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TAXATION AND REDISTRIBUTION:
SOME CLARIFICATIONS

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Abstract

This essay revisits certain basic features of tax systems as they relate to redistribution. It focuses on how the actual differences between proportional and graduated taxes with regard to redistribution diverge in important ways from what many believe or implicitly assume. The analysis seeks to clarify tax policy debates, including those surrounding classic treatments of progressivity and contemporary flat tax proposals.

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INTRODUCTION

The redistributive effects of taxation, particularly income taxation, are one of its most important features. Arguments about progressivity – especially about whether there should be graduated or proportional taxes – have featured prominently in discussions of taxation and redistribution. This is true of classic treatments, including those concerning "sacrifice" theories of taxation and Blum and Kalven's (1952) famous article, as well as contemporary debates about tax reform, such as those surrounding flat tax proposals.

Unfortunately, the analysis of progressivity and redistribution is often confusing – or, worse, seemingly clear yet ultimately misleading. Many of the reasons for this are understood by some specialists. But this knowledge is not as widely known as it should be. Moreover, even experts often engage in elaborate conceptual investigations or policy analyses that (sometimes implicitly) reflect misconceptions about basic issues.

The purpose of the present essay is to offer some clarification. It begins with an informal, diagrammatic exploration of the relationship between progressivity and redistribution, focusing on the differences between proportional and graduated tax schemes. It is emphasized that the level of exemptions, the level of taxes, and how tax revenue is spent – not just the shape of the tax schedule – are important in determining the ultimate redistributive effects of income tax schemes.

Then the analysis is employed to illuminate both classical examinations of progressivity and current tax policy, especially consideration of flat taxes. In addition, attention is devoted to the divergence between the practice in the formal literature on optimal income taxation of assuming the existence of population-wide grants (a guaranteed income of sorts) and the practice in most other tax policy analysis of disregarding this possibility – a divergence of great consequence for redistribution. This discussion as well as concluding remarks emphasize the inability to consider matters of progressivity and redistribution in isolation, divorced from analysis of incentive effects and from explicit social welfare assessment of distributive effects.

PROGRESSIVITY AND REDISTRIBUTION, TAXES AND TRANSFERS

To focus on a few issues and to follow convention, this essay will narrow the discussion in a number of respects. For example, only a single type of tax unit will be considered; the analysis can be performed for each type of unit and for some purposes units may be aggregated using equivalence scales.[1] Discussion will be in terms of an income tax, though similar analysis would

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[1]There are limitations to this aggregation approach because only under very restrictive assumptions, which almost surely do not hold in fact, can different family or household units be viewed as the same, subject to a scaling factor. See, for example, Gronau (1988), Kaplow (1996), Lewbel (1989), and Pollak and Wales (1979).

apply to consumption taxes. Incentive effects will be ignored in comparing tax schemes, even though the choice of schemes considered will often be implicitly motivated by incentive concerns. And discussion will refer loosely to the extent and nature of redistribution, without providing a direct assessment of social welfare. As noted in the conclusion, any such analysis is incomplete and may be misleading, but hopefully these simplifications will permit some illumination while keeping analytics to a minimum.

Average Tax Rates, Marginal Tax Rates, Progressivity, and Redistribution

Economists usually define a progressive tax as one in which the *average* tax rate (taxes paid divided by pre-tax income) increases with pre-tax income.[2] As is familiar, one way to generate a rising average tax rate is through the use of graduated marginal tax rates. Thus, the first $10,000 of income might be exempt (a 0% rate), the next $40,000 taxed at a rate of 20%, and all income above $50,000 (the sum of $10,000 and $40,000) taxed at 40%. See Figure 1.

Figure 1. Income Tax with Graduated Marginal Rates
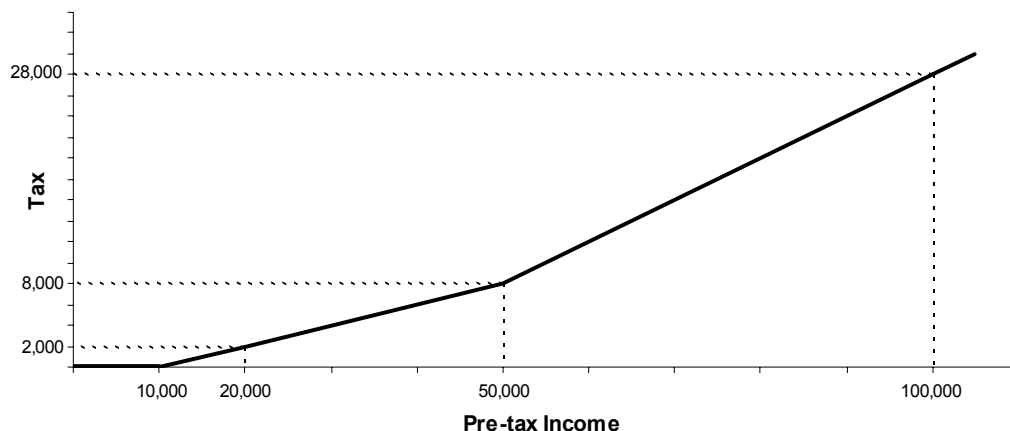
In the figure, the horizontal axis is used for pre-tax income and the vertical axis for taxes paid. In such a regime, an individual earning $20,000 would pay $2,000 in tax (nothing on the first $10,000 and $2,000 on the next $10,000), for an average rate of 10%, and an individual earning $100,000 would pay $28,000 in tax (nothing on the first $10,000; $8,000 on the next $40,000; and $20,000 on the next $50,000), for an average rate of 28%.

Furthermore, it is well understood by tax policy analysts that average tax rates can be increasing even when marginal tax rates are constant.[3] For example, consider a proportional

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[2]Noneconomists often specifically have in mind schemes with increasing marginal rates when they use the term "progressive." A conjecture is that this largely reflects a failure to appreciate the point that follows in the text – namely, that flat taxes can have increasing average rates – and also the point further below, that the most redistributive tax actually is a proportional tax. Relatedly, the failure to integrate government spending, especially on transfers, probably contributes to this view.

[3]Indeed, average tax rates can increase even in ranges in which marginal tax rates decrease. For example, if the first $20,000 were exempt, the next $80,000 taxed at 40%, and income above $100,000 taxed at 35%, the average rate for individuals with income between $20,000 and $100,000 would rise from 0% to 32%, whereas those with incomes over $100,000 would have average rates that rise gradually from 32%, asymptotically approaching

(flat) tax that exempts the first $30,000 of income and applies a uniform 40% rate above that level of income.[4] See Figure 2.

Figure 2. Proportional Income Tax with Exemption
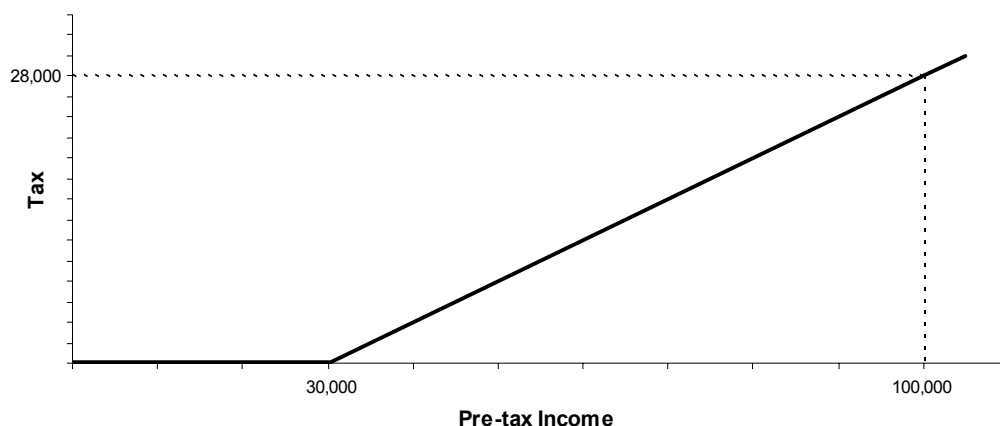
Under this regime, the individual earning $20,000 would pay no tax and an individual earning $100,000 would still pay $28,000, as before: 40% × ($100,000 - $30,000) = $28,000. Thus, the average rate on the high-income individual is again 28%, but the average rate on the low-income individual is 0% rather than 10%. Clearly, the average rate is increasing with income; indeed, in the income range considered here, the average rate increases *more* under the proportional tax than under the graduated income tax in Figure 1. In any flat tax with a positive exemption (or, as explored below, a positive rebate), the average tax rate (once past the exemption) will always be increasing with income.[5]

The existence or nature of progressivity, however, does not itself provide a very complete or reliable picture of the extent of redistribution that takes place. Notably, the *level* of taxes and the distributive incidence of the transfers and other programs financed by the tax revenue have a significant distributive effect independent of the precise *shape* of the tax schedule.[6]

Integration of Tax System and Transfer Programs

As just suggested, it is artificial and inappropriate to limit discussion of distribution policy to the income tax. Particularly with regard to the poor, transfer policies are the primary

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35%.

    [4]One might object that the hypothesized scheme is not really a proportional or flat tax, but rather a two-bracket graduated income tax: the first bracket taxes income at a zero rate and the second bracket at a 40% rate. As will be clear in the discussion to follow, this criticism is valid. Nevertheless, in common usage (that is, by nonspecialists as well as some specialists) a flat or proportional income tax virtually always refers to a tax with an exemption.

    [5]As income becomes high, the average rate levels off, rising only very slightly. This is also true under standard graduated rate schemes for income levels substantially above the starting point for the top bracket.

    [6]Kakwani (1976) emphasizes the value of distinguishing between the degree of progression (shape) of the tax schedule and its overall level, the product of the two determining the extent of redistribution. (However, he examines the redistributive effect of taxation alone, not taking explicit account of how the manner in which the different levels of revenue are spent affects the distribution of income.)

governmental influence on disposable income. For conceptual clarity, it is best to integrate the analysis of tax and transfer schemes.

Suppose that individuals with no income are eligible for some level of government assistance, that is, a transfer payment (G). Usually, such assistance is reduced as income rises, and at some point individuals are no longer eligible. For simplicity, consider a case in which the phaseout rate is constant, say at 40%. If G is $12,000, the phaseout of benefits will be complete at $30,000 of income (40% of $30,000 is $12,000). This transfer scheme is shown in Figure 3.

***Figure 3.*** Government Transfer Payment with Constant Phaseout Rate

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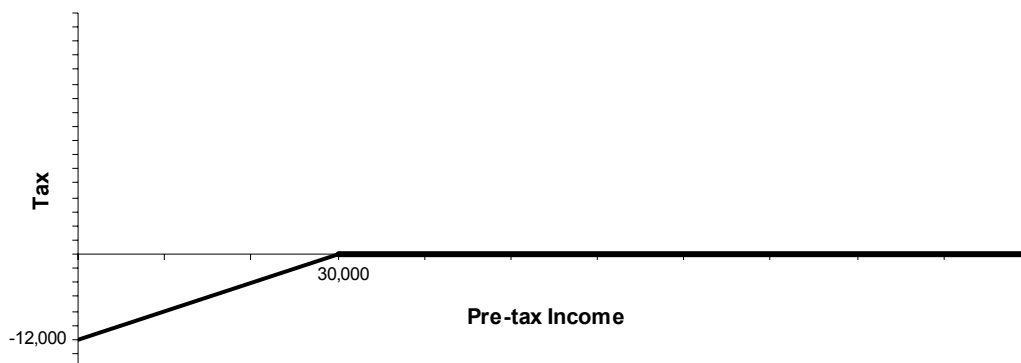
The amounts of transfer payments are represented as negative numbers. The motivation is that it will be helpful to combine our analysis of this transfer program with that of the income tax; hence, a transfer payment is represented as a negative tax. (Paying negative $12,000 is identical to receiving positive $12,000.) Many readers will recognize this convention of viewing transfers as negative taxes from negative income tax proposals.[7]

To complete the picture and reinforce this connection, combine the transfer scheme just described with the proportional tax in Figure 2, which involves a 40% tax on income above $30,000.

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[7]For some history on negative income tax and related proposals, see Kesselman and Garfinkel (1978). They, and many of the authors in the Garfinkel (1982) collection, emphasize a distinction between "credit income tax" proposals (a fixed grant provided separately from a purely proportional income tax) and negative income tax proposals, wherein the grant is administratively integrated with the income tax and it is assumed that the phase-out of the grant is at a rate that is necessarily higher than the income tax rate applied above the break-even point. As Arrow explains in his discussion comment, however, these distinctions are largely artificial, for whether the grant is administered separately is unrelated to what marginal tax rates are set and acknowledging that income tax payments may be negative carries no implication for the optimal structure of marginal tax rates.

Figure 4. Fully Proportional Income Tax (with Transfer Payment)
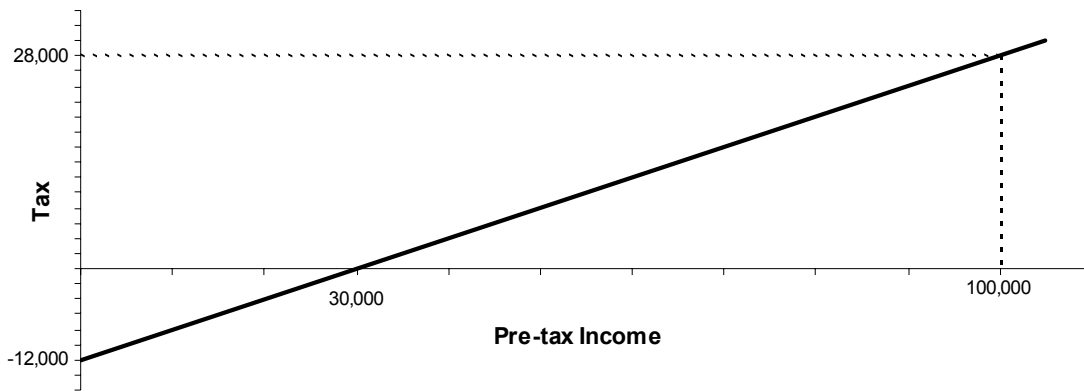
The tax/transfer combination depicted in Figure 4 is a truly flat tax in a way that most flat tax proposals are not. That is, most flat taxes actually have two brackets: a 0% bracket, for income below the exemption level, and a positive bracket, for income above the exemption level. The complete tax schedule, as in Figure 2, is not flat; it is kinked at $30,000, the level of the exemption. But as Figure 4 indicates, if there are also transfer payments and if they have both the same phaseout rate as the income tax rate and the same eligibility termination point as the income tax exemption, then one has a truly flat tax.

If these rates differ, if the tax is graduated, if the phaseout is not at a uniform rate, or if the phaseout termination point differs from the tax exempt level of income, the overall scheme will not have the same neat (and flat) appearance as in Figure 4, but one can still represent both the transfer scheme and the income tax, whatever their particulars, on a single graph. For example, if the transfer of $12,000 had a 50% phaseout rate, resulting in termination at $24,000, one would have scheme depicted in Figure 5.

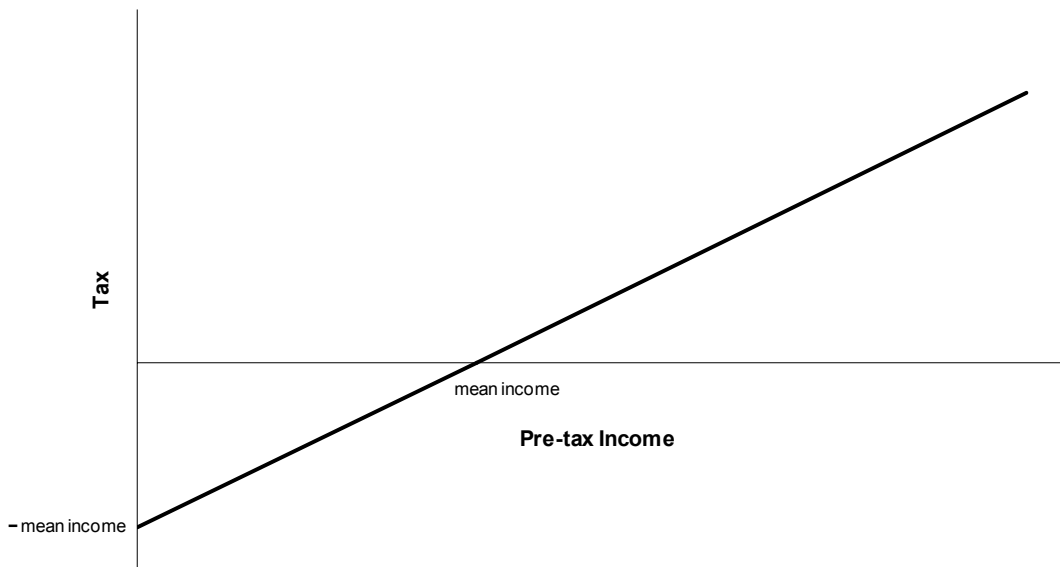**Figure 5.** Income Tax with Transfer; Phaseout Rate Differs from Marginal Income Tax Rate
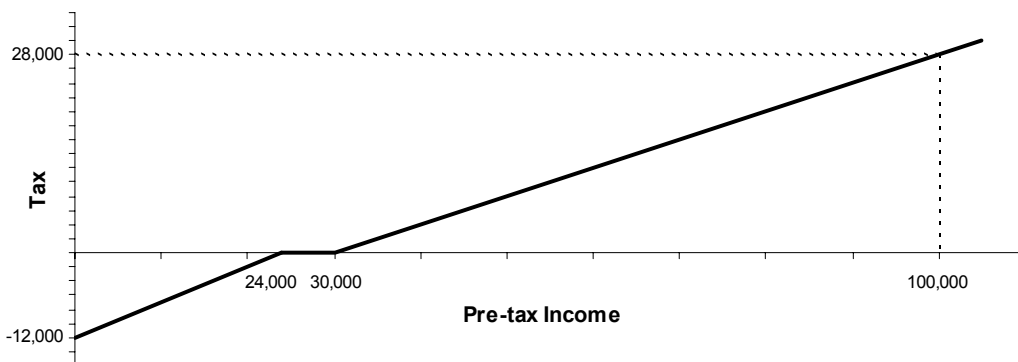
If instead the transfer scheme and the income tax overlap, one can simply sum the two relevant curves. (For example, if an individual earning $15,000 were eligible for $2,000 in transfer payments and owed $1,500 in income tax, one would represent the net, a rebate of $500 or equivalently a tax of negative $500, on the graph.) In the same fashion, one can include negative taxes that are part of the income tax. (These are usually referred to as refundable credits, at present the main one in the United States personal income tax being the earned income tax credit, or EITC.)

The Most Redistributive Tax Is a Proportional (Flat) Tax

It has already been shown that a proportional tax may entail average rates that increase more steeply than those under a graduated tax. To push the point even further, it will now be shown that the most redistributive tax imaginable is a proportional (flat) tax.

Suppose that one wished to produce a completely equal distribution of income. Moreover, assume that this was feasible because there were no incentive effects from taxation. This perfectly egalitarian result is implemented with a flat 100% tax on all income, with the proceeds rebated pro rata to the population. See Figure 6.

Figure 6. Fully Proportional Income Tax with 100% Marginal Rate

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The tax in Figure 6 could also be described as a 100% tax on all income above an exemption level equal to mean income, with a transfer payment (a negative income tax). This transfer payment equals mean income and has a 100% phaseout rate. Equivalently, one could describe the transfer as being an amount equal to the difference between mean income and an individual's pre-tax income. However conceived, when an individual with below-mean income earns an additional dollar, the amount of the transfer falls by one dollar.

Contrast this regime to a 0% tax at all income levels, which raises no revenue to rebate. Obviously, no redistribution results. Combining these two cases, one can see that complete redistribution to equality and no redistribution whatever are both implemented by a flat tax. Thus, it can hardly be the case that whether or not a tax is flat is an inherent indicator of the extent to which it is redistributive. Nor can it be the case that taxes with graduated marginal rates are inherently more redistributive: It has just been demonstrated that the most redistributive tax is flat, so this is impossible. (In addition, the preceding subsection gave a more moderate illustration of two tax systems, in Figures 1 and 2, with the flat tax being more generous to the low-income taxpayer and equally stringent in taxing the high-income taxpayer.)

Comparison of Proportional and Graduated Marginal Rate Schemes

It is apparent that the difference between proportional and graduated taxes is not a straightforward one in terms of the extent of redistribution involved. To explore further the real differences, consider some additional illustrations. First, pure tax schemes will be considered (that is, the level of revenue and how it is spent will be ignored), then tax and transfer schemes.

In the examples depicted in Figures 1 and 2, where the low-income individual pays $2,000 of tax under the graduated tax but none under the proportional tax, the greater generosity of the latter is attributable to the larger exemption. (In spite of the larger exemption, the tax of the $100,000 taxpayer is not lower under the proportional tax because the effect of the larger exemption is offset by applying the 40% marginal rate starting at a lower income level.) It is useful to compare a flat-rate and graduated income tax that have the same exemption level. Moreover, assume that the flat rate is set to raise the same level of revenue as is raised by the graduated tax, and that the revenue is spent the same way under both regimes. See Figure 7.

Figure 7. Graduated versus Proportional Income Tax with Same Exemption
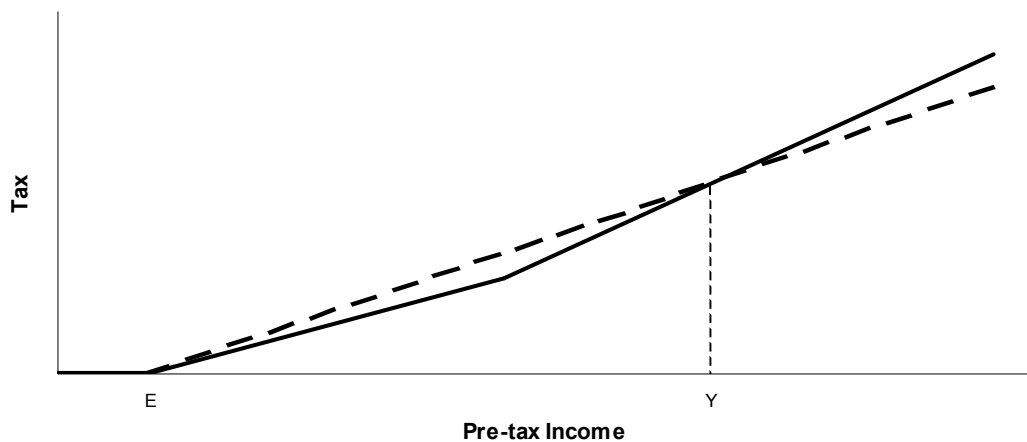
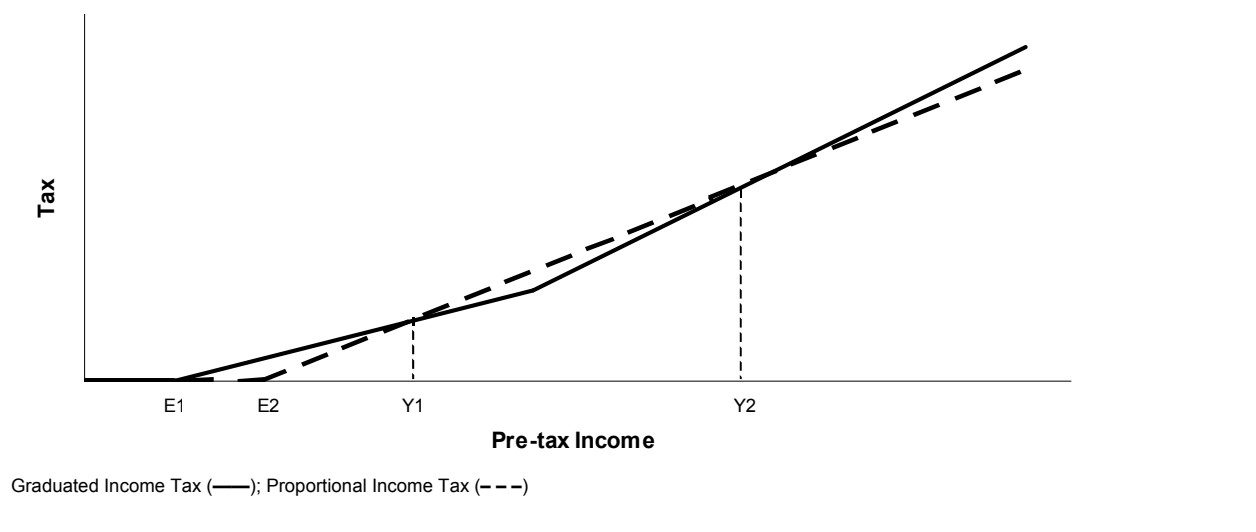Graduated Income Tax (——); Proportional Income Tax (– – –)

In this comparison, the proportional tax is less redistributive: (1) individuals with income less than the common exemption level (E) pay no tax under both schemes; (2) individuals with income between E and the intersection point of the two schedules (Y) pay less tax under the graduated scheme; (3) individuals with income above Y pay more tax under the graduated

scheme. Thus, the graduated scheme, relative to the proportional one, redistributes from the rich to middle-income individuals (but not to the poor).[8]

It is apparent from the example offered at the outset of this section that this result depends upon the arbitrary assumption that the exemption levels will be the same. There is no necessity in this, and most proposals to substitute a flat tax for a graduated tax contemplate raising the exemption. Thus, retaining the assumption of revenue neutrality, consider the variation depicted in Figure 8.

Figure 8. Graduated versus Proportional Income Tax with Modestly Different Exemptions

Graduated Income Tax (——); Proportional Income Tax (– – –)

In this case, there is no a priori way to say which tax is more redistributive, that is, which tax results in less inequality in the post-tax distribution of income. (1) Individuals with income below the graduated income tax's exemption level (E1) pay no tax under either scheme; (2) lower-income individuals, with incomes between E1 and Y1, pay less tax under the flat tax; (3) middle-income individuals, with incomes between Y1 and Y2, pay more tax under the flat tax; and (4) high-income individuals, with incomes above Y2, pay less tax under the flat tax. In sum,

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[8]If the rate of the flat tax were low enough, all individuals would pay lower (or equal, if income is below E) taxes under it, but such a tax would raise less revenue than the graduated scheme. If the rate were high enough (greater than or equal to the top rate under the graduated scheme), all would pay higher taxes under the flat tax (except those below E, who would pay the same), but such a tax would raise more revenue than the graduated scheme. It should be clear from Figure 7 that any flat tax that raised the same revenue as a given graduated tax and that had the same exemption would intersect the graduated schedule exactly once, from above, and thus would have the properties described in the text. For further refinements, see Davies and Hoy (2002).

relative to the graduated tax, the flat tax redistributes from the middle class toward both low- and high-income individuals.[9]

Popular discussions tend to emphasize that the high-income taxpayers pay less under a flat tax, but ignore that a lower-income group may also pay less under such a scheme. If one favoring greater redistribution cares not merely about the rich paying more but about lower-income individuals paying less, as seems most plausible, it is not obvious whether a flat tax is better or worse than a graduated tax in this regard. If one's greatest concern were for lower-income individuals, the flat tax would be distributively superior to the extent it has a higher exemption.

Furthermore, if the exemption under the flat tax was substantially higher and the marginal rate higher as well (which would be necessary for revenue neutrality), it would be possible for the flat tax, relative to the graduated tax, to involve a higher tax on the rich and a lower tax on both lower- and middle-income taxpayers, as shown in Figure 9.

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[9]One could also consider a tax will falling marginal rates, as follows:

Figure 8A. Declining Rate versus Proportional Income Tax with Modestly Different Exemptions
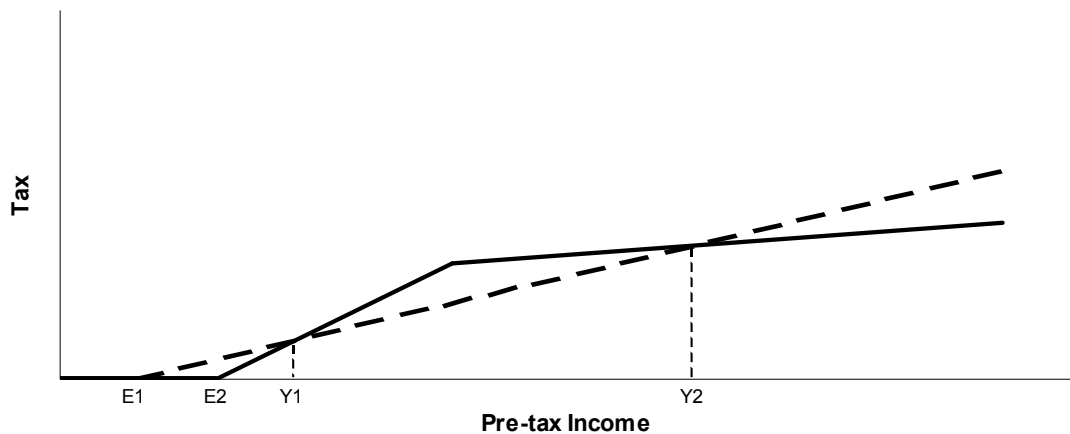
Declining Rate Income Tax (——); Proportional Income Tax (– – –)

This scheme, relative to a flat tax with a lower exemption, places a greater burden on middle-income taxpayers and a lower burden on both low- and high-income taxpayers. Thus, there is an even broader sense in which the degree of relative graduation in rates (holding constant the tax burden of, say, the top half of the income distribution) can be understood as concerning the relative treatment of the middle of the income distribution versus the ends rather than as concerning the treatment of the rich versus the poor.

Figure 9. Graduated versus Proportional Income Tax with Significantly Different Exemptions
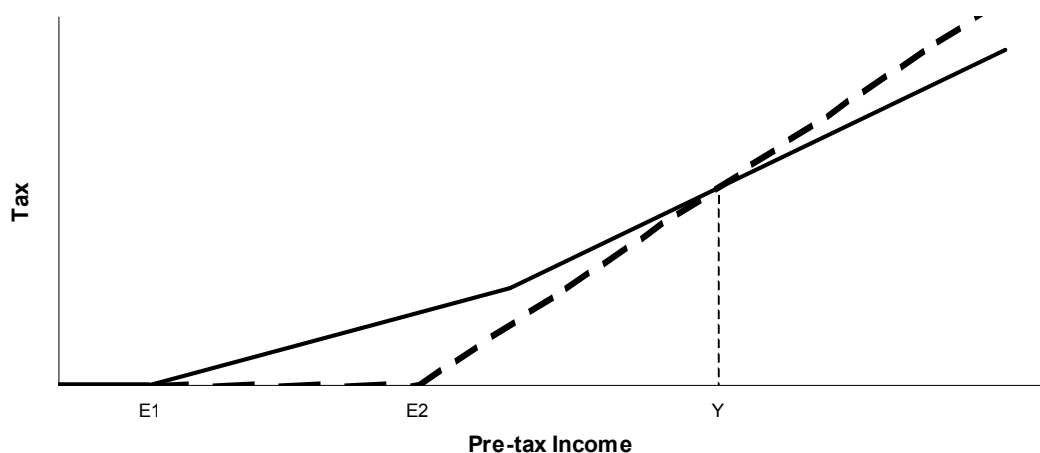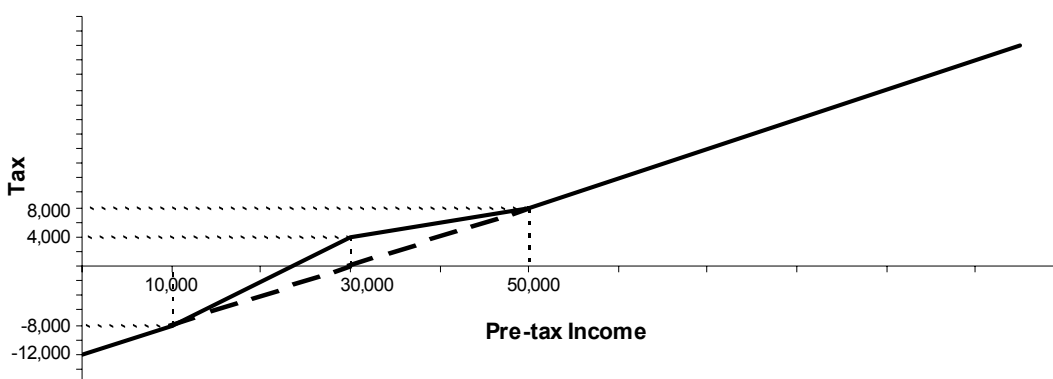

Graduated Income Tax (——); Proportional Income Tax (– – –)

From the preceding three figures, it seems clear that, when comparing equal-revenue tax schemes, a flat tax with a low exemption will be less redistributive than a given graduated tax, one with a high exemption will be more redistributive, and one with an intermediate exemption – say, one under which the top half of the income distribution pays the same total tax as under the graduated tax – cannot unambiguously be characterized.[10] Most flat tax proposals do not contemplate either a high exemption or a low one, so most discussion to follow will emphasize the intermediate case, in which the flat tax falls more heavily on middle-income taxpayers, to the benefit of both lower-income individuals and the rich. Because many commonly expressed distributive views are not sufficiently refined to indicate a judgment concerning the relative treatment of the middle class and because the present analysis ignores incentive effects, there is no basis for an a priori statement about whether proportional tax schemes should in some general sense be viewed as better or worse than graduated schemes with regard to achieving distributive objectives.

The foregoing conclusions are reinforced when one makes the analysis more complete by incorporating transfer payments. Because the results are qualitatively similar, it will suffice to present a single example, which will combine the previously described transfer scheme (G is $12,000 and the phaseout rate is 40%) with the income tax schedules that were compared in Figures 1 and 2. See Figure 10.

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[10]For further refinements that make use of specific measures of inequality, see Davies and Hoy (2002).

Figure 10. Graduated versus Proportional Income Tax with Transfer Payment

Graduated Income Tax (——); Proportional Income Tax (– – –)

The main point to note is that, given the particular schedules that have been chosen, the flat tax looks truly flat, as previously explained, but the graduated tax seems qualitatively different than it did before. Indeed, integrating the transfer scheme, it is no longer graduated in any simple manner. There is a 40% marginal rate applicable to the first $10,000 of income (the phaseout rate is 40% and this income is exempt from the regular income tax), a 60% rate on the next $20,000 of income (the 40% phaseout rate plus the 20% bottom income tax bracket rate), a 20% rate on the next $20,000 (the phaseout being complete), and a 40% rate on all income above $50,000. Thus, the marginal rates first increase (from 40% to 60%), then fall substantially (to 20%), and finally rise again (to 40%), although not to the height of the rate applied to lower-income taxpayers with incomes above the exemption level of the graduated income tax.

Integrating the analysis of tax and transfer programs makes clear a number of points. First, most so-called graduated schemes are not consistently graduated once one includes the lower end of the income distribution. Second, considering actual phaseout rates of transfer programs, the highest marginal rates are often on the poor under virtually all of the schemes that exist or are usually proposed.

Third, what matters most for the very poor is not the marginal rate because they earn little income in any event (although high marginal rates may be part of the reason for this). Instead, the level of government assistance is most important. And, holding other public expenditures constant (e.g., on roads, schools, defense), this level will be determined by how much revenue is raised from the rest of the population. Thus, whether the poor benefit substantially, little, or not at all from the tax/transfer regime is more directly affected by the level of taxes and by spending priorities than by the particular shape of the income tax schedule at higher levels of income.

Fourth, whether there is significant graduation of marginal rates in the middle and upper income ranges will affect the distribution between the middle class and the rich. Any effect on lower-income taxpayers will be due to any differences in revenue raised (the third point) or, if their income is above the exemption level for the graduated tax, they will be taxed less under the proportional tax if its exemption level is more generous.

DISCUSSION

Taxes, Transfers, and Demogrants

The integrated tax and transfer schemes depicted in Figures 4, 5 and 10 involve a grant G received by every individual combined with a tax or phaseout that reduces the level of the transfer as income increases. Economists sometimes term such grants "demogrants."

There is considerable variation on whether analysis of tax systems includes such transfers or instead confines attention to schemes in which taxes paid by everyone are positive, or zero if income is at or below the exemption level. In many formal analyses in a range of literatures on progressivity and redistribution, the possibility of grants is ignored.[11] In some, it is allowed, but the attitude seems to be squeamish, as though the analyst was engaged in ivory tower inquiries into possibilities that a polity would never take seriously.[12] To be sure, in others, such as most of the optimal income tax literature, including grants is entirely standard.[13] In political debate over tax reform, the tendency is even more one-sided, with attention long having been confined to positive taxes, though there have been exceptions, notably, the occasional serious consideration and implementation of refundable credits, such as the EITC.

This often skeptical and restrictive outlook, however, seems quite far off the mark.[14] After all, most tax systems raise revenue – that is their purpose – usually a large fraction of GDP. And this revenue is spent. And, however it is spent, there is likely to be a significant distributive impact.

A large portion of government revenue is used to finance public goods, such as roads, police, and national defense, as well as services such as education that may not be public goods

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[11]See, for example, the surveys and analysis in Lambert (1999, 2001).

[12]For example, in Davies and Hoy's (2002) comparisons of flat and graduated taxes, they emphasize the case with no demogrant and then consider how their analysis changes when a demogrant is allowed with a flat tax, but they do not consider how allowing a graduated tax to have a demogrant would change the results (even though, as argued here, such a scheme is actually closest to typical existing tax/transfer systems). Zelenak and Moreland (1999) argue affirmatively that analysis should ignore demogrants because they are politically unrealistic. That expenditures on public goods serve this function, as described below, they ignore on the ground that this is not generally viewed as redistribution and that it is unclear how the benefits of public goods should be allocated. Regarding transfers, they observe that in the United States they tend to be limited to certain groups, notably those with children, the elderly, and the disabled. However, as a practical matter, this includes most individuals whose limited ability to earn income places them at the very bottom of the income distribution – i.e., those who would be the largest net recipients of demogrants. Effective work requirements (both on those otherwise eligible for transfers and, in stronger form, by denying eligibility entirely to those who can work) serve to counteract the disincentives that would otherwise arise by giving those able to work a demogrant that in turn is phased out (or, equivalently, is taxed) at a very high marginal rate.

[13]See, for example, Stiglitz (1987), Tuomala (1990), and the references cited in note 25.

[14]See, for example, Mirrlees (1994).

in the technical sense. Speaking loosely, one can think of such expenditures as a grant of sorts.[15] Unlike the grant presented above, there is no phaseout, and positive exemptions remain in the tax system. Nevertheless, these expenditures are substantial and have a great impact on the well-being of lower-income individuals (among others); hence, if one is concerned with questions of overall distribution, they can hardly be ignored. To illustrate, if there were a steep proportional tax with some level of exemption, and all the revenue financed such public goods, the poor would be much better off than in a regime with little taxation and correspondingly little public provision.

More important for present purposes, however, is the fact that the commonplace view that demogrants are fanciful ignores transfer programs, whether cash assistance, vouchers (such as for food or rent), free goods and services (notably, medical care, whether targeted to the poor as in the United States or comprehensive national health schemes that exist in many other countries), other insurance (such as unemployment and disability insurance), and so forth. In developed countries (and in some developing countries), the value of such provision is quite substantial indeed (relative to per capita income). Moreover, the level of benefits or eligibility is often based on income.[16]

Hence, if one were to diagram transfer programs, the correct depiction would look qualitatively similar to Figure 3, showing a significant grant with a phaseout. Likewise, if one were to diagram the existing tax and transfer system, it would look something like Figure 10, showing a grant with a phaseout combined with a graduated income tax.

There are two main features that distinguish the above diagrams from the actual and proposed regimes in many developed countries. First, in reality, tax and transfer systems are far more complicated. Graduated income taxes have more brackets, not to mention various exclusions and deductions; transfer programs are numerous and have different eligibility rules and phaseouts. Second, as a matter of fact, the highest effective marginal tax rates are often employed near the very bottom of the income distribution. A single program such as cash assistance may have a phaseout rate of 50% or more. But, in the same income range, other transfers may also be phased out – plus other positive taxes may be owed – so combined marginal rates can even exceed 100%. Furthermore, when one loses eligibility completely when passing a threshold income level (such as with Medicaid in the United States), the marginal rate

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[15]The provision of public goods does not result in an equal per capita benefit for a variety of reasons: Not all public goods are equally available to everyone, individuals' preferences are heterogeneous, and the value of public goods will tend to vary with income both because a given public good may produce more utility at some income levels than others and because the dollar value of a given utility benefit will rise with income. See, for example, Aaron and McGuire (1970) and Ruggles and O'Higgins (1981). Nevertheless, presumably just about everyone, importantly including for present purposes lower-income individuals, benefits substantially from public goods and, as discussed below, the extent of this benefit presumably varies with the extent to which public goods are provided. Accordingly, public goods have features similar to those of a per capita grant for purposes of the present analysis.

[16]Evidence on the current impact of tax and transfer programs on the poor and near-poor in the United States can be found, for example, in Sammartino, Toder, and Maag (2002). For discussion of the fact that transfers are not universally available, see note 12.

at that point is essentially infinite (or, viewing the band of income from, say, $1000 below the cutoff to $1000 above the cutoff, the average effective marginal rate may be well over 100%).[17]

In light of the foregoing, theoretical, empirical, and policy analysis and discussion should more often consider integrated tax and transfer schemes, since that is what we in fact have and what most proposals will affect, one way or another. Moreover, as a practical matter, the degree to which analysis may be misleading when focusing on (positive) taxes alone is great. The initial analysis (Figures 1 and 2) showed that the most direct concern of lower-income individuals (in positive tax systems) was with the exemption level, not with whether, due to differences in the graduation of rates, it was middle- or high-income individuals who paid more tax. Similarly, if some of the revenue is used to fund transfers rather than merely higher exemption levels, it is the very poor who will be directly affected – whereas they are not directly affected at all by the shape of the positive tax schedule since they pay no positive income tax in any event. Especially if significant weight is given to effects on the poor, even modest changes in transfers may have a much greater effect on social welfare through altering the distribution of income than fairly large differences in the relative treatment of upper-middle-income or rich individuals.[18]

In assessing redistribution in terms of its impact on social welfare, therefore, far more attention should be paid to the impact of tax reform on expenditures on transfers – whether through direct assistance, public expenditures that benefit the poor such as on education, or tax credits such as the EITC– and also to expenditures on public goods. Analysts, politicians, and the public would be well advised to take a more integrated view of redistribution; to ignore the grant component of tax/transfer schemes is unrealistic and can be highly misleading as well.

Flat Tax Proposals

Debate about flat tax proposals is often confusing for a number of reasons. Many relate to the fact that prominent flat tax proposals often have as core features matters that have little or nothing to do with the rate structure (flatness) of the tax, such as converting the income tax into a consumption tax, integrating the corporate tax, changing methods of collection, and eliminating a variety of deductions and other special provisions.[19] The present discussion, however, will be confined to confusion that relates to the rate structure itself, and particularly arguments about the relationship between flatness and redistribution.

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[17]See, for example, Giannarelli and Steuerle (1995), Hepner and Reed (2002), Sammartino, Toder, and Maag (2002).

[18]To illustrate, in an additive social welfare function that is symmetric in the log of individuals' incomes, the marginal social welfare effect of giving one dollar to an individual with $10,000 will be ten times the magnitude of the effect of taking one dollar from an individual with $100,000 (whereas taking a dollar from someone with $100,000 and someone with $200,000 will differ in impact on social welfare by only a factor of two). Assuming instead that marginal social welfare is proportional to the inverse of the square of income rather than to the inverse of income (as with the log functional form) gives a ratio in the former comparison of one hundred to one rather than ten to one.

[19]See, for example, Hall and Rabushka (1995).

The foregoing discussion of graduated versus proportional rate schemes establishes a number of points:

C A flat tax can be the most redistributive possible tax, and it also can be a tax that does not redistribute at all.

C Well short of these extremes, there exist flat tax schemes that are unambiguously more and unambiguously less redistributive than any specified graduated income tax.

C The main difference between a graduated tax and the "most similar" flat tax is that the former is more generous to middle-income individuals and less generous to lower-income and high-income individuals.[20]

C The amount of redistribution resulting from a flat tax or a graduated tax depends very heavily on the exemption level, the overall level of taxes (revenue raised), and how that revenue is spent.

In short, there is no tight relationship between graduation/flatness and redistribution.

The most straightforward implication of these lessons for flat tax debates is that the frequent association of flat taxes with less redistribution is mistaken. For example, the Economic Report of the President (1996, p. 91) states: "The prototypical flat tax would be less progressive than the current income tax. Its single rate would be set far below the highest marginal rate in the present individual income tax. Therefore, for the same amount of total revenue, it would raise less revenue from upper income households than the taxes it would replace (generally the individual and corporate income taxes). It follows that lower and middle-income households would see their taxes raised." Likewise, a major rationale for the USA tax proposal in the mid-1990s – a graduated consumption tax plan – was what was seen as flat tax schemes' inherent inability to redistribute income. See, for example, Seidman (1997).

Of course, many flat tax proposals would be less redistributive. If the exemption is as low or lower than that in the pre-existing graduated tax, lower-income individuals will pay more and higher-income individuals will pay less. Recall Figure 7. (Note, however, that if revenue is held constant and government expenditures are not simultaneously altered, the poorest individuals are unaffected, as they pay no tax either way.) Likewise, if the exemption is only slightly higher, then the foregoing will be approximately true; the only difference is that individuals just above the old exemption will pay somewhat less under the flat tax. However, if there is a significant increase in the exemption, one has the case depicted in Figure 8 or in Figure 9; for moderate exemption increases, lower-income and higher-income individuals pay less and middle-income individuals pay more under a flat tax, and for significant exemption increases, both lower- and middle-income individuals pay less and only higher-income individuals pay more.

Another reason that a flat tax may be less redistributive – and an important one given the emphasis in many proposals on keeping the rate very low – is that it may raise less revenue.[21]

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[20]In this regard, it is interesting to compare the oft-proposed "middle-income tax cut." This can be seen (roughly) as the opposite of flattening the income tax. A natural revenue-neutral alternative (see note 22) to a middle-income tax cut is a proportionate across-the-board cut. Relative to that benchmark, a middle-income tax cut is more generous to middle-income taxpayers and less generous to lower-income and higher-income taxpayers, which is just the relationship between a graduated tax and a benchmark flat tax.

[21]There are, of course, additional reasons that particular flat tax proposals could reduce the extent of redistribution, for example, by eliminating the EITC.

This may be so even when a proposal is claimed to be revenue neutral, either because of overly optimistic revenue forecasts or because of overoptimism that various proposed changes, such as elimination of the home mortgage interest deduction, will survive. In such cases, the important question becomes how government spending will be reduced.[22] An across-the-board spending reduction, for example, might produce a significant net loss for the poor and lower-income taxpayers. The poor may pay the same amount under both tax systems and lower-income individuals would pay less under a flat tax with a higher exemption, but the loss of valued government expenditures would result in definite net losses for the poor and possible net losses for lower-income individuals, especially if the cuts are significant. Furthermore, to the extent that any cuts come from transfer programs, those at the bottom of the income distribution will certainly be losers. Hence, perhaps the most important question in assessing the distributive impact of flat tax proposals is whether they will be revenue neutral and, if not, what spending cuts will be made.

To reinforce the point about revenue, the above discussion of combined tax/transfer systems also suggests that, with appropriate adjustments to government spending, just about any tax proposal, including flat tax proposals, could result in greater redistribution, particularly at the lower end of the income distribution. Given that the poor do not pay income tax either way and that lower-income individuals pay little income tax, even modest increases in transfer programs or in other expenditures that disproportionately benefit those with the lowest incomes could make that group net winners. Regarding tax reform in the United States, this point seems to be well appreciated with regard to the EITC, which is formally part of the tax code, but not with respect to the rest of government spending.

Neither greater nor less redistribution, of course, is necessarily good or bad. Whether a tax reform – taking account of adjustments to spending – is desirable depends not only on the distributive incidence of the reform but also on the importance given to distribution in assessing social welfare and on the incentive effects of the reform. Regarding the latter, debates about tax reforms, particularly flat tax proposals, are often misleading as well.

First, though unrelated to the core of this essay, nominal and effective rates are often confused. When one lowers tax rates and also closes loopholes, say, in a distribution-neutral and revenue-neutral fashion (as was supposedly attempted in the Tax Reform Act of 1986), effective rates by definition remain the same. Paying 50% on half of one's income and paying 25% on all of one's income both involve an effective rate of 25%. Neither the level of rates nor the extent of graduation is changed. (Efficiency may increase because, by closing loopholes, one may reduce various distortions, but that is another matter.)

Second, it is sometimes imagined that flat taxes result in a "free lunch" of lower rates, such as in proposals for "a single, low rate for everyone." Ordinarily, if a tax reform is to be revenue-

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[22]The idea of adding to the deficit (or drawing down on a surplus) is beside the point because deficits must ultimately be paid for – and interest paid in the interim – which will require either tax increases or spending cuts. Furthermore, if spending could be maintained despite a tax cut, one should be comparing a proposed tax reform that reduces revenue to other proposals, with different rate structures, that spread the same revenue across different groups of individuals.

neutral, a lower rate for some means a higher rate for others.[23] If existing spending could be supported, for example, by a tax scheme with a 20% rate and few deductions, it would be true that many would face a lower marginal tax rate. But lower- to moderate- income individuals would face higher marginal rates.[24] (Only if some marginal rates are above the peak of the "Laffer curve," such that reducing rates raised net revenue, would such a free lunch be available – a plausible story when rates were as high as 90%, but less plausible in most existing tax systems today.) Flat taxes may still be more efficient, because there may be less wasteful activity to shift income to lower bracket taxpayers or for other reasons. But this is not because of lower rates in general.

The full story on redistribution, one that considers both distributive and incentive effects and also engages in a complete social welfare assessment, requires the sort of analysis done in the study of optimal income taxation. It is worth recalling that this literature also does not provide a basis for equating graduation of rates with redistribution. Although there are assumptions under which marginal rates would tend to be rising for much of the upper-income range, in most analyses the optimal scheme features falling marginal rates at least at the very top end of the income distribution (although this need not necessarily be so except for the top individual).[25] In addition, Slemrod et al. (1994), who compare an optimal flat tax (one that includes transfers) with an optimal two-bracket tax, find in their simulations that the second, higher-income bracket should have a somewhat lower marginal rate – and, indeed, this difference is greater the more weight one's social welfare function puts on equality.[26] Thus, when considering the full story, it again remains true that graduated rates should not be presumptively associated with greater redistribution.

Classic Debates on Progressivity

One of the most famous discussions is Blum and Kalven's article (1952), subsequently published as a monograph, entitled "The Uneasy Case for Progressive Taxation." Much of the article criticizes arguments for progressivity, with the focus being on whether there should be graduated marginal tax rates rather than a proportional tax.[27]

Upon reflection, it should be no surprise that Blum and Kalven find the case for "progressivity" so uneasy. Much of Blum and Kalven's argument is a critique of various arguments favoring redistribution. In a sense, Blum and Kalven seem to believe that criticizing redistribution is both necessary and sufficient to justify the use of a flat tax rather than a

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[23]Auerbach and Slemrod (1997) emphasize this point with regard to the Tax Reform Act of 1986, which purported to be distribution-neutral as well as revenue-neutral, implying that everyone's effective rate should remain the same.

[24]Even more sophisticated analyses, such as Davies and Hoy's (2002, p.42) comparison of a flat rate tax with an exemption to a negative income tax, suggest that a lower tax rate will improve incentives without taking into account that, to raise the necessary revenue, some individuals must face higher marginal rates.

[25]See, for example, Diamond (1998), Sadka (1976), Seade (1977), and Tuomala (1984).

[26]The intuition is that the poorest of the poor – who receive greater weight under more egalitarian social welfare functions – benefit most by having the largest possible transfers; furthermore, raising the marginal rate for the lower of the two brackets is most effective in this regard (it applies to everyone and is inframarginal and thus nondistorting for the higher-income group).

[27]In similar spirit is Galvin's position in his debate with Bittker. See Galvin and Bittker (1969).

graduated one. The above analysis, especially as applied to modern flat tax proposals, however, reveals that their one-to-one association of graduation with redistribution is fundamentally mistaken. It is neither true that one opposed to redistribution would necessarily be drawn to a flat tax – which can be more redistributive than any given graduated tax and includes the most redistributive tax possible – nor is it correct that if (contrary to Blum and Kalven) one favored redistribution, one should correspondingly favor a graduated tax.

On a priori grounds, the case for a proportional tax is every bit as uneasy (or easy) as that for a progressive tax. As other critics have aptly argued, Blum and Kalven decide the debate largely by stipulation, in that their famous exposition does not even attempt to make a direct argument for the proportional tax scheme that they claim is preferable.[28] Toward the end of their inquiry, Blum and Kalven do address the fact that by allowing exemptions to vary one can introduce significant progression (increasing average tax rates) into a proportional tax, but they dismiss this possibility for a range of reasons that do not seem very substantial.[29] Also, like many others, they do not consider how much revenue is raised or how it might be spent, notably, on transfers.

Other classic arguments have involved sacrifice theories (whether tax burdens should involve equal absolute, proportional, or marginal sacrifices and, for any given theory, whether graduated rates are implied) and benefits theories (namely, whether benefits taxation involves graduated rates). The foregoing discussion suggests that, on reflection, the longstanding infatuation with the question of whether rates should be graduated is hard to justify. Furthermore, many of these theories are not really rooted in coherent notions of social welfare and also (relatedly) fail to take into account the incentive effects of taxation.[30]

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[28]See, for example, Bankman and Griffith (1987).

[29]Blum and Kalven do not merely note the possibility of a high exemption but also point out that the federal estate tax has a very high exemption and that the 1894 income tax did as well (both taxes being applicable only to the upper end of the income distribution). Nonetheless, they do not believe that proportional taxes with high exemptions need to be considered in evaluating progressivity. They rely substantially on the idea that a rigorous measurement of subsistence would define the exemption level, although they recognize that subsistence is often understood as a socially determined standard of living and in any event they do not explain why the exemption must or should be set at such a level. They emphasize that a graduated and flat/exemption scheme is mathematically different from a proportional one and discuss how the graduated scheme allows more degrees of freedom in achieving distributive goals (which they implicitly present as a disadvantage, for reasons that are not offered). Finally, it should be noted that virtually all of their criticism of arguments for progressivity apply to a proportional scheme with an exemption. For example: They criticize taxes that depart from measuring benefits, even though a proportional tax may depart substantially from a benefits tax. They wholly reject interpersonal comparisons of utility in the core of the article but accept their validity between individuals above and below the subsistence level. They object to the economic disincentives created by high graduated rates, but obviously distortion depends on how high are the rates rather than on graduation per se.

In the introduction to the 1963 edition of their book (at xxi-xxiii), Blum and Kalven briefly address the criticism that they have criticized progressivity without presenting an affirmative case for proportionate taxation. They refer to the end of their original essay (which, contrary to their assertion, does not really address the point), assert that the ideological justifications for progressive taxation are generally irrelevant to the use of exemptions to achieve progression (why this might be so is unstated), suggest that progressivity is concerned with equality whereas the use of exemptions addresses poverty (see the above point concerning the assumption that exemptions must be set at a subsistence level), and claim that the proportionate model with exemptions achieves benefits of humaneness while avoiding high rates (both of which depend upon the level of the exemption and height of the rate as well as the particular graduated tax schedule that is being compared and the content of one's concerns about humaneness).

[30]On the sacrifice theories, see Pigou (1928). Unlike the others, the equal marginal sacrifice theory, which Pigou favored, can be linked to a specific normative theory, utilitarianism: Equal marginal sacrifice is consistent with minimum total sacrifice, which in turn is equivalent to maximizing total utility in the population. The view that

CONCLUSION

This essay informally examines the relationship between taxation and redistribution. The main purpose is to clarify how differently shaped tax schedules, notably, proportional taxes and graduated taxes, affect redistribution. It was seen that there is no simple connection between the shape of a tax schedule and redistribution, although graduated rates might be viewed as more favorable to middle-income individuals and less favorable to lower- and higher-income individuals than the "closest" proportional tax. Important determinates of redistribution are the exemption level of a tax scheme and the amount of revenue it raises, and accordingly how the revenue is spent, particularly regarding transfer programs.

The foregoing analysis further suggests that, to assess tax policy, it is necessary to examine various regimes explicitly, using a social welfare function. This is necessary both to weigh various and conflicting distributive effects – such as gains to the poor and rich, at the expense of the middle class – and to incorporate incentive effects, which were largely ignored here (following the tradition in many of the relevant literatures).

Once a complete social welfare assessment is made of a proposed tax reform – whether a move to a flat tax, a middle-class tax cut, or any other – there is by definition no real need to answer the intermediate question whether one regime or another is more progressive or more redistributive.[31] Examination of the extent of redistribution is helpful primarily to obtain a better understanding of what is involved in various tax reforms, as a guide to gathering further information and performing the necessary analysis. In this respect, it is hoped that the clarifications offered here will be useful.

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taxation should be entirely benefits-based, although not consistent with maximization of a standard social welfare function, is consistent with libertarian theories, such as Nozick's (1974), under which redistribution is illegitimate. (Note that one who favors redistribution but believes as a practical matter that only benefits taxation is politically feasible should not be relieved upon learning from empirical studies that benefits taxation should be heavier on the rich, for this would be true if and only if it was learned that government spending was similarly favorable to the rich; by definition, the two effects would be offsetting.)

    [31]To elaborate, it can be affirmatively misleading to evaluate tax regimes by reference to how much redistribution they accomplish because knowledge of the extent of redistribution does not very directly indicate whether alternative policies would be better or worse. How much redistribution is ideal will depend on the extent of inequality that arises due to factors outside the tax system, incentive considerations, and what sorts of policies can effectively be administered, as well as on one's social welfare function. It may be that significant inequality remains but the cost of further redistribution is too great; or sometimes much redistribution will already be accomplished but even more would be optimal. Furthermore, it may be optimal to increase redistribution through some means but to reduce the extent of redistribution being achieved through other, less efficient means. And, as noted in comparing graduated and proportional taxes with respect to the treatment of middle-income individuals versus the rich and the poor, some policies have complicated effects on different groups of individuals, so it may not even be meaningful to say whether one or another scheme is more progressive or redistributive. Thus, to determine whether a given redistributive policy change is desirable or undesirable requires assessing its effects (including incentive effects of taxation and effects due to adjustments in government spending) and aggregating them using a social welfare function. For these and other reasons, it is unclear that for normative (policy) purposes there is value in measuring progressivity or redistribution (or inequality or poverty, for that matter), although such measurement is the subject of a significant literature – surveyed in Lambert (1999, 2001) – and, moreover, is the focus of much analysis of tax reform proposals. On the general question of the need for such measures, see Kaplow (2002).

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