences. This compromise position strikes us as preferable to the alternative of regulatory churn whenever a new administration with different distributional preferences takes the reins. Moreover, agencies generally do not have any expertise in estimating the marginal utility of consumption at different points in the income distribution, and requiring them to derive such estimates in the course of cost-benefit analysis would stretch the agencies well beyond their core competencies.

Last but not least, we believe that transparency and accountability are enhanced when distributional effects are separately stated. Distributional tables—which show the effects of policies on individuals or households in different income groups without assigning distributional weights—should be included alongside an estimate of efficiency effects. The juxtaposition of efficiency analysis and distributional tables would aid voters in understanding the extent to which regulations are motivated by distributional goals. Distributional tables also would assist Congress in deciding whether offsetting tax

schedule adjustments are warranted. And unlike the assignment of distributional weights, the production of distributional tables lies within the executive branch's existing estimating capabilities. Treasury's Office of Tax Analysis routinely produces distributional tables for various tax policies.<sup>15</sup> Extending that capability to other agencies may require inter-agency coordination, but efforts to separately state the distributional effects of regulatory actions are already well underway at some non-tax agencies, including EPA.<sup>16</sup>

#### *A4. Conclusion*

To conclude: Although the marginal revenue rule can be applied using any value of  $g$  and any set of distributional weights, we believe that Treasury and the IRS should produce estimates of the efficiency effects of tax regulations on the assumption that a dollar is worth a dollar regardless of who holds it. That assumption clearly is appropriate if existing tax and spending policies are optimal. Even if the existing system is nonoptimal, we believe that epistemic limitations, institutional design considerations, and values of transparency and accountability all suggest that Treasury and the IRS should proceed on the premise that a dollar is uniformly worth a dollar. The same arguments apply to all agencies, tax and non-tax, considering regulations that have differential distributional effects. Distributional consequences of tax and non-tax regulations should not be ignored, but they should be discussed separately from agencies' estimates of efficiency effects.

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<sup>15</sup> See U.S. Dep't of the Treasury, Office of Tax Analysis, Resource Center, <https://www.treasury.gov/resource-center/tax-policy/Pages/Tax-Analysis-and-Research.aspx> (last updated July 9, 2018).

<sup>16</sup> U.S. Env't'l Prot. Agency, Office of Policy, Nat'l Ctr. for Env't'l Econ., Guidelines for Preparing Economic Analyses 11-9 (updated May 2014).