Public Finance Implications of Economic Inequality

Alan J. Auerbach

University of California, Berkeley and NBER

April 2025

Abstract

This paper considers questions about the implications of rising inequality for the theory and practice of public finance. It begins by addressing fundamental reasons why the distribution of income or wealth on an annual basis before taxes and transfers offers insufficient information: (1) it does not tell us what resources are actually available to households for consumption; and (2) in providing a snapshot of the resources available to individuals of different ages at a given moment in time, without controlling for life-cycle related differences or income dynamics, it can provide a misleading estimate of the underlying degree of inequality. The paper then considers the implications of high and perhaps rising economic inequality for the design of government policy: top marginal tax rates, phase-outs of government policies for those with higher incomes, the political economy of inequality, and other subjects.

This paper has been prepared for the *Journal of Economic* Perspectives. I am grateful to the editors, Tim Taylor, Jonathan Parker, Nina Pavcnik, and Heidi Williams, and Jerry Auten, Jim Hines, Louis Kaplow, Wojciech Kopczuk, Emmanuel Saez, Joel Slemrod, David Splinter, Danny Yagan, and Gabriel Zucman for very helpful comments on an earlier draft.

As an undergraduate in the 1970s, I learned that economic inequality in the United States, though considerable early in the twentieth century, had fallen substantially over time, and that in the decades after World War II the lower degree of inequality and its relative stability had made inequality a less central economic and political issue than it had once been. I turned my attention elsewhere.

Since then, however, many studies have suggested a strong and continuing increase in inequality, and the issue has certainly come to receive more attention from economists. Although traditional concerns about inequality have often concentrated on the well-being of the least affluent, for whom small changes in resources can have significant effects on well-being and thus on measures of social welfare, much of the recent literature has focused on the other end of the income distribution. Of particular note is the influential work of Piketty and Saez (2003) and Piketty, Saez, and Zucman (2018), who argue that income inequality has risen sharply over roughly the past 45 years, particularly if one focuses on those in the top 1 percent or in the top fraction of 1 percent. Saez and Zucman (2016) deliver the same message about the trend in US wealth inequality. But measuring inequality using available data is a challenging task, and there have been many substantive disagreements over which assumptions are most appropriate for filling in gaps in the data, notably Smith, Zidar, and Zwick (2023) regarding wealth inequality and Auten and Splinter (2024) regarding income inequality. The paper in this symposium by Clarke and Kopczuk focuses on the important questions of income measurement, and I will not attempt to do so here. However, it is worth noting that even under the alternative assumptions favored by such critics, an upward trend remains in the inequality of both wealth and a comprehensive measure of income before taxes and transfer payments.

In this essay, without resolving disputes about income and wealth measurement, we can move on to questions about the implications of rising inequality for the theory and practice of public finance. The first two sections of this paper address fundamental reasons why the distribution of income or wealth on an annual basis before taxes and transfers[1] offers insufficient information: 1) it does not tell us what resources are actually available to households for consumption; and 2) in providing a snapshot of the resources available to individuals of different ages at a given moment in time, without controlling for life-cycle related differences or income dynamics, it can provide a misleading estimate of the underlying degree of inequality. Addressing these topics requires looking into the incidence and labelling of taxes, the value that people place on government spending, and looking at how taxes and benefits of programs like Social Security should be accounted for in analysis of inequality. The following section of the paper considers the implications of high and perhaps rising economic inequality for the design of government policy: top marginal tax rates, phase-outs of government policies for those with higher incomes, the political economy of inequality, and other subjects.

Measuring the Distributional Effects of Government Policies

If we are concerned about the well-being of individuals, traditional economic analysis would suggest we consider only the resources available to them, not the source of those resources—that is, disregarding whether the source is market activity or the actions of government. Thus, we should look at the distribution of income after accounting for taxes and transfer payments, not before. At first, this was not a focus of the relatively recent literature on

[1] In what follows, I will refer to "income before taxes and transfers," "before-tax income" and "pretax income" interchangeably, unless otherwise noted.

income inequality, although it has come to be much more common. A general conclusion from this additional step is that the US system of taxes and transfer payments lessens the degree of inequality, whether measured by top income shares, Gini coefficients, high-low income ratios, or some other summary measure. But there are disagreements about the extent to which the fiscal system has offset the rise in pretax income inequality in recent decades. For example, Auten and Splinter find that taxes and transfers have largely offset rising pretax inequality while Piketty, Saez, and Zucman, who estimate a larger increase in pretax income inequality, conclude that they have not.

While focusing on income after rather than before taxes and transfers is generally a step forward in the analysis of inequality, there are several complications one must confront in making the transition between the two measures.

Incidence Assumptions

To incorporate the effects of government policies on incomes, one needs to make assumptions regarding incidence for both taxes and transfer payments. On the tax side, two prominent examples are the corporate income tax and the payroll tax. Although the influential analysis of Harberger (1962) for many years led to the assumption that the corporate tax was fully borne by owners of all domestic capital, a more common recent approach, reflecting in part the growing importance of international capital flows, has been to assume that the corporate tax leads to a lower level of domestic investment, and in this way some of the burden of the tax is shifted to labor in the form of lower wages. For this reason, both the Congressional Budget Office (2023a) and Auten and Splinter assign 25 percent of the corporate income tax to labor. For the payroll taxes that fund Social Security and a portion of Medicare, it is common to

assume that the full payroll tax, both the share imposed on employees and the share imposed on employers, is borne by labor.

Both assumptions have an impact on estimates of *before-tax* income, given that after-tax income is what we actually observe. For the payroll tax, the measure of before-tax labor income consistent with assumed incidence is gross of all payroll taxes, not just the employee-assessed share. For the corporate income tax, before-tax labor income must include the 25 percent of the corporate tax that labor is assumed to bear.

In this way, tax incidence assumptions do not affect measured after-tax inequality, but because they affect the estimated pretax income distribution, they also affect estimated inequality in the pretax income distribution, and also the change in inequality attributed to taxes: that is, incidence assumptions affect one's conclusion about the progressivity of the overall tax system. There is no neutral approach to the question of incidence that allows one to avoid making assumptions. Of course, it would be convenient to posit that there is no shifting of corporate or payroll taxes, because then the before-tax income distribution corresponds to what is observed, but this convenience comes at the cost of deviating from more empirically grounded assumptions about incidence.

The Valuation of Transfer Payments

When calculating income after taxes and transfers, it is common practice to add transfer payments, whether cash or in-kind, at their cost. Even for cash payments, this is not as obvious as it may seem. An important issue recognized in the literature involves program take-up – the extent to which individuals who qualify for transfer programs (or tax benefits like the Earned Income Tax Credit) actually opt into the programs. Evidence suggests that the gaps between

eligibility and take-up may be significant (Kosar and Moffitt 2017). If stigma or transaction costs limit take-up (Currie 2006 suggests the latter are likely more important), then even those who choose to receive benefits may experience a smaller gain than the cash value of the benefits suggests, once transaction costs are accounted for.

For in-kind benefits, the valuation issue is potentially much more significant. Studies of the value that individuals place on the receipt of government health care insurance, for example, find that the value recipients place on these benefits can be substantially below cost (Finkelstein, Hendren, and Shepard 2019), in part because there is some health care available even to those who lack insurance, so that part of the government benefits ultimately accrue to health care providers. Studies evaluating the distributional effects of government taxes and transfers typically do not adjust for these issues of valuation, but it is worth keeping the issue of who benefits and how much in mind when considering alternative policy actions aimed at addressing inequality. After all, Medicaid spending is by far the largest spending program for the poor, totaling $871.7 billion in 2023.[2] In particular, rising expenditures on government-provided health care benefits might overstate the extent to which these expenditures increase the well-being of recipients, which might suggest a need for further redistribution, but also perhaps a change in the type of redistribution.

Redistribution versus Predistribution

A group of government policies sometimes called "predistribution" has the effect of changing the distribution of income without the use of taxes and benefits. Examples might

[2] https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data/nhe-fact-sheet

include government job guarantees, minimum wages, trade protection, or other regulatory interventions. As noted earlier, a standard assumption is that a dollar of wages provides the same benefit as a dollar of transfer payments. This equivalence has long been subject to challenge: for example, through factors limiting the take-up of certain transfer program benefits, as previously discussed. However, survey evidence confirms that, especially among less educated voters, policies of predistribution are preferred by individuals to policies that redistribute via the more direct mechanism that does not rely on intervention in markets. This preference may be a possible explanation for realignment of US political parties among such individuals in response to Democrats' shift from predistribution toward redistribution in their policies (Kuziemko, Longuet-Marx, and Naidu 2023).

Indeed, even though European countries have a lower degree of inequality before taxes and transfers than the United States, this difference is much less after taxes and transfers, because the US tax and transfer system reduces income inequality by more than the comparable systems in Europe (Blanchet, Chancel, and Gethin 2022). This difference suggests a stronger preference in Europe for the predistribution approach.

The borderline between predistribution and redistribution policies is not precise. One would expect the most central element of standard redistribution policy, the progressive income tax, to influence the before-tax income distribution, through upper-income taxpayers' responses to potentially high marginal tax rates. This possibility motivates Blanchet, Chancel, and Gethin (2022) to consider the hypothesis that the more unequal US pretax income distribution may be significantly attributable to the decline in top US marginal tax rates, though they find that this is not the case. But there is a key difference between standard redistributive

policies, such as the progressive income tax, and policies that target the distribution of income before taxes and transfers. While the former policies introduce distortions through explicit and (via means-testing) implicit marginal income tax rates, predistributive policies typically involve additional distortions as well.

For example, import tariffs are economically equivalent to the combination of taxes on the consumption of commodities subject to the tariffs and equal-rate domestic production subsidies for the same commodities, which offset the consumption taxes for domestically produced goods. While there are circumstances in which a subsidy for domestic production might be desirable, such as local learning-by-doing externalities, the standard economic analysis in the absence of such externalities calls for eschewing production distortions, which in this example take the form of favoring domestic production (Diamond and Mirrlees 1971).[3] This is because production distortions reduce the resources available for redistribution without improving the government's options for engaging in redistribution. A similar analysis would apply to the provision of government-guaranteed jobs, which can be interpreted as providing implicit wage subsidies to one sector of the economy. It is generally hard to justify policies aimed at predistribution based on standard economic analysis.

In short, there is possibly a large economic price to be paid for policies aimed at predistribution, in the form of additional economic distortions. The optimal policy, presumably, would need to balance the economic costs of these policies and the potential improvements in well-being experienced by individuals associated with more positive views of income received

[3] Note that policies aimed directly at redistribution could also potentially serve to address externalities, for example if higher marginal tax rates among those at the top of the income distribution serve to reduce unproductive rent extraction by corporate executives (Piketty, Saez, and Stantcheva 2014).

through market outcomes rather than from the government. One would also have to consider the extent to which such preferences for predistribution are stable.[4]

The Private-Public Borderline

Comparing sources of economic inequality across countries, or within a country over time, can be confounded by differences in the scope of government activity. For example, a country with a public pension system, such as the US Social Security program, would show the receipt of pension payments as government transfers to beneficiaries, while in a country relying on private provision of retirement income through employer-provided pensions, such income would show up in pretax income. Here, too, a focus on income after taxes and transfers would overcome the ambiguity, as in both cases the income would be counted, but, again, the effects of government policy would appear to be quite different, even if the underlying outcomes were the same—that is, if both government and private pension systems had the same patterns of payments by individuals and benefits received by individuals.

One approach to overcoming this difference in treatment of otherwise equivalent policies would be to reclassify certain government programs as being, for the purposes of measuring inequality, outside the scope of government activity. In fact, the Congressional Budget Office adopts this approach in its treatment of broad-based transfer programs, including Social Security and Medicare, but this adjustment has its own limitations. Using Social Security as an illustration, this program combines an actuarially fair contributory retirement

[4] Some policies aimed at predistribution might lack even such a trade-off. For example, Autor et al. (2024) find that the tariffs adopted during the Trump Administration failed to generate increases in US employment in the industries targeted, and that the resulting retaliation by foreign governments had negative employment effects on US employment in other industries. The only trade-off present in this case appears to have been with respect to voting outcomes, not actual economic improvements.

scheme with a redistribution program, given that replacement rates (or, equivalently, effective rates of return on payroll taxes in terms of subsequent benefits received) are typically found to be higher for low-income individuals (for example, Brown, Coronado, and Fullerton 2009). Treating the entire program as if it were outside the scope of government would lump the redistribution component of Social Security in the pretax distribution of income, rather than attributing it to government policy, thereby understating the magnitude of government policy redistribution.

In summary, among annual measures of income, the distribution of income after taxes and transfers is the most relevant measure of income inequality. But income before taxes and transfers is also relevant, in part because many people do have a preference for what they view as "earned" pretax income over equivalent income from transfer payments. Also, the effect of government policies in redistributing income requires an estimate of income both before and after taxes and transfers, which in turn will depend on assumptions about the incidence of government programs and their valuation on the part of individuals.

Age-Specific Heterogeneity and Life-Cycle Effects

Most analyses of economic inequality compare the income or wealth of individuals or households at a certain time, often a calendar year. However, aggregating individuals of different ages and accounting only for current outcomes can result in very misleading conclusions regarding both the degree of inequality and the extent to which government policy reduces this inequality. This is illustrated below using the example of Social Security. Looking at inequality of income or wealth on an annual basis also leaves no obvious way to combine results regarding wealth inequality and income inequality. One's intuition might suggest that,

for a given degree of income inequality, greater wealth inequality signals greater overall economic inequality, and likewise for greater income inequality, conditional on a given degree of wealth inequality. But how should one combine measures of inequality of these two variables, one (wealth) a stock and the other (income) a flow?

Questions about Progressivity

Such "snapshot" analysis that looks only at income outcomes at a given year can be misleading about the progressivity of the fiscal system for three reasons. First, patterns of taxes relative to income are different on an annual basis than over a longer horizon. A classic illustration of this phenomenon involves the progressivity of consumption taxes. Under the classic permanent-income/life-cycle hypotheses, one would expect greater fluctuations over time in income than consumption. As a result of consumption-smoothing, annual taxes on consumption would tend to be higher relative to income among those with lower incomes than those with higher incomes (at least to the extent that those income differences are not very persistent). Empirically, this results in consumption-based taxes being less regressive on a lifetime basis than on an annual basis (Poterba 1989).

Second, the age profiles of specific taxes and transfer payments differ markedly from the age profile of income. For example, taxes on labor income, such as payroll taxes, are concentrated at younger ages than taxes on overall income, and the contrast is even larger in comparison to health and pension transfer program benefits. Looking at taxes and transfers at a given age provides only a partial picture of how taxes and transfers vary with the ability to pay.

Third, standard cross-section analyses at a given time will aggregate different age cohorts into a single group. However, individuals of different ages commonly have different

patterns of income and different profiles of taxes and transfer payments, and the aggregation can misstate both the degree of pretax inequality and the progressivity of the fiscal system as a whole. A classic illustration comes, again, from the US Social Security system, which is largely a pay-as-you-go system in which taxes paid by working cohorts are spent immediately on benefits paid to largely retired cohorts. The combination of older and younger cohorts can lead to the distorted impression that retired individuals have lower income than those who are working--even if this difference is absent on a lifetime basis. In addition, the pattern of taxes and transfers among these different cohorts makes the Social Security system look extremely progressive, as on a year-to-year basis it is taxing those who are treated as having higher income to make transfer payments to those classified as having lower income.

A related problem is how to treat private retirement income. Auten and Splinter and Piketty, Saez and Zucman include distributions from retirement accounts in measuring the income of retirees, which has the appeal of making such individuals look less "poor." But treating such payments as income is inconsistent with the standard comprehensive definition of income (like the "Haig-Simons" definition discussed in this symposium by Clarke and Kopczuk), which would treat accretions to wealth in such retirement accounts as income only when they occur, rather than when funds are distributed from the accounts. This inconsistency illustrates the challenge of using current income as a measure of well-being.

The Need to Recognize Economic Equivalences[5]

The tax system is rife with provisions that may be economically equivalent to others but have differences in timing that may affect how distributional effects are measured using cross-

[5] The examples that follow are drawn from the broader discussion of tax equivalences in Auerbach (2019).

section data. In some cases, the equivalence involves no differences in structure or timing at all, but differences in how policies are labeled can still affect how burdens are distributed.

An illustration of the first type of equivalence is the two approaches to tax-favored retirement saving. The traditional approach provides up-front tax deductions for contributions to such retirement accounts as IRAs and 401(k)s, but then taxes withdrawals. In contrast, the alternative "Roth" approach that has grown in significance over the years provides no initial deduction but allows all withdrawals to be tax-free. A well-established result is that, if tax rates are unchanging over time, these two approaches to taxation are equivalent, imposing the same present-value burden on taxpayers. But any assessment based on current tax payments will treat these approaches as very different, with the traditional taxation approach appearing to place more of the tax burden on retirees.

To illustrate the second type of equivalence, involving only labeling, consider the "flat tax" as originally proposed by Hall and Rabushka (1983). The tax has two pieces, a personal wage tax and a business cash-flow tax, which is a tax on the difference between the cash a business takes in and the cash it pays out. These two elements together (except for an exemption amount provided under the wage tax) are equivalent to a value-added tax. To gain some intuition as to why, remember that in a value-added tax, each firm is taxed on its total receipts minus what the firm spent on non-labor inputs, including investment. In the flat-tax, the amount spent on wages is taxed via the personal wage tax, and the rest of the base for the value-added tax is covered by the business cash-flow tax. However, in a standard income accounting process, the burdens of two separate components of the flat tax would typically be allocated according to capital income and wages, rather than to consumption – the base of the

value-added tax (VAT), which at a moment in time would result in a quite different pattern of tax burdens across individuals.

While there have been attempts to implement adjustments to distributional analysis aimed at recognizing these types of policy equivalences within a short-horizon approach (notably, U.S. Joint Committee on Taxation 1993), this problem has received far too little attention in the recent literature on inequality.

Analytical Approaches to Lifetime Measures

Some of those who produce cross-section/snapshot analyses have recognized the issues raised for understanding inequality by heterogeneity of ages and a life-cycle perspective and sought methods of trying to deal with it. Some of these methods attempt to make adjustment in the context of an annual time frame. The approach taken by Congressional Budget Office, discussed above, of including Social Security and Medicare benefits in pretax income attacks both elements of the problem – it makes retirees look less poor, and it excludes the Social Security system as an element of government redistribution policy. Piketty, Saez, and Zucman adopt a related approach, including not only Social Security benefits in pretax income, but also unemployment and disability insurance benefits (but not Medicare benefits), and subtracting payroll taxes, in arriving at their measure of pretax income.

But these adjustments, while aimed at overcoming the limitations of a more basic approach, are only partially successful in solving the underlying problem arising from the aggregation of cohorts and short-horizon analysis. They treat any redistribution within cohorts that actually occurs through such social insurance programs as a reduction in pretax inequality, rather than attributing the effect to government policies. Also, these adjustments have a

degree of subjectivity in their scope (as illustrated by the differences in the choices about just what adjustments to make).

A more sweeping conceptual approach is to undertake a forward-looking analysis that groups individuals by age cohorts. Such analyses have been done looking at specific programs, for example, for the Social Security system by Brown, Coronado, and Fullerton (2009) and CBO (2006). In a more comprehensive analysis, Auerbach, Kotlikoff, and Koehler (2023) incorporate all significant US tax and transfer programs at both the state and federal levels, finding that, for middle-aged households, a measure of the fiscal system's progressivity based on a comparison of current income and current taxes net of transfer payments understates lifetime progressivity, in part because of the failure to account for the progressivity of future old-age benefits. In that analysis, lifetime net tax rates – the present value of taxes net of transfer payments divided by lifetime resources, (wealth plus the present value of future labor income) – are lower than current-year net tax rates – current-year taxes net of transfers divided by current-year income – especially at the bottom of the resource distribution. This lifetime analysis also offers a method of integrating measures of wealth inequality and income inequality, by looking at the inequality of lifetime resources that incorporate both in a consistent manner.

Yet another approach to overcoming some of the shortcomings of standard distributional analysis is to focus on consumption rather than income, based on the argument that consumption is a more direct measure of well-being, and that, for forward-looking households able to engage in consumption smoothing, current consumption may represent a better measure of lifetime resources than current income. Consumption also provides a more

accurate measure of resources among those engaged in informal labor markets, for whom tax records and other measures of income may be inaccurate. Historical estimates of inequality in consumption suggest a much weaker upward trend than the trend in income before or after tax (Meyer and Sullivan 2022). Worth noting, though, is that a focus on annual consumption is not really compatible with the standard evaluation of fiscal progressivity, because there is no analogous annual measure of "consumption before taxes and transfers."

In summary, while the degree of inequality in the United States is considerable, measuring the distribution of resources and the impact of the fiscal system on this distribution on an annual basis for aggregated age cohorts may provide misleading estimates of the level and trend in economic inequality and the role of the fiscal system in addressing it.

The next section of the paper considers the implications for high and possibly rising economic inequality on government policy choices.

Fiscal Policy Implications of High Economic Inequality

Determining the desired size and scope of policies aimed at redistribution involves balancing the benefits of additional redistribution against associated economic distortions. A higher degree of underlying inequality will raise the benefits of redistribution.

The Top Marginal Tax Rate

As an illustration, consider the general formula for determining the welfare-maximizing top marginal tax income tax rate, as in Diamond and Saez (in this journal, 2011):

$$\tau = 1 / (1 + ae)$$

where *e* is the taxable income elasticity among those in the top bracket and *a* captures the share of income at the top of the income distribution by taking the ratio of the *total* income for those above the top-bracket income threshold to just their income above that threshold.[6] The intuition for this expression is that a higher value of the elasticity *e* means more negative income responses to a higher tax rate, lessening the amount of revenue raised and the benefit of a rate increase, while a higher value of the parameter *a* means that the income subject to the distortion of a higher rate is higher relative to the income actually subject to tax at that higher rate (i.e., the income above the threshold). A higher value of either parameter reduces the welfare-maximizing top marginal tax rate. The authors present data from 2005 that the ratio *a* is about 1.5 for income level above $300,000. They argue that a midrange estimate of the elasticity *e* would be .25. Those parameter choices imply an optimal income for those with the top levels of income of 73 percent. Here, the point to emphasize is that as income inequality increases, represented by a thicker right tail of the income distribution, the parameter *a* will be smaller – there is more revenue to be gained from taxing very high incomes, improving the trade-off between revenue and the income tax rate's behavioral distortion.

While the basic optimal income tax model envisions government using tax revenues to engage in redistribution, governments also raise revenues for direct spending on public goods. Within this broader scope of government, a desire for redistribution must compete with other

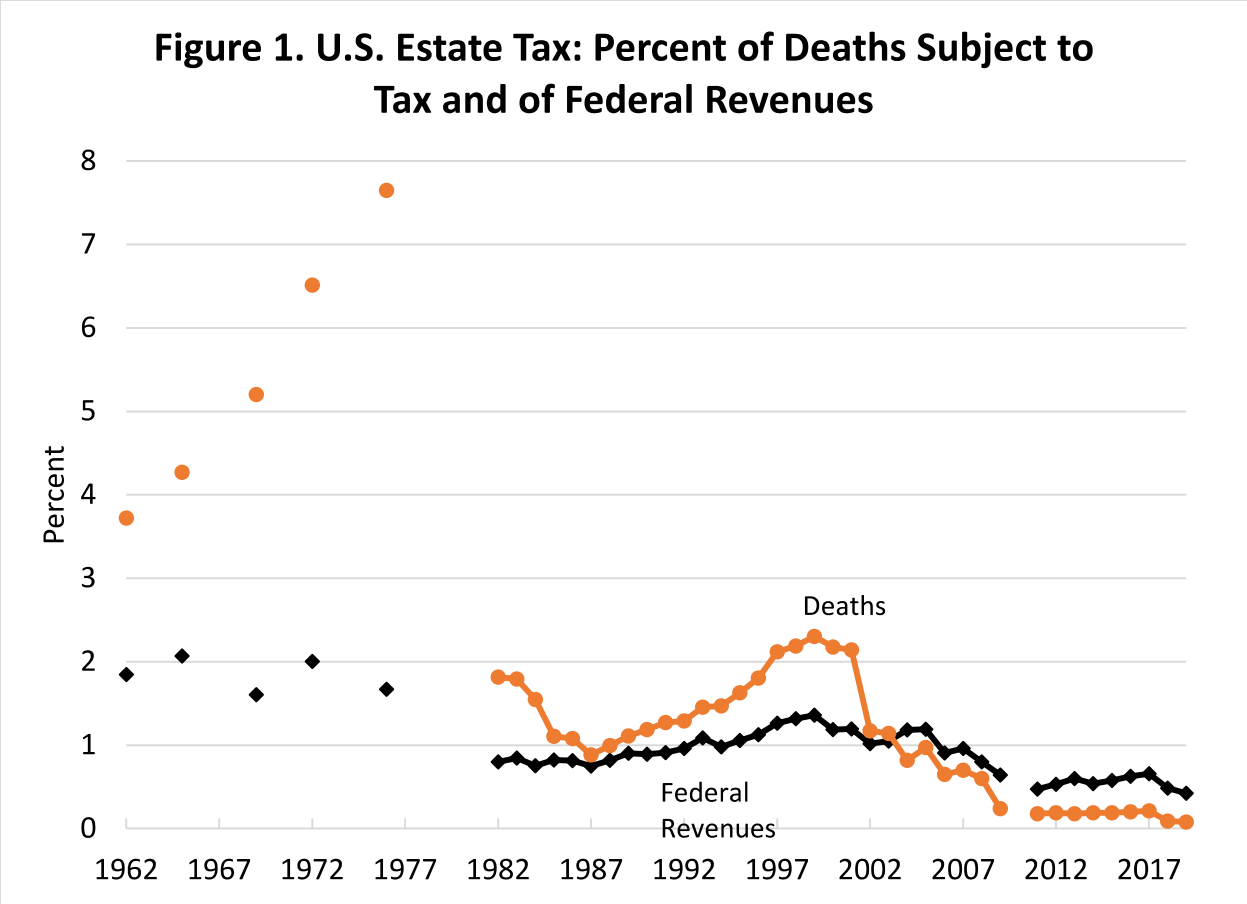
[6] The general formula for the welfare maximizing top marginal tax rate would also include a term measuring the social welfare weight for those in the top bracket. Under a typical social welfare function, this weight is very small and has a negligible effect on the result, which when the top welfare weight is zero is equivalent to the revenue maximizing top marginal tax rate. Also note that, although it is common to interpret the model as applying to annual income, this has the same shortcomings as analyzing inequality on an annual basis. See Kaplow (2024).

government activities for available funds – after all, money spent on redistribution cannot be spent on public goods, and, because of the associated deadweight loss, funds raised through progressive taxation have a higher economic cost than those raised through more efficient tax mechanisms.[7] Ultimately, of course, this tradeoff occurs through the political process, not through optimal tax and spending formulas.

Economic Inequality and the Political Process

Inequality could affect political outcomes in several ways, and the predictions are not always consistent. Perhaps the most straightforward prediction comes from the classic model of Meltzer and Richard (1981), which emphasized the effects of the gap between average income and the income of the median voter. With a progressive income tax, the median voter stands to gain more from an expansion of government the more skewed is the income distribution, and the higher is the ratio of aggregate revenue raised to the tax burden imposed on the median voter. According to this class of models, an increase in inequality should lead to a larger government, with the median voter benefiting at the expense of the rich. By contrast, one concern about inequality (for example, as expressed in Saez and Zucman 2019) is that a high concentration of resources among the few can lead to undemocratic outcomes, as those with high incomes or wealth exert influence over politicians to achieve their desired policy outcomes. Under this view, as inequality has increased, policy decisions have favored the rich, as through the adoption of favorable tax provisions.

[7] As an extreme illustration of this point, if individuals were identical, with no pretax inequality, there would be no need to devote tax revenues to the funding of redistribution and government could use uniform nondistortionary lump-sum taxes to finance spending on public goods.



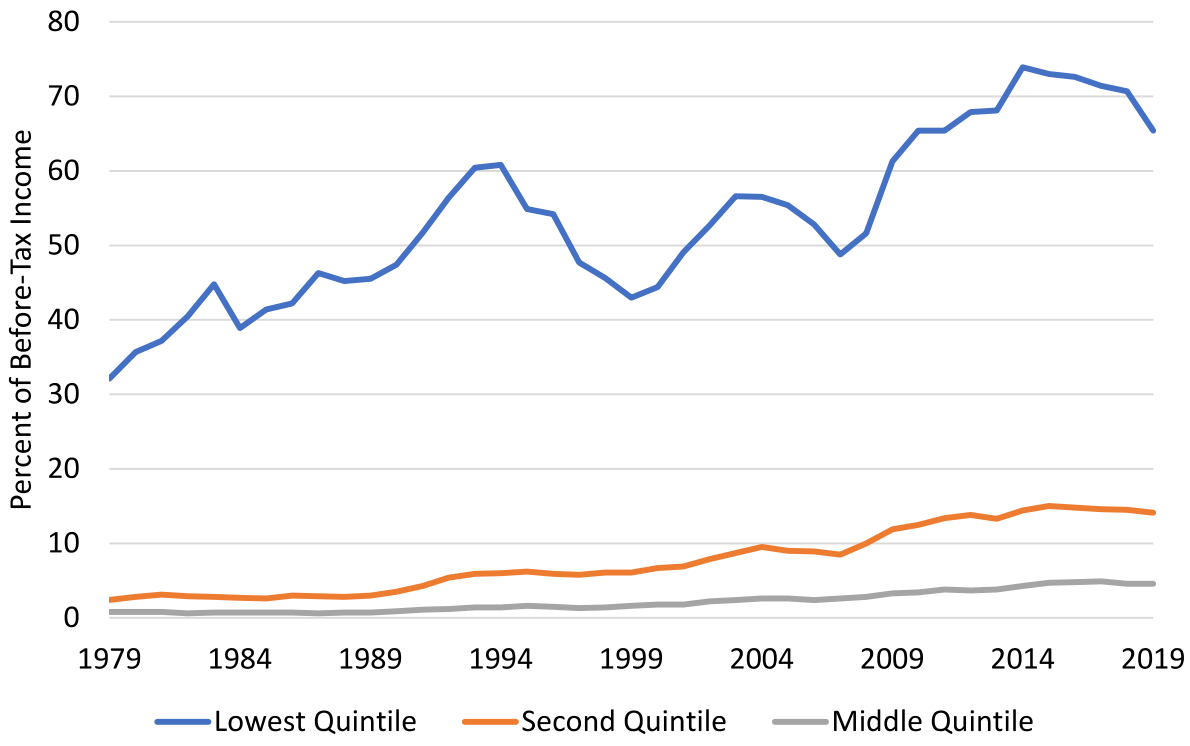
Sources: Internal Revenue Service (*Taxable Estate Tax Returns as a Percentage of Adult Deaths, Selected Years of Death, 1934-2019* https://www.irs.gov/statistics/soi-tax-stats-estate-tax-year-of-death-tables#:~:text=Table%2017.%20Taxable%20estate%20tax%20returns%20as%20a%20percentage%20of%20adult%20deaths%2C%20selected%20years%20of%20death), Congressional Budget Office (*Historical Budget Data* https://www.cbo.gov/system/files/2024-02/51134-2024-02-Historical-Budget-Data.xlsx)

One can find policy outcomes consistent with each of these predictions. The gradual weakening of the US estate tax seems consistent with growing power of the rich. As shown in Figure 1, the estate tax accounted for roughly 2 percent of federal revenues in the 1960s and 1970s, with as many as over 7 percent of decedents subject to the tax.[8] Sharp reductions in the estate tax, introduced through tax legislation in 1981, 2001, 2010, and 2017 have resulted in

[8] For years before 1982, the IRS provides data for the estate tax only for selected years. It also does not provide estate tax data for 2010 because of the complexity of calculations for that year, when the estate tax was temporarily repealed.

only 0.08 percent of decedents being subject to the estate tax, which accounted for just 0.4 percent of federal revenue in 2019. It is notable that the rise in the share of decedents subject to the estate tax during the 1960s and 1970s was not associated with an increase in the share of federal revenue accounted for by the estate tax, presumably reflecting the fact that those on the margin of paying the estate tax accounted for little additional tax revenue. Following the same reasoning, the decline since 2001 in the share of federal revenue has been much smaller than that in the share of decedents subject to tax.

Figure 2. Average Means-Tested Transfer Rates Among Selected Income Groups



Source: Congressional Budget Office (2023b).

On the other hand, over roughly the same period as the estate tax was withering, means-tested transfers (not including benefits provided through the tax system) were growing

steadily relative to before-tax income, as shown in Figure 2, including among those in the middle quintile of the income distribution, which might be relevant for the median voter.

There may be ways to reconcile these fiscal policy developments. For example, the median voter may be generally uninformed about the estate tax, which could be of particular importance to the wealthy; indeed, survey evidence from Kuziemko et al. (2015) suggest that voters' understanding of the estate tax is limited and that their support for expanding it is sensitive to the receipt of information. And some of the increase in means-tested benefits reflects the general increase in health care spending. But the contrast in outcomes illustrates the complexity of modeling the impact of inequality on the tax and transfer policies governments adopt.

The Growth of Income-Specific Policies

Adjustments to progressive income tax rates happen once or twice a decade. Sometimes the changes are made over the entire rate schedule; in other cases, the changes are primarily or exclusively at the top. Examples of the former (all tax reductions, in Republican administrations) are the 1981 Economic Recovery Tax Act, the 2001 Economic Growth and Tax Relief Reconciliation Act, and the 2017 Tax Cuts and Jobs Act. Examples of the latter (high-income tax increases, in Democratic administrations) are the 1993 Omnibus Budget Reconciliation Act, which introduced two new higher tax brackets, with the top rate applying to incomes over $250,000, and the 2012 American Taxpayer Relief Act, which permanently extended the 2001 tax rate cuts except for those with taxable incomes over $400,000 ($450,000 for couples).

However, over the past several decades, a period roughly coinciding with the growth in top before-tax income shares, a different approach to increasing progressivity has taken root.

This approach, practiced during both Democratic and Republican administrations, has involved increasing tax liabilities at the top through indirect means not involving a change in the stated marginal tax rate, either by phasing out individual tax benefits or by imposing fees or taxes outside the individual income tax. Table 1 summarizes several examples of this approach: some of these provisions raise income taxes and marginal tax rates for those with higher incomes by phasing out income tax exclusions, deductions, and credits (1983, 1990, and 1997); some raise other taxes based on income (2010); and some raise "nontax" social insurance premiums based on income (2003, 2010). Similarly, although this provision did not become law, the Biden administration proposed in 2024 to increase the Medicare payroll tax and to raise the "net Investment income tax" to 5 percent, but only for those above $400,000 in income.

Table 1. Indirect High-Income Tax Increases

Year	Legislation/Proposal	Provision(s)	Incomes ($) Above (Single/Married)
1983	Social Security Amendments	Income tax on 50% of Social Security benefits	25k/32k
1990	Omnibus Budget Reconciliation Act	Itemized deduction phase-out	100k
		Personal exemption phase-out	100k/150k
1997	Taxpayer Relief Act	Child tax credit with phase out	75k/110k
2003	Medicare Modernization Act	Income-based Medicare Part B premiums (IRMAA)	80k/160k
2010	Affordable Care Act	0.9% Medicare payroll tax surcharge	200k/250k
		3.8% Net Investment Income tax	200k/250k
		Income-based Medicare Part D premiums (IRMAA)	85k/170k

Notes: IRMAA stands for Income-Related Monthly Adjustment Amount. This table only includes the initial introduction of various provisions into law, not subsequent changes in thresholds, rates, or other related provisions.

In none of these cases was there an apparent intent to target specific elements of behavior with this choice of an indirect approach. For example, the higher Medicare premiums for high-income individuals were not aimed at reducing their health-care spending, nor were the phased-out child tax credits designed to discourage fertility among the rich. The provisions in Table 1 are all effectively tax increases on higher income levels, although sometimes with quirky characteristics that can result in seemingly capricious outcomes. As one example, the phase-out of personal exemptions introduced in 1990 increased taxes over the phase-out range in proportion to the number of personal exemptions, thereby imposing larger tax increases on larger families. For cases in which old-age benefits were effectively reduced – the taxation of Social Security benefits and the increase in Medicare premiums – the aim may have been to cut benefits in a progressive manner without being seen as tampering with politically popular programs, although this would have been an effective alternative only if the equivalence was not generally recognized. One might attribute the increase in Medicare taxes to the desire to increase dedicated revenues in a progressive manner, again without appearing to disturb the nature of the program as providing universal social insurance. But what can explain the remaining provisions in Table 1, which approximate income tax increases, but with greater complexity and possibly unintended consequences?[9]

On one hand, the rhetoric associated with the introduction of these indirect provisions has often included arguments that those with higher incomes are able to bear the burden of

[9] As an illustration of unintended consequences, the phase-out of itemized deductions, structured so that for almost all taxpayers it was equivalent to an income tax surcharge (because the ceiling on deductions being phased out was not reached), was often misinterpreted by commentators as reducing the value of marginal tax deductions and therefore discouraging deductible activities such as charitable contributions. For discussion, see Viard (2015).

higher taxes, a rationale fully consistent with a high or increasing share of before-tax income being earned by those at the top. On the other hand, such reasoning can be (and has been during the period covered in Table 1, in 1993 and 2012) used to increase income tax rates at the top directly, rather than indirectly.

Perhaps as with the use of taxes and premiums to reduce social insurance benefits indirectly, the potentially lower salience of indirect increases in tax progressivity has played a role. But for this factor to help explain their observed use, indirect tax increases would need to be more salient among those favoring increases in progressivity than among those opposed. For example, the 1990 high-income tax increases (which also included a 10 percent tax on luxury automobiles, yachts, private-use aircraft, jewelry, and furs) were the result of a deal between President George H.W. Bush and Congress, the deal in which Bush famously reneged on his campaign promise, "Read my lips: no new taxes." It is reasonable to argue that the president leaned toward these indirect means as a way of making the change in course less obvious, at least to those disposed to oppose progressive tax increases. But given the political blowback that Bush experienced, did increasing taxes in this indirect matter prompt less-negative reactions among opponents than a more straightforward approach would have?

In short, increasing inequality may induce a stronger divergence in views of optimal progressivity, with increasing tension between the preferences of the median voter pushing for more progressivity and the political power of the rich rising in opposition. In this setting, differences in relative salience of indirect tax increases could take on greater importance and help explain their growth in recent decades. Alternatively, the growing use of indirect tax increases on the rich may be a political innovation unrelated to inequality or may relate to

rising inequality through some other channel—for example. through different views of the permanence of tax increases not based directly on individual income tax rates.

Makers and Takers

During the 2012 presidential campaign, Republican nominee Mitt Romney caused a stir with the release of his critical private comments about the estimated 47 percent of US tax units that did not pay federal income taxes, a number, for 2009, drawn from Williams (2009). While this statistic may have been a surprise to many, it is not particularly puzzling. It results from the combination of relatively low incomes in the bottom half of the income distribution, low marginal tax rates applicable to such income, and the range of important tax benefits available to reduce tax liabilities further for individuals with such incomes, including the standard deduction, personal exemptions, the child tax credit, the earned income tax credit, and the limited taxation of Social Security benefits. Note that the share of individuals not paying taxes would have been lower had various tax benefits, such as the refundable child tax credit, been provided as direct subsidies rather than through the tax system as "tax expenditures."

Mirroring the concern about the large share of the population not paying income taxes is one about the large share of taxes paid by the relatively small population of high-income individuals. One recent estimate finds that taxpayers in the top income percentile accounted for 46 percent of all federal income tax payments in 2021 (Tax Foundation 2024). Of course, the share of income taxes paid by high-income taxpayers is a function of both the tax structure and the group's share of overall income. Even for a given tax structure, increasing inequality at the top increases the share of taxes paid by those at the top.

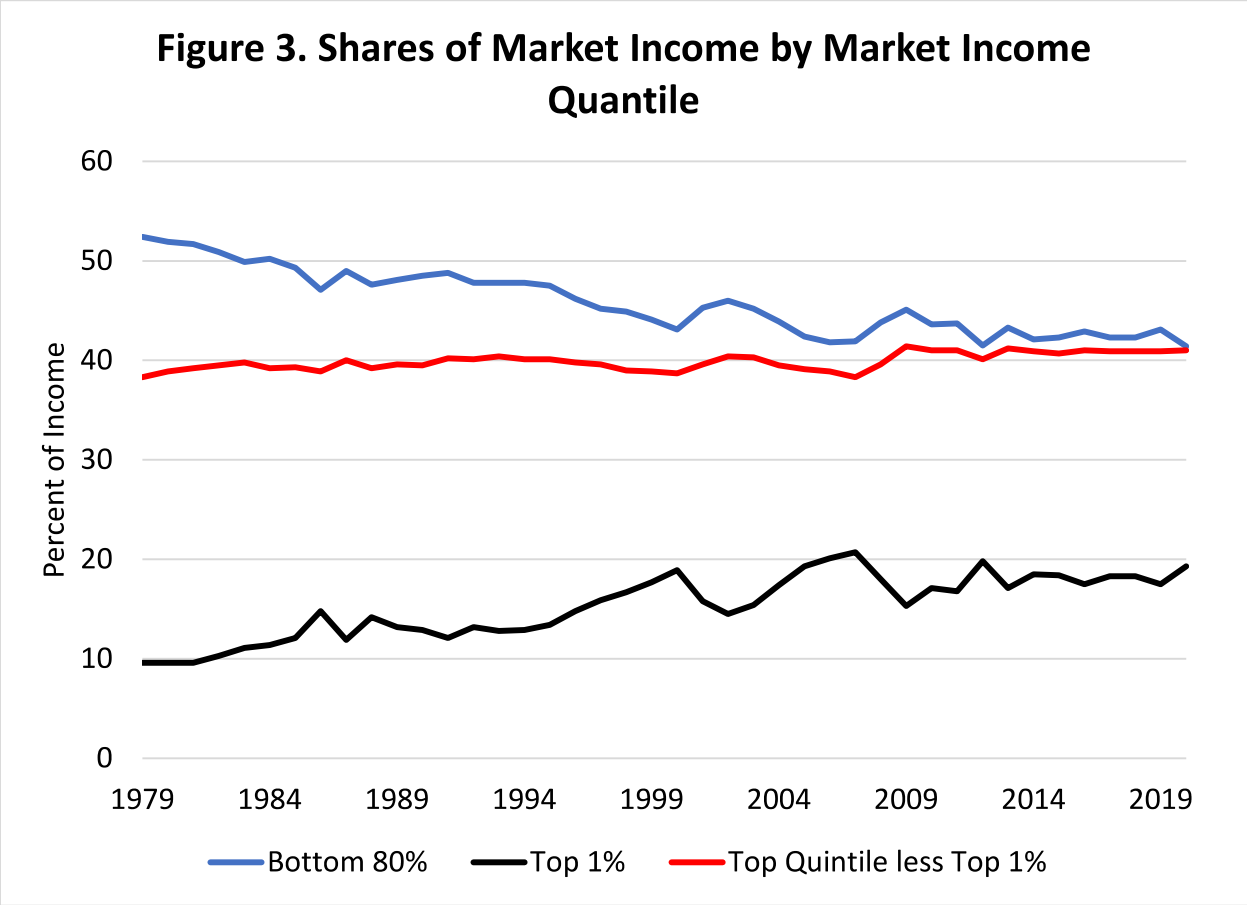
In one sense, concern about the implications of the high share of households not paying income taxes and the high share of income taxes paid by those at the top is simply a recasting of the above discussion of the effects on the political equilibrium of the widening gap between median and average incomes. From this perspective, the fact that – as many critics of the focus exclusively on income taxes have pointed out – a large share of low-income households pays other taxes, notably payroll taxes, may not be especially relevant if one is considering decisions about increasing the income tax to fund government expansion. At least some who are unhappy with the current situation have expressed concern about it promoting a lack of voter engagement, leading to proposals to require all households to pay at least some income tax, even if only a token amount.[10]

Revenue Volatility

Pretax income is more volatile at the top of the income distribution. Figure 3 illustrates this, for households sorted according to their "market income," CBO's measure of income before all taxes and transfers. The figure displays income shares for three groups between 1979 and 2020, based on cross sections of income in the respective years: the bottom four quintiles, the top quintile excluding the top percentile, and the top percentile. Not only is the top percentile's income share the most volatile, but its pattern over time is different, peaking in booms and falling in recessions, notably those in 1990 and especially 2001 and 2008-9 (although not those in the early 1980s). This greater volatility at the top reflects the fact that the sources of income at the top, capital income (including capital gains and business profits),

[10] Such a proposal, which generated heated reaction, was put forward in 2022 by Senator Rick Scott, with the language: "All Americans should pay some income tax to have skin in the game, even if a small amount." See https://rescueamerica.com/wp-content/uploads/2022/02/RickScott-11-Point-Policy-Book.pdf.

executive compensation, and self-employment income, are more volatile than wage and salary income. Even though this result holds for just the top income percentile, this group accounts for a significant share of federal income taxes, as already discussed.



Source: Congressional Budget Office, *The Distribution of Household Income in 2020*

Thus, assuming that the cyclical behavior of the income of those at the top does not change as their share of income grows, increasing inequality would lead to stronger procyclical volatility of income tax revenues, holding the tax structure constant. This effect is potentially large. For each dollar of aggregate income fluctuation between 1979 and 2020, around a half has been accounted for by the income of those in the top percentile, so increased income

subject to the same swings could substantially increase aggregate income volatility.[11] Further, if increasing inequality brings with it an increase in the progressivity of the income tax schedule and higher marginal tax rates at the top, this change would further exacerbate the increase in the volatility of income tax revenues.

While other factors in the past have contributed to greater revenue stability, notably the decline in top marginal tax rates in the 1980s (Kniesner and Ziliak 2002) and the shift in federal tax revenue composition from corporate income taxes to payroll taxes, these factors are unlikely to play an important role in the future, given the growing share of nonworking adults due to population aging, the recent relative stability of corporate income taxes as a share of federal revenues, and the political pressure toward progressive income tax increases targeting high-income individuals.

Revenue volatility and its potential increase is an issue at the state level as well, particularly in states that rely heavily on a progressive income tax and have income inequality that mirrors (or exceeds) the national level. For example, the state of California, which with a very progressive state income tax, including full taxation of capital gains, and a relatively unequal distribution of income, has experienced years of large deficits and large surpluses in rapid sequence (Auerbach 2010). For states, this can be very challenging, due to balanced-budget requirements and the lack of adequate "rainy day" funds to cushion annual fluctuations in budget gaps. Although the lack of annual budget limits makes the problem less serious at the federal level, it is still a potential cause for concern, particularly given the potential for government decisions to focus on the short run.

[11] This estimate is based on a simple methodology discussed in the online Appendix.

Higher Inequality and Higher Tax Rates at the Top

Given high inequality and the aim to impose a progressive tax burden, the government faces the prospect of trying to raise a substantial share of federal revenues from those at the top of the income distribution, using potentially high marginal tax rates. Evidence suggests that such individuals are more sensitive to tax rates and have greater access to tax avoidance strategies (Auerbach and Siegel 2000, Gruber and Saez 2002), so simply increasing marginal tax rates raises less revenue than a simple calculation would suggest. Here, there are two broad options: reform of the existing tax system or adopting alternative approaches to raise revenues in a progressive manner.

Perhaps the clearest target for reform of the existing system is the treatment of capital gains, which are highly concentrated at the top of the income distribution and, by being taxed only upon realization and not at all at death, provide ample opportunities for tax avoidance. Some have suggested that raising capital gains tax rates would generate substantial additional tax revenue (for example, Sarin et al. 2022), although that conclusion remains controversial (Dowd and Richards 2021). But other reforms of the capital gains tax could sharply reduce the scope for taxpayer avoidance responses and be more effective at raising tax revenue.

Two obvious reforms would be a change in the tax treatment of gains at death (either taxing them at death or collecting tax when the assets are sold by those who inherit them) and moving toward taxing capital gains on accrual rather than realization. While there are challenges to taxing capital gains on accrual for illiquid and hard-to-value assets, methods to modify realization-based taxation to accomplish similar objectives – in particular, removing the incentive to defer realization through an effective interest charge – have been developed (for

example, Auerbach 1991).[12] A key issue regarding how much revenue could be collected through a move to accrual or accrual-equivalent taxation of capital gains is how gains accumulated prior to enactment would be treated. Taxing such gains immediately or over the very short run would amount to a large, one-time, unannounced wealth tax, which could be attractive because of its apparently lump-sum nature but could also influence expectations about future tax policy and hence behavior. A scheme of this form was proposed for very high-wealth individuals during the Biden administration (see Saez, Yagan, and Zucman 2021).

An alternative approach could involve a shift to consumption taxation. While consumption taxation in the form of a value-added tax is a tool used in virtually all major economies, it has never been adopted in the United States. One objection to US adoption has been the VAT's perceived regressivity, particularly if adopted broadly and covering necessities such as food, clothing, and shelter. This has not stopped the widespread use of the VAT in other countries, based on the rationale that additional tax revenues may then be used to fund progressive social safety net programs. Even so, if a consumption tax is instead implemented in the form of a personal expenditure tax with a progressive rate structure, rather than in the form of a consumption tax, there need be no concern at all with regressivity. This is particularly so if the tax is implemented as a supplement to the existing tax system and applied only to high-income individuals or households, as proposed by Andrews (1980) and others.

A major benefit of imposing a supplemental tax on expenditures of high-income individuals is that, because it is based on cash flows (income less net saving), it is not subject to

[12] Such "retrospective" taxation might also be preferred to accrual taxation on constitutional grounds. Even deeper constitutional concerns have been put forward concerning a federal wealth tax, which some have seen as an alternative to increasing capital gains taxes (for discussion, see Hemel 2019).

the difficulties of measuring and taxing capital income that play a major part in tax avoidance through such activities as the deferral of capital gains and the operation of closely held businesses. Depending on transition provisions, adoption of an expenditure tax could also impose a tax on the consumption financed by previously accumulated wealth, thereby effectively imposing a one-time tax on this wealth in much the same way that a tax on previously accumulated capital gains would. An additional benefit of reliance on expenditure taxation rather than other methods of taxing high-income individuals would be the reduction in revenue volatility, as consumption fluctuates less than income from year to year, particularly when income includes the volatile component of realized capital gains. Auerbach (2009) discusses the advantages of consumption-based taxation in greater detail.

Like a personal expenditure tax, a shift in the corporate income tax in the direction of taxation based on cash flows and the location of consumption could reduce the opportunities for cross-border tax avoidance among multinational companies, which has been seen as a major problem standing in the way of progressive taxation (Auerbach 2017).

Finally, as discussed earlier in relation to the taxation of Social Security benefits and the use of income-based Medicare premiums, modifications of the tax system and benefit-program premiums can serve as a substitute for more direct changes in benefit schedules that might be desirable in light of substantial economic inequality, including among the elderly. This approach may offer dedicated revenues needed to maintain program viability. Further adjustments in this direction are certainly possible: for example, through fuller taxation of Social Security benefits or more progressive premiums for Medicare Parts B and D. At some point, though, such changes could increase progressivity to the point of altering what has been deemed by program

defenders to be a politically useful perception—if already rather inaccurate—of Social Security and Medicare as "universal" benefit programs, earned through years of labor force participation. That is, there may be limits to the extent to which these programs can engage in redistribution without coming to be perceived as primarily low-income transfer programs.

There is substantial economic inequality in the United States. Grappling with how much inequality actually exists, what is being done to reduce it, and what additional steps might be done, requires digging into the practical details of how taxes and benefits are designed. Of course, the prospects for such reforms must be assessed not only with respect to their technical feasibility, but also within a fraught political setting to which inequality has undoubtedly contributed.

Appendix: Calculating the Cyclical Sensitivity of Incomes of Different Groups

How much does the income of any group in the income distribution, Y_i, change with a cyclical increase in overall income, Y? Given that $Y_i = \left(\frac{Y_i}{Y}\right) Y$, it follows that:

(A1) $$\frac{dY_i}{dY} = \left(\frac{Y_i}{Y}\right) + \frac{d\left(\frac{Y_i}{Y}\right)}{dY/Y}$$

We estimate the second term on the right-hand side of expression (A1) with the coefficient from a regression of the first difference of the annual income shares displayed in Figure 3 on the percent change in real GDP from 1980 to 2020. (The results are similar if we use as the independent variable the percent change in real GDP less the percent change in real potential GDP, to focus on cyclical changes.) Data on calendar-year real GDP and real potential GDP are from the CBO report, *Historical Data and Economic Projections* (https://www.cbo.gov/system/files/2024-02/55022-2024-02-Historical-Economic-Data.zip.)

The coefficient for the top percentile income group is 0.267 (with a standard error of 0.117), meaning that for each increase in a dollar of aggregate market income, the top percentile's market income rises by its income share (Y_i/Y) plus 0.267. For the 2020 top-percentile before-tax income share of .193, this implies an increase of .46, meaning that nearly half of the change in income would be accounted for by the income of those in the top percentile. Given the increasing pretax income share of the top income percentile, one might expect the regression coefficient to increase over time. Adding a time trend and an interaction term between the time trend and the percent change in real GDP to the regression does generate a positive coefficient on the interaction term, but with a low t-statistic. Including this interaction term would result in a total effect in 2020 of .58, rather than .46.

References

Andrews, William D. 1980. "A Supplemental Personal Expenditure Tax." In J. Pechman, ed., *What Should Be Taxed, Income or Expenditure?* Washington: Brookings Institution: 127-151.

Auerbach, Alan J. 1991. "Retrospective Capital Gains Taxation." *American Economic Review* 81: 167-178.

Auerbach, Alan J. 2009. "The Choice between Income and Consumption Taxes: A Primer," in A. Auerbach and D. Shaviro, eds., *Institutional Foundations of Public Finance: Economic and Legal Perspectives*. Cambridge: Harvard University Press: 13-46.

Auerbach, Alan J. 2010. "California's Future Tax System." *California Journal of Politics and Policy* 2: https://escholarship.org/uc/item/1vs1z8hz.

Auerbach, Alan J. 2017. "Demystifying the Destination-Based Cash-Flow Tax." *Brookings Papers on Economic Activity* 2017: 409-432.

Auerbach, Alan J. 2019. "Tax Equivalences and their Implications." In R. Moffitt, ed., *Tax Policy and the Economy* 33: 81-107.

Auerbach, Alan J., Laurence J. Kotlikoff, and Darryl Koehler. 2023. "U.S. Inequality and Fiscal Progressivity: An Intragenerational Accounting." *Journal of Political Economy* 131: 1249-1293.

Auerbach, Alan, J., and Jonathan M. Siegel. 2000. "Capital-Gains Realizations of the Rich and Sophisticated." *American Economic Review* 90: 276-282.

Auten, Gerald, and David Splinter. 2024. "Income Inequality in the United States: Using Tax Data to Measure Long-Term Trends." *Journal of Political Economy* 132: 2179-2227.

Autor, David, Anne Beck, David Dorn, and Gordon H. Hanson. 2024. "Help for the Heartland? The Employment and Electoral Effects of the Trump Tariffs in the United States." NBER Working Paper 32082. January.

Blanchet, Thomas, Lucas Chancel, and Amory Gethin. 2022. "Why Is Europe More Equal than the United States?" *American Economic Journal: Applied Economics* 14: 480-518.

Brown, Jeffrey R., Julia Lynn Coronado, and Don Fullerton. 2009. "Is Social Security Part of the Social Safety Net?" in J. Brown and J. Poterba, eds., *Tax Policy and the Economy* 23: 37-72.

Congressional Budget Office. 2006. *Is Social Security Progressive?* December 15.

Congressional Budget Office. 2023a. *The Distribution of Household Income in 2020*. November.

Congressional Budget Office. 2023b. *Trends in the Distribution of Household Income From 1979 to 2020*. November.

Currie, Janet. 2006. “The Take-Up of Social Benefits.“ In Alan J. Auerbach, David Card, and John M. Quigley, eds., *Public Policy and the Income Distribution.* New York: Russell Sage Foundation. 80-148.

Diamond, Peter A., and James A. Mirrlees. 1971. “Optimal Taxation and Public Production I: Production Efficiency. *American Economic Review* 61: 8-27.

Diamond, Peter A., and Emmanuel Saez. 2011. “The Case for a Progressive Tax: From Basic Research to Policy Recommendations.” *Journal of Economic Perspectives* 25: 165-190.

Dowd, Tim, and Zach Richards. 2021. “Contextualizing Elasticities for Policymaking: Capital Gains and Revenue-Maximizing Tax Rates.” Unpublished paper.

Finkelstein, Amy, Nathaniel Hendren, and Mark Shepard. 2019. “Subsidizing Health Insurance for Low-Income Adults: Evidence from Massachusetts.” *American Economic Review* 109: 1530-1567.

Gruber, Jon, and Emmanuel Saez. 2002. “The Elasticity of Taxable Income: Evidence and Implications.” *Journal of Public Economics* 84: 1-32.

Hall, Robert E., and Alvin Rabushka. 1983. *Low Tax, Simple Tax, Flat Tax*. New York: McGraw-Hill.

Harberger, Arnold C. 1962. “The Incidence of the Corporation Income Tax. “*Journal of Political Economy* 70: 215-240.

Hemel, Daniel. 2019. “Taxing Wealth in an Uncertain World.” *National Tax Journal* 72: 755-776.

Kaplow, Louis. 2024. “Optimal Income Taxation.” *Journal of Economic Literature* 62: 637-738.

Kosar, Gizem, and Moffitt, Robert A. 2017. “Trends in Cumulative Marginal Tax Rates Facing Low-Income Families, 1997-2007.” *Tax Policy and the Economy* 31: 43-70.

Kniesner, Thomas J., and James P. Ziliak. 2002. “Tax Reform and Automatic Stabilization.” *American Economic Review* 92: 590-612.

Kuziemko, Ilyana, Michael I. Norton, Emmanuel Saez, and Stefanie Stantcheva. 2015. “How Elastic Are Preferences for Redistribution? Evidence from Randomized Survey Experiments.” *American Economic Review* 105: 1478–1508.

Kuziemko, Ilyana, Nicolas Longuet-Marx, and Suresh Naidu. 2023. “’Compensate the Losers?’ Economic Policy and Partisan Realignment in the US.” NBER Working Paper 31794. October.

Meltzer, Allan H., and Scott F. Richard. 1981. “A Rational Theory of the Size of Government.” *Journal of Political Economy* 89: 914-927.

Meyer, Bruce D., and James X. Sullivan. 2022. “Consumption and Income Inequality in the U.S. since the 1960s.” NBER Working Paper 23655, revised. January.

Piketty, Thomas, and Emmanuel Saez. 2003. “Income Inequality in the United States, 1913-1998.” *Quarterly Journal of Economics* 118: 1-39.

Piketty, Thomas, Emmanuel Saez, and Stefanie Stantcheva. 2014. “Optimal Taxation of Top Labor Incomes: A Tale of Three Elasticities.” *American Economic Journal: Economic Policy* 6: 230-271.

Piketty, Thomas, Emmanuel Saez, and Gabriel Zucman. 2018. “Distributional National Accounts: Methods and Estimates for the United States.” *Quarterly Journal of Economics* 133: 553-609.

Poterba, James M. 1989. “Lifetime Incidence and the Distributional Burden of Excise Taxes.” *American Economic Review* 79: 325-330.

Saez, Emmanuel, Danny Yagan, and Gabriel Zucman. 2021. “Capital Gains Withholding,” unpublished manuscript.

Saez, Emmanuel, and Gabriel Zucman. 2016. “Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data.” *Quarterly Journal of Economics* 131: 519-578.

Saez, Emmanuel, and Gabriel Zucman. 2019. *The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay*. New York: W. W. Norton.

Sarin, Natasha, Lawrence Summers, Owen Zidar, and Eric Zwick. 2022. “Rethinking How We Score Capital Gains Tax Reform.” In R. Moffitt, ed., *Tax Policy and the Economy* 36: 1-34.

Smith, Matthew, Owen Zidar, and Eric Zwick. 2023. “Top Wealth in America: New Estimates Under Heterogeneous Returns.” *Quarterly Journal of Economics* 138: 515-573.

Tax Foundation. 2024. *Summary of the Latest Federal Income Tax Data, 2024 Update*. March 13. https://taxfoundation.org/data/all/federal/latest-federal-income-tax-data-2024/.

U.S. Joint Committee on Taxation. 1993. *Methodology and Issues in Measuring Changes in the Distribution of Tax Burdens*. JCS-7-93. June 14.

Viard, Alan D. 2015. “The Basic Economics of Pease and PEP.” *Tax Notes* 146: 805-810.

Williams, Roberton. 2009. “Who Pays No Income Tax?” *Tax Notes* 123: 1583.