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A REVIEW OF THE ECONOMIC RESEARCH ON THE EFFECTS OF RAISING ORDINARY INCOME TAX RATES

Higher revenue, unchanged growth, and uncertain but potentially large reductions in the growth of inequality

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The consequences of changing top marginal tax rates are at the nexus of three of the most pressing economic challenges facing the United States: ensuring economic growth, securing long-run fiscal sustainability, and mitigating widening income inequality. Opposition to allowing any of the upper-income Bush-era tax cuts to expire during the "fiscal cliff" debate was grounded in concerns about adverse impacts on long-run economic growth (Carroll and Prante 2012), whereas the case for ending these tax cuts was buttressed by noting they carried hefty budgetary opportunity costs yet offered relatively small near-term economic benefits (Bivens and Fieldhouse 2012).[1] Further, top income tax rate reductions have been blamed for exacerbating the trend toward greater income inequality.

As this paper outlines, recent economic research suggests that past reductions in top marginal individual income tax rates have had a statistically insignificant impact on growth and its driving factors—labor supply, savings, investment, and productivity growth. However, they have discernibly widened structural budget deficits and exacerbated income inequality. The policy implications of this research are that increasing top marginal tax rates can raise substantial sums of revenue and potentially dampen the rise of income inequality without unduly restraining economic growth. Major findings from the economic literature summarized in this paper include:

- The top U.S. income tax rate is currently well below best estimates of the optimal rate for revenue maximization.

- Recent research implies a revenue-maximizing top *effective* federal income tax rate of roughly 68.7 percent. This is nearly *twice* the top 35 percent effective marginal ordinary income tax rate that prevailed at the end of 2012, and 27.5 percentage points higher than the 41.2 percent rate in 2013.[2] This would mean a top *statutory* income tax rate of 66.1 percent, 26.5 percentage points above the prevailing 39.6 percent top statutory rate.

- Tax reform that broadens the tax base and minimizes tax avoidance opportunities actually *increases* the revenue-maximizing top marginal tax rate. This means that base-broadening tax reform and higher marginal rates should be seen as complements, not substitutes.

- Analyses of top tax rate changes since World War II show that higher rates have no statistically significant impact on factors driving economic growth—private saving, investment levels, labor participation rates, and labor productivity—nor on overall economic growth rates.

- Both short-run demand-side and long-run supply-side growth effects stemming from top tax rate changes are extremely modest. Thus, related

"dynamic" revenue "leakages" stemming from reduced economic activity following top rate increases are small as well. Indeed, the net revenue feedback of the 2001–2004 tax cuts was recently estimated at recouping just 1 percent of their scored cost.

- Historically, decreases in top marginal tax rates have widened inequality of both pre- and post-tax income. This has been interpreted by some economists as marginal rate reductions providing a higher payoff to rent-seeking (i.e., using influence to "bargain" a higher share of income at the expense of other workers).

- Today's economic context of a depressed U.S. economy, political pressure to prematurely reduce near-term budget deficits, and ever-widening income inequality actually strengthens the case for raising top marginal tax rates. There remains substantial scope for further raising top rates toward the revenue-maximizing levels estimated by the best economic research.

Post-war history of top tax rate reductions

Since the end of World War II, U.S. top individual income tax rates have declined markedly, as have effective tax rates on corporate income, capital income, and inheritances. Consequently, the federal tax code has become much less progressive (Piketty and Saez 2007). The top statutory marginal tax rate has fallen from just over 90 percent in the 1950s, to 70 percent in the 1970s, to 50 percent in the mid-1980s, to 35 percent for most of the past decade (TPC 2013a). The taxable income cutoff above which the top rate is applied for married joint filers has also fallen precipitously, from roughly $3 million in the early 1950s (adjusted to 2012 dollars), to roughly $1 million in the early 1970s, to just $388,350 for 2012 (TPC 2013b).[3]

The overall decline in progressivity is most striking within the top income percentile: The effective tax rate for the

top hundredth of a percentile (i.e., 99.99–100 percent of filers by income) has fallen by more than half, from 71.4 percent in 1960 to 34.7 percent in 2004, versus a decline for the 99.5–99.9 percentiles from 41.4 percent in 1960 to 33.0 percent in 2004 (Piketty and Saez 2007).

These trends in U.S. tax policy were largely driven by long-term "supply-side" arguments that lowering top marginal tax rates would encourage greater labor supply and reward entrepreneurship, thereby boosting long-run economic growth (Gruber and Saez 2002). A faster-growing economy was, in turn, supposed to benefit everyone. Many supply-side advocates even argued that cuts in top tax rates would spur so much additional (and taxable) economic activity that they would on net increase total tax revenue, or "pay for themselves."[4]

This "free lunch" argument was famously epitomized by economist Arthur Laffer's proposition that there must exist a revenue-maximizing tax rate between zero and 100 percent (rates at which the government would collect no revenue), and depending on this rate, the government could theoretically *increase* revenue by cutting tax rates. In practice, this "Laffer curve" hypothesis assumed that U.S. tax rates were so high that they were on the "wrong" side of the revenue-maximizing rate. But after decades of tax cutting, it is clear that top tax rates are well shy of revenue-maximizing rates.[5] As this paper outlines, economic research does not support claims of large supply-side growth effects in the second half of the 20th century. This suggests that top tax rate increases would raise substantial sums of revenue—consistent with estimates of nonpartisan "scorekeepers" such as the Joint Committee on Taxation (JCT), Congressional Budget Office (CBO), and Tax Policy Center (TPC).

Behavioral responses: Overview of labor supply and elasticities

The standard behavioral responses in the neoclassical growth model—labor supply, national savings, and factor substitution between capital and labor—are important

because they reflect changes in productive economic activity (Gravelle 2007), and increased labor supply in the context of full employment or greater national savings can raise long-run potential economic output. Much of the early research on the impact of marginal tax rate changes was limited to these standard behavioral responses, particularly labor supply, typically measured by hours worked.[6] As such, these analyses could not identify non-productive behaviors, such as tax avoidance strategies and income shifting, which also have important ramifications for efficiency, tax receipts, and the after-tax distribution of income.

Economists use empirical data to estimate elasticities, which measure the percentage change responsiveness of a variable of interest (e.g., labor supply or taxable income) to the percentage change in another variable, typically price (e.g., the net-of-marginal tax rate, or 1–t, where t is the marginal tax rate—the price of leisure). The higher the elasticity, the more responsive the dependent variable of interest is to the independent variable.[7] So, the higher the labor supply elasticity with respect to the net-of-marginal tax rate, the more distortionary the changes in the top marginal tax rate.[8] Simply put, if labor supply is very elastic with respect to tax changes, then small reductions in marginal rates will cause large increases in workers' hours supplied to the labor market. In the context of full employment, a large increase in labor supply will boost taxable economic activity, partially offsetting revenue losses spurred by lower rates.

But on a purely theoretical level, it is far from clear that labor supply should be particularly elastic to tax changes because of two counteracting effects. First, an increase in the marginal tax rate decreasing the after-tax wage makes non-work time relatively more valuable (because the opportunity cost of leisure has fallen), and will thus lead to a substitution toward fewer hours worked (this is the substitution effect). Second, a decreased after-tax wage means that, all else equal, a worker's income is lower. If leisure is a normal good, this fall in income means a fall

in the demand for leisure; hence, more work hours would be supplied (this is the income effect). The net impact on labor supply will be determined by the relative magnitude of the countervailing income and substitution effects.[9]

On net, the empirical evidence indicates that a marginal tax rate increase will modestly decrease labor supply, and the response is generally quite stable across the income distribution (although lower-income households eligible for the Earned Income Tax Credit are more responsive, as intended). In a new review of the literature, McClelland and Mok (2012) conclude, "There is little compelling evidence that high-income taxpayers have substantially higher elasticities with respect to their labor input than lower-income taxpayers. Higher estimates of the elasticity of broad income among high-income taxpayers appear to reflect their greater ability to time their income rather than greater changes in their labor supply." Critically, upper-income households' shifting either the timing or the form of their compensation (i.e., shifting wages to stock options) in response to lower top rates does *not* induce "supply side" growth effects that increase potential output.

Behavioral responses: Evidence on the elasticity of taxable income

The economics literature widely suggests that productive economic activity is less responsive to changes in the top marginal tax rate than supply-side advocates often claim (Matthews 2010). Much recent research has examined the elasticity of taxable income (ETI), which measures the response of reported taxable income to marginal tax changes and which captures all channels through which revenue can respond to rate changes: changes in reported hours worked, changes in timing of compensation, income shifting (e.g., reclassifying labor income as capital income with stock options or carried interests), under-reporting of income, tax avoidance, and other plausible margins of adjustment (Giertz 2009). In a recent review of the literature and analysis of tax microdata, economists

Emmanuel Saez, Joel Slemrod, and Seth Giertz (2012) found that reasonable estimates for the ETI with respect to the net-of-marginal tax rate range from 0.12 to 0.40, and identified a preferred midpoint elasticity of 0.25. Their preferred midpoint implies that a 1 percent decrease in the net-of-marginal tax rate (i.e., slightly raising the top marginal tax rate) would decrease reported taxable income by 0.25 percent. Based on this preferred measure of responsiveness, they estimated that slightly raising the top tax rate would result in roughly 27.7 percent of the mechanical revenue increase from a higher rate being lost through behavioral effects, with the remaining 72.3 percent of the mechanical increase translating to additional revenue.[10] This implies that marginal tax rate increases have substantial scope to raise revenue and relatively little adverse impact on productive economic activity.

Unlike the labor supply elasticity, ETIs vary both by the starting net-of-tax rate *and* by income (which can vary enormously within the top tax bracket, particularly given its historically low taxable income threshold). This is largely because upper-income households have greater access to tax avoidance and income shifting strategies. At the top of the income distribution, Gruber and Saez (2002) found a higher 0.57 ETI *after deductions* for upper-income households and a lower 0.17 elasticity of broad income *before deductions*. This is an important finding, suggesting that a tax code that minimizes tax avoidance strategies (e.g., greater tax enforcement, a broader tax base with fewer deductions or exclusions, and tax neutrality between forms of income—notably capital and labor income) implies a higher revenue-maximizing tax rate. This result strongly indicates that tax reform that broadens the tax base is actually complementary with higher marginal tax rates. But counterintuitively, in current tax policy debates, raising top rates and broadening the base are generally treated as substitutes.

While a higher initial top tax rate can increase ETI behavioral estimates, the estimates cited above are robust to a range of historical estimates that focus solely on or span

periods of much higher top marginal tax rates. Christina Romer and David Romer (2012) found an ETI with respect to the change in the log net-of-marginal tax rate of 0.2 during the inter-war period of much higher top tax rates, a point estimate consistent with the modern midpoint elasticity preferred by Saez, Slemrod, and Giertz (2012). Similarly, Piketty, Saez, and Stevancha's (2011) regression of the income share of the top 1 percent of earners relative to the net-of-top-marginal tax rate over 1913–2008 implies a comparable elasticity of 0.25–0.3.

Based on the preferred midpoint ETI estimate of 0.25, Saez and economist Peter Diamond (2011) recently estimated the revenue-maximizing total top income tax rate (the revenue-maximizing rate combining average federal, state, and local government tax structures) for the United States at 73 percent. Similarly, Diamond and Saez calculate that Gruber and Saez's (2002) range of ETIs for the top of the income distribution implies a revenue-maximizing total top income tax rate of between 54 percent and 80 percent, depending on how narrow or broad the tax base is.[11] Their preferred estimate of the revenue-maximizing total top tax rate and surrounding range was well above the 35 percent top federal income tax rate and 42.5 percent estimated average total top income tax rate (combining federal, state, and local taxes) prevailing when their paper was published.[12]

Since their paper was published, the top statutory ordinary income tax rate has been raised from 35 percent to 39.6 percent, and the top marginal effective federal income tax rate has increased further to 41.2 percent.[13] Combined with the average state and local income tax rates they calculated, this implies a top total income tax rate of 48.1 percent in 2013.[14] Their preferred estimate of the revenue-maximizing total top income tax rate is 73 percent, which suggests a revenue-maximizing top *effective* federal income tax rate of roughly 68.7 percent, 27.5 percentage points above the prevailing effective top rate.[15] This would imply that *statutory* federal income tax rates could be raised 26.5 percentage points to 66.1 percent

before reaching the revenue-maximizing rate.[16] Their range of estimates depending on how narrow or broad the tax base is would imply revenue-maximizing top federal income tax rates between 36.7 percent and 76.4 percent.[17] While a small part of this range of estimates falls below the prevailing top tax rate, it is important to remember that both the 1) revenue-maximizing *federal* income tax rate given a revenue-maximizing *total* income tax rate and 2) revenue-maximizing *total* income tax rate given a specified elasticity are non-linear relationships, and their preferred estimate from the midpoint elasticity of 0.25 is strong evidence that the revenue-maximizing top tax rate is on the high end of this range. Again, the important take-away from this range of estimates is that base-broadening (i.e., eliminating exclusions, deductions, and credits) *increases* the revenue-maximizing tax rate, whereas base-broadening tax reform is all too often focused on *reducing* top marginal tax rates already below best estimates of the revenue-maximizing rate.

Similarly, economists Mathias Trabandt and Harald Uhlig (2010) estimated that the United States could raise 30 percent more revenue by raising labor income taxes before reaching the revenue-maximizing rate of approximately 63 percent, based on their preferred (more conservative) parameter specifications. Their estimate predates the American Taxpayer Relief Act of 2012, but given that individual income tax receipts were only increased by 3.5 percent relative to current policy over the next decade, their results still suggest substantial scope for additional income tax revenue. Because tax rates are already well below best estimates for the revenue-maximizing rate, there is little scope for further marginal rate reductions to significantly increase productive economic activity. Additionally, further rate reductions would come at the cost of bigger budget deficits and greater inequality. Analysis of the impact of changing top marginal tax rates on savings, investment, and productivity growth supports these conclusions from the ETI literature, as discussed in the following section.

Effects on savings, investment, labor participation, and productivity

For changes in top marginal tax rates to substantially affect long-run economic growth, they must have a statistically significant correlation with one or more of the main economic factors driving economic growth in the neoclassical growth model: the capital stock (as affected by national savings), the labor stock (as affected by population growth and labor force participation rates), and productivity. This section provides an overview of multivariate time series regression analyses of these economic growth factors' responsiveness to changes in top marginal tax rates that is consistent with but of a broader scope than the ETI literature.

Beyond theoretical arguments that reduced top income tax rates incentivize a higher supply of labor (as previously discussed), supply-side advocates have also argued that increased after-tax income from lower top tax rates leads to a higher private savings rate. Increased savings, in turn, are channeled to investment through the financial intermediation process, and the larger capital stock that results boosts productivity growth. Private savings responses to tax changes, however, are widely considered less important than labor supply behavioral responses. This is because *national* savings (public savings *plus* households' and firms' savings), not just personal savings, determines prevailing interest rates and is the factor of importance in the neoclassical growth model. To the degree that top tax rate reductions decrease revenue, any increase in private savings can be potentially offset by decreased public savings (or increased dissaving if budget deficits are being run).

But as with labor supply, even the impact of higher tax rates strictly on private savings is ambiguous at the theoretical level. On the one hand, increasing tax rates decreases after-tax rates of return (and thus future income), and everything else being equal, decreases in expected future income tend to lead to falling present consumption and rising savings (this is the *income effect* of higher taxes leading to higher savings). Conversely, by decreasing the after-tax return to saving, tax rate increases make saving less attractive relative to present consumption (reducing the opportunity cost of present consumption) and hence decrease savings (this is the *substitution effect* of higher taxes leading to lower savings). The impact on private savings will be determined by the relative magnitude of the countervailing income and substitution effects.

Economists Jane Gravelle and Donald Marples (2011) concluded that "studies that examine the savings rate over time found the results were small in magnitude, but uncertain in direction, with a central tendency suggesting no response." They also noted that the U.S. savings rate has trended downward since the early 1980s even as top income tax rates and capital gains rates have declined and savings preferences have proliferated in the tax code. Tax economist Leonard Burman similarly concluded in testimony before the Senate Committee on Finance that "[o]ne might expect high tax rates to deter work and saving, but in fact the effects are ambiguous… Empirically, the total response appears to be very small or even zero on average" (Burman 2011).

Looking at top tax rates since 1945, economist Thomas Hungerford (2012) found a positive but statistically insignificant relationship between higher tax rates and a higher ratio of private savings to potential GDP, concluding that the evidence suggests "top tax rates are not associated with private saving."[18] Similarly, he found the relationship between top tax rates and investment as a share of potential GDP to be statistically insignificant. Looking back to the period of high tax rates predating his analysis, Hungerford's results are consistent with interwar estimates by Romer and Romer (2012) finding "no evidence that cuts in marginal tax rates increased machinery investment or business construction."

More broadly, Gravelle and Marples (2011) found that changes in marginal tax rates have had no discernible effect on the primary factors driving economic growth, notably savings, investment, and labor force participation.[19] Similarly, Hungerford (2012) found that labor productivity growth historically demonstrates a slight positive correlation with increases in the top ordinary income tax rate and a slight negative correlation with increases in the top capital gains tax rate, but neither relationship is statistically significant.

For both labor supply and saving, the countervailing income and substitution effects appear to largely negate one another, suggesting that supply-side concerns about adverse effects of marginal tax rate increases on productive economic activity are overstated (Gravelle 2007).

Effects on growth and revenue

As the economic literature widely finds no discernible effect of top tax rate changes on the primary factors driving economic growth, it is somewhat reassuring that a deep body of research, such as that by Gravelle and Marples (2011) and Hungerford (2012), finds changes in the top U.S. marginal tax rates have had no statistically significant impact on real GDP growth itself.

This conclusion has major implications for revenue and the federal budget, as the collection of federal receipts is highly cyclical; revenue is quite responsive to increased or decreased economic activity. For example, revenue accounts for a majority of the cyclical budget deficit (or surplus), which measures the portion of the budget deficit (or surplus) driven by actual economic output relative to potential economic output. In the longer run, CBO estimates that a permanent 0.1 percentage-point increase in real GDP growth would reduce the primary budget deficit (i.e., excluding net interest) by $314 billion over fiscal 2013–2022, 89 percent of which would result from increased revenue (CBO 2012d).[20]

In general, tax rate increases can decrease economic activity through short-run demand-side effects (i.e., reducing actual GDP below potential GDP as lower disposable income causes declines in consumption and/or investment) and/or long-run supply-side effects (i.e., reducing potential GDP through behavioral responses discussed previously, such as decreasing labor supply or national savings). To the degree that they decrease actual or potential GDP, these dynamic effects can in turn offset some of the mechanical revenue increase from raising rates. Both short-run demand-side and long-run supply-side growth effects stemming from top tax rate changes are extremely modest. Thus, related "dynamic" revenue "leakages" stemming from reduced economic activity following top rate increases are small as well.

Projected short-run demand effects are most conveniently characterized by the fiscal multiplier of a tax cut, which is in turn determined by how targeted it is toward households likely to quickly spend an extra dollar of income. Generally, the evidence indicates that low- and moderate-income households will spend a larger share of any tax cut (as they have lower overall savings rates than higher-income households, and are more likely to be liquidity constrained). By definition, then, lowering *top* marginal tax rates means that such changes will be *least* targeted toward lower- and middle-income households, and thus yield relatively low fiscal multipliers.

Long-run supply-side impacts, on the other hand, hinge on both behavioral effects discussed previously but also on how tax cuts are financed: with deficits or with spending reductions (Furman 2006). In the context of full employment, textbook macroeconomics teaches that a tax cut that decreases national savings will exert upward pressure on interest rates and may potentially crowd out private investment. This means that deficit-financed tax cuts exert a countervailing force on any positive long-run supply-side effects. Further, regardless of the means of financing, both short-run demand-side and long-run supply-side growth effects and related revenue impacts

stemming from top marginal tax rate changes appear to be very small.

Gravelle (2006) concluded that dynamic revenue feedback effects of the 2001–2004 Bush tax cuts were likely small but positive in the short run, peaking at no more than 14 percent positive revenue feedback about one-and-a-half years after adoption, overwhelmingly driven by Keynesian demand-side effects as opposed to supply-side incentive effects. But even this small short-run dynamic feedback effect is estimated to be larger than the long-run effects. The longer-run permanent dynamic feedbacks are more difficult to measure and uncertain in magnitude, but Gravelle concluded they were unlikely to exceed 10 percent. And as short-run demand-side stimulus effects faded and negative crowding-out effects from increased debt service compounded, Gravelle estimated the net impact on growth likely turned negative, albeit by a small magnitude. Recently, Gravelle and Marples (2011) were more emphatic in their dismissal of "dynamic scoring," concluding that "while various dynamic models can potentially produce larger results, the models with responses most consistent with empirical evidence suggest a revenue feedback [recouping the non-dynamically scored cost estimate] of about 1 percent for the 2001-2004 Bush tax cuts."

Even the Bush administration Treasury Department's own dynamic analysis of the Bush administration's proposed permanent extension of the 2001 tax cuts implied they would recoup less than one-tenth their cost by raising national income, and that analysis assumed they would be fully financed with domestic spending cuts over the long run (Furman 2006). But prior to the Budget Control Act of 2011 (i.e., the debt ceiling deal, in which borrowing needs inflated by the tax cuts were conditioned on spending cuts), none of the Bush-era tax cuts had been paid for.

This body of research is roughly consistent with dynamic imputations from near-term demand-side effects calculated from fiscal multipliers. For every dollar the economy rises back toward potential output, the cyclical budget deficit shrinks by roughly 37 cents (Bivens and Edwards 2010), with the dynamic revenue budgetary feedback dependent on how much a policy raises output—meaning its fiscal multiplier. Moody's Analytics chief economist Mark Zandi has estimated that permanent extension of all the Bush-era income tax cuts yields a fiscal multiplier of 0.35 (Zandi 2011), implying that 13 percent of the cost of extension would be self-financing in the near term—consistent with Gravelle's (2006) estimates.[21]

Weighting CBO revenue scores with Zandi's multipliers, Bivens and Fieldhouse (2012) impute a fiscal multiplier of 0.25 for the upper-income Bush-era tax cuts, which would imply a smaller near-term dynamic revenue feedback of 9 percent for top marginal tax rates.[22] Note that fiscal multipliers are generally higher during steep economic downturns, when the output gap is large (the gap was estimated at $985 billion, or 5.9 percent of potential GDP, for the fourth quarter of 2012), and in liquidity trap conditions (Bivens, Fieldhouse, and Shierholz 2013; Blanchard and Leigh 2013). Smaller near-term demand-side feedback effects would be expected in a full employment economy. Conversely, long-run supply-side feedback effects, such as those estimated by Carroll and Prante (2012), necessarily assume full employment; if there is abundant slack in the labor market, increasing labor supply will not increase potential economic activity, because there is insufficient demand for the prevailing supply of labor.

Revenue scores produced by the Treasury Department, JCT, CBO, and TPC already take into consideration numerous behavioral responses—including labor supply responses, income shifting, timing shifts, and tax avoidance incentives—based on best estimates from the literature (Furman 2006). But while reported taxable income and capital gains realizations estimates will be altered with changes in tax rates, these revenue scores are static in the sense that they do not alter long-run economic forecasts; they include no "dynamic" GDP growth feedback effects. But as noted previously, changes in top marginal

tax rates have little discernible let alone statistically significant impacts on growth—but they have big mechanical impacts on revenue. Prior to enactment of ATRA, CBO estimated that allowing the upper-income Bush-era tax cuts to expire on schedule would raise $823 billion in revenue over fiscal 2013–2022 relative to current policy, saving $950 billion (0.5 percent of GDP) when accounting for debt service.

Effects on income inequality and the distribution of gains from growth

Time series regression analyses of top marginal tax changes' impact on economic growth (as well as on related factors of growth), the ETI literature, and analyses by nonpartisan budget scorekeepers overwhelmingly suggest that increases in top marginal tax rates should have a negligible impact on economic growth, and that there is substantial scope for raising more revenue. Economic research also suggests that such increases would decrease after-tax income inequality (by definition making the tax and transfer system more progressive) and could also have powerful effects on *pre-tax* inequality.

Hungerford (2011) found that the rising share of capital income—heavily concentrated at the top of the income distribution—at the expense of labor income was the single largest driver of widening income inequality over 1996–2006.[23] Another driver of widening income inequality over this period was deliberate changes to the tax code. Tax policy changes exacerbated the trend of increased income at the top of the income distribution, and the rising share of capital income was almost certainly aggravated by tax cuts. The largest relative and absolute changes in statutory tax rates over this period were decreases in the long-term capital gains rate (from 28 percent to 15 percent) and the qualified dividends rate (from 39.6 percent to 15 percent). For the privileged households that can reclassify compensation to minimize tax liabil-

ity, these changes incentivized shifting income away from wages and salaries toward capital income.

Hungerford (2012) subsequently found statistically significant relationships that the labor share of income decreased both with lower top ordinary income rates and lower capital income rates. Changes in the capital gains rate were found to increase growth of the income shares of both the top 0.1 percent of earners and the top 0.01 percent of earners; these relationships are both statistically significant at the 1.0 percent confidence level. Changes in the labor income tax rate were also found to increase the income shares of the top 0.1 percent and top 0.01 percent, but at the 10 percent significance levels. He thus concluded that "the top tax rate reductions appear to be associated with increasing concentration of income at the top of the distribution."

Piketty, Saez, and economist Stefanie Stantcheva (2011) offer a theoretical framework explaining this relationship between falling top tax rates and rising inequality: Decreasing the top tax rate increases the returns to bargaining for higher wages, whereas the higher top tax rates of the 1940s–1970s reduced the returns to this bargaining. Essentially, low marginal tax rates increase the returns to rent-seeking by upper-income households (i.e., using economic or political influence to "bargain" a higher share of income at the expense of other workers).[24] Thus, the behavioral response to lower top tax rates is one that exacerbates income inequality without increasing overall economic activity. Their model suggests an even higher revenue-maximizing total top labor income tax rate of 83 percent (Piketty, Saez, and Stantcheva 2011), implying a revenue-maximizing top marginal federal income tax rate of roughly 80 percent.[25]

Conclusion

Both short-run demand-side and long-run supply-side growth effects on productive economic activity, as well as related "dynamic revenue" impacts, stemming from raising top marginal tax rates appear to be very small.

This implies that substantial revenue can be raised by increasing top federal tax rates from current levels, as is consistent with the estimates of nonpartisan budget score-keepers. This also suggests that raising top marginal tax rates will exert relatively little drag on economic recovery, particularly in the context of a depressed economy where supply-side effects are non-binding and demand-side effects of deficit-reduction alternatives are four-to-seven-fold larger.[26]

Indeed, further raising top marginal income tax rates could actually *boost* long-run growth if increased public saving (or, more accurately at present, decreased public dissaving) outweighs any decrease in private savings, as some economic research suggests. Raising top marginal tax rates would inherently make the federal tax code more progressive, and if such tax changes also decrease the burden of long-term deficit reduction shouldered by social insurance programs and public investment, they would also keep the tax and transfer system from being made less progressive on the transfer side. And to the extent that higher top tax rates discourage zero-sum rent-seeking behavior by CEOs and other high-income professionals, higher marginal income tax rates would decrease pre-tax market-based income inequality, all else being equal.

Today, the U.S. economy is mired in depression with no foreseeable imminent escape, Congress is misguidedly obsessed with forcing premature austerity on this depressed economy, and the trend of widening income inequality will be exacerbated by persistent slack in the labor market (Bivens, Fieldhouse, and Shierholz 2013). All of these factors strengthen the case for higher top marginal tax rates.

Long-run supply-side effects of raising top income tax rates are not binding until the economy fully recovers. This is currently not expected until 2017 under CBO's (seemingly optimistic) economic projections, which have consistently pushed back the expected date of full recovery (Bivens, Fieldhouse, and Shierholz 2013). And based on recent trend labor market performance in the year to February 2013, full recovery is not expected until 2020. Essentially, increasing labor supply does not add to potential economic output if there is not enough demand to absorb the existing supply of labor; supply will not create its own demand in the midst of a huge aggregate demand shortfall. And even ignoring the increase in public saving from raising top tax rates from present levels, the private savings argument for lower tax rates does not hold traction if increasing private savings will not add to potential GDP growth. This is because the economy is mired in a liquidity trap and there persists such a glut of private savings that federal borrowing is in no way crowding out private investment.

And in light of the misguided but pervasive prioritization of long-term deficit reduction over (and to the detriment of) near-term recovery, raising top marginal tax rates ranks among the least economically damaging policy options from the near-term demand perspective.[27] If Congress remains fixated with deficit reduction—which, to date, has been couched as long-term deficit reduction but has resulted in near- and medium-term austerity (e.g., sequestration cuts beginning in March 2013, Budget Control Act discretionary spending cuts and caps beginning in October 2012, and preceding continuing resolution spending cuts in 2011)—almost every other deficit reduction alternative would be more damaging to recovery. In the current economic context of a depression and liquidity trap, the government spending multiplier is elevated (again, because there is zero crowding *out* of private investment, and more likely crowding *in* of private investment). Consequently, this tradeoff is even more acute.

To the extent that raising top marginal income tax rates diminishes misguided cuts to public investment—and, more broadly, the non-security discretionary spending budget that is roughly half comprised of public investment and contains nearly 90 percent of nondefense public investment—the economy will be further strengthened over the long run (Pollack 2011; Pollack 2012). Public investment is a key driver of long-term productivity

growth that increases potential economic output (Bivens 2012), unlike top marginal tax rate reductions.

Widening income inequality is also much more pronounced today than when the top statutory tax rate was previously raised to 39.6 percent under President Clinton. The United States has surpassed Gilded Age inequality levels, and this stark economic trend of exorbitant income growth within the top 1.0 percent and 0.1 percent of earners has finally gained public attention, thanks in part to the Occupy Wall Street movement. When the top marginal tax rate was raised from 31 percent to 39.6 percent in 1993, the top 1.0 percent of households captured 11.6 percent of pre-tax national income; in 2007, on the eve of the Great Recession, the income share of the top 1.0 percent had risen to 18.7 percent (CBO 2012e). The share of after-tax income received by the top 1.0 percent of households increased by relatively more over this period, from 9.8 percent to 16.7 percent. As noted earlier, recent reductions in top marginal tax rates have had a statistically significant impact on increasing both pre- and post-tax income inequality. Consequently, raising top marginal tax rates is one of the more direct policy levers to push back against widening income inequality. However, it is by no means sufficient: Allowing the top ordinary income tax rate to revert from 35 percent to 39.6 percent was a step in the right direction, but not nearly enough to singlehandedly mitigate the staggering rise in the share of national income captured by the top of the income distribution, particularly the share of capital income relative to labor income.

As this paper outlines, top ordinary income tax rates could be set at much higher levels if the goal were to maximize revenue collection; Diamond and Saez's (2011) preferred estimates suggest the top federal statutory income tax rate could be raised 26.5 percentage points to 66.1 percent before reaching the revenue-maximizing 73 percent combined income tax rate. And if relatively low prevailing tax rates are encouraging unproductive income capture by CEOs and managers at the expense of employ-

ees—as Piketty, Saez, and Stantcheva (2011) suggest—the revenue-maximizing tax rate would be even higher.

Lastly, if policymakers embark on the path of base-broadening tax reform, as appears likely in the 113th or 114th Congress, the revenue-maximizing top tax rate will *rise* as sheltering, income shifting, and avoidance opportunities are diminished. This strongly implies that base-broadening tax reform and higher top marginal rates should be seen as strong complements, not substitutes.

Beyond pushing back against widening inequality, there is an abundance of evidence that raising top tax rates above and beyond their Clinton-era levels would substantially improve the long-term fiscal outlook, only negligibly impede productive economic activity, and perhaps boost long-run economic growth to the extent that they preclude deeper cuts to public investment and reduce crowding out of private investment whenever the economy eventually returns to full employment. Raising top ordinary income tax rates from currently suboptimally low levels would ameliorate two of the three interrelated, pressing economic challenges facing the United States of ensuring long-run fiscal sustainability and pushing back against ever-widening income inequality. Crucially, it would do so *without* unduly hampering economic growth, particularly in the prevailing economic context.

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Endnotes

1. The Bush-era tax cuts generally refer to the Economic Growth and Tax Relief Reconciliation Act (EGTRRA) of 2001 and Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) of 2003, although there were a number of tax changes over 2001–2008. Subsequent tax changes primarily accelerated the implementation of provisions in the 2001 and 2003 tax cuts. The upper-income Bush-era tax cuts follow the definition in the Obama administration's budget request for fiscal year 2013, that is, households with adjusted gross income (AGI) over $200,000 for single filers ($250,000 for joint filers), indexed for inflation from 2009 dollars. As proposed in the fiscal 2013 budget, expiration of the upper-income Bush-era tax cuts would have meant the top two 33 percent and 35 percent tax brackets reverting to 36 percent and 39.6 percent, respectively, as well as reinstatement of the limitation on itemized deductions (known as Pease after its sponsor, the late Congressman Donald Pease (D-Ohio)) and the personal exemption phase-out. Additionally, the preferential rate on long-term capital gains would rise from 15 percent to 20 percent, and qualified dividends would again be taxed as ordinary income, up from the standing 15 percent preferential rate. Note the Obama administration proposed adjusting the taxable income threshold for leaving the 28 percent bracket slightly upward so that the 36 percent bracket adheres to their definition of "upper income." Prior to the American Taxpayer Relief Act of 2012 (ATRA), ending the upper-income Bush income tax cuts was estimated to raise $823 billion in revenue and save $127 billion in debt service over fiscal 2013–2022, relative to current policy (CBO 2012b). ATRA ended the Bush-era income tax rate cuts for

households with annual taxable income over $400,000 ($450,000 for joint filers), raised the top statutory capital gains and dividends rates to 20 percent for households above this threshold, and reinstated the personal exemption phase-out and the limitation on itemized deductions for households with annual adjusted gross income above $250,000 ($300,000 for joint filers). Below these cutoffs, ATRA permanently extended the Bush-era tax cuts. Additionally, the Alternative Minimum Tax parameters were permanently indexed to inflation.

2. The top effective tax rate combines surcharges and the limitation on itemized deductions with the top statutory income tax rate, which is the highest tax rate applied to ordinary taxable income. The top effective tax rate was raised in 2013 due to ATRA raising the top statutory rate and reinstating the limitation on itemized deductions, as well as new tax surcharges on upper-income households introduced to finance the Affordable Care Act (ACA, often referred to as health reform).

3. The income cutoffs for married joint filers in the top marginal tax bracket have been adjusted to 2012 dollars using CPI-U-RS.

4. This line has been disavowed by many conservative economists, including several of the George W. Bush administration's economic advisers, but is still frequently echoed by conservative politicians. For instance, Senate Minority Leader Mitch McConnell (R-Ky.) has claimed, "There's no evidence whatsoever that the Bush tax cuts actually diminished revenue. They increased revenue, because of the vibrancy of these tax cuts in the economy" (Bartlett 2011).

5. If the Laffer curve were perfectly symmetrical, the apex (i.e., revenue-maximizing rate) would be 50 percent, implying that U.S. top tax rates are below the revenue-maximizing rate. Incorporating average state and local tax rates, Saez and Diamond (2011) estimated a pre-ATRA average top ordinary income tax rate of 42.5 percent, and their methodology implies a 48.1 percent post-ATRA rate, as described in this paper. But as this paper details, there is considerable evidence that the Laffer curve is non-symmetric, with the apex falling substantially above 50 percent (Trabandt and Uhlig 2010; Diamond and Saez 2011).

6. Hours worked is the most easily observed metric of labor supply, although intensity of labor supply (i.e., effort) and quality of labor supply (e.g., as varied by educational attainment or other measures of human capital accumulation) may respond to marginal tax rate changes as well.

7. More specifically, the point elasticity (combining income effects and substitution effects) is represented as the absolute value of the percentage change in the dependent variable relative to the percentage change in the independent variable, so point elasticities are always positive. Note that a point elasticity of 0 implies zero correlation (no responsiveness), whereas an elasticity of 1 implies perfect correlation between two variables' movement.

8. Note that economic distortions from tax rate changes can influence both productive and unproductive economic activity.

9. CBO recently identified a preferred central estimate of the substitution elasticity of 0.25 for primary earners and 0.32 for secondary earners, with the latter demonstrated to be more responsive to changes in after-tax wages (CBO 2012c). CBO also identified a preferred central estimate of the income elasticity of -0.05 for all earners. The net labor supply elasticity for a marginal tax rate depends, however, on the prevailing net-of-*marginal* tax rate (from which the substitution effect is calculated) and net-of-*average* tax rate (from which the income effect is calculated).

10. These calculations were based on an estimated top 42.5 percent ordinary income tax rate (accounting for Medicare payroll taxes, average state income taxes, and average sales taxes) prevailing when the paper was published, slightly below the top rate prevailing today. The revenue effects of a rate change are slightly dependent on the top effective income tax rate, and would be somewhat lower post-ATRA.

11. The authors note that the ETI for upper-income households could be well above 0.25 if the top marginal tax rate is raised while maintaining the preferential low tax rate on capital gains, which would greater incentivize tax avoidance.

12. The authors calculate the average total top marginal tax rate for ordinary labor income was 42.5 percent when accounting

for Medicare payroll taxes, average state income taxes, and average sales taxes.

13. The American Taxpayer Relief Act (ATRA) of 2012 raised the top statutory ordinary income tax rate to 39.6 percent. ATRA also reinstated the limitation on itemized deductions—commonly referred to as Pease after its sponsor, the late Congressman Donald Pease (D-Ohio)—for households with adjusted gross income above $250,000 ($300,000 for married joint filers). Pease reduces the value of non-exempt itemized deductions by 3 percent of AGI above a certain threshold up to 80 percent of total deductions, but the Tax Policy Center (TPC) considers this cap non-binding, as they estimate the exempt itemized deductions typically exceed 20 percent of total deductions for high-income households (TPC 2013c). The value of itemized deductions is equal to a taxpayer's marginal tax rate; thus, TPC treats Pease as a 1.2 percent income surcharge, being 3 percent of the top 39.6 percent statutory ordinary income tax rate. The Affordable Care Act of 2010 added a 0.9 percent surcharge on wage and salary income of individuals with adjusted gross income above $200,000 ($250,000 for married joint filers) effective January 1, 2013. Thus the effective top tax rate on ordinary income is (39.6 percent)*(1.03)*(1.009) = 41.2 percent.

14. Diamond and Saez calculate an average 5.86 percent combined top state income tax and a 2.32 percent average sales tax rate, and note that "the 1.45 percent employer Medicare tax is deductible for both federal and state income taxes, and the state income taxes are deductible for federal income taxes" (see footnote three in Diamond and Saez 2011). Thus, based on a top 35 percent federal income tax rate, they calculate the effective net-of-marginal-tax rate as ((1-.35)) x (1-.0586)-0.0145) / (1.0145 x 1.0232) = 0.575, for a total top tax rate t of 42.5 percent. Revising their methodology for a top federal income tax rate of 41.2 percent (see endnote 13) yields a net-of-marginal-tax rate as ((1-.412)) x (1-.0586)-0.0145) / (1.0145 x 1.0232) = 0.519, for a total top tax rate t = 48.1 percent.

15. The revenue-maximizing top federal tax rate t = 68.7 percent is calculated as the solution to ((1-.t)) x (1-.0586)-0.0145) / (1.0145 x 1.0232) = 0.27, where 0.27 is the net-of-marginal-tax rate for their preferred estimate of a 73 percent revenue-maximizing total income tax rate.

16. This is simply the revenue-maximizing top federal income tax rate adjusted for Pease and the ACA Medicare surcharge, less the prevailing top statutory federal income tax rate [(0.687)/((1.03) x (1.009)) - 0.396 = 0.661 - 0.396 = 0.265].

17. The upper-bound for the range of revenue-maximizing top federal tax rate t is calculated as the solution to ((1-.t)) x (1-.0586)-0.0145) / (1.0145 x 1.0232) = 0.2, where 0.2 is the net-of-marginal-tax rate for a total income tax rate of 80 percent based on Gruber and Saez's (2002) lower 0.17 elasticity *before deductions*. The lower bound is calculated as the solution to ((1-.t)) x (1-.0586)-0.0145) / (1.0145 x 1.0232) = 0.56, where 0.56 is the net-of-marginal-tax rate for a total income tax rate of 54 percent based on Gruber and Saez's (2002) higher 0.57 elasticity *after deductions*.

18. Potential GDP is the level of output resulting from high levels of resource utilization consistent with price stability (e.g., full employment). Measuring savings relative to potential GDP essentially strips recessions out of the denominator and smooths the time series.

19. Increased labor force participation does not necessarily increase hours worked; this is a different metric than typically analyzed in the labor supply elasticity literature. Again, the context of full employment is critical—increasing labor force participation in the context of excess slack in the labor market would not increase potential economic output.

20. Certain revenue changes, such as capital gains realizations related to stock market valuation or rising real incomes pushing households into higher tax brackets, are considered "technical revisions" rather than "economic" factors appearing in estimates of the cyclical budget deficit, even though they are also intrinsically related to economic conditions.

21. Zandi's fiscal multipliers look at the demand impact lagged by about a year, so the timing lags in these estimates are comparable.

22. Note that these dynamic feedback estimates include both increased revenue and decreased automatic stabilizer outlays effects.

23. These dates are relatively comparable in their respective business cycle expansions and span the 1997 reduction in capital gains tax rates under President Clinton, as well as the 2001–2005 tax changes under President George W. Bush.

24. The authors find a "strong correlation between cuts in top tax rates and increases in top 1 percent income shares [across 18 OECD countries] since 1975, implying that the overall [bargaining] elasticity is large. But top income share increases have not translated into higher economic growth, consistent with the zero-sum bargaining model" (Piketty, Saez, and Stantcheva 2011). Their revenue-maximizing taxation model assumes that tax avoidance behavioral responses are negated by tax enforcement and a well-designed tax code that minimizes avoidance opportunities (e.g., tax neutrality across income types and few tax loopholes).

25. The revenue-maximizing top federal tax rate t = 79.7 percent is calculated as the solution to ((1-.t)) x (1-.0586)-0.0145) / (1.0145 x 1.0232) = 0.17, where 0.17 is the net-of-marginal-tax rate for their preferred estimate of an 83 percent revenue-maximizing total income tax rate.

26. Bivens and Fieldhouse (2012) impute that the fiscal multiplier for the upper-income Bush-era tax cuts is 0.25 (meaning every dollar in revenue loss generates $0.25 in GDP). By comparison, a dollar of government spending with absolutely no multiplier effect will generate $1 in economic activity, and Zandi's multiplier estimates range up to $1.44 for infrastructure spending, $1.52 for emergency unemployment benefits, and $1.70 for food stamps (Zandi 2011). Note that Bivens and Fieldhouse (2012) calculate a net multiplier for the upper-income Bush-era tax cuts as a weighted average of a capital gains and dividends tax cut (Zandi identifies a 0.39 multiplier) and the top two marginal-rate reductions, elimination of the personal exemption phase-out, and repeal of the limitation on itemized deductions (they impute a 0.17 multiplier for these other provisions). Hence the upper-income marginal rate reductions are roughly an order of magnitude smaller than the high end of government spending multipliers.

27. The upper-income Bush-era income tax cuts and recently modified estate and gift tax cuts were the least economically supportive components of the "fiscal cliff" being debated before enactment of ATRA (Bivens and Fieldhouse 2012).

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