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John Yinger
Syracuse University

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**PLACING A LID ON MARGINAL TAX RATES:
A NEW WAY TO SIMPLIFY THE INCOME
TAX STRUCTURE**

John Yinger

**Center for Policy Research
Maxwell School of Citizenship and Public Affairs
Syracuse University
Syracuse, New York 13244-1020**

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The author is Professor of Economics and Public Administration and Associate Director of the Center for Policy Research, The Maxwell School, Syracuse University. I am grateful to Doug Holtz-Eakin for many helpful comments.

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Abstract

Thanks to the phasing out of exemptions and excess itemized deductions and to the alternative minimum tax, the federal income tax rate schedule is difficult to draw, to understand, and to connect with any tax principle. Moreover, some taxpayers now face unreasonably high marginal tax rates. This paper proposes a new approach that simplifies the income tax system at its point of intersection with taxpayers; sets absolute upper and lower bounds on true marginal tax rates; and allows for the phasing out of any or all exemptions, deductions, or other tax preferences according to clear principles. This approach can achieve any desired degree of progressivity.

Introduction

The current debate over income taxes sometimes takes on a surreal quality, as people discuss a tax schedule that has little to do with the schedule taxpayers actually face. Thanks to the phasing out of exemptions and excess itemized deductions and to the alternative minimum tax, the current tax rate schedule is difficult to draw, difficult to understand, and difficult to connect with any tax principle. Moreover, some taxpayers face marginal tax rates that are far above the rates mentioned in the public debate. A flat tax could solve these problems, but only if it eliminated so many tax preferences that it could avoid the temptation to include phase-outs or an alternative minimum tax. This paper proposes a new approach to income tax structure that simplifies the tax system at its point of intersection with taxpayers; sets absolute upper and lower bounds on true marginal tax rates; and allows for the phasing out of any or all exemptions, deductions, and tax preferences according to clear principles.

The paper begins by discussing the logic of phase-outs. The second section presents some of the issues that arise with tax simplification. A new type of income tax structure, based on a continuous tax schedule, is presented in section three. This structure is extended to facilitate the phasing out of tax preferences, including those covered by the alternative minimum tax. This section also presents the implications of this tax schedule for the simplicity of income tax forms. This paper does not simulate the minimum and maximum marginal tax rates, and other tax parameters, that would be possible with this new income tax structure, holding revenue constant. However, the author plans to conduct such an exercise in the near future.

The Logic of Phase-Outs and the Alternative Minimum Tax

Phase-out provisions and the alternative minimum tax are built on the principle that the need to differentiate across taxpayers diminishes as income increases. Many provisions in the tax

code are designed to lower the burden of taxation for taxpayers who face certain circumstances, such as a large family or high medical bills. The need to protect these taxpayers is not compelling when their income is very high. As Pechman (1987, p. 84) puts it in the case of exemptions, “A vanishing exemption is supported on the ground that exemptions are not justified for persons with very large incomes, since at these levels they are not needed to meet essential consumption requirements for the taxpayers and their children.” A similar argument is typically stated to justify the alternative minimum tax, originally called the minimum tax, which “was introduced in 1969 in an attempt to obtain some tax contribution from wealthy people who had previously escaped income taxation on all or most of their income” (Pechman 1987, p. 128).

Because all these provisions raise the average tax rate of affected taxpayers, they also make it possible either to raise tax revenue or to raise the same amount of revenue with a lower tax rate schedule for other taxpayers. The fairness principle behind phase-outs, that the need to distinguish across taxpayers diminishes as income goes up, therefore supports a redistribution of the tax burden away from taxpayers in general and toward high-income taxpayers affected by provisions such as the exemptions phase-out or the alternative minimum tax.

The phasing out of personal exemptions, which began in 1986, and of excess itemized deductions, which began a few years later, are often sold as a way to raise more revenue without altering the schedule of **marginal** tax rates. One commentator (Thomas 1995, p. 1689), recently emphasized this illusion: “Many phaseouts...are gimmicky ways of raising taxes without appearing to raise rates.”¹ Although many observers pointed out that the exemption phase-out in the 1986 Tax Reform Act created a 33 percent bracket and a few scholars have discussed the general impact of tax provisions on marginal tax rates (see, for example, Steuerle 1995), neither the tax tables printed in the instruction booklets prepared by the Internal Revenue Service nor the

tax schedules emphasized in most public debates today are altered to reflect these phase-outs. In fact, however, a phase-out is entirely equivalent to a change in the marginal tax schedule for a person whose return includes the item being phased out.

To see why this is true, consider the following highly simplified tax system with two tax brackets and a personal exemption that phases out starting at the bottom of the higher tax bracket. In symbols, G is gross income, E is the personal exemption, $Y \equiv G - E$ is taxable income, and T is the tax payment. The tax schedule is

$$\begin{aligned} T &= t_1 Y && \text{if } Y \leq Y_1 \\ &= t_1 Y_1 + t_2 (Y - Y_1) && \text{if } Y_1 < Y, \end{aligned} \tag{1}$$

where t_1 and t_2 are the two tax rates and Y_1 is the boundary between the two tax brackets. Now suppose the exemption is phased out starting when G minus the starting exemption, E_0 , equals Y_1 , or

$$\begin{aligned} E &= E_0 && \text{if } G \leq G_1 \equiv Y_1 + E_0 \\ &= E_0 - p(G - G_1) && \text{if } G_1 < G < G_1 + \frac{E_0}{p} \\ &= 0 && \text{if } G \geq G_1 + \frac{E_0}{p}, \end{aligned} \tag{2}$$

where p is the rate at which the exemption is phased out. Combining (1) and (2), we find that this tax system is equivalent to the following four bracket system applied to G :

$$\begin{aligned} T &= 0 && \text{if } G \leq E_0 \\ &= t_1 (G - E_0) && \text{if } E_0 < G \leq G_1 \\ &= t_1 (G - E_0) + t_2 (1 + p) (G - G_1) && \text{if } G_1 < G < G_1 + \frac{E_0}{p} \\ &= t_1 (G - E_0) + t_2 [G - (G_1 - E_0)] && \text{if } G \geq G_1 + \frac{E_0}{p}. \end{aligned} \tag{3}$$

Thus, the tax schedule with an exemption phase-out is equivalent to a tax schedule with no phase-out in which the marginal rate goes from t_1 to $t_2(1+p)$ and then back down to t_2 .²

This analysis proves the following theorem: Phase-outs of exemptions, excess itemized deductions, or other tax preferences are nothing more and nothing less than alterations in the marginal tax rate schedule for taxpayers with that item on their return. This equivalence theorem shifts the focus of discussion on phase-outs back to the marginal tax rate schedule where it belongs. Phase-outs should be designed so that they have sensible effects on marginal tax rates. Moreover, taxpayers should be informed about these effects, not misled by a discussion limited to the incomplete tax schedules printed in the IRS instruction booklets.

The problem, of course, is that the current phase-out provisions have different implications for the marginal rate schedules of different taxpayers so that their impacts on marginal tax rates are difficult to explain. Illustrative true marginal tax rate schedules for taxpayers with specified characteristics could be drawn, but there is no way to provide complete marginal tax rate information for everyone. In contrast, the tax system presented below preserves phase-outs and provides complete information on the marginal tax rate faced by every taxpayer.

Another provision that affects marginal tax rates is the alternative minimum tax. The latest version adds many preference items back to taxable income and taxes the resulting “alternative minimum taxable income” above an exemption amount with a two bracket schedule that has marginal rates of 26 and 28 percent. Because it eliminates the 15 percent bracket, this schedule boosts the average tax rate of taxpayers with many preference items, and may even boost their marginal rate if these items reduced their regular taxable income so much that they would otherwise fall into the 15 percent bracket. In a final complicating twist, the exemption in the alternative minimum tax is phased out at a rate of 25 percent for taxpayers with alternative

minimum taxable income above \$150,000 (for joint returns), thereby creating a middle bracket with a marginal rate of $.26(1+.25) = 32.5$ percent. This rate exceeds the 31 percent marginal rate that some of these taxpayers would face without the alternative minimum tax.

In short, the alternative minimum tax succeeds in its objective of raising the average tax rates of high income taxpayers with extensive tax preferences, but it results in a haphazard marginal tax rate schedule, with higher marginal rates for some taxpayers and lower marginal rates for others. The tax schedule presented below preserves this effect on average tax rates without such bizarre implications for the tax due on an additional dollar of income.

Tax Simplification

As several scholars have pointed out, tax simplification is a complicated phenomenon. A thoughtful discussion of the topic in Bradford (1986, pp. 266-267), identifies three types of tax complexity. Compliance complexity refers “to the problems faced by the taxpayer in keeping records, choosing forms, making necessary calculations, and so on.” Transactional complexity refers “to the problems facing taxpayers in organizing their affairs so as to minimize their taxes within the framework of the rules.” And rule complexity refers “to the problems of interpreting the written and unwritten rules.” Bradford also points out that steps to lower one type of complexity may increase another type, and that any change in the tax system may decrease complexity for some taxpayers and increase it for others.

The phasing out of exemptions and excess itemized deductions and the alternative minimum tax result in a significant increase in computational complexity for many taxpayers. These provisions involve extra worksheets in one of the tax instructions booklets, complicated forms to fill out, or both. Moreover, every taxpayers must fill in another worksheet to determine

whether she is required to complete the forms for the alternative minimum tax, and many taxpayers who do not have to pay the alternative minimum tax, including many taxpayers who claim a child care credit, must fill out the associated forms. Indeed, this type of complexity now seems to pervade the income tax, as the number of worksheets in the main instructions booklet for the 1040 form has increased from one in 1977 (for the earned income tax credit) to eighteen in 1995. All this complexity adds considerably to the compliance costs faced by taxpayers.³

Much of the recent discussion about tax simplification has focused on proposals for a so-called flat tax. See Slemrod (1995). Proponents claim that flat taxes promote simplicity by (1) eliminating the progressive rate structure and (2) eliminating tax preferences. Eliminating progressive rates is said to reduce both compliance and transactional complexity. It is not clear, however, that a flat rate would simplify tax compliance. As Bradford (1986, p. 276) puts it “Once the taxpayer has calculated his taxable income, it is a simple matter to determine tax liability. True, multiplication by a single rate, the same for all, would be the simplest of all calculations. But looking the tax up in a table is a close second.” I would go a step farther. Looking the tax up in a table probably is easier than multiplying for most taxpayers because it does not involve either a calculator or a pencil and paper.

In contrast, reductions in transactional complexity might occur with a single rate as taxpayers would no longer have incentives to rearrange their income, across time or across sources, in order to fall into a lower bracket. Although such gains are difficult to calculate, they might be substantial.

The issue, of course, is that these simplicity gains require the elimination of progressivity in the marginal tax rate schedule. The long tradition of a progressive marginal tax schedule in the United States indicate that taxpayers prefer at least a modest degree of progressivity.⁴ This type

of preference cannot be satisfied with a flat tax. This paper does not attempt to determine whether progressivity is desirable, but instead provides an alternative to the flat tax that also provides reductions in transactional complexity while retaining progressivity.

The second claim about a flat tax has more merit in principle, but it is not so clear whether it does in practice. Abolishing all tax preferences would certainly simplify the tax system in the long run, but it would cause enormous adjustment in the short run, and such a dramatic change might not be feasible. For both broad substantive reasons and narrow political ones, exemptions, deductions, and other tax preferences are likely to appear, even in a flat tax. The Tax Reform Act of 1986, for example, eliminated many tax preference items, but quite a few of them, along with some new ones, have crept back into the tax code since then (see, for example, Slemrod 1992). Personal exemptions and some itemized deductions, such as those for homeowners and for charitable contributions, are popular and would be difficult to eliminate. Moreover, if personal exemptions and itemized deductions remain in the tax code, there will be a temptation for policy makers to phase them out above some income level so that the supposedly flat rate can be lowered. Of course, such a step would create income segments in which the marginal rate was above the single rate in the official schedule.

The tax system proposed below is designed primarily to reduce what Bradford calls compliance complexity in a tax system that retains exemptions, itemized deductions, and other tax preferences. It also would reduce transactional complexity to some degree by lowering a taxpayer's options for reallocating income to reduce taxes. Unlike a flat tax, however, it would not eliminate these options entirely. This simplification is achieved at some cost in terms of rules complexity, as the new system is more difficult to describe than the current one, at least formally. Indeed, many readers will no doubt chuckle at my claim that this new tax system represents a

simplification. However, I claim only that this system is simple at the point of intersection with taxpayers, not in any absolute sense. The point of intersection with taxpayers cannot be described until the end of the discussion, so I ask the reader not to pass judgement until that point is reached. Moreover, even though the formal description of this system is more complex than we are used to, the principles involved are straightforward and easy to understand.

A New Approach to Income Tax Structure

This section builds on four tax principles to design a new tax structure that avoids the problems identified earlier in this paper. After the principles are presented and the tax system described, the implications of the new tax system for income tax forms, and hence for the computational simplicity, are explored.

Four Principles of Income Tax Structure Design

The first principle is that the marginal tax rate schedule should be progressive. Many discussions of progressivity focus on average rates, not marginal rates. For example, the optimal tax literature (reviewed in Stiglitz 1987) relies on a utilitarian social welfare function that gives negative weight to dispersion in utilities across households, but gives no weight whatsoever to the fairness of the tax structure as such. With this approach, distributional objectives can be achieved with a demigrant to all households and a progressive marginal tax rate structure is not necessary. In fact, some authors, including Slemrod, Yitzhaki, and Mayshar (1991), find that a regressive marginal tax rate structure combined with a demigrant produces the progressivity in average tax rates needed to meet equity objectives and the work incentives needed to promote efficiency. Although demigrants are not available in the U.S. income tax (and it seems unlikely that they will be added), exemptions and deductions serve a similar purpose.⁵ By ensuring that people with

gross incomes below some level will pay no income tax, they ensure that the average tax rate, taxes divided by gross income, will increase with gross income even if the marginal rate structure is flat or even somewhat regressive.

Progressivity in the marginal tax rate structure is emphasized here for two reasons. First, along with the income level below which no tax is due, the marginal tax rate schedule is the best known and most accessible piece of information about the progressivity of the tax system. Voters can easily observe progressivity in this rate schedule and make judgements about its fairness. Average tax rate schedules for various types of taxpayers could in principle be provided to voters, but they are more complicated to explain than marginal tax rate schedules. Second, one can legitimately be concerned about fairness in the tax due on an additional dollar of income. People who have a lot of income, and hence have already covered their basic needs, may not seem to be making as large a sacrifice in paying a t percent tax rate on an additional dollar of income as are people who have little money. Hence, a flat or declining marginal tax rate schedule may not appear to equalize sacrifice across taxpayers and may be seen as unfair.⁶

This discussion does not, of course, indicate the optimal degree of progressivity, or even if progressivity is desirable once other objectives, such as efficiency, are considered. Moreover, this paper makes no attempt to resolve these issues, which are discussed in detail elsewhere (see, for example, Bradford 1986). Instead, this paper builds on the notion that progressivity in the marginal tax rate structure is a legitimate fairness concern and designs a tax system in which such progressivity—along with more simplicity—is assured.

One way to meet this principle is to use a continuous tax table, instead of the usual discrete tax table, governed by the following equation for the marginal tax rate:

$$T' \equiv \frac{dT}{dY} = t_0 + t_1 s(Y) , \quad (4)$$

where T is tax payment, Y is taxable income, t_0 and t_1 are policy parameters, and $s(Y)$ is a monotonic function that reaches a value of unity when Y equals infinity. For example, if $s(0) = 0$ and $s(\infty) = 1$, the marginal tax rate equals t_0 for the first dollar of taxable income, and approaches $(t_0 + t_1)$ when taxable income is very large. A taxpayer's tax payment obviously is the integral of its marginal tax function, or

$$T = \int_0^Y dT = t_0 Y + t_1 \int_0^Y s(Y') dY' \quad . \quad (5)$$

The second principle is that the marginal tax rate should increase relatively slowly at low values of Y , so that extra effort by the poorest taxpayers does not result in a significant increase in their marginal tax rate. This principle is in keeping with the longstanding tradition in the United States income tax to set a reasonably wide bottom tax bracket. In 1995, for example, the lowest marginal tax rate, 15 percent, applied to taxable incomes (on joint returns) between zero and \$39,000. In the context of (4), this principle says that the $s(Y)$ function should not have a steep positive slope at low values of Y , so that it preserves a bottom bracket, at least in spirit.

The third and fourth principles involve the treatment of tax preferences. So far the discussion has involved only taxable income, Y , which is found by subtracting exclusions, exemptions, and deductions, and from gross income. (In the income tax code, of course, exclusions, also called adjustments, are subtracted from gross income to form adjusted gross income, or AGI.) As the term is used here, tax preferences are exclusions, exemptions, or deductions that are classified as ones that should be phased out when income get sufficiently high.⁷ This differs from standard usage, in which tax preferences are tax items that receive special treatment, but need not be phased out. The alternative minimum tax and the phase-out of both

exemptions and excess itemized deductions are examples of current policies consistent with this new definition of preferences.

With this background, the final two principles can now be stated. The third principle is that the phasing out of tax preferences should not fundamentally alter the tax schedule either by generating marginal tax rates that exceed the maximum rate (as defined by (4), for example) or by causing spikes, or, more technically, local maxima, in the tax rate schedule. This principle is designed to ensure that marginal tax schedules mean what they say, without any hidden global or local maximums that appear only under unusual circumstances, and that violations of the progressive marginal rate schedule are not hidden in special provisions. No politician should be able to trumpet an official tax schedule that hides large jumps in marginal tax rates in certain income ranges and no taxpayer should encounter a situation in which unusual circumstances, such as phase-outs of various exemptions or deductions, result in marginal tax rates that are far above the official ones. As shown earlier, current phase-out provisions clearly do not satisfy either part of this principle.

The fourth principle is that any phasing out of tax preferences should have a larger impact on higher-income taxpayers. This principle states what appears to be implicit in both the alternative minimum tax and various phase-out provisions: There should be limits on the extent to which high-income people can reduce their taxes through tax preferences, and the higher the income, the greater these limits should be. The current phase-out provisions for personal exemptions and excess itemized deductions, for example, have implications for average tax rates that are consistent with this principle; the phase-outs do not begin until incomes are fairly high and they raise average tax rates monotonically above that point. However, the impacts of these provisions on marginal tax rates clearly violate this principle; marginal tax rates jump up in the

phase-out range of income and then drop back down to the official schedule for incomes above this range.⁸

Tax Schedules that Satisfy the First Two Principles

One form for the $s(Y)$ function that satisfies the first two principles is the logistic form.⁹

This form, which is well known from its use in econometrics is

$$s(Y) = \frac{1}{1 + e^{-\gamma(Y-Y^*)}} \quad . \quad (6)$$

With this form in (4), the marginal tax rate schedule becomes

$$T' = t_0 + t_1 \left[\frac{1}{1 + e^{-\gamma(Y-Y^*)}} \right] \quad . \quad (7)$$

This tax schedule, which has two policy parameters, γ and Y^* , is illustrated in Figure 1.

The marginal tax rate is slightly above t_0 when $Y = 0$ and reaches a maximum of $(t_0 + t_1)$ when $Y = \infty$. The Y^* parameter determines the taxable income at which $s(Y) = 0.5$. In other words, it determines the taxable income at which the marginal tax rate falls half way between t_0 and $(t_0 + t_1)$.

The γ parameter determines the extent to which the marginal rate exceeds t_0 when $Y = 0$. In fact, this parameter can be derived for any given deviation between the initial marginal tax rate and t_0 . If δ is the desired deviation, then the value of γ must be set so that $T'(0) = t_0 + \delta$.

Evaluating (7) at $Y = 0$, the appropriate value of γ can be shown to be

$$\gamma = \frac{\ln \left(\frac{t_1}{\delta} - 1 \right)}{Y^*} \quad . \quad (8)$$

Selecting γ (or δ) involves a trade-off between the flatness of the tax schedule at low incomes and the steepness of the tax schedule around Y^* . A large value of γ (or a small value of δ) implies

that the tax schedule is very flat at low values of Y but very steep around Y^* . To put it another way, one can create a wide bottom “bracket” by setting γ very high, but only at the expense of a marginal tax rate that increases very rapidly in the middle of the income range. In fact, as γ approaches infinity, the tax schedule approaches a two-rate schedule with a rate of t_0 for incomes up to Y^* and a rate of $(t_0 + t_1)$ for incomes above Y^* . By contrast, the tax schedule approaches a single rate of $[t_0 + (0.5)t_1]$ as γ approaches zero.

Figure 1 sets $t_0 = 0.15$, $t_1 = 0.25$, $Y^* = \$100,000$, and $\delta = .0001$. The role of δ (or γ) is illustrated in Figure 2, which includes another tax schedule based on the same parameter values except that δ is raised to 0.01. This change in δ has a dramatic impact on the length of the first tax “bracket.” With $\delta = .0001$, the marginal tax rate does not increase by one percentage point over its value at $Y = 0$ until Y reaches \$50,400, whereas with $\delta = .01$ it has increased by one percentage point when Y reaches only \$13,600.

Combining (5) and (7), we find that tax payments with this logistic form are given by

$$T = (t_0 + t_1) Y + \frac{t_1}{\gamma} \left[\ln \left(1 + e^{-\gamma(Y - Y^*)} \right) - \ln \left(1 + e^{\gamma Y^*} \right) \right] . \quad (9)$$

Although this formula may appear complex, it can easily be translated into a tax table, so that none of the complexity is visible to taxpayers.

Phase-Outs to Meet the Second Two Principles

Let us now turn to tax preferences, P , as defined earlier. For a person with income Y , the value of tax preferences is approximately equal to $P[T'(Y)]$. With a continuous tax schedule, this expression is only an approximation, because each additional dollar of P offsets income that would be taxed at a slightly higher marginal tax rate than the previous dollar of income.

However, this expression favors the taxpayer, since it understates the value of preferences, and an

exact expression would add little except complexity.¹⁰ Using this expression, the question becomes: How can the savings from tax preferences be phased out as income increases?

To be consistent with the third and fourth principles, any treatment of tax preferences must not change the general form of the tax schedule and must ensure that phase-outs have a larger impact on higher-income taxpayers. One way to do this is to shift the marginal tax rate schedule in response to preferences in a way that phases out tax preferences completely for taxpayers whose incomes are so high that they face the maximum marginal tax rate. Because the tax payment, T , equals the area under the marginal tax rate schedule, this approach requires defining another marginal tax rate schedule the area under which is larger than the original one by the value of tax preferences.

In more formal terms, let us define an amount, \hat{Y} , which, when added to income, would ensure that the tax savings due to a person's tax preferences would be completely eliminated if their income increased to infinity. This is obviously an abstract concept, as no person's income can be expected to increase to infinity (!), but it captures the spirit of the third principle because it defines the simple shift in the tax schedule that we are looking for. This shift is illustrated in Figure 3, where \hat{Y} is the value that sets the area between the two tax schedules, one based on Y and the other based on $(Y + \hat{Y})$, equal to $P[T'(Y)]$, the value of tax preferences.¹¹ The expression $(Y + \hat{Y})$ will be called adjusted taxable income.

Moreover, this approach is consistent with the fourth principle, because the share of the benefits from tax preferences that a taxpayer loses, the doubly shaded area in Figure 3, increases with income. A taxpayer with no taxable income gets to keep virtually all of the benefits of her tax preferences, whereas a taxpayer with an income that places her near the flat part of the original tax schedule, gets to keep virtually none of these benefits. In addition, this approach

strengthens the version of this principle implicit in the alternative minimum tax, namely that high-income taxpayers should not be able to use tax loopholes to dramatically cut their taxes, let alone to avoid taxes altogether. Indeed, if the list of tax preferences is comprehensive, this tax system makes it impossible for very-high-income taxpayers to gain from loopholes at all.

Formally, the value of \hat{Y} can be found from the following equation:

$$T(\infty + \hat{Y}) - T(\infty) = P [T'(Y)] \quad . \quad (10)$$

Substituting in (9) and solving for \hat{Y} , we find that

$$\hat{Y} = \frac{P [T'(Y)]}{t_0 + t_1} \quad . \quad (11)$$

When income is high enough for the marginal tax rate to equal $(t_0 + t_1)$, \hat{Y} obviously equals P , and the full amount of the tax preferences that were subtracted to form taxable income are added back to form adjusted taxable income. When $Y = 0$, the marginal tax rate equals $t_0 + \delta$, so \hat{Y} is only a small fraction of P . With a very small δ , this fraction is approximately equal to $t_0/(t_0 + t_1)$.¹²

Because this approach eliminates the benefits from tax preferences for very-high-income taxpayers, it also eliminates the incentives for them to shift toward activities that receive tax preferences, and thereby reduces the transactional complexity of the tax system. If some such activities, such as charitable giving, are deemed to have social value, then they can be excluded, in whole or in part, from the list of tax preferences. If, for example, only half of charitable contributions were considered a tax preference, then a very-high-income taxpayer could save $(t_0 + t_1)/2$ dollars for every dollar she gave to a charity.

With this approach, policy makers do not have independent control over the phase-out rates for tax preferences. All preferences are phased out according to the same rate schedule, and this schedule is determined by the policy parameters of the marginal tax rate schedule, equation

(7). To be specific, the type of phase-out included in current law is the percentage decline in exemptions (or in excess itemized deductions) when income increases one dollar. In the system considered here, the analog to the exemption (or deduction) is the amount by which one dollar of tax preferences (which could include exemptions and excess itemized deductions) lowers adjusted taxable income, $(Y + \hat{Y})$. The phase-out rate is the decline in this amount that accompanies a one dollar increase in income. Simple differentiation reveals that this phase-out rate equals $T''(Y)/(t_0+t_1)$, where T'' is the derivative of the marginal tax schedule.¹³

Thus, as shown in Figure 4, the phase-out rate reaches a maximum at Y^* , where the marginal tax rate schedule is steepest.¹⁴ Because T'' is symmetrical, this implies that preferences are half-way phased out by the time income reaches Y^* .¹⁵ This result adds intuitive appeal to this form of phase-out; in selecting Y^* , policy makers determine where both marginal tax rates and a voters tax preferences are half way between their minimum and maximum values. Similarly, when policy makers set γ (or δ), they are not only determining the relative steepness of the marginal tax rate schedule at Y^* and in the lowest “bracket,” they also are determining the phase-out rate for P at Y^* relative to the phase-out rate in the lowest “bracket.” A higher value for γ (or a lower value for δ) implies both a relatively steep marginal tax rate schedule and relatively high phase-out rate at Y^* . Even with a very high value for γ , however, the phase-out rate remains miniscule at any given income level because the phasing out of preferences occurs gradually over the entire income range.

One also can calculate the rate at which tax benefits from preferences phase out. In the current tax system, the phasing out of tax benefits has two components. First, an increase in income that shifts a taxpayer into a higher tax bracket increases the tax savings from another dollar of preferences. This change is equivalent to a negative phase-out rate for tax benefits. This

negative rate reflects, of course, the regressive nature of exemptions and deductions, which give a larger tax break to taxpayers in higher income brackets. Second, a formal x percent phase-out rate for exemptions (or some other tax preference) in a certain income range results in a tx percent phase-out in the tax savings from exemptions, where t is the individual's marginal tax rate in that range.

In the approach presented here, the tax benefit from one dollar of preferences is the derivative of $T(Y + \hat{Y})$ with respect to P , and the phase-out of this benefit is its derivative with respect to Y . This expression depends on P and is presented for several different values of P in Figure 4.¹⁶ This phase-out rate reflects the same two factors that appear in the current tax system, namely the increasing marginal tax rate as income increases, which raises the tax savings from preferences, and the phasing out of preferences as income increases. At low incomes and all but the highest values of P , the first factor dominates and the phase-out rate actually is slightly negative. For all values of P , however, this phase-out rate eventually becomes positive and reaches a maximum at or just above Y^* . Above this maximum (or at any value of Y when P is very large), the phase-out rate schedule equals $T''(Y)$. Thus, the tax system proposed here does not entirely eliminate the regressivity of exemptions and deductions, but it does confine this regressivity to a relatively narrow income range.

In short, the phase-out rate schedule for the tax savings from preferences is similar in shape to the phase-out rate schedule for P , except that it involves a small negative phase-out rate at low levels of income (and with all but the highest values of P). Unlike the negative phase-out rates in the current system, the negative rates in this system are small and spread out, not concentrated at income-bracket boundaries. The parameters of the marginal tax rate schedule are

reflected in this phase-out rate schedule, which reaches a maximum at or just above Y^* at a level that increases with the value of γ .

The Simplicity Punch Line: Tax Forms with a Continuous Tax Schedule

Public officials could implement this tax system by identifying the set of tax preferences and setting four intuitive policy parameters:

- The minimum marginal tax rate, t_0
- The distance between the maximum and minimum marginal tax rates, t_1
- The income at which the marginal rate is half way between the minimum and maximum, Y^*
- The parameter determining the width of the bottom “bracket,” δ .

These parameters give policy makers considerable flexibility in setting up this tax system. For example, they could recognize the trade-off identified in the optimal tax literature: Efforts to increase progressivity (by increasing the difference between t_0 and t_1 , for example) may have some cost in terms of lost efficiency.¹⁷ Moreover, the more existing exclusions, exemptions, and deductions that are classified as preferences (as the term is used here), the lower the tax rates can be set, all else equal, and the lower the overall efficiency loss from the income tax. With t_0 set at the current minimum marginal tax rate, 15 percent, for example, classifying more tax items as tax preferences would make it possible to lower the maximum marginal tax rate, t_1 .

Calculations by a taxpayer involve familiar concepts with the exception of \hat{Y} . To calculate \hat{Y} , a taxpayer needs to (a) add up all items defined as tax preferences and (b) find out her marginal tax rate, $T'(Y)$. Preferences could be added up on a single tax form and marginal tax rates could be included in the standard tax table (or a separate marginal rate table organized the same way). Once \hat{Y} has been calculated, the taxpayer’s final tax comes from the standard tax

table at a value of $(Y + \hat{Y})$, which is adjusted taxable income. Moreover, each taxpayer's true marginal tax rate is the entry for this adjusted taxable income in the marginal tax rate table.

The required tax calculations are illustrated in Table 1, which presents the lines on a the back of a hypothetical 1040 form for the tax system described here. The ten lines in this table (plus the form adding up preferences) replace all the phase-out worksheets and the alternative minimum tax forms in the current income tax and therefore represent a significant degree of simplification at the point of interaction between the taxpayer and the tax system.

With many values of the minimum and maximum tax rates, t_0 and t_1 , particularly when they differ significantly, the adjustment to taxable income, that is, the value of \hat{Y} , is very small when taxable income is small. Further simplification therefore could be achieved by skipping this adjustment for low-income taxpayers.¹⁸ Alternatively, the list of preferences could exclude personal exemptions and the standard deduction, so that virtually all low-income taxpayers would not have anything defined as a tax preference. This second approach would be simpler, but it would require higher tax rates to obtain the same revenue as the first approach.

This tax system can easily accommodate both the distinction between separate and joint returns and indexing. Both of these adjustments involve the setting of Y^* . Doubling Y^* doubles the income at which the tax rate half way between the minimum and maximum is reached and is therefore analogous to doubling the width of the tax brackets. It follows that the value of Y^* should be twice as high for joint as for separate or single returns. Moreover, to keep this half-way rate at the same real income, Y^* could be indexed, that is, multiplied every year by a consumer price index.

Conclusions

Many policy makers emphasize the need to bring down marginal tax rates, particularly at the top of the income distribution, but then, in an effort to attain revenue targets, employ policy tools that keep marginal tax rates high for many high-income taxpayers. This paper provides a way out this dilemma. In particular, it devises a new type of income tax structure that, following several clear tax principles, eliminates spikes in the marginal rate structure while at the same time greatly simplifying income tax returns for many taxpayers, particularly those affected by phase-outs or the alternative minimum tax. This approach is flexible in the sense that it can be calibrated to achieve any desired degree of progressivity and can accommodate any set of tax preferences. In future work I hope to use a sample of individual income tax returns to simulate the marginal tax rate schedules that would be possible with this system for a variety of progressivity targets and tax preferences, holding total tax revenue constant.

Endnotes

1. Thomas also points out that “whatever benefit we are trying to recapture from higher-income taxpayers can be recaptured in a much simpler, fairer, and more honest way: by building recapture into the rate structure.” This is, as we will see, the objective of this paper! However, Thomas goes on to say that recapture should be built into the rate structure that everyone faces. “No harm is done if a wealthy person with many dependents retains some of the benefit of his or her exemption.” As pointed out earlier, the issue is not one of “harm” but is instead that the case for exemptions and tax preferences weakens as income rises. It is fairer, therefore, to recapture more from higher-income people with more tax preferences. Policy makers who reject this fairness argument should support the Thomas approach!
2. In fact, the schedule defined by (1) and (2) is equivalent to an infinite number of other schedules with different combinations of marginal tax rates and exemptions. For example, it is equivalent to one applied to G with the same brackets as in (3) in which the four rates are 0 , $t_1 G_1 / (G_1 + E_0)$, $t_2(1+p)$, and t_2 , and the exemption is phased out for values of G above E_0 at a rate of $r = E_0 / G_1$.
3. Blumenthal and Slemrod (1992) estimate that the average taxpayer spent 27.4 hours preparing income tax returns in 1989, compared to 21.7 hours in 1982. See also Slemrod (1992).
4. Survey evidence summarized in Sheffrin (1993) indicates that taxpayers prefer a high degree of progressivity in average tax rates, which would be difficult to achieve with a flat tax, at least at relatively high income levels.
5. The earned income tax credit does not serve as a demigrant because it equals zero when income is zero.
6. Many economists have developed theories of sacrifice or marginal sacrifice, often based on the declining marginal utility of income, to derive the right degree of tax progressivity. My interpretation of this literature coincides with Bradford’s (1986, p. 153): “Such abstract principles should be regarded not as externally imposed criteria for policy but as ways of describing commonly held values about the effects of policy.”
7. Doug Holtz-Eakin has pointed out to me that the set of tax items that qualify to be preferences under this definition depends on the definition of the tax base. For example, interest on municipal bonds, which receives a special tax exemption in the current income tax, is a clear example of a potential tax preference, and indeed interest earned on private activity municipal bonds is covered by the alternative minimum tax. With a consumption tax base, however, investment items are not taxed so municipal bond interest could not be considered a tax preferences. The approach presented in this paper could be applied to any base definition and to any relevant set of tax preferences.

8. As Thomas (1995, p. 1689) puts it phaseouts “make a dubious contribution to the fairness of the Internal Revenue Code.”
9. Another function that satisfies these two principles is the hyperbolic tangent, which ranges from negative one to positive one. Remarkably, with the same values for the minimum and maximum tax rates, for the income at which the half-way rate is reached, and for δ , the marginal tax rate schedules generated by these two functions are identical.
10. Another approach that improves the approximation and is only somewhat more complex is to replace $T'(Y)$ with the average of $T'(Y)$ and $T'(Y + P)$.
11. In Figure 3, the value of P is set at \$50,000.
12. Moreover, the tax paid because of this adjustment is approximately equal to $P(t_0)^2/(t_0 + t_1)$. With $t_0 = .15$ and $t_1 = .25$, for example, this extra tax is only $(0.05625)P$.
13. To derive this result, note that $d(Y + \hat{Y})/dP = -1 + T'(Y)/(t_0+t_1)$. The derivative of this expression with respect to Y is simply $T''(Y)/(t_0+t_1)$.
14. Figure 4 is based on the same values of the tax parameters as is Figure 1.
15. To be precise, it is not quite symmetrical because it is cut off at $Y = 0$. With a small value for δ , however, it is very close to symmetrical. Note that the area under this phase-out curve equals unity; the cumulative phase-out rate for \$1 of P must equal \$1.
16. The expression: $(d/dY)(d/dP)[T(Y + \hat{Y})] = T''(Y + \hat{Y})[1+PT''(Y)/t^*][T'(Y)/t^*-1] + T'(Y + \hat{Y})T''(Y)/t^*$, where $t^* = t_0+t_1$. As either P or Y becomes very large, this expression reduces to $T''(Y)$.
17. This efficiency loss arises because under most assumptions a given tax rate causes a larger behavioral distortion and a larger utility loss for higher-income taxpayers. See Stiglitz (1987) and Slemrod, Yitzhaki, and Mayshar (1991).
18. This approach actually results in a small discrete upward jump in the marginal tax rate when the income exceeds the level at which a taxpayer is exempt from the phase-out provision. One could call this a minor violation of the second principle in the name of practicality.

Table 1. Tax Calculations for a Continuous Income Tax Schedule

Line 32: Adjusted Gross Income

Line 33: Personal Exemptions

Line 34: Income Less Exemptions (Line 32 less Line 33)

Line 35: Deductions (Standard or Itemized)

Line 36: Taxable Income (Line 34 less Line 35)

If tax preferences equal zero (or are less than some selected value), enter this amount on Line 40, and skip Lines 37 to 39.

Line 37: Marginal Tax Rate (From Table)

Line 38: Preferences (From Preferences Form)

Line 39: Income Adjustment (Line 37 multiplied by Line 38, then divided by $(t_0 + t_1)$)

Line 40: Adjusted Taxable Income (Line 36 plus Line 39)

Line 41: Tax on Adjusted Taxable Income (From Table)

Figure 1. The Marginal Tax Rate Schedule

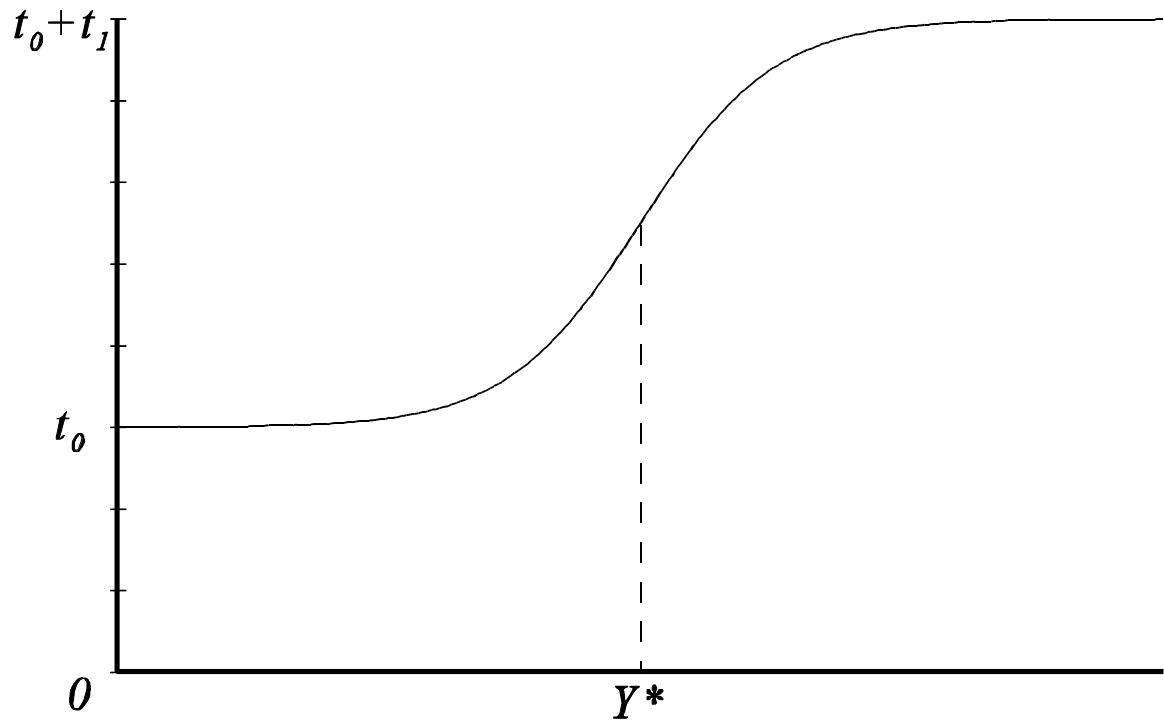


Figure 2. Impact of δ on the Tax Schedule

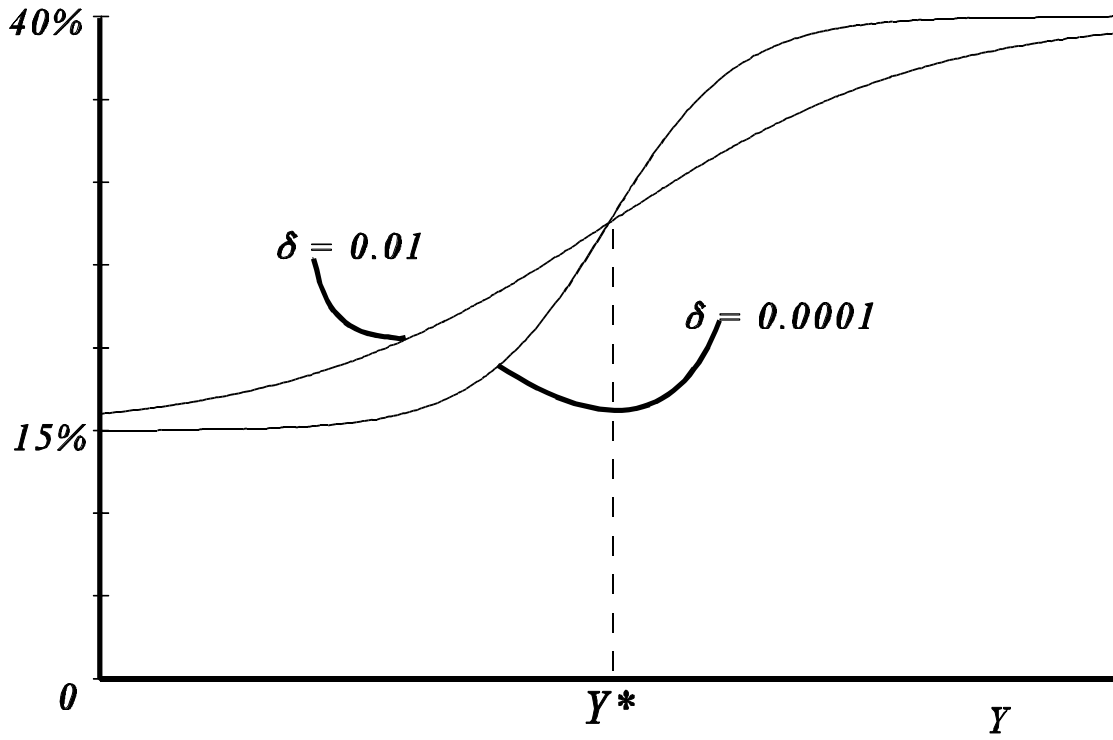


Figure 3. Phasing Out Tax Preferences

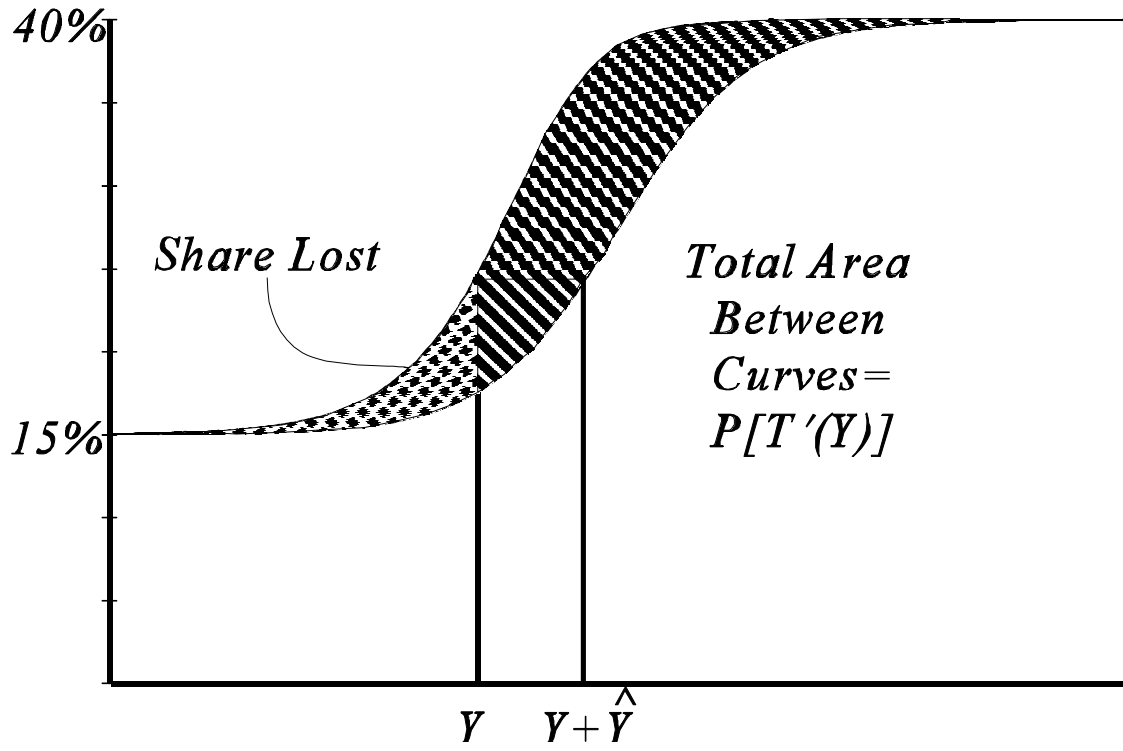
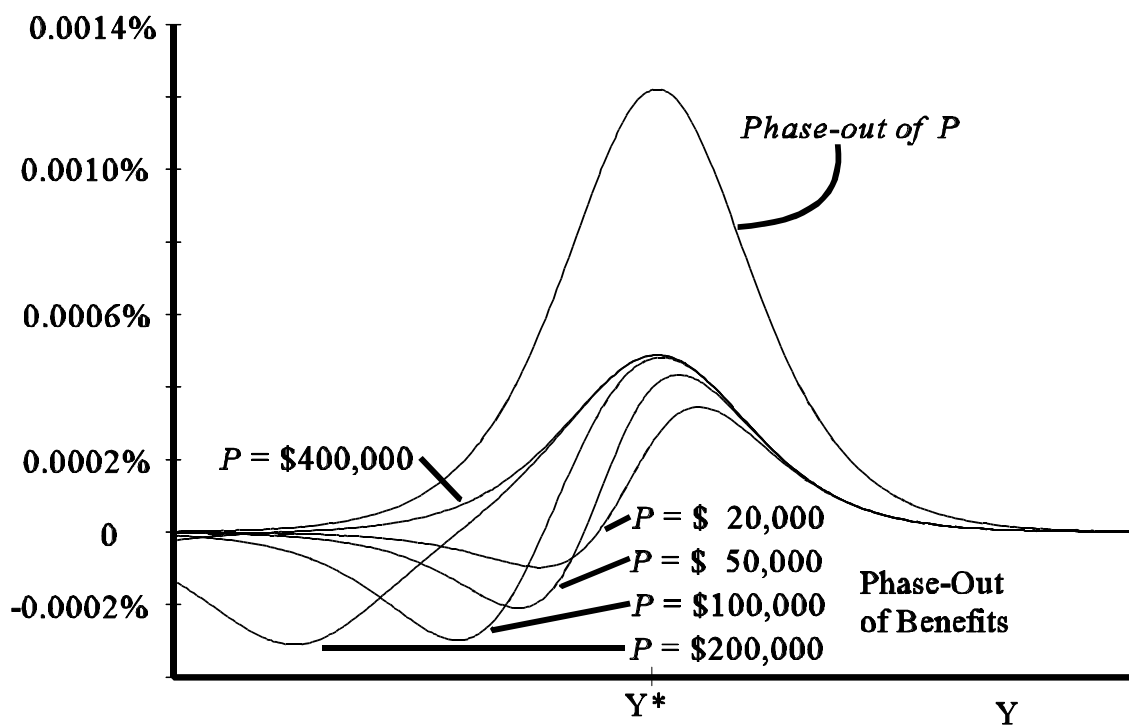


Figure 4. Phase-Out Rates



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