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Taxing the Rich: Issues and Options

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Abstract: The U.S. economy exhibits high inequality and low economic mobility across generations relative to other high-income countries. The U.S. will need to raise more revenues in order to reduce these disparities, finance much-needed new services and investments, and address the nation's long-term fiscal needs. This paper outlines policy options for raising a large amount of revenues primarily from the most affluent, first discussing potential incremental reforms and then focusing on four main options for more structural reform: (1) dramatically increasing the top tax rates on labor and other ordinary income, (2) taxing the wealthy on accrued gains as they arise and at ordinary rates, (3) a wealth tax on high-net-worth individuals, and (4) a financial transactions tax. Although we summarize the relative advantages and disadvantages of these approaches, we generally conclude that they all merit serious consideration. Several options are also complementary to one another. In practice, however, the relative strengths of each of these policies will depend to a large extent on how each is designed after it has made its way through the legislative and regulatory process.

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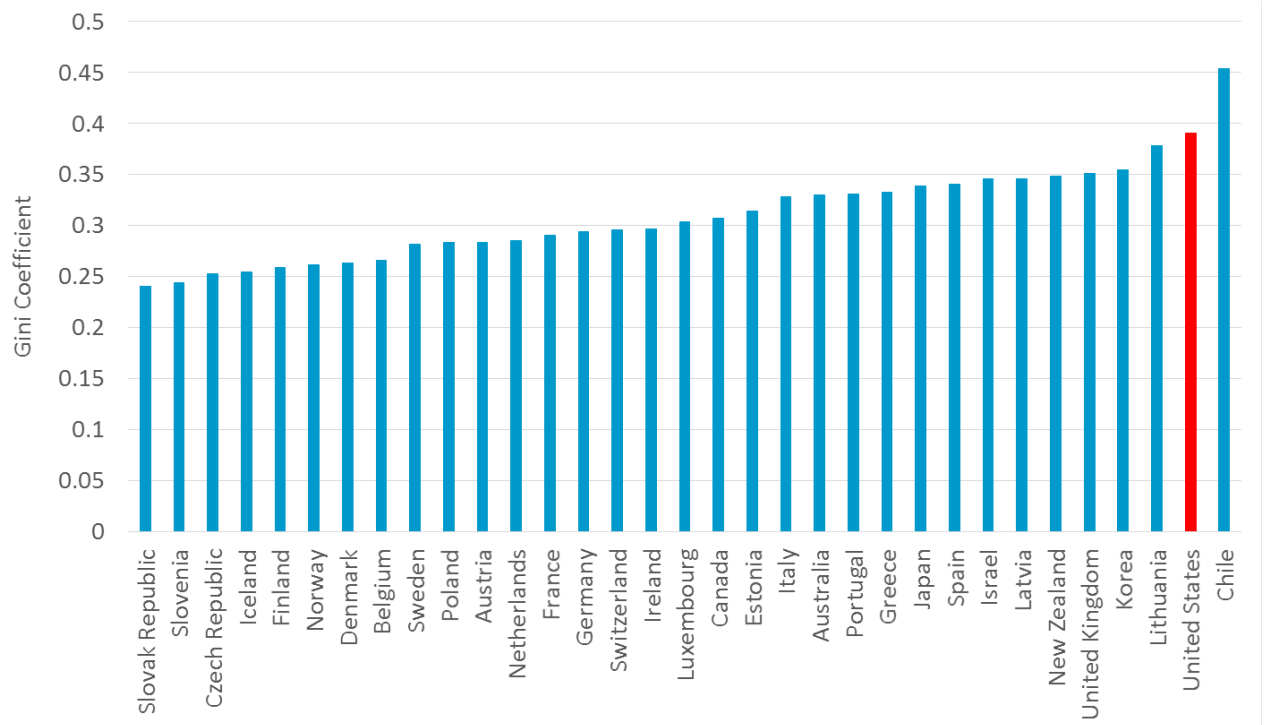
1. Introduction: Why Raise More Revenues from the Wealthy?

The U.S. has one of the highest levels of income and wealth inequality among high-income nations. As illustrated in Figure 1, the U.S. has the second highest level of income inequality after taxes and transfers among 33 OECD countries. It has the highest level of wealth inequality in the OECD (Balestra & Tonkin, 2018). Income and wealth inequality are heavily skewed by race. Average net worth for blacks in the U.S. is only 14 percent of that for non-Hispanic whites (Wolff, 2018). As a group, the top 1 percent in the U.S. receives more income than the bottom 40 percent and owns more wealth than the bottom 95 percent (Wolff, 2017).

Further, the U.S. has one of the lowest levels of intergenerational economic mobility among high-income countries. On average, a father in the U.S. passes on roughly half of his economic advantage or disadvantage to his son (Corak, 2013). Among other high-income countries, the comparable figure is typically about one-third, and in several countries it is one-fifth. There are even larger mobility barriers among some communities of color. Black men in particular have far less upward mobility and greater downward mobility than others, and to such a large extent that the current black-while income gap is not projected to change at all if these mobility dynamics persist (Chetty, Hendren, Jones, & Porter, 2018).

Thus, to an unusually large extent in the U.S., economic disparities between individuals reflect the luck of one's birth and systemic discrimination, not hard work.

Figure 1. Income Inequality After Taxes and Transfers in OECD Countries



Source: Authors' calculations based on OECD, (2019a). We use the most recent year available from 2014 to 2016 and exclude countries for which no data on transfers is available. See Huang & Frentz (2014) for discussion of the OECD methodology. The Gini coefficient is a measure of income inequality.

One of the ways we can begin to address these vast disparities of income and opportunity is through a more progressive fiscal system that expands much-needed investments in individuals who do not benefit from such privileges.

In addition, the U.S. faces a long-term fiscal shortfall. There is reason to believe that debt may pose fewer risks to the economy than it has in the past, given the long-term decline in interest rates and the substantial fiscal capacity in the U.S. and other high-income economies (Blanchard, 2019; Furman & Summers, 2019). Nonetheless, most economists agree that markets would eventually react if debt grew continuously as a share of the economy, which current projections suggest it will absent policy changes (Gale, 2019).

For instance, CBO projects that, under current law, the federal debt will rise from about 80 percent of GDP today to almost 150 percent by 2050 (CBO, 2019). Stabilizing the debt to GDP ratio over this period will require reducing annual deficits by about 2 percent of GDP—and more than double this if expiring provisions, which include much of the 2017 tax cuts, are continued (authors' calculations based on CBO, 2019).

Despite these pressing needs, U.S. federal revenues as a share of GDP were 16.5 percent in 2018. This is 1 percentage point below the average over the past 50 years, even though we are in the midst of an economic expansion (CBO, 2019). As of 2017, total U.S. revenue as a share of GDP was already 7 percentage points below the OECD average, and that was before the 2017 bill's tax cuts took effect (OECD, 2019c).

Theoretically, it is possible to raise sufficient revenues to stabilize our fiscal outlook and create a more progressive fiscal system with tax increases that apply across the economic distribution, not just to the wealthy. For example, every other high-income country in the world has a federal value-added tax (VAT) (Tax Policy Center, 2019a). If the U.S. followed the model of other high-income countries of raising much more revenue from broad-based taxes, principally a VAT, and spending it in relatively progressive ways, economic disparities would decline, though not necessarily between the upper-middle class and the wealthy.

But if history is any guide, the U.S. may not follow this model. We redistribute relatively little through our fiscal system, ranking 28 out of 33 OECD countries (author's calculations based on OECD, 2019a). But to the extent we do, we are the only OECD country that relies roughly equally on the tax system and direct spending programs to mitigate economic disparities (Joumard, Pisu, & Bloch, 2012). All others rely more heavily on direct spending programs, and often dramatically so.

If the U.S. persists with its relatively tax-focused model of redistribution, reducing economic disparities and stabilizing our fiscal outlook will requiring raising substantial new revenue from measures that focus to a large extent on the affluent, rather than the public at large. Accordingly, this essay focuses on the pros and cons of different options for raising substantial additional revenue over the next decade primarily from the wealthy.

2. What Is Wrong with the Current System?

Beyond raising insufficient revenues, there are a number of serious problems with the current U.S. approach to taxing wealthy individuals. Broadly speaking, the current system offers too many ways

for those with the greatest resources to escape tax, either by reducing their effective tax rate or avoiding taxes altogether. The result is that, while some of at the top are taxed at the highest rates, many are not. Absent changes to the tax base that make it harder to avoid taxes, many wealthy individuals would be largely unaffected by increases to the top statutory tax rates.

2.1. How Those at the Top Differ

Those at the top earn income and accrue wealth in fundamentally different ways than the rest of the population. Wages comprise the vast majority of income for those outside of the top 1 percent of income, as illustrated below. Tax avoidance and evasion are rare for wage income because it is subject to information reporting and withholding, and because wage earners generally cannot manipulate the timing of income recognition (Slemrod, 2007).

But those at the top earn or report their income differently. Much more of their income comes from capital gains, dividends, and income flowing through business entities. These forms of income are often eligible for preferential rates and are often easier to underreport because they are not subject to withholding or, sometimes, information reporting as well. For example, in 2016, wages and salaries comprised only 10% of the income of the top 0.001%, while capital gains and dividends taxed at preferential rates made up 71% of their income, with business income comprising most of the remainder. Further, as explained in more detail below, gains on property are only reported when they are "realized;" that is, when property is sold or exchanged. This means that the actual share of income those at the top derive from capital gains may substantially exceed what is shown in Table 1.

Table 1. Composition of Reported Income by Income Group, 2016

AGI Percentile	Bottom 95% (Under $197K)	95 to 99% ($197K-$480K)	99% to 99.9% ($480K-$2.123M)	99.9% to 99.999% ($2.1M-$53.1M)	Top 0.001% (Above $53.1M)
Wages/Salaries	80%	70%	53%	29%	10%
Long-Term Capital Gains & Qualified Dividends	3%	9%	17%	39%	71%
Business Income (e.g., partnerships)	4%	12%	26%	28%	13%
Other	13%	9%	4%	4%	6%
Total	100%	100%	100%	100%	100%
Share of All AGI	65%	15%	10%	7%	2%
Average Income Tax Rate	9%	19%	27%	28%	23%

Source: Authors' calculations based on IRS Statistics of Income, Table 3 for Tax Year 2016 (2018).

2.2. Tax Avoidance Strategies Used by the Wealthy

High-income Americans and the entities they own make use of a number of tax avoidance strategies. Many involve shifting income from a high-tax rate category to a low- or zero- tax rate category. Of course, there are often costs of making such shifts, such as lawyer fees and difficulties

in restructuring transactions, so not all income ends up in the lowest rate category. But, high-income Americans still have plenty of opportunities to engage in such shifting.

This phenomenon is partially illustrated in the table above. In 2016, the top income tax rate was 39.6 percent. (The 2017 tax law cut it to 37 percent.) But the top 0.001% (making over $53 million in income that year) paid only 23 percent of their Adjusted Gross Income in taxes, on average. Why the difference? Deductions, such as the charitable deduction, account for some of the discrepancy. But, even if we examine only taxable income (after all deductions are taken), this group only pays an average rate of 28 percent. The remaining difference is largely accounted for by the fact that wealthy individuals avoid paying the top income tax rate on much of their income by reporting it as a different type of income that is subject to lower rates—mostly, the long-term capital gains rate.[1] Moreover, this estimate is only for *reported* income. Therefore, it substantially understates this group's actual income and substantially overstates its average tax rate, as discussed below.

There are several reasons why the wealthy are able to pay tax at much lower rates than the headline tax rates imply, and the 2017 tax law made this problem worse.

First, the wealthy tend to characterize a large share of their income from labor as income from business entities, which now can be subject to much lower rates even if it is ordinary income. Smith, Yagan, Zidar, and Zwick (2016) estimate that three-quarters of the business profits received by the wealthy derive from their human capital, not physical or financial capital.

Before the 2017 law, characterizing labor income in this way—as ordinary income being earned through a business—could achieve some real but relatively limited tax savings for the wealthy. Specifically, using certain types of pass-through businesses could allow owners to avoid the 3.8 percent Medicare self-employment taxes (SECA), or the net investment income tax (NIIT), which applies a parallel tax to unearned or passive forms of income. At 35 percent, the top corporate tax rate was only 4.6 percentage points below the top individual rate.

The 2017 law, however, substantially expanded opportunities to use business entities to avoid the top rate (for further discussion, see Kamin et al., 2019). Now the top rate is 40.8 percent if one includes the SECA and NIIT taxes. One option is for wealthy individuals to characterize their income as earned through a pass-through business entity, the vast majority of which is eligible for a 20 percent deduction (called 199A) under the 2017 tax law (JCT, 2019; Goodman, Lim, Sacerdote, & Whitten, 2019). This brings their top marginal tax rate down to 33.4 percent if they pay the SECA or NIIT tax and 29.6 percent if they do not—a much greater tax benefit than under prior law.

Alternatively, they may claim that their income—including their labor income—is earned by a business they own that is subject to the corporate income tax (so-called C-corporations). In the wake of the 2017 tax law, the top tax rate on such income is only 21 percent, down from 35 percent. Wealthy individuals who report income through a C-corporation do have to pay personal income taxes on dividends or realized capital gains on their stock at a top rate of 23.8 percent (including

[1] The first $467,000 of their taxable ordinary income (for married couples) would be subject to lower rates given our progressive rate structure. But this is such a small share of this group's income that their average rate on taxable income should still round to 39.6 percent if it were all reported as ordinary income.

the 3.8 percent NIIT). But this tax can be deferred indefinitely or eventually disappear if the stock is held until death or another loophole is used to escape the second layer of tax.

Second, the wealthy who elect the pass-through route can often claim their income, including their labor income, as long-term capital gains or dividends. In this case, the top rate falls from 40.8 percent to 23.8 percent. If they take advantage of loopholes allowing them to avoid the NIIT and SECA taxes, they can further lower their top tax rate to 20 percent. Carried interest—available to managing partners in private equity and similar industries—is just a small example of this widespread practice of converting income from labor into lower-taxed capital gains.

Third, the wealthy can often afford to defer realizing capital gains. If they do so for a long enough period of time, the present value of their top tax rate on such gains approaches zero. And if they do so until their death, the top tax rate is actually zero, thanks to a provision called "stepped-up basis," which forgives tax on such accrued gains. Their top tax rate can also be zero if they donate appreciated property to a charity like a family foundation, even if they maintain some degree of control over it. Further, to the extent the wealthy do realize gains on some property, they can choose to sell other property with built-in losses to offset those gains.

These low or zero rates create incentives to hold on to underperforming assets with built-in gain purely for tax reasons, which is sometimes referred to as "lock-in." Importantly, the use of deferral or stepped-up basis does not preclude spending the accrued income in the meantime. People can and do borrow against appreciated assets in order to finance consumption and avoid paying tax. This is a key reason why capital income is understated on individual returns. Nearly 40 percent of the wealth of the top 1 percent is in the form of accrued and unrealized capital gains. Moreover, the top 1 percent holds about half of all such unrealized gains (authors' calculations from Federal Reserve Board, 2017).

Fourth, multinational corporations—whose owners are disproportionately wealthy—can achieve very low tax rates by exploiting differences in tax rates across international boundaries. These corporations report large amounts of income in tax havens (Zucman, 2014; Clausing, 2019a). Often this involves manipulation of prices within the firm: selling property (especially intellectual property) developed in the United States to foreign subsidiaries at bargain-basement prices in order to reduce the portion of the multinational's profits that are reported in the U.S. (Kaye, 2014; Clausing, 2016).

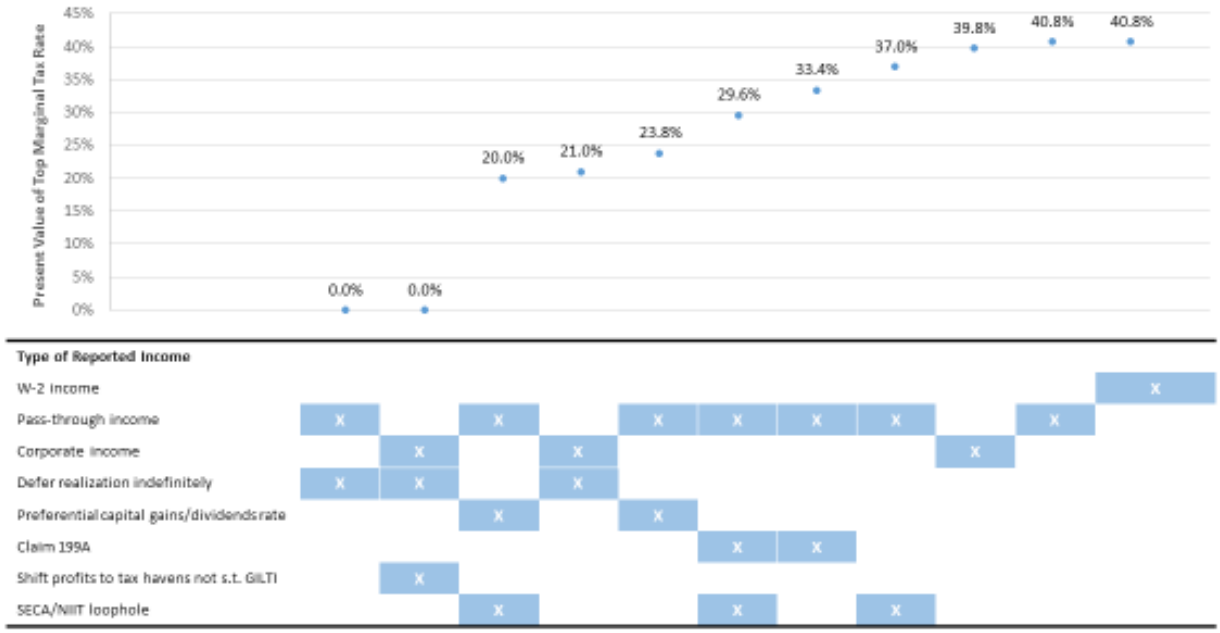
Fifth, while a large share of the income of the wealthy is derived from labor income, a substantial share is also the product of inheritances. Inherited income is entirely excluded from both the income tax and payroll tax bases. The estate tax and related wealth transfer taxes were meant to partially address this omission. But the exemptions are so large ($22.8 million per couple in 2019) and the base so porous that income in the form of inheritances was taxed at an average rate of less than 4 percent in 2009, and is taxed at even lower rates today (Batchelder, 2009). These exceptionally low rates apply despite the large impact inherited income has on economic mobility. By some estimates, financial inheritances are a more important predictor of a child's earnings than IQ, personality, and education combined (Bowles, Gintis, & Groves, 2005).

Finally, enforcement of the existing tax laws governing the wealthy is weak and getting weaker. The audit rate for the top 1 percent has declined dramatically—by about 80 percent since 2011—

and is only 1.6 percent today (Kiel, 2019). Even when wealthy individuals and the businesses they own are audited, they often employ such a complex web of tax avoidance strategies, and have such sophisticated lawyers and accountants on their side, that the IRS does not have the resources to correctly identify their tax liability or prevail in court if it is contested (Eisinger & Kiel, 2019). In the cross-border context, such avoidance is so difficult to catch that the IRS does not even attempt to quantify it (U.S. Government Accountability Office, 2019).

All of this means that the wealthy are taxed at a wide range of rates, depending on how they report their income. The following figure illustrates the patchwork of rates produced by just the few select strategies summarized above. These strategies effectively create a menu of options for tax planners. Not all preferential categories will be available for a given activity but, with so many different rates available, others might be.

Figure 2. Present Value of Top Marginal Tax Rate by Type of Reported Income



2.3. Prevalence of Avoidance Strategies

There is considerable evidence that high-income Americans, and the entities they own, use techniques like those described above to substantially reduce their tax bill. The exact magnitude is hard to quantify because much avoidance is simply unmeasured, at least directly, or is not considered a tax underpayment because it is legal under current law. Nevertheless, an array of evidence points to very large magnitudes of foregone revenue. For example:

- The official estimators at the Joint Committee on Taxation (JCT) and Treasury Department assume that, under current rules, the revenue-maximizing rate for capital gains in in the range of 30 percent, which is not much higher than the current federal rate of 23.8 percent (author's calculations based on Congressional Research Service, 2019). This is because they believe higher capital gains rates will induce far more wealthy taxpayers to defer realizing gains, potentially until death, in order to reduce or eliminate their tax bill on

accrued gains. Essentially these estimators assume that further rate increases are simply not that effective, as they are undermined by tax planning strategies involving deferring realizations and stepped-up basis.

- Relatedly, Bourne, Steuerle, Raub, Newcomb, and Steele (2018) find the wealthiest Americans realize capital income from their stock equal to less than half of their estimated actual return in the five years leading up to their deaths. This suggests most capital income earned by wealthy individuals who are nearing death goes untaxed.

- Saez and Zucman (2019c) estimate that the 0.01 percent wealthiest Americans (wealth over $190 million) realize capital income equal to only 50 percent of their accrued capital income, regardless of whether they are nearing death. This implies that the low rate of realizations is not confined to those who are very old and is not solely a product of stepped-up basis.

- A team of Treasury researchers and outside economists were unable to identify match owners to 30 percent of all partnership income, implying that such income is not taxed at all (Cooper et al., 2016). Partnerships represents about one-quarter of business income overall (DeBacker & Prisinzano, 2015). Partnership income far more concentrated among the most affluent than other types of income—the top 1 percent receives 69 percent of all partnership income (Cooper et al., 2016).

- Kimberly Clausing has documented large profit shifting activity by multinational corporations. For instance, Clausing (2019a) estimates U.S. corporations shifted approximately $300 to $380 billion in profits from the U.S. to lower-taxed foreign jurisdictions in 2015, resulting in lost revenue on the order of $100 billion annually or more than $1 trillion over the budget window. She further estimates the 2017 law likely reduced profit shifting only modestly, while substantially reducing revenue from multinationals on the whole (Clausing, 2019b).

- Using IRS data, Raub, Johnson, and Newcomb (2010) find that, among the 400 wealthiest Americans who passed away during the study period, wealth reported on estate tax returns represented only about half of their wealth as estimated by Forbes. The estate tax data includes wealth bequeathed to charity. Though Forbes may over-estimate wealth, this suggests that a large share of bequests may escape the transfer tax system (Raub, Johnson, and Newcomb, 2010).

2.4. Negative Effects

The widespread availability and use of tax avoidance strategies by the wealthy is troubling on several fronts. First, as Figure 2 only begins to illustrate, the existing system is extraordinarily complex.

Second, it is unfair. When the wealthy pay tax at such lower rates, the lost revenues must be made up through higher taxes or reductions in the spending programs on which others rely. It also means that, among the wealthy, the most aggressive tax planners are rewarded, while those who follow the letter and spirit of the law are penalized. Heirs to large fortunes are taxed especially lightly.

Those who receive their income as wages or salaries pay the most, though still far less than is necessary to effectively mitigate the vast disparities in income, wealth, and opportunities in the U.S.

Some argue that it is more efficient to tax capital income and inherited income more lightly than labor income, so some variance in tax rates among the wealthy is desirable (e.g., Atkeson, Chari & Kehoe, 1999). But doing so is much less efficient than some theoretical models might suggest. The different rates create strong incentives to reclassify labor income into other income categories that are eligible for lower rates. The vast costs incurred in such tax planning represent wasted resources in the economy. These costs include direct payments to law firms, accounting firms, in-house advisors, and many other typically high-income service providers. But more importantly, they include indirect costs. Whenever the wealthy hold on to underperforming stock to defer paying tax—or structure their work or business in ways that maximize tax savings rather than productivity—this is a drag on economic growth.

In addition, there is substantial evidence that the magnitude of savings, and especially wealth transfers, among the wealthy is relatively unresponsive to the tax rate (e.g., Elmendorf, 1996; Laitner & Juster, 1996; Dynan, Skinner, and Zeldes, 2002; Kopczuk & Lupton, 2007; for reviews of the literature on wealth transfer taxes, see Batchelder, 2009; Kopczuk, 2013). This may be in part because a large share of the income of the wealthy comes from extraordinary returns, called rents, whose taxation does not affect behavior, at least under conventional models (e.g., U.S. Department of Treasury, 1977; President's Advisory Panel on Tax Reform, 2005; for a contrary view regarding the behavior of publicly-traded companies see Batchelder, 2017b). For example, using IRS data, Power & Frerick (2016) estimate that 75 percent of corporate equity returns represent rents. The amount of savings may also be relatively unresponsive to the tax rate because the reason why the wealthy work and save is often to be wealthier than others—to be at the top of the heap—and not necessarily to earn more in absolute terms.

To be sure, any tax on the wealthy will impose burdens on them that exceed the revenue raised. This is true of virtually all taxes, including those on people who are less fortunate.[2] But the pertinent questions are: How can policymakers maximize the revenue raised for a given amount of burden imposed on the richest Americans? And are those burdens are outweighed by the gains to society from the investments that such revenue finances?

3. Selected Revenue Options within the Current System

Within the basic structure of the current tax system, policymakers have proposed a range of policies that would raise considerable revenue from those with the greatest resources. In Table 2, we list several of these proposals to provide a sense of scale. This section is not a comprehensive compilation of all such measures, as there are many.

All of the proposals listed focus either solely or disproportionately on those with the greatest resources or the businesses they own. For organizational purposes, the table is broken down between direct repeal or reform of elements of the 2017 tax legislation, along with further measures that could be taken. A number of these proposals would, in addition to raising revenue in

[2] The one exception is a head tax, which charges a fixed amount per person.

progressive fashion, reduce complexity and wasteful tax planning. We consider many to be good ideas. But since they have, for the most part, been discussed in other contexts and do not involve fundamental shifts in the system, we do not delve into the details or relative pros or cons of each here.

Table 2. Incremental Revenue Measures

	2021-2030 (Billions)	
	Current Law	Current Policy
Repeal or Reforms of 2017 Tax Law		
Return Top Individual Rate to 39.6% from 37% (1)	$90	$200
Reverse Doubling of Estate Tax Exemption (back to $11.4M per couple) (2)	$60	$110
Repeal Pass-Through Deduction (2)	$280	$620
Increase Corporate Rate to 28% from 21% (2)	$730	
Raise Minimum Tax on Foreign Income to 21% + Apply Per Country (3)	$340	
Sub-Total	$1,500	$2,000
Additional Measures		
10% Surtax on AGI Above $2 Million (4)	$610	
Tax Accrued Gains at Death and Increase CG/Dividends Rate to 28% (5)	$290	
Broaden Base of Self-Employment Tax + 3.8% ACA Surtax (5)	$280	
Cap Value of Itemized Deductions at 28% (6)	$410	$310
Estate Tax: $7M Per Couple Exemption, 45%-65% Rate, Limit Avoidance	$310	
Return to 2009 Parameters + Anti-Avoidance Measures (5)	$210	
Increase Rates on Largest Estates (Max = 65% on Transfers >$1B) (7)	$100	
Eliminate Accelerated Cost Recovery for Largest Businesses (2&8)	$760	$920
Sub-Total	$2,970	$3,030
Total	**$4,470**	**$4,970**
% of GDP	**1.6%**	**1.8%**

Sources are authors' calculations based on: (1) AEI Tax Brain; (2) JCT (2017) and JCT (2018), (3) Clausing (2019b); (4) Tax Policy Center (2019c), (5) JCT (2016); (6) JCT (2011) and Tax Policy Center (2018); (7) Auxier, Burman, Nunns, & Rohaly (2016) and Sammartino, Burman, Nunns, Rosenberg, & Rohaly (2016); Batchelder (2017). The authors have updated all estimates to be consistent with a 2021-30 budget window, with details provided in Appendix B.

In presenting these and other revenue estimates, we use the ten-year budget window for the next Congress (2021-2030) and assume each proposal is effective immediately. Where relevant, we present the revenue raised relative to both "current law" and "current policy." Under current law, many of the 2017 tax law's provisions affecting individual income taxes expire after 2025. Thus, several measures (such as increasing the top rate back to the previous top rate) raise revenue only temporarily relative to current law. By contrast, if measured relative to an alternative scenario in which the tax cuts are continued, these measures raise more. Other measures, such as limiting itemized deductions, raise more relative to current law than current policy since the tax law already contains limitations on these deductions that are scheduled to expire. Except where noted in Appendix B, these estimates do not include interaction effects, which can be substantial in some cases.

Some who support raising taxes on the wealthy think we should maintain the basic structure of the current system but reform it, such as in the ways listed above (e.g., Sarin & Summers, 2019a). As the table shows, these measures could raise $4.4 to $4.9 trillion over the decade, or 1.6 percent to 1.8 percent of GDP. This is, of course, a considerable amount of revenue.

However, it may be insufficient to address long-term fiscal shortfalls if we maintain our existing spending commitments and, even more so, if we address significant needs for additional services and investments. As noted above, CBO projections suggest that, under current law, annual deficits will need to be reduced by almost 2 percent of GDP to stabilize the debt to GDP ratio over the next three decades. More than double this amount will be necessary if a number of current policies, such as the 2017 tax cuts and relief from the sequester, are continued (CBO, 2019). Significant additional revenues can be raised from those at the top, but it will tend to require the kinds of structural changes discussed in the next section.

All of these proposals would fall primarily on the wealthy but not all of them would exclusively burden the wealthy. For example, Treasury and JCT estimate that 75 to 82 percent of the burden of the corporate tax falls on corporate equity owners or owners of all capital, while 18 to 25 percent falls on labor (Cronin, Lin, Power, & Cooper, 2012; JCT, 2013; for further discussion of the incidence of the corporate tax, see Clausing, 2012; Batchelder, 2017b). More recent estimates by Treasury imply the burden on labor is only 12.5 percent in general and 7.5 percent in the case of multinational corporations (Power & Frerick, 2016). While capital and corporate equity ownership are highly concentrated among the wealthy, the bottom 99 percent still receive roughly half of all capital income (Cronin, Lin, Power & Cooper, 2012). Pass-through income is even more concentrated, and Treasury and JCT estimate that an even smaller portion of taxes on pass-through businesses fall on labor (Cronin et al., 2012; JCT, 2013). Nevertheless, the burden on labor is not zero. Thus, the proposals that would raise revenue through business taxes, which total $2.1 to $2.6 trillion, would fall very disproportionately on the wealthy, but a portion would be borne by middle-income investors and, to a much smaller degree, workers.

Further, while these reforms would address some of the problems summarized in the prior section, other problems would remain, and might even be exacerbated. Capital gains and dividends still would be taxed at much lower rates than income from labor and the differential would widen, increasing the pressure on the line between the two. Repeal of stepped-up basis would eliminate one major incentive to defer realizing gains. But large incentives to defer realizing gains would remain, including those due to the time value of money, potential future rate decreases, and the tax exemption for gains on property donated to charity.

A more robust estate tax would better address the direct effects of inherited advantage. But it would have smaller effects on many of the indirect advantages associated with wealth, such as social connections with other wealthy individuals, access to the best educational opportunities, and the like.

In addition, while all of these proposals maintain the basic structure of the current tax system to some degree, these changes are not necessarily more politically feasible than the structural reforms that are described in the following section. Whether “incremental” or “structural,” there will always be strong and organized opposition to such measures, and some structural changes arguably could garner stronger public support than more incremental reforms. Thus, we distinguish between

incremental and structural reforms as a way of describing the degree of substantive change in the structural underpinnings of the tax system, and not of the ease or probability of enacting such reforms.

The list is not definitive or comprehensive. But it is intended to contain most of the incremental steps that we know of that are estimated to raise substantial revenue. While one could surely offer some other combination of such measures, the overall revenue is likely to be in the same general range as these—roughly 1 to 2 percent of GDP in additional revenue.

4. Options for Structural Changes to Raise Revenues from the Wealthy

This section discusses four potential structural changes to the tax system that would raise revenue primarily from those at the top: (1) dramatically increasing the top tax rates on labor and other ordinary income, (2) taxing accrued gains as they arise and at ordinary rates, (3) implementing a wealth tax, and (4) enacting a financial transactions tax. These reforms are not mutually exclusive, and several are complementary to one another. Nonetheless, we discuss their relative advantages and disadvantages.

4.1. Dramatically Raising Top Rates on Labor and Other Ordinary Income

Over two-thirds of the reported income of the top 1 percent is taxed at ordinary rates (authors' calculations from Statistics of Income, Table 3, for Tax Year 2016). As a result, dramatically increasing the top ordinary rate can generate substantial revenues.[3] Increasing the top individual rate to 70 percent on income over $10 million (the top 0.01 percent of households), as Rep. Ocasio-Cortez has suggested, would raise about $260 to $320 billion over ten years.[4]

If the threshold were lower, such a dramatic rate increase would raise far more. To give a sense of scale, the ordinary income tax base above $1 million (the top 0.2 percent of households) is about six times larger than it is above $10 million. The ordinary income tax base for the current top bracket (income above $612,000 if married or $510,000 if single; the top 0.6 percent of households) is about nine times larger.

An alternative is to raise the top income tax rate somewhat less, and subject earnings above $250,000 to the Social Security tax. This latter proposal would raise roughly $1.4 trillion over a decade if enacted on its own, as summarized in Table 3. It would raise less if combined with a top income tax rate increase due to interaction effects.

4.1.1. Advantages

This is of course a large amount of revenue, which would be raised almost exclusively from those who are well-off. While no tax solely burdens the individuals remitting it, taxes that are directly limited to affluent individual taxpayers tend to be shifted on to others to a lesser extent than taxes that only indirectly focus on the affluent, such as corporate income taxes. Eliminating the

[3] We acknowledge that this is less of a structural reform than the others described in this section. Nevertheless, we found it helpful to discuss it here in order to compare it to the other options.

[4] We have adjusted the Penn Wharton Budget Model estimates to cover the 2021-2030 period rather than an earlier budget window. This is the case with all estimates cited in this paper.

maximum earnings threshold in the Social Security tax would also help to stabilize the Social Security trust fund by delaying its exhaustion for an additional 13 years (CBO, 2018).

Table 3. Structural Reforms

	2021-2030 (Billions)	
	Current Law	Current Policy
Significantly Raise Top Rates on Labor and Ordinary Income		
Increase top individual rate to 70% from 37% for income over $10M (1)	$260	$320
Eliminate maximum earnings threshold in Social Security tax above $250K in earnings (2)	$1,370	
Financial Transactions Tax		
0.1% tax on all financial assets (2)	$810	

	2021-2030 (Billions)		
	Tax Avoidance Rate		
	0%	15%	30%
Accrual Tax			
Limited to Top 1%			
Mark-to-market for publicly-traded assets (3)	$2,200	$1,700	$1,400
Retrospective accrual tax for illiquid assets (3)	$600	$400	$300
Total	$2,800	$2,100	$1,700
Limited to Top 0.1%			
Mark-to-market for publicly-traded assets (3)	$800	$600	$500
Retrospective accrual tax for illiquid assets (3)	$200	$150	$100
Total	$1,000	$750	$600
Wealth Tax			
2% tax on wealth for top 0.1% and 3% on wealth over $1B (3)	$3,300	$2,600	$1,900
2% tax on wealth for top 1% (3)	$6,700	$5,100	$3,500

Source as indicated: Authors' calculations based on (1) Ricco & Prisinzano (2019) (averaging their three estimates accounting for avoidance); (2) Congressional Budget Office (2018); (3) Survey of Consumer Finance and other sources. For more details, see appendix.

There is precedent for such high individual income tax rates in the U.S. and abroad. Indeed, from 1936 to 1981, the top ordinary rate in the U.S. was 70 percent or higher (Tax Policy Center, 2019b). This approach also would not the entail valuation and liquidity challenges associated with some of the other potential structural reforms. Finally, there is at least some evidence that at high marginal tax rates, those with the highest incomes engage in less "rent seeking" behavior, which could both reduce such wasteful activity and redistribute income down the income spectrum (Piketty, Saez, & Stantcheva, 2014). However, there are several potential downsides.

4.1.2. Potential Challenges

At high tax rates, there are greater incentives for earners to change their behavior to reduce taxes, whether through changes in real economic transactions or how income is reported. The degree of these responses depends on the underlying legal rules and the tax rates that are applied to other tax

bases. Thus, broadening the tax base and harmonizing tax rates on other forms of income should be seen as an important complement to significant marginal rate increases on any given type of income.

On their own, these reforms would dramatically increase the already large difference between the tax rates on labor or ordinary income and those on capital income, including capital gains and dividend income. As a result, raising the top tax rate would substantially increase incentives for the wealthy to re-characterize labor and ordinary income as one of the other lower-taxed categories of income. Further increasing opportunities for tax avoidance would, in turn, render the tax system less efficient, more complex, and, at least among the wealthy, less fair.

But these real downsides could be largely addressed if the taxation of capital were reformed to apply similar rates to capital gains and dividends in a manner that raised revenue, such as through the accrual-based tax system described next.

4.2.Accrual Tax

Unfortunately, if no other rules are changed, raising the rate on capital gains and dividends to the same level as ordinary income would likely lose revenues relative to some lower rates on such income, at least as estimated by JCT and Treasury. They assume—again if no other rules are changed—that the capital gains rate that maximizes revenues is in the range of 30 percent because of the lock-in effect (authors' calculations based on Congressional Research Service, 2019). That is, above a tax rate on capital gains of roughly 30 percent, the Treasury would begin to lose revenues because taxpayers would respond by deferring realizing gains for much longer periods of time. Some believe the revenue-maximizing rate on capital gains is even higher than JCT and Treasury assume (Gravelle, 1991). But there are also relatively few countries that tax long-term capital gains at rates above 30 percent and whose experience could therefore be used to empirically examine what the revenue-maximizing rate actually is. Notable exceptions include Austria, Chile, Denmark, Finland, Ireland, South Korea, Thailand, and Turkey, some of which tax capital gains at much higher rates than 30 percent (Ernst & Young, 2018).

If taxing capital gains and ordinary income at the same rates were coupled with certain other reforms, however, it would clearly raise substantial revenue. For example, the Tax Policy Center estimates that the revenue-maximizing rate rises to 50 percent if stepped-up basis is repealed (Rubin, 2019). It would be even higher under reforms that tax gains (and allow deductions for losses) as they accrue, rather than waiting until they are realized.[5]

Taxing gains as they accrue is sometimes called a "mark-to-market" regime. Under mark-to-market, taxpayers would value all of their assets every year and either pay tax on the gain or deduct the loss. Such a system would eliminate the need for separate taxes on dividends and interest, since both would be considered part of any gain.

Given the difficulty of measuring the annual change in value of most privately-held businesses and other illiquid assets, advocates of taxing gains as they accrue have generally proposed mark-to-market regimes only for publicly-traded assets. But some advocate combining such an approach

[5] Another option is to apply higher capital gains rates as the amount of time the taxpayer holds an asset before realizing its accrued gains grows. We do not focus on this option here, but it would have similar effects.

with a "retrospective" accrual regime for non-publicly-traded assets—which would impose tax only upon the sale of such assets but apply a deferral charge at the time of sale to minimize any benefit that had accrued from deferring tax payments on gains.

For example, suppose a wealthy investor purchases a resort for $100 million and it appreciates by $5 million each year for 10 years at which point she sells it. Under a retrospective accrual tax, she would be taxed at the point of sale, but as if she was paying back taxes due, with interest, on her $5 million gain in each of the 10 years. Her tax liability would be higher than under our current realization-based system, which would also tax her on a $50 million gain, because of the interest charge.

This combined approach of mark-to-market for publicly-traded assets and retrospective accrual taxation of all other assets has been proposed in conceptual form by Senator Ron Wyden and presidential candidate Julian Castro (Rubin, 2019).

As we describe in Appendix A, there is vast uncertainty in estimating the revenues that would be generated by either an accrual tax regime or a wealth tax. We provide some very preliminary estimates here, using the 2016 Survey of Consumer Finance (one of the best sources for wealth data) and assume different rates of tax avoidance under each regime. However, different assumptions and data may generate substantially different estimates.

We first estimate a proposal that applies mark-to-market to publicly-traded assets, taxes the gains on such assets as ordinary income, and makes no changes to the taxation of gains on illiquid assets. We assume the top rate on ordinary income is 39.6 percent plus the Medicare tax or Net Investment Income Tax (NIIT) of 3.8 percent. These are the rates that were in place until 2018; and current law reverts to these rates in 2026. As summarized in Table 3, this proposal would raise new revenue on the order of $1.7 trillion over ten years if it were limited to roughly the top 1 percent (exempting additional income from the mark-to-market system, not total income, under about $100,000), and assuming a tax avoidance rate of 15 percent. However, publicly-traded assets represent only about one-fifth of assets held by the top 1 percent, excluding retirement accounts and tax-exempt debt (authors' calculations based on 2016 SCF). Further, this estimate assumes there would be no change in the percentage of assets that are publicly-traded, but such a regime would create vast incentives to privatize businesses and invest in other exempt assets.

Thus, we think the better approach is to apply an accrual tax to all assets but implement it only on a retrospective basis for non-publicly-traded assets. There are a number of different ways to do this (e.g., Shakow, 1986; Auerbach, 1988; Blum, 1988; Fellows, 1990; Cunningham & Schenk, 1992; Gergen, 1993; Grubert & Altshuler, 2016; Glogower, 2016; Miller, 2016). But under all of these approaches, gains on illiquid assets would only be taxed when the asset is sold. One method would be to treat the gain as if it were earned at a constant rate of return over the holding period, with an interest charge for the value of deferring the tax payments on the gains (e.g., Blum, 1998). Importantly, such a retrospective regime should also treat gifts, bequests, and charitable contributions as a realization event in order to place illiquid assets on a similar footing to publicly-traded assets taxed on a mark-to-market basis. Otherwise, significant tax avoidance opportunities would remain.

If a retrospective regime were applied to non-publicly traded assets for the top 1 percent and also taxed gains on such assets as ordinary income, we estimate it would raise an additional $500 billion over ten years. This assumes a 15 percent avoidance rate, but we include additional estimates of higher and lower avoidance rates. As discussed further in the appendix, our estimate of the retrospective component of an accrual tax is very conservative because it assumes all illiquid assets are not sold until death.

Overall, an accrual tax would raise on the order of $2,100 billion over ten years if limited to the top 1 percent and assuming a 15 percent avoidance rate. It would raise roughly $750 billion if limited to the top 0.1 percent instead. We should emphasize that, unlike all the other revenue estimates in this paper, these estimates and those for a wealth tax assume no behavioral response, other than that embodied in the assumed tax avoidance rate.

Some have suggested applying a retrospective accrual regime to both publicly-traded and non-publicly-traded assets (Grubert & Altshuler, 2016; Shakow, 1986). This would ensure that gains publicly-traded and non-publicly traded assets were taxed identically and would certainly be an improvement over the current system. However, it would not eliminate one reason that asset holders might defer gains: waiting for a reduction in rates or repeal of the retrospective regime. As a result, we view a combined system as a better approach.

There is also a question of whether and how such regimes should be integrated with corporate income taxes. If gains and dividends on corporate stock are taxed at the individual level at ordinary rates and with no benefit to deferral, there is a logic to providing a credit at the individual level for taxes the corporation paid on its income (Grubert & Altshuler, 2016; Toder & Viard, 2016b). However, that logic breaks down if the mark-to-market regime is applied only to the very top of the income distribution, rather than more comprehensively. Thus, there may be a trade-off between comprehensive reform that integrates corporate- and individual-level taxes and limiting tax increases at the individual level to the very top.

4.2.1. Advantages

There are many advantages to a system that combines mark-to-market for publicly-traded assets with retrospective accrual taxation for all other assets. It would raise a large amount of revenue almost exclusively from the wealthy. It would largely eliminate the ability to reduce tax liability by changing the timing of the sale of property. And it would effectively (under mark-to-market) or actually (under retrospective accrual) repeal stepped-up basis and eliminate the ability to avoid tax on gains by donating property to charities. Further, this increase in capital taxation could not be avoided through the kinds of tax planning maneuvers that allow multinational businesses to report a large share of their profits in tax havens. Accrual taxes would be imposed at the individual level on the multinational's share price, which incorporates both domestic and foreign profits, and they would apply to all U.S. citizens, regardless of where they live. As a result, the location of profits reported by multinational enterprises—and the residence of the multinationals themselves—would be irrelevant for U.S. tax purposes.

For all these reasons, the revenue-maximizing capital gains rate would increase dramatically under an accrual tax system. Policymakers could then generate substantial revenues by increasing capital gains rates. By reducing or eliminating differences in the effective tax rates on ordinary income,

capital gains, and dividends on a present value basis, policymakers could in turn eliminate or reduce many of the largest tax planning opportunities within our current system. Tax avoidance, with its accompanying fairness and efficiency costs, would decline.

The proposal would also be highly counter-cyclical, increasing the extent to which the federal fiscal system automatically stabilizes the macroeconomy. This is because accrual tax revenues and liabilities would more closely follow annual returns in the financial markets—swinging more widely from year-to-year—than under the current realization-based system.

Finally, there is substantial precedent in the U.S. for taxing gains as they accrue. Our current system taxes some securities (e.g., straddles) on a mark-to-market basis, and applies a retrospective accrual tax to some passive income earned in foreign corporations held by U.S. residents (so-called PFICs). Even more notably, we effectively apply an accrual tax approach to debt instruments through the original issue discount rules.

4.2.2. Potential Challenges

There are, however, a number of challenges associated with an accrual tax, some of which are substantial.

First, there would be additional administrative and compliance costs involved in reporting income on publicly-traded assets an annual basis based on changes in market values. That said, automated reporting by financial institutions could shield investors from much of this complexity.

Second, the heightened volatility of revenues under a mark-to-market regime is a double-edged sword. On the one hand, it would increasing the extent to which federal fiscal policy automatically stabilizes the macroeconomy. On the other hand, if state governments also adopt the same regime (and many do piggyback off the federal tax system), it could increase the extent to which state policy magnifies economic cycles, by forcing states to cut spending during recessions in order to comply with balanced budget rules. However, Toder & Viard (2016b) show this concern could be largely addressed by averaging the tax due over time. In addition, some states would receive an offsetting benefit: accrual taxation would reduce the tendency of taxpayers in high-tax states to change their residence shortly before realizing large gains.

Third, restricting such a regime to the very wealthy would be relatively complicated compared to the wealth tax discussed next. One option would be to apply the regime universally and adjust tax rates to offset any undesired tax increase on average for those below the very top. This would simplify the regime and allow relatively easy integration with the corporate tax system as everyone could receive credits for any corporate income taxes paid. But there would be no way to hold all those below a certain threshold harmless under this approach. While one could make sure that those in, for example, the bottom 99 percent do not face a tax increase on average (or even receive a tax cut), those with more capital holdings within this group would still tend to face tax increases. In addition, even if no one in this group faced a tax increase, they still might object to the complexity of complying with an accrual tax system.

Another option would be for policymakers to exempt taxpayers below a certain income or wealth threshold. But it is unclear how to treat taxpayers once they exceed the selected threshold. If

taxpayers were then fully and permanently subject to the accrual tax, this cliff would create enormous incentives to stay below the threshold, potentially generating large economic distortions.

Alternatively, policymakers could use some method to phase in the effects of the accrual tax regime. One approach would be to provide an annual or lifetime exemption for a set amount of accrued gains. Accrued gains above the exemption would be subject to the new regime. Another approach would be to exempt taxpayers below an income or wealth threshold. Taxpayers above the threshold would have to pay tax on each gain pro rata on a realization and accrual basis. Any of these approaches would require the richest taxpayers to pay tax partially on an accrual basis and partially on a realization basis, with the proportion potentially shifting year-to-year. Basis tracking would be far more complicated than it is currently. That said, if the exemptions were high enough, the vast majority of the population would only be taxed on a realization basis, as they are now. Moreover, the wealthy often manage equally complex basis tracking under current law, for example when investing in straddles or engaging in tax-loss harvesting.

Fourth, the retrospective component of such a partially-retrospective accrual tax would necessarily be imprecise. Gains on assets do not accrue at a constant rate over time. Any deferral charge would necessarily be a rough approximation of the actual value of deferral to a specific taxpayer. Tax rates also change over time. Thus, while the retrospective component of the system would address valuation and liquidity concerns regarding illiquid assets, it would maintain some existing tax avoidance opportunities, while introducing some new ones.

For example, taxpayers holding assets that initially appreciate rapidly and then appreciate more slowly would have an incentive to hold such assets so that the appreciation was deemed to occur more gradually over time. As under current law, taxpayers who expect rates to fall would be incentivized to hold in order to take advantage of a future relatively low rate (Kamin and Oh, 2019; Hemel, 2019). Taxpayers with access to high-return investments might prefer the retrospective treatment to mark-to-market, and therefore would have an incentive to invest in privately-held firms, not those that are publicly traded. But we should emphasize that these tax avoidance incentives, while meaningful, would generally be far smaller than under our current realization-based system.

Finally, while there is substantial precedent in the U.S. for applying an accrual tax to some assets, no country taxes all assets on an accrual basis, even if restricted to the rich. Any time a new approach to taxation is enacted for a larger group of assets, there are inevitably unforeseen difficulties and unintended avoidance opportunities that can only be addressed gradually over time.

4.3. Wealth Tax

Another option for taxing the wealthy is to implement a new tax on wealth that is separate from our federal income, payroll, and wealth transfer tax systems.

For instance, Senator Elizabeth Warren has proposed a 2 percent annual tax on net worth over $50 million— or the top 0.1 percent—and a 3 percent tax on net worth over $1 billion (Warren, 2019). The tax would apply to both domestic and foreign assets of U.S. citizens. To address incentives to expatriate, the proposal would also substantially increase the U.S. exit tax on Americans renouncing their citizenship.

Saez & Zucman (2019a) estimate the proposal would raise $2.75 trillion over ten years (from 2019-28), assuming a 15 percent avoidance rate. For purposes of consistency with our mark-to-market estimates, we have done a similar calculation using only the Survey of Consumer Finance (they average it with another data source) and assume the same 15 percent avoidance rate. Under these assumptions, the Warren proposal would raise about $2.6 trillion over ten years (from 2021-30). If a wealth tax instead was 2 percent and limited to the top 1 percent of wealth holders (net worth over about $10 million), we estimate it would raise about $5.2 trillion over ten years, again assuming a 15 percent avoidance rate. As with the accrual tax (and unlike the other revenue estimates in this paper), these estimates assume no behavioral response other than that embodied in the tax avoidance rate.

Some have criticized the Saez-Zucman $2.75 trillion estimate as too high and that criticism could apply to our estimates as well. Smith, Zidar & Zwick (2019) suggest refinements to the other data source that Saez & Zucman (2019a) use, which involves distributing wealth based on capitalized income from federal income tax returns. Saez & Zucman (2019c) adopt some of these refinements, which reduces their estimated tax base on wealth over $50 million by about 7 percent, and adopting all the refinements in Smith, Zidar & Zwick (2019) would reduce that tax base somewhat further.[6] However, the methodology in Smith, Zidar & Zwick (2019) generates results closer to Survey of Consumer Finance data that we use.

Summers & Sarin (2019) and Sarin & Summers (2019b) criticize the Saez-Zucman $2.75 trillion estimate more vociferously. They estimate Warren's wealth tax proposal would raise 60 to 88 percent less than Saez & Zucman estimate, extrapolating from estate tax receipts. Most of the difference appears to be methodological (for details, see Saez and Zucman, 2019c). Saez and Zucman include spousal and charitable bequests in their base, while Sarin and Summers exclude them in their lower estimates. But spousal wealth would not be taxed separately under a wealth tax, and funds used for charitable bequests would be subject to a wealth tax until the charitable contribution actually occurs. Saez & Zucman (2019c) also use more precise and granular estimates of mortality differences between the very wealthy and the rest of the population. After these corrections, Saez & Zucman (2019c) estimate that the wealth tax base when extrapolating from estate tax returns is 71 percent of the wealth tax base when using their preferred approach if the tax is limited to wealth over $50 million.[7]

The other potential driver of the differences between these estimates is the assumed rate of tax avoidance and evasion. Saez and Zucman (2019a) assume an avoidance and evasion rate of 15

[6] It is unclear how much adopting all of the refinement in Smith, Zidar & Zwick (2019) would reduce the estimate in Saez & Zucman (2019a). Smith, Zidar & Zwick (2019) state that they anticipate adopting their methodology would reduce the estimates in Saez & Zucman (2019a) by about 38 percent but have not yet completed that analysis in their working paper. In addition, the 38 percent figure assumes the Saez & Zucman (2019a) estimates rely entirely on their income capitalization method. In fact, they rely half on Survey of Consumer of Finance data, which generates lower estimates and would narrow the differential still further. Finally, Smith, Zidar & Zwick (2019) compare the revenue raised under the two income capitalization methods, while assuming Warren's proposal applies on an individual and not household basis. It is unclear how correcting this assumption would directionally change their estimate.

[7] When instead compared to their preferred approach in Saez & Zucman (2019a), Saez & Zucman estimate the wealth tax base (on wealth over $50 million) when extrapolating from estate tax returns is 66 percent as large.

The IRS has also published its own estimates of wealth at the top extrapolating from estate tax returns (Barnes, 2019), and using these estimates to calculate wealth tax revenues generates results similar to Summers and Sarin. It is unclear whether the IRS uses the same methodological assumptions as the lower estimates from Summers and Sarin.

percent under a wealth tax, based on studies of how responsive reported wealth is to wealth tax rates in other countries. But some point to evidence from other countries with wealth taxes to argue the avoidance and evasion rate would be higher (e.g., Edwards, 2019). In addition, Saez & Zucman (2019c) estimate the avoidance and evasion rate under the estate tax is on the order of 33 percent.

However, there are several reasons to think that neither U.S. estate tax returns and receipts—nor the experience of other countries with wealth taxes subject to high rates of tax avoidance—are a good guide to the revenue potential of a wealth tax in the U.S. This is especially true of the kind of fundamental reform Senator Warren has proposed—assuming it were enacted in this form.

First, and as discussed further below, the fact that the estate tax is imposed at one time only (at the point of transfer to gift or bequest recipients) inherently facilitates far more tax avoidance opportunities than a tax imposed on wealth annually. The IRS estimates that some of these avoidance strategies— which would be far less effective under a wealth tax—allow taxpayers to reduce the value of transferred assets by 30 to 65 percent (Eller, 2005; Dodge, 2016). Second, Warren has said that her proposed wealth tax would apply to a much broader tax base than either the U.S. estate tax or recent and existing European wealth taxes. The U.S. estate tax provides larger preferences for closely-held businesses, while wealth taxes in other countries often exempt or provide large preferences for closely-held businesses, retirement assets, principal residences, artworks, and antiques (OECD, 2018). Third, unlike every country that has implemented a wealth tax, the U.S. taxes its citizens regardless of where they reside. The only way Americans can escape U.S. taxation is to give up their U.S. citizenship, and even then the U.S. imposes a stiff exit tax that Warren proposes to increase. Finally, Warren's plan includes substantial expansions to other tax enforcement powers and resources to counteract potential revenue losses.

Thus, the Sarin and Summers objection regarding tax avoidance appears to be grounded in part on estate tax avoidance that intrinsically wouldn't arise under a wealth tax, and in part in a political judgement—that if a wealth tax were actually enacted, it would adopt all of the estate tax avoidance strategies that would actually work under a wealth tax, and perhaps new loopholes as well.

In light of this ongoing debate and recognizing that there is substantial uncertainty about tax avoidance responses, we provide estimates assuming higher and lower tax avoidance rates. For instance, as summarized in Table 3, if there were 30 percent avoidance, the Warren proposal would raise approximately $2.0 trillion from 2021-30.

We should also emphasize that the different estimates of wealth using estate tax returns versus other data illustrates the considerable uncertainty that exists regarding the total magnitude of wealth in the U.S. more generally. This is not just a question of avoidance, but of what the levels of wealth are before such avoidance takes place. Different sources tend to show different levels and composition of wealth, although it is notable that the estate tax data is considerably below other available sources (e.g., Kopczuk, 2015; Bricker, Krimmel, Henriques, & Sabelhous, 2016; Saez & Zucman, 2016; Saez & Zucman, 2019c). Future research may shed additional light, as would of course the actual experience of a wealth tax in the U.S. if it were enacted and enforced.

4.3.1. Advantages

There are a number of advantages to a wealth tax on the most affluent. Wealth taxes can raise a large amount of revenue almost exclusively from the wealthy. Saez and Zucman (2019b) estimate that all of the revenue raised by Warren's proposal would be paid by the top 0.1 percent of households ranked by wealth. Ranked by income, 97 percent of the revenue would be paid by the top 1 percent. As with the personal income tax, relatively little of the burden should be shifted to other taxpayers, in part because the tax is based directly on the taxpayer's wealth.

It is far easier to administer and comply with an exemption from a wealth tax than from an accrual tax. Wealth below the exemption is simply not taxed. Under an accrual tax (or at least one that avoids cliff effects), gains below the exemption are taxed on a realization basis, meaning the wealthy would probably need to comply with two different regimes with respect to each asset held.

Relative to raising ordinary rates and an FTT, a wealth tax would reduce deferral and lock-in incentives. While it would not change deferral incentives under the income tax, it would add an element of taxing capital that is not realization-based. As such, it could not be avoided by simply deferring gain and holding on to underperforming assets.

Like an accrual tax, a wealth tax could not be avoided through multinational businesses that shift reported profits (or actual economic activity) to low-tax foreign jurisdictions because it would effectively apply to the foreign profits of (U.S.- and foreign-resident) multinationals held by U.S. citizens.

In addition, a wealth tax may have a broader base than the alternatives, reducing tax avoidance opportunities and efficiency costs. It would definitely have a broader base than a financial transactions tax, which is limited to financial assets. But the relative breadth of its base compared to an accrual tax is largely a political economy question. Arguably it would be easier to include some assets in a wealth tax base. Theoretically, an accrual tax could apply to qualified retirement accounts, tax-exempt bonds, primary residences, and charitable transfers over which the donor retains some control. But this would be very challenging politically under an accrual tax because it builds on the income tax system, which currently exempts all or most returns on such assets from tax. While including such assets in the base of a wealth tax would also be politically challenging, it might somewhat easier because a wealth tax would be writing on a blank slate. With that said, these three categories comprise less than one-fifth of the wealth of the top 1 percent according to the SCF (authors' calculations based on Federal Reserve Board, 2017).

If it is correct that it would be easier politically to apply a broad base to a wealth tax than an accrual tax, this would be a significant advantage. Either approach can result in extensive gaming if certain categories of assets are carved out or treated preferentially. For example, the Spanish wealth tax exempted some forms of closely-held businesses and, over a short period of time, the exempted stock as a share of all closely-held business stock grew from 15 percent to 77 percent (Alvaredo & Saez, 2009). This relates to a further advantage: a number of other countries have enacted wealth taxes, providing precedents from which the U.S. could learn.

Finally, adding wealth as a separate tax base would arguably increase the fairness of the tax system as a whole. Tax fairness depends in part on how accurately the system distributes tax burdens based on how well-off taxpayers are. This begs the question of what is the best measure of being "well-off". Income and consumption are excellent measures, but need not be the only ones. Wealth

may provide additional information about well-being if, for example, it independently provides insurance against risks or access to better information or political power. Empirically, wealth is also a powerful indicator of advantage, including inherited advantage. For example, controlling for income, those who are wealthier live longer and have higher self-reported health (Hajat, Kaufman, Rose, Siddiqi, & Thomas, 2011). Controlling for parental income, those from wealthier households are more likely to attend and complete college (Jez, 2014; Hotz, Wiemers, Rasmussen, & Koegel, 2018). Controlling for inheritances, earnings, education, parental wealth, and parental income, those who are relatively wealthy when younger are more likely to be relatively wealthy when older (Boserup, Kopczuk, & Kreiner, 2016). Moreover, as discussed above, wealth disparities are far larger than income disparities in the U.S., including by race (Balestra & Tonkin, 2018; Wolff, 2017; Wolff, 2018). In short, wealth begets more wealth in direct and indirect ways.

Despite these large, independent effects of wealth on well-being, our current tax system is regressive when measured by wealth, at least when one excludes human capital. Saez & Zucman (2019a) estimate that the bottom 99 percent of households pay about 7.2 percent of their wealth in federal, state, and local taxes, while the top 0.1 percent pay only 3.2 percent.

An accrual tax would reduce the regressivity of the current tax system by wealth, but not as effectively as a wealth tax. Accrual taxes apply heavier taxes to individuals whose wealth is appreciating rapidly, for example entrepreneurs. They tax more lightly those whose wealth is growing slowly, such an heir to a large fortune who invests their portfolio conservatively.

While the U.S. wealth transfer taxes do tax wealth, they do not sufficiently address these fairness concerns either. Wealth transfer taxes are imposed only once per generation and do not apply to a large share of wealth that arguably should be counted when measuring relative affluence. Examples include wealth consumed during life or eventually given to family foundations or donor advised funds over which the donor maintains significant control. Wealth transfer taxes also do not apply to wealth transferred to heirs in exempt forms, such as paying for the private education of one's descendants perpetually. In addition, even though the burden of wealth transfer taxes largely falls on the heirs of large fortunes and not decedents, they only partially correct for the fact that inherited income is tax-exempt under the income tax (Batchelder & Khitratakun, 2008). We tend to think U.S. wealth transfer taxes tax should be significantly strengthened and potentially replaced with an inheritance tax as proposed by Batchelder (2009). But even if it were, important arguments for a wealth tax would remain.

Furthermore (and relevant to debates about how much a wealth tax would raise), estate taxes are inherently more prone to avoidance than wealth taxes because they apply only at one point in time per generation. A variety of estate tax avoidance strategies involve temporarily and artificially deflating the value of transferred assets at the point in time that the wealth transfer is deemed to occur—and therefore valued—for tax purposes (for a more detailed discussion and reform proposals, see Dodge, 2016).

For example, family limited partnerships (FLPs) are used to temporarily hold investment assets in order to obtain non-liquidity discounts. Once the moment for valuing and taxing the transfer has passed, owners often dissolve the FLP so they can sell the underlying assets at will. The IRS estimates the valuation discounts for FLPs range from 30 to 65 percent (Eller, 2005; Dodge, 2016).

As another example, donors use "string" or "hybrid" transfers, where the donor retains the ability to receive some portion of the property back, in order to deflate the value of the transferred assets. In these cases, the donor inflates the value of their retained interest at the time of the taxable gift by gaming assumed interest rates, mortality tables, and other factors. Then, their retained interest is valued at its correct (and much lower) value when it is later included in their taxable estate. In the process, a large portion of the value of the transferred assets can simply disappear for wealth transfer tax purposes. Such "string" transfers include grantor retained annuity trusts (GRATs) which, according to one estimate, have reduced the amount of revenue raised by estate and gift taxes by one-third (Midar, 2013).

The wealthy should be far less inclined to engage in such strategies under a wealth tax because doing so would entail ongoing—not temporary—restrictions on their powers over, and access to, their assets. In addition, assuming their heirs are wealthy, any undervalued gifts and bequests would quickly be included at their correct value in the wealth tax base. For example, Sheldon Adelson contributed $31 million of stock to a GRAT that enabled him to give $519 million to his heirs over two years that was entirely excluded from the estate and gift tax bases (Midar, 2013). Under a wealth tax, his heirs would immediately be subject to tax on the $519 million they received. But under the estate and gift tax, that $519 million was not taxed at all. The only time it could be tax was much later—if and when his heirs later transferred their inheritance to their children.

4.3.2. Potential Challenges

Despite these advantages, there are a number of potential objections to, or challenges associated with, a wealth tax.

Some object that a well-functioning income tax is a more efficient and fair way to tax the rich. Unlike an accrual tax and eliminating stepped-up basis, a wealth tax would not raise the revenue-maximizing capital gains rate. As a result, it would not eliminate barriers to equalizing the ordinary and capital gains rates, with all the attendant benefits of reducing tax avoidance and thereby increasing fairness and efficiency.

In addition, going forward, a wealth tax imposes a greater effective burden on the "normal" return to capital and less on rents (e.g., Kopczuk & Schrager, 2014). For instance, imagine two individuals save $100 million but one earns a 5 percent "normal" return and the other earns a 15 percent return—with 10 percentage points of that return reflecting "rents." Under a 2 percent wealth tax (and ignoring any exemption), each would pay $2 million in taxes. The implicit income tax rate on the "normal" return would be 40 percent, while the implicit income tax rate on the "rents" would be zero. By contrast, an income tax could be set at a 20 percent rate to generate the same revenue, since it would also tax the above-market rate of return. It would tax the "normal" return and the "rents" at the same rate. In this way, an income tax would impose a greater burden on rents and less of a burden on the normal return as compared to a wealth tax generating the same revenue.

In some respects, the concern that a wealth tax would tax "normal" returns and rents at different rates is simply a way of saying that one believes income is a better measure of well-being than wealth. But there is another concern. If, as some economists believe, saving and investment

decisions depend on the after-tax "normal" rate of return and not rents, a wealth tax would tend to generate greater distortions to such decisions than an equivalent income tax. But, as discussed, there is mixed evidence on the extent to which aggregate savings and investment is influenced by taxes at all and, if so, whether it responds more to taxes on "normal" returns or rents. Moreover, a wealth tax may encourage people to deploy their capital more productively by taxing low return assets at the same rate as those earning high returns (Guvenen et al., 2018).

A second potential concern with a wealth tax is liquidity. Because a wealth tax applies regardless of whether one's assets are liquid or producing any income in the current year, it could create serious challenges if applied to middle-income households. This is a frequent objection to state-level property taxes, and has driven many of the preferences and exemptions for certain categories of assets in the wealth taxes of other countries. But if limited to the very wealthy, this concern has much less force. The wealthy can borrow against assets relatively easily and quickly. One oft-cited example is the $10 billion line of credit obtained by Oracle CEO Larry Ellison in 2014 (Thornton & Hendricks, 2019). It is possible that some minority owners of early-stage businesses could face liquidity challenges. These challenges would be heightened if the business obtains a very high valuation initially and subsequently fails. But by the time such taxpayers are worth $50 million, this seems unlikely. Moreover, a wealth tax could permit taxpayers to defer paying any tax due for several years with interest, as Warren has proposed. It could also allow taxpayers to average their wealth over several years to address situations where a taxpayer's net worth briefly exceeds the threshold before returning to a level well below it.

Relative to the alternatives discussed thus far, a more serious drawback is that a wealth tax would create significant valuation challenges. Based on estate tax data, IRS calculations suggest that private businesses comprise about 43 percent of the wealth of individuals with net worth exceeding $50 million, while real estate and art make up another 10 percent (IRS, 2018). According to the Survey of Consumer Finance, private businesses comprise an even larger share—over 50 percent (authors' calculations based on 2016 Survey of Consumer Finance, 2017).

Already wealthy individuals and the IRS often have to value private businesses and other hard-to-value assets without a market transaction. In the tax context, they do so for estate and gift taxes, or when claiming the charitable contribution deduction. In non-tax contexts, many large private businesses are valued on secondary markets (though frequently at a discount), and as part of mergers and acquisitions, obtaining venture capital funding, or issuing shares. Smaller businesses and assets like art are often valued as part of divorces, bankruptcies, or obtaining loans or insurance. But a wealth tax would require such valuations far more frequently. This could result in substantial tax avoidance, given the greater resources the wealthy can devote to valuation experts and litigation. It could also create a large incentive to invest in private businesses, potentially reducing market transparency and liquidity.

The experience of other countries and recent empirical work provides grounds for hope that these valuation challenges could be effectively addressed. Several other countries use rules of thumb for valuing private businesses, such as the book value of assets plus a multiple of profits or sales (McDonnell, 2013; OECD, 2018). Smith, Zidar & Zwick (2019) have recently developed and applied a detailed, industry-specific formula for estimating the value of private businesses held by the wealthy in the U.S. Wealth tax legislation or regulations could require application apply these valuation formulas, or offer them as a safe harbor, while allowing taxpayers to prove a different

value. Gamage (2019) supports relying exclusively on requiring valuation formulas in most cases in order to limit gaming. But it is also possible that any such formulas would not put private and publicly-traded businesses on an equal footing once political economy considerations are taken into account.

This raises a more general concern: the potential for tax avoidance and evasion under a wealth tax. The number of OECD countries with a wealth tax has declined substantially over time, from 12 in 1990 to six today (Bunn, 2019; OECD, 2018). Some attribute the repeal of wealth taxes in these jurisdictions to excessive avoidance and evasion; others to their relatively narrow tax bases, which made them not worth the costs of administration; and still others to their relatively low exemptions, which generated political opposition (Saez & Zucman, 2019c; OECD 2018; Viard, 2019). Some wealth tax avoidance techniques would not transfer to the U.S. context. For example, some taxpayers avoided European wealth taxes by moving to other countries (Kleven et al., 2013). But the U.S., unlike every country that has implemented a wealth tax, taxes its citizens regardless of where they reside. The only way Americans can escape U.S. taxation is by giving up their U.S. citizenship, and even then the U.S. imposes a stiff exit tax, which Warren proposes to increase.

Relative to other options for raising a comparable amount of revenue from the very wealthy, it is unclear whether wealth tax would entail more severe tax avoidance and evasion. The repealed European wealth taxes included a variety of exemptions for specific categories of assets, which facilitated avoidance and evasion, sometimes dramatically (OECD, 2018; Leiserson, McGrew, & Kopparam, 2019). There is a real risk that the U.S. would enact similar asset-based exemptions and preferences as a wealth tax made its way through the political process.

On the other hand, as discussed, the risk of such exemptions and preferences may be lower under a wealth tax than under options using existing tax instruments as a matter of political economy. The U.S. income and wealth transfer taxes already have extensive and well-entrenched preferences for certain types of assets. By writing on a blank slate, a wealth tax might be able to avoid such preferences and reach forms of wealth that the U.S. has traditionally found politically challenging to tax, such as private foundations over which the donor maintains control.

Effectively enforcing a wealth tax would require substantial new enforcement resources for the IRS, and an expansion to our information reporting agreements with other countries. The U.S. already receives information on the foreign financial accounts of U.S. citizens in 113 countries under the FATCA regime and its successors (U.S. Department of the Treasury, 2019a). But the IRS currently lacks the resources to effectively use this data. While our existing information exchange agreements largely focus on financial assets, the OECD-led Common Reporting Standard (CRS), which has over 100 signatories, covers non-financial assets, including trusts. The U.S. has not signed on to the CRS, but we nevertheless obtain information reported under it from other countries (Schneidman, 2019; OECD, 2019b).

Finally, a wealth tax could be struck down as unconstitutional on the grounds that it is a "direct tax," which must be apportioned among the states on the basis of population under Article I, Section 9. We think a wealth tax is not a "direct tax" as a matter of law, and should therefore be upheld as constitutional (see, for example, Johnsen & Dellinger, 2018; Ackerman et al., 2019; Johnsen et al., 2019; Feldman, 2019; for a contrary view see Freeman, 2019; Khan, 2019). But the Supreme Court as currently constituted may nevertheless disagree.

What is clear is that any legal risk associated with enacting a wealth tax could be reduced if it were understood as a refinement to the income tax. For example, a wealth tax could be understood as a tax on imputed income from wealth (Cunningham & Schenk, 1992; Schenk, 2000; Gamage, 2019). This would follow the model of the Dutch dual income tax, which taxes the capital income of some assets based on an imputed return, not realized income (Cnossen & Bovenberg, 2001), and the former Columbia wealth tax that was treated as a minimum income tax (Saez & Zucman, 2019c). Or it could be structured as an adjustment to marginal income tax rates based on wealth, much as we adjust marginal income tax rates based on family structure, age, the presence of capital income, and innumerable other factors (Glogower, 2019). Yet another possibility is to design a new tax that is a hybrid of an accrual and a wealth tax, perhaps using the wealth tax as a withholding mechanism or safe harbor under an accrual-based income tax.

While some suggest that the Supreme Court as currently constituted might also strike down a mark-to-market tax on capital gains, this seems far less likely. The constitutionality of the income tax is enshrined in the 16th Amendment. One Supreme Court case (*Eisner v. Macomber*, 252 U.S. 189 (1920)), struck down application of the income tax where there was no realization. But it has been dramatically scaled back and essentially limited it to its facts. Virtually all commentators now agree the realization requirement is a mere administrative convenience and not constitutionally required (e.g., Hurley, 2008; Kornhauser, 2009; Toder & Viard, 2016a). Moreover, lower courts have declined to overturn several long-standing provisions that tax income on a mark-to-market basis, rather than when it is realized (for examples, see Miller appendix in Toder & Viard, 2016a). Finally, any dubious arguments against the constitutionality of a mark-to-market tax do not apply to a retrospective accrual tax, which would only tax gains upon realization.

4.4. Financial Transactions Tax

A financial transactions tax (FTT) applies a tax to the sale of financial assets. An FTT is best viewed as a sales tax on securities. But it could also be viewed as combining elements of income and wealth taxation. Like the current income tax, an FTT is prompted by exchange of an asset. However, unlike the income tax, it is not imposed on the gain on the asset, but rather on the full value of the asset at that point—like in a wealth tax, though potentially multiple times per year. Unlike both, it is restricted to financial assets.

One FTT option outlined by CBO is to apply a 10 basis point (0.1%) tax to sales of stocks and debt obligations, and to payments made under derivative contracts (CBO, 2018). Transactions by foreigners on U.S. markets would be taxed, as would offshore trades by U.S. taxpayers. The tax would not apply to the initial issuance of stock or debt obligations, or to currency transactions or transactions involving short-term debt obligations. Extrapolating from CBO estimates, this option would raise about $810 billion over a decade (CBO, 2018). Like several of the other structural changes discussed above, revenue estimates of such a large-scale FTT are relatively uncertain and depend significantly on assumed effects on trading volume.

4.4.1. Advantages

As with the other progressive, structural changes discussed here, an FTT could raise substantial revenue primarily from the wealthy. However, an FTT also has some advantages as compared to these options.

Unlike any of them, a meaningful portion of the burden would fall on foreigners, which could be viewed as an advantage from a U.S. perspective. About 20 percent of U.S. long-term securities are held by foreign persons (U.S. Department of Treasury, 2019b). Unlike a wealth tax, valuation is not a major barrier because the tax is imposed as the asset changes hands, often for cash. There should be no constitutional risk as the federal government's power to tax transactions is well-established. Unlike an accrual tax, an FTT seems relatively simple to understand.

There are already precedents for an FTT in the U.S. and other countries. The U.S. imposes a very small FTT to fund securities enforcement. Several other countries, including major trading centers like the U.K. and Hong Kong, impose much larger FTTs (Burman et al., 2016). These precedents provide lessons learned for the effective design of an FTT and reassurance that market disruptions would not be too severe.

Some also argue that an FTT would be a relatively efficient way to raise revenue from the wealthy (e.g., Baker, 2016). Overall, there is a compelling case that dynamics in the financial sector tend to lead to too much trading—trading where social costs exceed social benefits (Summers & Summers, 1989). One example is the extraordinarily large investments traders make in high-speed trading platforms and related infrastructure to beat out other traders in reacting to new information, all in pursuit of zero-sum gains (e.g., Budish, Cramton, & Shim, 2015; Baker and Gruley, 2019). Whether or not a broad FTT is the best response to these problems is a more difficult question. There are alternative tools that may more accurately target some of the significant failures in the markets for financial assets and reduce such wasteful behavior as high-frequency trading (Budish, Cramton, & Shim, 2015). But to the extent an FTT affects trading volume taking the form of these rent-seeking and speculative activities, it could curb the disruptive effects of such activities (e.g., the 2010 "flash crash"), while entailing relatively few efficiency costs.

4.4.2. Potential Challenges

Taking the other view, some are concerned that an FTT would have such large effects on trading volume that it would reduce liquidity, increase market volatility, and inhibit price discovery (Matheson, 2012; Habermeir and Kirlenko 2003).

An FTT is likely to reduce trading volume substantially (see Matheson, 2012 and Burman et al., 2016 for reviews). As a result, a broad FTT may impede some transactions whose benefits outweigh costs, but the key empirical question is how large such an effect would be (Matheson, 2011). This particular issue is not a concern for the other structural reforms discussed above because the present value of tax liability is not affected by the frequency of transactions. With that said, one estimate suggests that more than 50 percent of daily volume in the U.S. equities markets is driven by high-frequency traders (Meyer, Bullock, & Rennison, 2018). As a result, even a large decline in trading volume may not cut all that much into the "true" market liquidity that leads to price discovery for regular market participants.

Another drawback of an FTT is that the maximum amount it could raise is probably lower than the other options. Burman et al. (2016) estimate that an FTT would start losing revenue if the rate was over 0.34 percent, and this revenue-maximizing rate would raise only 17 percent more revenue than an FTT of 0.1 percent.

In addition, an FTT may not be as progressive as some of the other options, even though it would be highly progressive. There is some debate about whether the burden of an FTT would fall on all owners of capital by increasing financial asset prices with other asset prices adjusting, or just on the financial sector by reducing rents in that sector (for further discussion, see Burman et al., 2015; Baker, 2016). Either way, an FTT would differ from the other structural changes discussed because its statutory incidence would not fall exclusively on the wealthy, and its economic incidence might fall more on households below the top 99 percent. It would, however, still be highly progressive. For example, Burman et al. (2016) estimate that about two-thirds of the economic incidence would fall on the top 1 percent in the short run, and 40 percent on them in the long run. Once behavioral responses are taken into account, they argue the distributional effects would be even more progressive.

An FTT also could render the tax system less fair among the very wealthy. It would not directly burden very affluent individuals who trade their wealth rarely, if at all. For example, a billionaire whose wealth is almost exclusively held in stock of the company she founded wouldn't owe any FTT on that wealth or its accrued gains until the point of sale, at which point there would be no deferral charge. Thus, her tax liability would be much lower than an individual with comparable income and wealth who trades her assets more frequently. A wealth or accrual tax would not entail this type of inequity.

Despite the models from other countries, there are several serious challenges in designing an FTT. In order to preserve liquidity, an FTT should probably include an exemption for market makers. Market makers are firms that stand ready to buy and sell a particular security on a regular and continuous basis at a publicly quoted price. But defining when a firm is acting as a market maker would be challenging.

Any FTT should also be designed not to drive up the prices on certain products too much because of cascading effects. For example, if an FTT applied to short-term Treasuries, it could inhibit their use for cash management because they have relatively low returns and are traded frequently. Again, determining where to draw the line on which securities should be exempt or eligible for lower rates would be difficult.

Further, the tax would have to be designed to address key avoidance techniques—including off-shoring of transactions and shifting across financial instruments. One key concern with an FTT is that it might drive transactions offshore. The tax should be designed to apply tax to any transaction involving a U.S. national (whether an entity or individual) and irrespective of whether the transaction occurs offshore. However, that would require the government collecting information on such offshore transactions. The tax should also be applied across all types of securities to avoid shifting, but there may be no way to design an FTT that can't be avoided at least to some degree by shifting across financial instruments.

A final and related drawback of an FTT stems from political economy considerations. An FTT would require highly technical rules and—to a greater extent than the other options—its burdens would be narrowly concentrated on a well-organized and highly-resourced industry. This is a recipe for vociferous lobbying at both the legislative and regulatory stages (Mashaw, 1997; Kalaitzake, 2017). Absent sophisticated and well-resourced government actors and civil society

groups, the net result could be a very watered down FTT that is easily avoided and raises relatively little revenue.

5. Conclusion

This paper has outlined policy options for raising a large amount of revenues primarily from the most affluent, including incremental approaches and four more structural changes: (1) dramatically increasing the top tax rates on labor and other ordinary income, (2) taxing the wealthy on accrued gains as they arise and at ordinary rates, (3) a wealth tax on high-net-worth individuals, and (4) a financial transactions tax. It generally concludes that they all merit serious consideration and several are important complements to each other. For example, a dramatic increase in the top rates on labor and other income would function best if coupled with a partially-retrospective accrual tax that taxes gains at higher rates. In practice, however, their relative strengths will turn to a large extent on how each is designed after it has made its way through the legislative and regulatory process.

Appendix A

Estimating Accrual Income Taxes and Wealth Taxes

While evidence suggests that accrual income taxes and wealth taxes can raise substantial revenues, any estimates of the revenues raised are highly uncertain. That is because there are no reliable administrative measures of the relevant tax bases and also because there could be substantial changes in behavior, especially with regard to the type and magnitude of tax planning. This appendix describes the data and assumptions that underlie our estimates, and how the accrual income tax and wealth tax estimates relate to each other.

For the estimates of both accrual income taxes and wealth taxes, we relied on the 2016 Survey of Consumer Finance (SCF) by the Federal Reserve, along with some estimates by the Joint Committee on Taxation and Treasury Department. The SCF is one of the main sources of information on the distribution of wealth in the U.S. It also includes information on the income of respondents, and we use both sets of information to derive estimates of accrual income taxes and wealth taxes.

Revenue Estimates

The table at the end of this appendix shows our estimates of revenue from accrual tax and wealth tax systems under a range of parameters and assumptions for the period 2021-30. The key policy parameter is the exemption below which people would not face any additional tax. A key assumption is the degree to which income or wealth would be lower when measured for tax purposes due to behavioral changes reflecting tax avoidance (whether from tax planning, changes in "real" economic behavior, or some combination).

We discuss our methodology for arriving at these estimates further below. Note that we have not made estimates for each possible variation. For instance, we do not estimate a wealth tax applied to the whole population because we are not aware of any prominent political figure proposing such a tax.

Accrual Income Taxes

Revenues from Mark-to-Market Taxation

To estimate the effect of accrual taxes, we start with an estimate of the revenue from a mark-to-market system on publicly-traded corporate equities. To arrive at the additional revenue from subjecting these equities to mark-to-market, we use the methodology described in Toder and Viard (2016b).

Specifically, we use the SCF to estimate the amount of taxable publicly-traded corporate stock held by U.S. persons in 2016. We then assume an imputed nominal rate of return of 8.33 percent,

consistent with Toder and Viard's calculation of the historical return on equities.[8] We then assume that this income is taxed as ordinary income and calculate the tax liability resulting from that, using the National Bureau of Economic Research's TAXSIM model (which we use for other calculations as well). Finally, we compare this liability to an estimate of the taxes paid in 2015 on dividends and capital gains associated with corporate stock, combining the SCF's reported capital gains and dividends for a household with the TAXSIM model's estimate of the associated taxes. When it comes to capital gains, we assume that half of such gains are associated with corporate equity, consistent with the finding by Smith, Yagan, Zidar, and Zwick (2019) that 25 to 75 percent is associated with C-corporation equity. Note that, for the ordinary tax rates, we use the rates in place under prior law, reflecting our assumption that this reform would be combined with elimination of the rate cut under the 2017 tax act, at least at the top of the distribution.

Our method results in an estimate for the revenue from mark-to-market that is significantly higher than that in Toder and Viard (2016b). Toder and Viard calculate that, as of 2018, a mark-to-market system on corporate equity would generate $114 billion in revenue. Our estimate—based on the 2016 SCF and then aged to 2018 by growing with GDP—is about $260 billion, assuming no behavioral response.

Table A1. Comparison of Toder-Viard & Batchelder-Kamin Estimates for 2018
(Billions of $)

	Toder-Viard	Batchelder-Kamin	% Difference
Net Revenue	$114	$234	105%
Tax imposed on mark-to-market income	$229	$377	65%
Tax owed on associated capital gains and dividends	-$115	-$143	25%
Additional Revenue from Forbes 400	N/A	$12	N/A
Notes:			
Taxable corporate equities	$9,201	$12,845	40%
Source of taxable corporate base (aged to 2018)	2013 SCF	2016 SCF	

Note: Assumes prior law tax rates

A significant part of the difference likely comes from changes between the 2013 SCF on which Toder and Viard relied, and the more recent 2016 SCF which was released after their paper. The 2016 SCF suggests that the value of taxable stock—even aging the 2013 estimate by growing with GDP—grew by 40 percent as compared to the previous survey. Thus, the imputed income from this stock grew as well. This rapid increase in this category deserves additional analysis and it is possible that the 2016 SCF overstates the category.

However, there appear to be other significant underlying differences that deserve further exploration as well. The difference grows somewhat larger when we also roughly add the Forbes 400 to the calculation, since these are excluded from the SCF, and add in additional mark-to-

[8] We adjust the imputed rate of return downward slightly reflecting the fact that the imputed return from net worth reported as of 2016 in the SCF is being compared to income from 2015 in the SCF. This is because the SCF asks for the prior year's income. Thus, to compare the imputed return from 2016 wealth to 2015 income, we use an imputed return of 8.33% / (1+8.33%) or 7.69%.

market revenue from them by assuming that the additional revenue from the Forbes 400 would be the same proportion of their wealth as for the rest of the top 0.1% included in the SCF.

Note that we assume that all revenue generated from a mark-to-market system on publicly traded properties would come from corporate stock. This is conservative in that there are some other types of properties that are publicly-traded that might generate additional revenues under such a reform. However, such additional revenue is likely to be limited. For instance, debt instruments are already taxed under a form of accrual taxation in the tax system. The deferral of interest income is not permitted for tax purposes (even if it has not been received), and the income is instead taxed as it accrues.

We further estimate the revenue from mark-to-market if the system were restricted to the top 1 percent or the top 0.1 percent. To do this, we assume exemptions for accrued but unrealized income sufficient such that only 1 percent or 0.1 percent of the population in a year would have to report additional income under the system. In particular, we calculate the *additional* income from a mark-to-market system (using the imputed rate of return discussed above) relative to realized gains and dividends. We then set an exemption so that 1 percent or 0.1 percent of the population would report additional income in the year. We also assume that the rate changes on capital gains income would not apply to households below those thresholds.

As we describe above, the design of an exemption from a mark-to-market system involves challenges, and we made the assumptions here for ease of reaching a rough calculation of revenue focusing on the top only. An actual exemption likely would not and should not be designed in exactly this way.

More advanced modeling may also find that the effects of exemptions and mark-to-market taxes generally are somewhat different than what we describe here. In particular, our estimate takes a snapshot for a single year and uses a single imputed rate of return as a proxy for mark-to-market. More advanced modeling might analyze the variation in the market from year to year and how that would affect mark-to-market revenue over time and especially how that might interact with an exemption.

Finally, we project our 2016 estimated revenues to the budget window of 2021-2030. To do this, we assume that revenues would grow with GDP, using CBO's projection for GDP for the period.

Revenues from Other Features of an Accrual Tax

An accrual tax system would also generate revenue from two other sources. First, such a regime should repeal stepped-up basis and tax gifts, bequests, and charitable transfers as realization events in order to put non-publicly-traded assets on similar footing as publicly-traded ones (and because this is good policy regardless). That would immediately generate revenues based on previously accrued and untaxed gains on both publicly-traded assets and non-publicly-traded ones. Second, the deferral charge on non-publicly-traded assets would gradually generate additional revenue as those assets were sold.

The first effect—taxing bequests as realization events—would produce revenue within the budget window.[9] The revenue—relative to total assets—should gradually fall as the mark-to- market and deferral systems reduce built-in gain, but, initially, most of the revenue would come from gain accrued before the advent of these systems. The second effect—of the deferral charge—should gradually build toward a steady state, but much of the revenue might be outside the budget window.

As a very rough approximation of these net effects in the budget window, we focus only on repealing stepped-up basis and taxing bequests as realization events, and assume constant revenue from this across the budget window. Essentially, we (very conservatively) assume that all illiquid assets are not sold until death. For an estimate of the revenue effects of this, we use tax expenditure estimates from the Joint Committee on Taxation and Treasury. We take an average of the two estimates, and then gross them up—somewhat less than doubling them—to reflect the assumption that the revenues would be taxed at ordinary rather than capital gains rates (as assumed in the tax expenditure estimates).

Finally, we estimate the revenues from ending stepped-up basis if there were an exemption limiting the effect to the top 1 percent and top 0.1 percent. To do this, we estimate how much untaxed appreciation (outside of primary residences) is held by the top 1 percent and top 0.1 percent among those 65 and older, ranked in terms of this untaxed appreciation. We then estimate how much revenue would be lost (relative to taxing this appreciation) if an exemption were set to exclude everyone below these thresholds. We estimate that the revenue from ending stepped-up basis would be cut in approximately half by an exemption limiting additional income to the top 1 percent and by about 80 percent by an exemption limiting additional income to the top 0.1 percent.

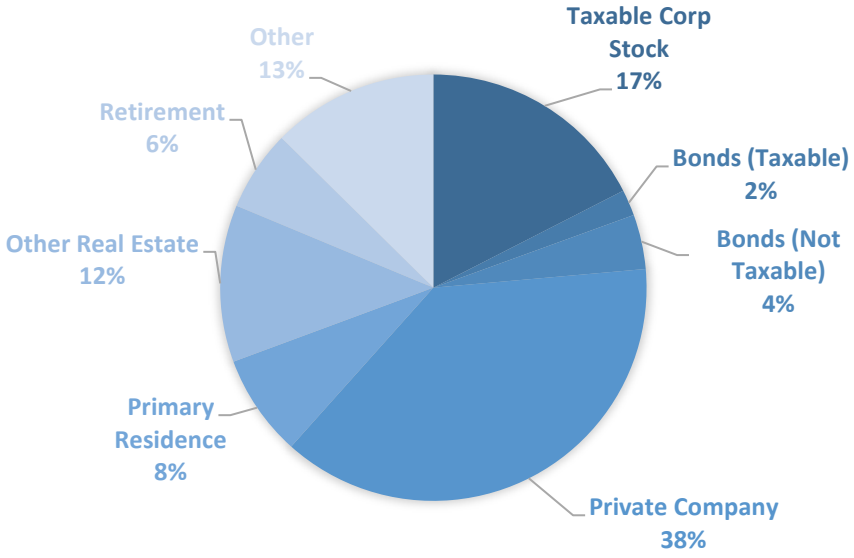
Wealth Taxes

We calculate wealth taxes by applying a tax rate to net worth as estimated in the SCF. Notably, the wealth tax base covers a range of assets, some of which would be taxed at higher rates under an accrual tax and some of which would not be. Figure A1 shows the break-down by asset class for the top 1 percent according to the SCF. Note that publicly traded stock—which was the focus of our prior estimate—comprises only a relatively small portion of total wealth. We also add the Forbes 400 to the SCF data, because they are excluded from it.

Our calculations using the SCF produce somewhat lower revenue figures than those calculated by Saez and Zucman using comparable assumptions. For instance, Saez and Zucman calculate that the wealth tax proposed by Senator Warren—applying a 2 percent wealth tax to individuals with net worth greater than $50 million and a 1 percent surcharge on wealth over $1 billion—would raise $2.75 trillion from 2019-2028. Our estimate of a tax similar to Warren's—applying a 2 percent wealth tax to the top 0.1 percent and with a threshold of $43 million in net worth as of 2016 (slightly greater than Warren's coverage) and a 1 percent billionaire surcharge—is in the range of $2.4 trillion using the same avoidance assumption as Saez and Zucman (a 15 percent reduction in wealth subject to tax due to avoidance). We will discuss that assumption more below. Note that our table above shows a 2021-2030 period, which is why our estimate there is $2.6 trillion.

[9] We do not estimate the revenue raised from taxing gifts and charitable transfers as realization events, making our estimates even more conservative.

Figure A1. Composition of Wealth for the Top 1% in 2016



Source: Authors' calculations based on Survey of Consumer Finance.

Our estimate is below Saez and Zucman because we rely solely on the SCF. Saez and Zucman use an average of the SCF and their own method for estimating wealth—capitalizing based on income tax returns—and that produces a somewhat higher estimate of the level of wealth. Notably, their method for calculating wealth generates a very different composition than that shown in the SCF even as the levels are very roughly comparable. This suggests the degree of uncertainty that exists as to the nature of wealth in the U.S.

Saez and Zucman also benchmark their wealth estimates using the capitalization method to the Federal Reserve Board's Financial Accounts of the United States. To do this, they essentially use the distribution of ownership from their capitalization method and then adjust to match their projection of the aggregates of wealth measured in the Financial Accounts as of 2019. We do not make this adjustment.

If we were to match the aggregates of wealth in the Financial Accounts, this would likely reduce our estimates somewhat. The Federal Reserve reports that the SCF and the Financial Accounts tend to be close to one another in their measures of aggregate wealth in the U.S. (compared on an apples-to-apples basis), but that the SCF has been somewhat higher in recent surveys. In 2016, the Federal Reserve reports that the SCF put aggregate wealth in the United States 11 percent higher than the Financial Accounts (adjusting them to be fully comparable) (Batty et al., 2019). So, if we were to match aggregate wealth in the Financial Accounts as of 2016, that would reduce our estimates by about 10 percent. However, the Financial Accounts show relatively rapid growth in wealth in the intervening time period, especially in the first quarter of 2019 (Federal Reserve Board, Households and Non-Profit Organizations, Net Worth, 2019). As a result, the Financial Accounts show net worth growing by 20 percent from the first quarter of 2016 to the first quarter of 2019. We use GDP to inflate across those intervening years, and GDP grew by around 15 percent over the same period. Thus, the net effect of benchmarking to the Financial Accounts

aggregate as of 2019 would likely still be to reduce our estimate, but it might be in the range of a 5 percent reduction.

The Federal Reserve has recently suggested a new way of reconciling the Financial Accounts with the SCF with implications for both aggregate wealth and the distribution of wealth (Batty et al., 2019). We have not tried to apply that methodology here (nor have we seen it applied by others in the context of wealth tax estimates), and additional research showing implications for wealth taxes would be of considerable interest. For further discussion of this uncertainty, see Section 4.3.

Avoidance

As also discussed in Section 4.3, there has been a substantial debate about the degree to which a wealth tax like that proposed by Senator Warren could be avoided. The likely tax avoidance rate under both an accrual tax and a wealth tax is an area worthy of additional focus. For purposes of this paper, we provide estimates of accrual and wealth regimes assuming no avoidance, 15 percent avoidance (a 15 percent reduction in wealth and income under the new systems relative to no avoidance), and 30 percent avoidance. But the avoidance rate under both regimes could certainly be higher depending on how they were designed, and what enforcement resources and powers were dedicated to the IRS.

Note that the revenue from these taxes does not fall exactly by the amount of assumed avoidance. This is because we are assuming a reduction in reported wealth and income even as any applicable exemption and baseline revenues remain fixed. Thus, for instance, under an assumption of a 30 percent reduction in reported wealth, a wealth tax imposed on the top 0.1 percent generates 45 percent less revenue than if there were no avoidance.

Importantly, avoidance is highly dependent on the legal rules underlying these systems and the enforcement resources put toward them. This is to some significant degree a policy choice. We do suspect that some aspects of these systems—like valuation of closely-held businesses for purposes of a wealth tax—would naturally be subject to more avoidance than other reforms considered here, even in a well-administered system. For instance, the partially-retrospective accrual tax estimated here strikes us as being somewhat less subject to such valuation games because most valuation would be based on transactions with third parties—though surely some methods of tax avoidance would remain.

Table A2. Revenue Estimates, 2021-2030
(Billions of $)

	No Discount			15% Discount in Wealth/Income			30% Discount in Wealth/Income		
	All	Top 1%	Top 0.1%	All	Top 1%	Top 0.1%	All	Top 1%	Top 0.1%
Income Tax Reforms									
Mark-to-Market on Publicly Traded	$3,300	$2,200	$800	$2,500	$1,700	$600	$1,700	$1,400	$500
Deferral Charge + Realization at Death/Gift	$1,100	$600	$200	$900	$400	$150	$800	$300	$100
Total	$4,400	$2,800	$1,000	$3,400	$2,100	$750	$2,500	$1,700	$600
Wealth Tax									
2% Wealth Tax	N/A	$6,700	$3,000	N/A	$5,100	$2,300	N/A	$3,500	$1,700
2% Rate + 1% Billionaire Surcharge	N/A	N/A	$3,300	N/A	N/A	$2,600	N/A	N/A	$1,900

Appendix B

Methodology for Other Revenue Estimates

This appendix briefly describes the methodology for our revenue estimates other than those for accrual and wealth taxes. They are described in the order they are presented in Tables 2 and 3.

Estimates in Table 2

- *Return Top Individual Rate to 39.6% from 37%*. The estimate relative to a current-law baseline is done using AEI Tax Brain and assuming an elasticity of taxable income relative to the net of tax rate of 0.25, which is in the middle of the range of estimates from the empirical literature (Saez, Slemrod, and Giertz, 2012). The run from AEI Tax Brain can be found here: https://compute.studio/PSLmodels/Tax-Brain/41256/. We assuming revenue from the change in rate starting in 2021 and with the amount for 2021 cut by one-third to reflect initial implementation. For the estimate relative to current policy, we take the estimate relative to current law through 2025 (the point of expiration of the rate cuts) and then grow the revenue from there at the same rate as GDP under CBO projections.

- *Reverse Doubling of Estate Tax Exemption (Back to $11.4 Million Per Couple)*. The estimate relative to a current-law baseline is done by using the cost estimate for doubling the exemption as scored by JCT upon enactment of the 2017 legislation (Joint Committee on Taxation, 2017). We assume that the revenue lost under these estimates would be retained starting in 2022, assuming a 2021 effective date and reflecting the lag time associated with revenue from estate tax changes. For the estimate relative to current policy, we combine the estimate of the initial tax cut with JCT's cost estimate for extending the provision as of 2018 (Joint Committee on Taxation, 2018) and assume all of that revenue is retained if the change were reversed. We extend that estimate to 2029 and 2030 by growing the revenue as of 2028 by CBO's projected GDP growth.

- *Repeal Pass-Through Deduction*. The estimate relative to a current-law baseline is done by using the cost estimate for the deduction as scored by JCT upon enactment of the 2017 legislation (Joint Committee on Taxation, 2017). However, we slightly adjust the cost estimate upward reflecting that more would be raised if the top rate had been increased from 37% to 39.6% per the first line in Table 2. We inflate the revenue by a factor of 4 percent based on estimates from AEI Tax Brain. We then assume that the revenue lost under these estimates would be retained starting in 2021, with the estimate for 2021 cut by one-third to reflect initial implementation. For the estimate relative to current policy, we combine the estimate of the initial tax cut with JCT's cost estimate for extending the provision as of 2018 (Joint Committee on Taxation, 2018)—also inflating these numbers by 4 percent—and assume all of that revenue is retained if the change were reversed. We extend that estimate to 2029 and 2030 by growing the revenue as of 2028 by CBO's projected GDP growth.

- *Increase Corporate Rate to 28% from 21%*. The estimate relative to a current-law baseline is done by using the cost estimate for the reduction in the corporate rate from 35% to 21% as scored by JCT upon enactment of the 2017 legislation (Joint Committee on Taxation, 2017) and halving that estimate to reflect half of the rate cut being reversed. The estimate for 2021 is further reduced by one-third to reflect initial implementation. This is a conservative estimate since most economic models would suggest that raising the rate from 21% to 28% would raise more revenue than from 28% to 35% and that the relationship between the rate and the amount raised would not be linear. We extend these estimates to 2028-2030 by taking the 2027 revenue amount and growing it by CBO's projected GDP growth.

- *Raise Minimum Tax to 21% and Apply on a Per Country Basis*. We take this estimate of $340 billion from Clausing (2019a). The Clausing estimate appears to be for the 2018-27 period. Since Clausing's estimate is not done on a year-by-year basis, we did not project this amount forward out of caution and so the $340 billion represents a conservative estimate of the revenue for the 2021-2030 period.

- *10% AGI Surtax on AGI Above $2 Million*. We use the Tax Policy Center's estimate of the AGI surtax (Tax Policy Center, 2019). We shift the budget window from 2019-29 to 2021-30 by growing the estimates for each year with GDP growth (of one year in most cases) as projected by CBO.

- *Tax Accrued Gains at Death and Increase Capital Gains/Dividends Rate to 28%*. We use the estimate from JCT for the proposal from President Obama's FY2017 budget (Joint Committee on Taxation, 2016). Given the significant short-term shifts in revenue in the early years, we use the estimate starting in 2016 and then for each year project that amount forward for a 2021 effective date (rather than a 2017 effective date) by growing with GDP. For instance, we project forward the revenue projected for 2018 to 2022 growing that by the percent change in GDP projected over that period by CBO.

- *Broaden Base of Self-Employment Tax + 3.8% ACA Surtax*. We use the estimate from JCT for the proposal from President Obama's FY2017 budget (Joint Committee on Taxation, 2016). For 2021, we take JCT's 2021 estimate and reduce it by one-third to reflect implementation. For 2022-26, we use JCT's estimates, and, for 2028-30, we extend JCT's estimates by growing the revenue as of 2026 with GDP growth as projected by CBO.

- *Cap Value of Itemized Deductions at 28%*. This is a rough estimate combining information from several sources. We use the Tax Policy Center's estimate of the value of itemized deductions in 2018 under current law going to the top 5% as a starting point (Tax Policy Center, 2018). We then inflate that forward based on the CBO's projected growth in itemized deductions over the window through 2025. For the period after 2026 and relative to a current law baseline, we use the Tax Policy Center's estimate of the value of itemized deductions going to the top 5% as of 2018 under pre-2017 law (Tax Policy Center, 2018) and then, using the annual growth rate in itemized deductions from 2017 to 2026, project those forward to 2026 and later years. Having roughly estimated the value of itemized deductions going to the top 28%, we calculate the revenue raised by the 28% limit by

assuming that the limit cuts the value of these deductions by about 29%--reflecting the reduction in value for those in the top bracket (a 28 cents on the dollar value versus 39.6 cents on the dollar value). Importantly, this assumes a top bracket of 39.6%. If the top bracket were in fact 45% as per the proposal earlier in the table, this proposal to cap the value of the deductions would raise more revenue. Finally, to calculate the revenue relative to "current policy," we assume that the value of itemized deductions does not jump in 2026 (with the expiration of the limitation on the state and local deduction and other expirations) and continue the growth rate in the value of the limitation from 2025 to 2026.

- *Estate Tax: Return to 2009 Parameters + Anti-Avoidance Measures*. We use the JCT estimate of President Obama's FY2017 budget proposal, which included reversion to the 2009 estate tax parameters and several base protection measures (Joint Committee on Taxation, 2016). The estimate seems to assume relatively low revenue at first but then rapidly grows. In order to capture that, we use the estimate starting in 2016 and then for each year project that amount forward for a 2021 effective date (rather than a 2017 effective date). For instance, we project forward the revenue projected for 2018 to 2022 growing that by the percent change in GDP projected over that period by CBO and so on.

- *Increase Rates on Largest Estates (Max = 65% Rate on Transfers > $1 Billion)*. This is a rough estimate taking the difference between two estimates by the Tax Policy Center to arrive at this figure. We specifically taking the difference between TPC's estimate of Hillary Clinton's initial 2016 campaign proposal for the estate tax (which initially involved reversion to the 2009 parameters) and Bernie Sander's campaign proposal which involved progressive increases in the estate tax rate up to 65% on those over $1 billion (Sammartino et al., 2016 & Auxier et al., 2016). For 2021 and 2022, we project forward the difference in 2017 and 2018 respectively using GDP growth. For the remaining years we rely on the direct difference between the TPC estimates and, to extend the window through 2030, assume the revenues from both proposals continue growing at the same rate as they were toward the end of TPC's projection window.

- *Eliminate Accelerated Cost Recovery for Large Businesses*. We use the 2013 JCT estimate of the amount of steady state revenue raised from moving to economic cost recovery, as proposed by former Senator Baucus and summarized in Batchelder (2017a). For 2014-2023, this estimate was $615 billion if limited to C corporations, implying $717 billion if the reforms also applied to pass-throughs and the ratio of initial to steady state revenues was the same for both entity types. The 2017 bill enacted one portion of the proposal, amortization of research and development costs, but delayed the effective date to 2022. Accordingly, for the current policy estimate, we subtracted the $119 billion that, according to Batchelder (2017a), JCT estimated would be raised by this reform in steady state (again assuming the same ratio of initial to steady state revenue). We then inflated the current law ($717 billion) and current policy ($597 billion) estimates to the 2021-2030 budget window by growing the estimate by GDP growth as projected by CBO.

  These estimate for economic cost recovery are very imprecise and should be treated with caution. They are an overestimate because JCT's estimates were prior to enactment of the 2017 tax law and thus assumed a slightly higher individual rate and a much higher

corporate rate than current law. The value of accelerated cost recovery is higher when rates are higher. On the other hand, they are underestimates because the 2017 tax law substantially expanded and extended Section 179 expensing and bonus depreciation relative to the law in place in 2013.

Estimates in Table 3

- *Increase Top Individual Rate to 70% from 37% for Income over $10 Million*. We use the calculation by the Penn-Wharton Budget Model (PWBM) for our estimate of raising the top ordinary income tax rate above a $10 million threshold relative to current law (Ricco, & Prisinzano, 2019). PWBM provides three estimates of the amount raised: a high estimate using an "aggregate" elasticity, a middle estimate assuming micro-level business shifting and that corporations fully pay out all earnings, and finally a low estimate assuming micro-level business shifting and that corporations retain all earnings. We average the three for our point estimate. For the estimate relative to current policy, we extend the revenue raised as of 2025 and project it out through 2030 using the growth rate from 2024 to 2025.

- *Financial Transactions Tax*. We use CBO's estimate of a 10 basis point FTT (Congressional Budget Office, 2018). We shift the budget window from 2019-28 to 2021-30 by growing the estimates for each year with GDP growth (of two years) as projected by CBO to arrive at estimates for 2021-24, reflecting initial timing shifts that CBO seems to assume in the early years. We then use CBO's estimates for the years 2025-2028 assuming they would be the same even with a 2021 effective date. Finally, we project revenue through 2030 by assuming the same growth rate in revenue as CBO projected from 2027 to 2028.

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