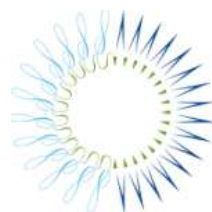


Using a VAT for Deficit Reduction

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I. Introduction

Current federal budget policies are unsustainable. The long-run projections made by the Congressional Budget Office (CBO) in June 2011¹ show the ratio of debt held by the public to gross domestic product (GDP) rising from 69 percent in 2011 to 187 percent in 2035 under their Alternative Fiscal Scenario, a budget baseline that assumes that 2011 federal spending and revenue policies will largely continue. Even under CBO's Extended-Baseline Scenario, a budget baseline that assumes all the 2001-2003 tax cuts expire as scheduled by the end of 2012, that the individual alternative minimum tax (AMT) is no longer "patched," and that Medicare and other health-related spending is held to modest growth rates, CBO projects the publicly held debt will rise to 84 percent of GDP by 2035.

At some (unknown) point of the debt-to-GDP level, purchasers of U.S. debt could decide that they face a significant risk of loss through inflationary policies or outright default, and accordingly demand much higher interest rates to hold U.S. government debt as compensation for that risk. This spike in interest rates would require even higher spending, resulting in more debt and possibly sparking a crisis.

Policy makers could choose to increase revenues as part of a plan to help avert a fiscal crisis. This paper examines two options to increase revenues. The first option is to adopt a value-added tax (VAT).² A VAT is a tax on households' consumption of goods and services, equivalent to a retail sales tax, with the same broad base and same rate, but with a different administrative structure. Unlike a retail sales tax, which is collected only at the final retail level on sales, a VAT is collected incrementally at each stage of the production and distribution of goods and services. More than 130 other nations around the world have a VAT, including every country in the Organization for Economic Co-operation and Development (OECD) except the United States. The VAT examined in this paper is an add-on tax (i.e., it raises revenue, rather than replacing funds from an existing federal tax). This prototype VAT has a broad base and includes a rebate to mitigate the distributional effects of the tax on lower-income households.

The other option examined in the paper would reduce the deficit by the same amount as the VAT, but in a very different way: by increasing all individual income tax rates, including those that apply to capital gains and dividends.

In order to focus on the policy and administrative differences between the two options, changes in tax policy alone are used to reduce the deficit. Both options are assumed to be effective in 2015 and are analyzed relative to both the CBO Extended-Baseline Scenario and a variant of the CBO Alternative Fiscal Scenario. The options are designed to reduce the publicly-held federal debt to GDP ratio to 60 percent under each baseline in 2020, 2025, or 2035. Of course, an actual policy plan is likely to rely on reductions in spending programs as well as tax increases, but spending cuts are not examined here.

¹ Congressional Budget Office (June 2011).

² In this context, note that the final report of the Deficit Reduction Task Force of the Bipartisan Policy Commission (released in November 2010) included a recommendation for adoption of a "deficit reduction sales tax" that was structured as a VAT.

Both options have tax rates set to meet the debt-to-GDP targets, so they do not differ in the amount of deficit reduction achieved. They do differ in their effects on the distribution of the tax burden, economic efficiency, and administrative and compliance costs. They also produce a different division of the deficit reduction in budgetary accounts between increased tax revenues and reduced spending because, as discussed below, introducing a VAT that does not include government in the base will reduce government outlays required to purchase the same level of public services as without the VAT.

Compared with increasing individual income tax rates, reducing the deficit by the same amount with a VAT would:

- Impose a larger burden on low- and middle-income households;
- Lead to a smaller increase in marginal tax rates on labor;
- Impose fewer, but not necessarily smaller, distortions on economic decisions;
- Significantly increase compliance costs and administrative costs for governments, especially during a startup period; and
- Lower government spending by reducing the real cost of the goods and services the government purchases.

The remainder of the paper is organized as follows. Section II provides a summary of the June 2011 CBO long-term budget projections, describes the two baselines used in the analysis of options in this paper, and gives the target levels for deficit reduction. Section III describes the VAT and options for an income-tax rate increase. Section IV analyzes the effects of the VAT and options for an income-tax rate increase on government revenues and spending, the distribution of tax burdens, economic efficiency, and administrative and compliance burdens. Appendix A describes in some detail tax parameters under each baseline, and Appendix B describes the Urban-Brookings Tax Policy Center (TPC) microsimulation model used in analyzing the options.

II. The Long-Run Budget Outlook, Baselines and Deficit Reduction Targets

CBO's June 2011 long-run projections of spending, revenues, the deficit and debt held by the public use two baseline sets of assumptions about future spending and revenue policies, the Extended-Baseline Scenario and the Alternative Fiscal Scenario. CBO's projections under these two baselines for 2011, 2020, 2025 and 2035, expressed as a percentage of projected GDP, are shown in Table 1.

Table 1
Projected Spending, Revenues, Deficit and Publicly Held Debt
Under CBO's Extended-Baseline Scenario and Alternative Fiscal Scenario
 (percent of GDP)

	2011	2020	2025	2035
	<u>Extended-Baseline Scenario</u>			
Spending	24.1	23.7	25.1	27.4
Revenues	14.8	20.6	21.4	23.2
Deficit	-9.3	-3.1	-3.7	-4.2
Debt Held by the Public	69	75	77	84
	<u>Alternative Fiscal Scenario</u>			
Spending	24.1	25.5	28.3	33.9
Revenues	14.8	18.3	18.4	18.4
Deficit	-9.3	-7.2	-9.9	-15.5
Debt Held by the Public	69	97	119	187

Source: Congressional Budget Office, *CBO's 2011 Long-Term Budget Outlook* (2011), Table 1-2 and Supplemental Data.

Under either baseline, the ratio of publicly-held debt rises over the next 25 years. It increases from 69 percent in 2011 to 84 percent in 2035 under the Extended-Baseline Scenario and to 187 percent under the Alternative Fiscal Scenario. The 187 percent debt-to-GDP ratio under the Alternative Fiscal Scenario would be far above the U.S. historical record of 109 percent set at the end of World War II. Even the much smaller rise in the ratio under the Extended-Baseline Scenario to 84 percent by 2035 is cause for concern. Indefinitely rising debt could have four severe consequences: expanding debt-servicing costs; slowing economic growth as deficits crowd out investment; creating a growing risk of financial crisis, such as other highly-indebted countries recently have experienced; and leaving less room for the government to respond to economic and other emergencies.³ Fundamentally, however, an indefinite rise in the ratio of debt to GDP is simply not sustainable, in part because investors would not continue to buy Treasury debt if the perception grows that debt-to-GDP ratios will continue to rise and cannot be brought under control. There is considerable uncertainty over what level of debt is unsustainable for the United States, but some evidence suggests that for other countries, that point could be reached at a level as low as 90 percent of GDP.⁴

This paper uses two baselines to determine the targets for deficit reduction. The Current Law baseline uses the same assumptions as the CBO Extended-Baseline Scenario. This scenario assumes provisions in current law that reduce future spending and increase revenues will remain

³ For discussions of the long-run fiscal outlook and possible consequences, see Auerbach and Gale (2011) and Congressional Budget Office (July 27, 2010). For a discussion of potential consequences of rapidly rising federal debt, see Burman, Rohaly, Rosenberg, and Lim (2010).

⁴ See Reinhart and Rogoff (2010).

unchanged. In particular, on the spending side, Congress allows scheduled provisions to reduce physicians' compensation to take effect, thereby holding Medicare and other health-related spending to modest growth rates. On the revenue side, the 2001-2003 tax cuts expire as scheduled under current law and the AMT is no longer patched.

The second baseline, the Current Policy baseline, is a modified version of the CBO Alternative Fiscal Scenario (AFS). This scenario assumes that policies currently in effect continue. For revenues, this assumption means that the 2001-2003 tax cuts are permanently extended for all taxpayers, the 2011 AMT exemption levels are extended and indexed to the consumer price index, and 2011 estate tax parameters are extended.⁵ This baseline also assumes that Congress continues to extend the “doc fix” to prevent scheduled limits on physician compensation from taking effect. The Current Policy baseline modifies the AFS by allowing revenues (under 2011 law) to grow relative to GDP after 2021, whereas AFS assumes that (unspecified) tax law changes after 2021 maintain revenues (except payroll taxes) constant as a percentage of GDP at their 2021 level.

Under both baselines, significant spending cuts, tax increases, or both will be required to avert the likelihood of a fiscal crisis in the foreseeable future. This paper examines two revenue options that would by themselves achieve fiscal stabilization. Both options would reduce the ratio of publicly held debt to GDP to 60 percent in 2020, 2025 or 2035, starting from either the Current Law Baseline or the Current Policy Baseline. To achieve these targets, all options would be effective in 2015 and would reduce the deficit as a percentage of GDP in 2015 by the amounts shown in Table 2.

Table 2

Deficit Reduction (as a Percent of GDP) Required in 2015 to Achieve a Publicly Held Debt-to-GDP Ratio of 60 Percent in 2020, 2025 or 2035

Baseline	Deficit Reduction as a Percent of GDP in 2015 for Target Year ¹		
	2020	2025	2035
Current Law	1.0%	0.8%	1.2%
Current Policy	5.4%	4.3%	4.1%

Source: Pew Fiscal Analysis Initiative.

Note: These targets are based on the June 2010 CBO long-term budget forecast, which differs somewhat from the CBO's June 2011 long-term forecast.

¹ Target year is the year the ratio of publicly held debt to GDP is reduced to 60 percent.

III. Revenue Options to Meet the 2015 Deficit Reduction Targets

Option 1: Adopt an Add-on VAT

The Structure of a VAT

⁵ The 2011 AMT exemption levels and estate tax parameters were enacted in the “Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010” (P.L. 111-312).

A VAT is a tax on households' consumption of goods and services, equivalent to a retail sales tax with the same broad base and same rate, but with a different administrative structure. Unlike a sales tax, which is collected only at the final retail level on sales,⁶ a VAT is collected incrementally at each stage of the production and distribution of goods and services. The two most common forms of VAT are the "credit-invoice" VAT⁷ and the "subtraction-method" VAT.⁸ Credit invoice is used throughout Europe and in Canada, Australia, New Zealand and most other countries in the world. Under a credit-invoice VAT, every business pays VAT on its sales, but is allowed a credit for the VAT included on the invoice for its purchases from other businesses. The net amount of VAT paid by the business therefore is the tax on the difference between its sales and its purchases from other businesses. The difference between sales and purchases is "value added," the amount the business pays to labor and capital. The total value added by all businesses through the retail level is the value of the good or service sold to final consumers, i.e., its retail value.

The other common form of VAT is the subtraction-method, which is used in Japan and has been proposed in the United States.⁹ Under this system, every business pays tax on the difference between its sales and its purchases from other businesses, its value added. The subtraction method VAT base is identical to the credit-invoice VAT base, assuming there are no exemptions.¹⁰

The VAT option analyzed in this paper is credit-invoice, the structure used in most major countries. This also is "destination-based" like others in place, which means that export sales are not taxed, exporters receive a credit for VAT paid on their purchases,¹¹ and imports are subject to VAT.

The Base of the VAT

A VAT is a broad-based tax on consumption; the starting point for the base of a VAT is total consumption as defined in the National Income and Product Accounts (NIPA) prepared by the Bureau of Economic Analysis (BEA) in the U.S. Department of Commerce. Several items in NIPA consumption, however, are assumed to be excluded from the base of a VAT for policy reasons. TPC assumes exemptions for government-reimbursed health expenditures (primarily

⁶ The retail sales taxes imposed by state and local governments typically also tax many sales between businesses but do not tax many services, so are not "pure" retail sales taxes.

⁷ A credit-invoice VAT is sometimes referred to as a "goods and services tax," (GST).

⁸ A subtraction method VAT is sometimes referred to as a "business transfer tax," (BTT).

⁹ Variants of a subtraction method VAT proposed in the United States are the so-called "flat tax" and "X tax." Under these variants, business firms would deduct both purchases from other firms and wages, and workers would pay taxes on wages. Under the flat tax, wages would be taxed at a single rate above an exempt amount, while the X tax would impose graduated rates on wages. These exemptions and graduated rates introduce an element of progression into a VAT.

¹⁰ For a detailed discussion of how a GST, a BTT and an RST work, see Toder and Rosenberg (2010).

¹¹ This VAT treatment of exports is called "zero rating" because it effectively removes tax on the entire sales value of the good. In contrast, "exemption" treatment makes a seller not subject to VAT but also not able to receive a credit for the VAT paid on purchases.

Medicare and Medicaid), education spending, and expenditures on behalf of households by religious and nonprofit organizations.¹²

The VAT base also excludes some components of NIPA consumption for administrative reasons. First, it excludes all housing rents – both imputed rent on owner-occupied housing (the net rental value of housing services that homeowners receive) and rents paid for tenant-occupied housing.¹³ Instead, the VAT base includes the full value of purchases of all new housing and improvements to all existing housing.¹⁴

Second, the VAT base excludes financial services that are provided without charge.¹⁵ A common example is when a bank's cost of maintaining a checking account is recouped by paying little or no interest on the customer's account balance, instead of charging the customer an explicit fee. In this situation, it is difficult to determine what the customer would be charged if the bank paid her the net amount of interest it earned on her balances and assessed a fee to cover the services' costs. Therefore, indirect charges in the form of reduced interest are typically excluded from the VAT base. However, direct charges by banks and other financial institutions, such as for blank checks and safe deposit boxes, are included in the VAT base.

The VAT base also excludes state and local general sales taxes, so that the VAT applies to sales net of these taxes. If state and local governments in turn exclude the VAT from their bases for general sales taxes (as assumed here), it simplifies computation of the federal VAT and of state and local sales taxes by removing interactions among calculated liabilities. However, because federal, state and local excise taxes are generally collected from manufacturers and wholesalers instead of retailers and are simply embedded in prices retailers pay, this analysis assumes they remain in the VAT base.

Some taxpayers will not pay their VAT in full and on time. Such noncompliance has the same effect on revenues as explicit exemptions from the VAT base. The size of this compliance gap for a U.S. VAT is difficult to predict. TPC's estimates of VAT revenues assume a 15 percent reduction in the VAT base from a combination of noncompliance and administrative exemptions for small businesses. This figure is roughly equal to the percentage of tax liability that IRS estimates is not paid in a timely manner under the current federal income tax, and similar to noncompliance estimates under the United Kingdom's VAT.

¹² The amount of exempt expenditures is calculated net of any "purchases" by households through the payment of fees and charges.

¹³ NIPA measures the consumption of owner-occupied housing as the "(net) imputed rent" of this housing, as if homeowners were their own landlords and paid (gross) rent to themselves, but could deduct expenses for mortgage interest, depreciation, property taxes, repairs, etc. to arrive at net rent. As a practical matter, this net imputed rent could not easily be measured annually for each household. Rental housing expenses of tenants could be included in the base, but treating rental and owner-occupied housing differently would require special rules when properties are converted between owner and rental use.

¹⁴ This is called the "pre-payment" method of collecting VAT. The present value of the tax is the same from this method of imposing VAT at the time housing was purchased as it would be if the purchase were exempt (as is the standard treatment for investments under a VAT) and the tax was applied to the gross rental value for all housing. Note that the prepayment method only applies to new housing. Housing services provided by residential properties in place when the VAT is adopted would not be subject to tax.

¹⁵ For a discussion of alternatives to such an exclusion, see Merrill and Edwards (1996).

TPC estimated the base size for the VAT option in 2015 by starting with NIPA consumption, which in 2015 was estimated to be \$13 trillion, 70 percent of projected GDP of \$18.6 trillion (Table 3). The base is reduced by policy adjustments for government health expenditures (primarily Medicare and Medicaid) of \$1.4 trillion, education spending of \$0.3 trillion, and religious and nonprofit expenditures of \$0.5 trillion. The net administrative adjustment for housing reduces the base by \$1 trillion, and the adjustment for financial services

Table 3

Broad VAT Base in 2015

	Level (\$billions)	Percent of Consumption	Percent of GDP
Consumption	13,035.0	100.0	70.0
<i>Less:</i> Government health expenditures	1,425.1	10.9	7.7
<i>Less:</i> Education spending	313.8	2.4	1.7
<i>Less:</i> Religious and nonprofit expenditures	526.7	4.0	2.8
<i>Less:</i> Imputed rent on owner-occupied housing	1,433.2	11.0	7.7
<i>Less:</i> Rental of tenant-occupied housing	443.5	3.4	2.4
<i>Plus:</i> New housing purchases	482.5	3.7	2.6
<i>Plus:</i> Improvements to existing housing	421.5	3.2	2.3
<i>Equals:</i> Net housing adjustment	-972.7	-7.5	-5.2
<i>Less:</i> Financial services provided without payment	337.9	2.6	1.8
<i>Less:</i> Other adjustments	107.0	0.8	0.6
<i>Equals:</i> Consumption In Broad VAT Base	9,351.8	71.7	50.2
<i>Less:</i> State and local general sales taxes	543.2	4.2	2.9
<i>Less:</i> Noncompliance/small business exemption	1,398.0	10.7	7.5
<i>Equals:</i> Effective Broad VAT Base	7,410.7	56.9	39.8
ADDENDUM:			
Gross Domestic Product (GDP)	18,622.0	142.9	100.0

Source: U. S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts (NIPA), Congressional Budget Office (CBO), and TPC estimates.

provided without payment reduces the base by another \$0.3 trillion. With some minor other adjustments, the consumption amount in the VAT base is \$9.4 trillion, or 71.7 percent of total consumption and 50.2 percent of GDP. Further reductions include removing state and local general sales taxes of \$0.5 trillion, and the 15 percent adjustment for noncompliance and a small business exemption, which is \$1.4 trillion. The effective VAT base therefore is \$7.4 trillion in 2015, or 56.9 percent of total consumption and 39.8 percent of GDP.

While this base might seem small relative to total consumption or GDP, it is a fairly broad VAT base by international standards and covers a much larger share of consumption than most state sales taxes. Only government-reimbursed health expenditures are out of the base; private health expenditures remain subject to VAT. Both housing and food are included in the base, items many countries and states remove to reduce burdens on low-income families.

Rebate

Rather than excluding selected goods and services from the VAT base, the VAT includes a rebate to remove its burden from low-income households.¹⁶ The rebate has two components: an earnings credit claimed on income tax returns and an adjustment in cash transfer payments. Neither component phases out with income. An alternative design would phase out the rebate for higher-income households. This phase-out would reduce the rebate's cost and, therefore, the required VAT rate, and there would be fewer claimants for the earnings component. However, an income phase-out would have several drawbacks. It would complicate the administration of the rebate, and it would increase marginal tax rates for households in the phase-out range. Because of these drawbacks, the VAT rebate considered here does not include an income phase-out.

The first component of the rebate would be a refundable tax credit based on a measure of employment income. This measure would include amounts taxpayers report on income tax returns of wages, pensions, and other withdrawals from retirement accounts, plus 80 percent of self-employment income.¹⁷ The rebate amount would phase in with the sum of this income for each tax unit. This phase-in would have a ceiling equal to TPC's estimate of the weighted average federal poverty threshold for a one-person household in 2015 of \$12,000 for a single-and-head-of-household filer, and to double that level (\$24,000) for a married couple filing a joint return. The credit rate applied to this eligible income would be the effective rate of VAT as a percentage of income. The credit would be refundable (that is, it could be claimed in excess of income taxes otherwise paid) and would not phase out at incomes above the ceiling.

The second portion of the rebate would go to recipients of cash transfer payments, mainly Social Security benefits. A new VAT would not burden current recipients of these benefits because after retirement, they are indexed to changes in the consumer price level and thus automatically offset any effect of a VAT on the price level. (If, as discussed below, the VAT reduced incomes because the Federal Reserve did not accommodate a price increase, transfer payments would likewise be unaffected.) Over time, however, the reduction in real wages that a VAT produces would reduce initial Social Security benefits, which are tied to a worker's lifetime earnings. This portion of the rebate, therefore, consists of an annual adjustment in the government's computation of benefits for each form of cash transfer payment to maintain the benefit at the level that would have been computed using the pre-VAT level of wages. Beneficiaries of cash transfer payments would not need to claim this portion of the rebate on their tax return; it would automatically be included in their benefits.

¹⁶ For a comparison of the effectiveness of base exclusions and a rebate for reducing the VAT burden on low-income households, see Toder, Nunns and Rosenberg, *Implications of Different Bases for a VAT* (forthcoming).

¹⁷ These sources of income are reduced in real terms by a VAT (see discussion in Section IV).

Changes in the Price Level

A VAT taxes all the goods and services included in the VAT base. The prices that consumers pay for goods and services, which include the VAT, exceed the amount that producers (businesses) receive for them by the amount of the VAT. The VAT, therefore, imposes a “wedge” between the prices consumers pay and the prices producers receive. If the Fed did not allow consumer prices to rise when the VAT was introduced, the wedge would mean that producer prices would have to fall at all stages of production and distribution of goods and services, reducing nominal incomes by the VAT amount. This means that payments to workers and profits would have to fall by the same amount.¹⁸

The federal agencies involved in the estimation and analysis of taxes—the U.S. Treasury’s Office of Tax Analysis (OTA), the congressional Joint Committee on Taxation (JCT), and the Tax Analysis Division of the Congressional Budget Office (CBO)—follow the standard assumption for budget estimates that the overall price level (the GDP deflator) and real GDP are unchanged from their forecast levels by any change in the tax system. For this paper’s analysis, TPC assumes that real GDP is unchanged and that the Fed does not allow the consumer price level to change. Without such changes, imposing a VAT will reduce the returns to labor and capital.¹⁹

Effect on Government Revenues and Spending

Effect on Revenues

Assuming there is no change in the consumer price level when the VAT is introduced, the VAT will reduce wages and profits. This reduction will lower federal tax revenues from the individual income, corporate income and payroll taxes. State and local government tax revenues from individual and corporate income taxes would likewise decline. Revenues from state and local general sales taxes also would fall if they are based on sales valued at producer prices, as assumed here. Finally, property tax revenues from business properties would drop because the VAT would reduce the cost of new business assets and the value of existing (“old”) business assets.²⁰ Because the VAT base excludes residential rents, however, and applies instead only to purchases of new residential housing and improvements, it would not change the value of existing residential properties, or reduce property tax revenues from taxing them at current rates.

Effect on Spending

Federal, state and local government spending for general government purposes—national defense, elementary and secondary education, highways, etc.—is not included in NIPA consumption and is assumed here to be removed from the VAT by “zero rating” these government services.²¹ As

¹⁸ The effect of a VAT on returns to capital owners (savers) changes over time; see discussion in Section IV.

¹⁹ If the consumer price level does rise (by the full amount of the VAT), there would be no change in the nominal returns to labor and capital, but the purchasing power of these returns would be reduced due to the higher prices of consumer goods.

²⁰ This analysis holds property tax rates constant, just as all other tax rates are assumed to be held constant.

²¹ Zero rating means that governments pay no VAT on this spending and no VAT applies to government purchases from business that is part of this spending. The “commercial” activities of governments, such as running hospitals,

discussed above, with the consumer price level unchanged, producer (pre-VAT) prices and employee compensation would fall. With lower costs of labor and purchased goods and services, government spending therefore could decrease, while holding real purchases and the number and professional mix of employees (and therefore the quantity of government services) constant.²²

Zero-rating general government spending would not, in itself, remove the application of the VAT to consumption items provided by businesses, the cost of which is reimbursed by governments (in-kind government transfers). Medicare and Medicaid are the most important examples of such in-kind government transfers, representing a significant share of household consumption as well as of government spending. Because government-reimbursed health spending is assumed to be removed from the VAT base, prices for these services would fall (reflecting the economy-wide decline in costs of labor and profits) and the nominal amount of this component of government spending could also be reduced, while holding real spending constant.

With the consumer price level unchanged, as assumed here, spending on cash transfer payments would not change because of price indexing. But Social Security benefits and most other cash transfer payments are directly or indirectly based on wages, so over time they will change with changes in the level of wages. If wages fall when a VAT is introduced because the consumer price level is unchanged, these payments will be lower for future new beneficiaries, as their computed benefits reflect the reduction in wages. So over time, government spending on cash transfer payments gradually would decline.²³

The nominal level of current federal grants to state and local governments could fall, because they finance state and local spending on compensation of employees, purchases from businesses and in-kind transfers. This decline in nominal federal grants is consistent with holding constant the real level of such grant-financed spending.

Net Effect on Government Budgets

The net effect of a VAT on government budgets includes revenue (for the federal government) from the VAT itself, the reduction in revenues from other taxes, and any changes in spending for employee compensation, purchases from businesses, in-kind transfers, cash transfer payments, and federal grants to state and local governments. Holding real government spending constant, the VAT's effect on the federal budget is determined by setting the VAT rate to generate the target amount of deficit reduction.

Unlike the federal government, state and local governments would not be able to adjust the VAT rate to achieve a budget target. However, the amount of federal grants to state and local governments could be adjusted so that real state and local spending would be held constant, with no change in surpluses or deficits. The VAT's net effect on state and local budgets therefore

colleges and universities and municipal water systems, are included in NIPA consumption to the extent they are "purchased" by households through the payment of fees or charges. These government activities would be taxed under the VAT in the same manner as comparable goods and services provided by for-profit businesses.

²² If general government spending (including payrolls) was subject to VAT, spending would be higher but VAT revenues would be higher by the same amount, so there would be no difference in the VAT's effect on the deficit.

²³ The rebate described above would maintain the nominal value of these benefits for recipients.

would be determined by the changes due to the VAT in their revenues and spending. If the consumer price level did not rise and these governments are zero-rated, as assumed here, the VAT would lead to higher state and local budget surpluses or lower deficits over the long term (in the absence of full adjustments to federal grants). This is because these governments spend a much larger share of their budgets on employee compensation and purchases from business than the share of their revenues from income, general sales and business property taxes.²⁴ In order to hold real state and local government spending constant, it is assumed here that federal grants are adjusted to exactly offset these surpluses.

Required Rates

The VAT rate must be set to reduce the deficit in 2015 for each of the two baselines and each of the target years 2020, 2025 and 2035 by the percentages of GDP shown in Table 2. Net VAT revenue is determined by applying the VAT rate to the (effective) VAT base, and subtracting the revenue lost due to the income and payroll tax offsets and the rebate.²⁵ However, the amount of VAT that must be raised to meet the deficit-reduction targets also takes into account the reduction in nominal federal spending that could be made, while holding constant real federal, state and local government spending. Under the Current Law baseline, the VAT rates required to meet the 2015 deficit-reduction targets are 4.0 percent in 2020, 3.1 percent in 2025, and 4.8 percent in 2035 (see Table 4). Under the Current Policy Baseline, the required rates are 22.9 percent in 2020, 17.7 percent in 2025, and 16.7 percent in 2035. The associated rates for the VAT rebate, shown in the Addendum to Table 4 are, as noted above, the effective rate of VAT on income at 2015 income levels.

Table 4

Required VAT Rates in 2015 to Achieve a Publicly Held Debt-to-GDP Ratio of 60 Percent in 2020, 2025 or 2035

Baseline	VAT Rate Required in 2015 for Target Year*		
	2020	2025	2035
Current Law	4.0%	3.1%	4.8%
Current Policy	22.9%	17.7%	16.7%
	Addendum: Associated VAT Rebate Rates		
Current Law	3.0%	2.4%	3.6%
Current Policy	15.3%	12.2%	11.7%

* All VAT rates are tax-exclusive. The target year is the year the ratio of publicly held debt to GDP is 60 percent.

²⁴ Census data for 2008 indicate that income and general sales tax revenues were 25.1 percent of total state and local revenues and total property taxes were another 15.4 percent of total revenues (of which TPC estimates about 40 percent, or 6.2 percent of total revenues, is from business property), while employee compensation and purchases from businesses were 86.1 percent of their total spending (computed from: Table 1. State and Local Government Finances by Level of Government and by State: 2007-08, available at <http://www.census.gov/govs/estimate/>).

²⁵ The individual income tax and payroll tax offsets, and the earnings component of the rebate, were calculated directly on TPC's microsimulation model. The corporate income tax offset was computed off-model.

Options 2: Increase All Individual Income Tax Rates

This option would increase all statutory individual income tax rates, including rates on capital gains (and qualified dividends under the Current Policy Baseline), but would not change rates under the alternative minimum tax (AMT) or the 3.8 percent surcharge on investment income that will apply to high-income taxpayers after 2012.

Statutory marginal tax rates on income differ between the two baselines. Under the Current Law Baseline, statutory tax rates (on ordinary income) are 15, 28, 31, 36, and 39.6 percent; the maximum rates on capital gains are 20 percent (10 percent if the gain would otherwise be taxed at 15 percent) and 18 percent (8 percent if the gain would otherwise be taxed at 15 percent) for property held more than five years; and dividends are taxed at ordinary income rates.^{26, 27} Under the Current Policy Baseline, statutory tax rates (on ordinary income) are 10, 15, 25, 28, 33 and 35 percent, and the maximum rates on capital gains (and qualified dividends) are 15 percent (0 percent if gain would otherwise be taxed at 10 percent or 15 percent). In addition to these differences in rates, there are variations in some corresponding taxable income bracket thresholds. Further, exemption levels for the AMT are at pre-2001 law levels and not indexed for inflation in the Current Law Baseline, whereas they are at much higher levels and indexed in the Current Policy Baseline. These differences significantly affect the revenue raised by any given change in regular tax rates.²⁸

The Urban-Brookings Tax Policy Center microsimulation model was used to estimate the tax rates on ordinary income in 2015 under each baseline required for the 2015 deficit reduction targets (Table 5). The rates on long-term capital gains and (under the Current Policy Baseline) qualified dividends were increased by the same percentages as the rates on ordinary income (Table 6). The calculations of all the tax rates in Tables 5 and 6 are static, meaning they include no behavioral responses to any of the rate changes. The option would result in a top rate on ordinary income under the Current Law Baseline ranging from 43.6 percent to 45.4 percent, and a top rate on capital gains (for gains held less than five years by high-income taxpayers) ranging from 25.8 percent to 26.7 percent, depending on the target year. Under the Current Policy Baseline, the required top rate on ordinary income to reach the deficit reduction targets would range from 53.9 percent to 59.7 percent and the top rate on capital gains and qualified dividends from 26.9 percent to 29.4 percent, depending on the target year.

Note that taxpayers are likely to adjust their behavior if income tax rates are increased. Possible behavioral responses would include reduced reporting of taxable income (reflecting tax-avoidance responses, such as an increase in deductible forms of consumption and a substitution of tax-free fringe benefits for taxable wages) and reduced realizations of capital gains. If

²⁶ Appendix Tables A-1 and A-2 describe tax rates and other tax parameters under both baselines in detail.

²⁷ The rates for capital gains (and qualified dividends under the Current Policy Baseline) cited here do not include the 3.8% surcharge rate on capital gains, dividends and other investment income that applies to high-income taxpayers (see Table A-2). This surcharge is assumed not to be increased under the option.

²⁸ With a lower AMT exemption level, more taxpayers are subject to the AMT and would not be affected by an increase in regular income tax rates until the increase was sufficiently large to move these taxpayers off of the AMT.

Table 5
Individual Income Tax Rates for Joint Filers in 2015
Under the Current Law and Current Policy Baselines and
The Option for 60% Debt-to-GDP Target Years 2020, 2025 and 2035

Taxable Income		Tax Rate (percent)	
Over	But Not Over	Under Baseline	Under Option
<i>A. 60% Debt-to-GDP Target Year 2020</i>			
<i>Current Law Baseline (Target: 1.0% of GDP in 2015)</i>			
\$0	\$60,600	15.0%	16.9%
\$60,600	\$146,450	28.0%	31.5%
\$146,450	\$223,200	31.0%	34.8%
\$223,200	\$398,600	36.0%	40.4%
\$398,600	--	39.6%	44.5%
<i>Current Policy Baseline (Target: 5.4% of GDP in 2015)</i>			
\$0	\$17,850	10.0%	17.1%
\$17,850	\$72,600	15.0%	25.6%
\$72,600	\$146,450	25.0%	42.6%
\$146,450	\$223,200	28.0%	47.7%
\$223,200	\$398,600	33.0%	56.3%
\$398,600	--	35.0%	59.7%
<i>B. 60% Debt-to-GDP Target Year 2025</i>			
<i>Current Law Baseline (Target: 0.8% of GDP in 2015)</i>			
\$0	\$60,600	15.0%	16.5%
\$60,600	\$146,450	28.0%	30.8%
\$146,450	\$223,200	31.0%	34.1%
\$223,200	\$398,600	36.0%	39.6%
\$398,600	--	39.6%	43.6%
<i>Current Policy Baseline (Target: 4.3% of GDP in 2015)</i>			
\$0	\$17,850	10.0%	15.7%
\$17,850	\$72,600	15.0%	23.5%
\$72,600	\$146,450	25.0%	39.2%
\$146,450	\$223,200	28.0%	43.9%
\$223,200	\$398,600	33.0%	51.7%
\$398,600	--	35.0%	54.8%
<i>C. 60% Debt-to-GDP Target Year 2035</i>			
<i>Current Law Baseline (Target: 1.2% of GDP in 2015)</i>			
\$0	\$60,600	15.0%	17.2%
\$60,600	\$146,450	28.0%	32.1%
\$146,450	\$223,200	31.0%	35.5%
\$223,200	\$398,600	36.0%	41.3%
\$398,600	--	39.6%	45.4%
<i>Current Policy Baseline (Target: 4.1% of GDP in 2015)</i>			
\$0	\$17,850	10.0%	15.4%
\$17,850	\$72,600	15.0%	23.1%
\$72,600	\$146,450	25.0%	38.5%
\$146,450	\$223,200	28.0%	43.2%
\$223,200	\$398,600	33.0%	50.9%
\$398,600	--	35.0%	53.9%

Source: Urban-Brookings Tax Policy Center Microsimulation Model (versions 0509-6 and 0509-7).

Table 6

**Tax Rates on Capital Gains Under the Current Law Baseline and on
Capital Gains and Qualified Dividends Under the Current Policy Baseline
in 2015 Required Under the Option to Achieve a
60% Debt-to-GDP Ratio for Target Years 2020, 2025 and 2035**

Category of Capital Gains and (under Current Policy) Dividends	Tax Rate (percent)	
	Under Baseline	Under Option
<i>A1. Target Year 2020, Current Law Baseline (Target: 1.0% of GDP in 2015)</i>		
Under 5 years, 15% bracket	10.0%	11.2%
Under 5 years, above 15% bracket	20.0%	22.5%
High-income taxpayers ¹	23.8%	26.3%
Over 5 years, 15% bracket	8.0%	9.0%
Over 5 years, above 15% bracket	18.0%	20.2%
High-income taxpayers ¹	21.8%	24.0%
<i>A2. Target Year 2020, Current Policy Baseline (Target: 5.4% of GDP in 2015)</i>		
Lower-income taxpayers ²	0.0%	0.0%
Middle-Income taxpayers ³	15.0%	25.6%
High-income taxpayers ¹	18.8%	29.4%
<i>B1. Target Year 2025, Current Law Baseline (Target: 0.8% of GDP in 2015)</i>		
Under 5 years, 15% bracket	10.0%	11.0%
Under 5 years, above 15% bracket	20.0%	22.0%
High-income taxpayers ¹	23.8%	25.8%
Over 5 years, 15% bracket	8.0%	8.8%
Over 5 years, above 15% bracket	18.0%	19.8%
High-income taxpayers ¹	21.8%	23.6%
<i>B2. Target Year 2025, Current Policy Baseline (Target: 4.3% of GDP in 2015)</i>		
Lower-income taxpayers ²	0.0%	0.0%
Middle-Income taxpayers ³	15.0%	23.5%
High-income taxpayers ¹	18.8%	27.3%
<i>C1. Target Year 2035, Current Law Baseline (Target: 1.2% of GDP in 2015)</i>		
Under 5 years, 15% bracket	10.0%	11.5%
Under 5 years, above 15% bracket	20.0%	22.9%
High-income taxpayers ¹	23.8%	26.7%
Over 5 years, 15% bracket	8.0%	9.2%
Over 5 years, above 15% bracket	18.0%	20.6%
High-income taxpayers ¹	21.8%	24.4%
<i>C2. Target Year 2035, Current Policy Baseline (Target: 4.1% of GDP in 2015)</i>		
Lower-income taxpayers ²	0.0%	0.0%
Middle-Income taxpayers ³	15.0%	23.1%
High-income taxpayers ¹	18.8%	26.9%

Source: Urban-Brookings Tax Policy Center Microsimulation Model (versions 0509-6 and 0590-7).

¹ Taxpayers with modified AGI (MAGI) over \$250,000 (\$200,000 for unmarried taxpayers). Rates shown include the 3.8% surcharge on investment income, which is unchanged under the option.

² Taxpayers in the 10% or 15% bracket under Current Policy.

³ Taxpayers above the 15% bracket under Current Policy, but with MAGI below the "high-income" threshold.

behavioral responses were taken into account, the tax rates required to meet the deficit-reduction targets would be higher than those reported in Tables 5 and 6.

IV. Effects of the Options

This section analyzes the effects of the two deficit-reduction options on government revenues and spending, the distribution of tax burdens, economic efficiency, and administrative and compliance burdens.

Government Revenues and Spending

Tax rates for both options were set to achieve pre-determined deficit reduction targets in 2015, but the breakdown of the deficit change by tax source and between revenue increases and spending reductions differs between options (Table 7). In all cases, gross VAT revenues are significantly larger than net VAT revenues because of the revenue lost from the income and payroll tax offsets and the rebate. As noted above, however, the required gross revenues under the VAT option are lower than they would otherwise be because the VAT option reduces the required level of nominal federal spending, consistent with holding real government spending constant. Because it reduces federal spending, the VAT option needs to raise less revenue (net of income tax offsets) than the income tax option to achieve the same deficit reduction.

Distribution of the Tax Burden

The TPC microsimulation model was used to estimate the distributional effects of both options under both baselines and for each of the three target years. All distributional estimates are at 2015 levels of income. The incidence assumptions underlying the estimates are that individual income taxpayers bear the burden of their individual income tax liabilities, households bear the burden of the corporate income tax in proportion to their share of (positive) capital income, and workers bear the burden of both the employee and employer shares of the payroll tax, in proportion to their earnings.

TPC has recently developed a method for analyzing the burden of a VAT. TPC computes the long-run incidence in a manner consistent with its methods for estimating the long-run incidence of individual income taxes, corporate income taxes and payroll taxes. However, recognizing the imposition of a new consumption tax imposes significant transitional burdens on existing capital owners, especially those spending down old wealth, but also exempts current recipients of income from indexed transfer payments, TPC has developed a separate method for estimating the transitional burden of introducing a VAT.²⁹

This paper's distributional analysis of the VAT is only for long-run effects, consistent with the distributional analysis presented for the individual income-tax-rate increase

²⁹The methodology TPC uses to estimate the distributional burden of a VAT when fully phased-in and during the transition is presented in Toder, Nunns, and Rosenberg (2011).

Table 7

Deficit Reduction Effects of Options in 2015 Under the Current Law and Current Policy Baselines
for 60% Debt-to-GDP Target Years 2020, 2025 and 2035
(\$ billions)

Provision	Revenue in 2015 for 60% Debt-to-GDP Target Year:		
	2020	2025	2035
<i><u>Current Law Baseline</u></i>			
Value-Added Tax (VAT)			
Gross VAT Revenues	283.8	227.1	340.5
<i>Less: Individual Income Tax Offset</i>	83.5	66.9	100.0
<i>Less: Payroll Tax Offset</i>	26.9	21.5	32.3
<i>Less: Corporate Income Tax Offset</i>	5.1	4.1	6.1
<i>Equals: Total Revenue Offsets</i>	115.5	92.5	138.5
<i>Less: Rebate</i>	99.9	79.9	119.8
Net VAT Receipts	68.4	54.7	82.2
Reduction in Nominal Federal Spending:¹			
Employee Compensation	15.6	12.5	18.7
Purchases from Businesses	16.4	13.1	19.6
In-Kind Transfers	25.6	20.5	30.7
Cash Transfer Payments	30.9	24.7	37.1
Grants to State and Local Governments	31.6	25.3	37.9
Total Reduction	120.1	96.1	144.0
Change in Federal Deficit	188.5	150.8	226.2
Increase Individual Income Tax Rates			
Increase All Rates	188.5	150.8	226.2
<i><u>Current Policy Baseline</u></i>			
Value-Added Tax (VAT)			
Gross VAT Revenues	1,437.8	1,147.3	1,094.3
<i>Less: Individual Income Tax Offset</i>	356.9	287.1	274.2
<i>Less: Payroll Tax Offset</i>	139.3	110.6	105.4
<i>Less: Corporate Income Tax Offset</i>	25.8	20.6	19.7
<i>Equals: Total Revenue Offsets</i>	522.1	418.3	399.2
<i>Less: Rebate</i>	505.9	403.7	385.1
Net VAT Receipts	409.8	325.3	310.0
Reduction in Nominal Federal Spending:¹			
Employee Compensation	79.1	63.1	60.2
Purchases from Businesses	82.9	66.2	63.1
In-Kind Transfers	129.7	103.5	98.7
Cash Transfer Payments	156.5	124.9	119.1
Grants to State and Local Governments	160.0	127.6	121.8
Total Reduction	608.2	485.4	462.9
Change in Federal Deficit	1,017.9	810.6	772.9
Increase Individual Income Tax Rates			
Increase All Rates	1,017.9	810.6	772.9

Source: Urban-Brookings Tax Policy Center Microsimulation Model (versions 0509-6 and 0509-7) and off-model TPC estimates.

¹ This is the estimated amount by which nominal federal spending could be reduced while holding real federal spending constant when the effects of the VAT are fully phased in.

option. When fully phased in, the VAT burden is borne in proportion to the sum of 1) labor income, 2) “supernormal returns” to capital and cash transfer income, with adjustments for the effects of changes in relative prices of items of consumption, 3) the decline in government spending associated with excluding government from the VAT base, 4) reduced income and payroll tax receipts that occur because the VAT lowers wages and profits, and 5) the rebate included in the option to make the tax less regressive.

- Labor income. As discussed in Section III, the wedge a VAT imposes between consumer and producer prices reduces returns to labor and capital. So a portion of the VAT is borne in proportion to wages and other employee compensation. Self-employment income is split into a labor component (80 percent) and a capital income component (20 percent), based on the shares of labor and capital returns shown for the corporate sector in NIPA. For consistency with how distributional analyses treat labor income under the income tax, and with the “cash income” measure used to rank units in the distribution tables, TPC distributes the VAT burden on earnings contributed to retirement accounts in proportion to withdrawals from retirement accounts (which represent the deferred value of prior contributions) and exclude contributions. Note that since employees must compete for jobs across all industries, the VAT will reduce the return to labor in every industry whether or not the industry is subject to VAT. In particular, government workers bear the same VAT burden as private-sector workers, even though government does not pay VAT.
- Capital income. A VAT exempts the portions of capital returns that reflect the time value of money and inflationary gains because it leaves the after-tax return to saving unchanged.³⁰ The VAT base does, however, include “supernormal” returns; that is, returns in excess of the normal return to waiting. These returns are the portion of business profits due to economic rents, monopoly profits, and returns to labor services captured by entrepreneurs as profits instead of being paid to laborers as wages.³¹
- Cash transfer income. In addition to returns to labor and capital, households might receive cash transfer payments. Most cash transfer payments (such as Social Security and unemployment benefits) are directly tied to wages, and other cash transfer payments are likely to be adjusted if wages change. So, wage reductions following the VAT’s introduction will reduce these payments over time (i.e., they will bear a VAT burden) as the determinations of transfer benefits begin to reflect the wage reductions due to the VAT. Eventually, when the VAT is fully phased in, all cash transfer payments will bear a full VAT burden. This fully phased-in burden on these payments is included in this paper’s distributional analysis, but the rebate fully offsets this burden.

³⁰ Under a VAT, investments are expensed – the allowance of a credit for VAT paid on purchases of capital goods (and no capitalization of self-constructed capital assets, such as research and development). Expensing makes the after-tax return on saving equal to the pretax return: the government acts effectively as a partner in investments, contributing a share to the investment equal to the VAT rate and then capturing the same share of returns when they are eventually consumed.

³¹ A VAT, like the income tax, also effectively exempts the portion of returns due to risk-bearing because the tax authority shares in both winnings and losses.

- Relative prices. The VAT base includes most consumption goods and services, but excludes government-reimbursed health expenditures, education spending, expenditures on behalf of households by religious and nonprofit organizations, residential rents, and financial services provided without payment. Consumers of goods and services fully subject to VAT must pay VAT-inclusive prices, which differ from VAT-exclusive prices by the full amount of the VAT.³² This means households bear relatively more or less VAT than the average household, depending on whether fully taxed goods and services they consume represent a larger or smaller share of their consumption than that of the average household. The distributional analysis takes these relative price effects into account by adding to, or subtracting from, each household's VAT burden, depending on whether their consumption pays more or less tax than if the mix was the same as that of the average household.
- Government spending offset. In addition to the net change in federal revenues, the VAT burdens households to the extent nominal federal spending is reduced to hold real spending constant, because this spending reduction represents a reduction in factor or cash transfer income. The burden of these lower wages and cash transfers is included in the distributional analysis.
- Income and payroll tax offsets. Because a VAT lowers household incomes, it also lowers income and payroll tax liabilities. This reduction offsets a portion of the VAT burden. TPC directly estimates this effect using its tax model and includes it in the distributional analysis.
- Rebate. The benefit of the VAT rebate described above is estimated using TPC's microsimulation model and included in the distributional analysis.

Estimates of the distributional effects in 2015 of the VAT option (on a fully phased-in basis) and of the income tax rate increase option by cash income percentile under each baseline are given for target years 2020 (Table 8A), 2025 (Table 8B), and 2035 (Table 8C). In all tables, distributional effects are expressed as the percentage change in a household's after-tax income.

Note that the burden of the VAT option includes the effects of gross VAT revenues, income and payroll tax offsets, the rebate, and the reduction in factor incomes due to reduced nominal federal spending.

The estimates show that for all three target years and both baselines, both options are progressive across quintiles. Within the top quintile, the VAT option is roughly proportional, while the income tax option is highly progressive. The VAT option is quite progressive at the bottom of the income distribution, but only because of the rebate, which is aimed at low-income families. Still, the income tax option is much more progressive throughout the distribution than the VAT with a rebate.

³² As discussed above, for a good or service to be fully untaxed by a credit-invoice VAT, it must be "zero-rated."

Table 8A
Distributional Analysis of Options in 2015 Under
the Current Law and Current Policy Baselines
for 60% Debt-to-GDP Target Year 2020
 (percentage change in after-tax income)

Cash Income Percentile	VAT	Increase All Income Tax Rates
<i>Current Law Baseline</i>		
Lowest Quintile	-0.3	-0.1
Second Quintile	-0.9	-0.6
Middle Quintile	-1.5	-1.1
Fourth Quintile	-1.8	-1.3
Top Quintile	-1.9	-2.5
All	-1.7	-1.8
Addendum		
80-90	-2.0	-1.7
90-95	-2.0	-1.7
95-99	-1.9	-2.2
Top 1 Percent	-1.8	-4.0
Top 0.1 Percent	-2.0	-4.4
Number on AMT (millions) ¹	N/A	12.3
<i>Current Policy Baseline</i>		
Lowest Quintile	-1.8	-0.5
Second Quintile	-4.9	-2.7
Middle Quintile	-7.9	-5.5
Fourth Quintile	-9.5	-7.8
Top Quintile	-9.9	-12.9
All	-8.7	-9.3
Addendum		
80-90	-10.1	-9.8
90-95	-10.3	-11.1
95-99	-9.6	-11.9
Top 1 Percent	-9.6	-17.2
Top 0.1 Percent	-10.0	-18.8
Number on AMT (millions) ²	N/A	0.5

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-7).

¹ The number of AMT taxpayers under the Current Law Baseline is 25.4 million.

² The number of AMT taxpayers under the Current Policy Baseline is 6.1 million.

Table 8B

**Distributional Analysis of Options in 2015 Under
the Current Law and Current Policy Baselines
for 60% Debt-to-GDP Target Year 2025**
(percentage change in after-tax income)

Cash Income Percentile	VAT	Increase All Income Tax Rates
<u>Current Law Baseline</u>		
Lowest Quintile	-0.2	-0.1
Second Quintile	-0.7	-0.5
Middle Quintile	-1.2	-0.9
Fourth Quintile	-1.4	-1.1
Top Quintile	-1.5	-2.0
All	-1.3	-1.4
Addendum		
80-90	-1.6	-1.4
90-95	-1.6	-1.3
95-99	-1.5	-1.7
Top 1 Percent	-1.5	-3.3
Top 0.1 Percent	-1.6	-3.6
Number on AMT (millions) ¹	N/A	14.0
<u>Current Policy Baseline</u>		
Lowest Quintile	-1.4	-0.4
Second Quintile	-3.9	-2.1
Middle Quintile	-6.3	-4.4
Fourth Quintile	-7.6	-6.3
Top Quintile	-7.9	-10.2
All	-7.0	-7.4
Addendum		
80-90	-8.0	-7.9
90-95	-8.2	-8.8
95-99	-7.7	-9.3
Top 1 Percent	-7.7	-13.7
Top 0.1 Percent	-8.0	-15.1
Number on AMT (millions) ²	N/A	0.5

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-7).

¹ The number of AMT taxpayers under the Current Law Baseline is 25.4 million.

² The number of AMT taxpayers under the Current Policy Baseline is 6.1 million.

Table 8C

**Distributional Analysis of Options in 2015 Under
the Current Law and Current Policy Baselines
for 60% Debt-to-GDP Target Year 2035**
(percentage change in after-tax income)

Cash Income Percentile	VAT	Increase All Income Tax Rates
<i>Current Law Baseline</i>		
Lowest Quintile	-0.3	-0.2
Second Quintile	-1.1	-0.7
Middle Quintile	-1.8	-1.3
Fourth Quintile	-2.1	-1.6
Top Quintile	-2.3	-3.1
All	-2.0	-2.2
Addendum		
80-90	-2.4	-2.1
90-95	-2.4	-2.1
95-99	-2.3	-2.7
Top 1 Percent	-2.2	-4.8
Top 0.1 Percent	-2.4	-5.3
Number on AMT (millions) ²	N/A	10.9
<i>Current Policy Baseline</i>		
Lowest Quintile	-1.3	-0.4
Second Quintile	-3.7	-2.0
Middle Quintile	-6.0	-4.2
Fourth Quintile	-7.2	-6.0
Top Quintile	-7.5	-9.8
All	-6.6	-7.1
Addendum		
80-90	-7.7	-7.5
90-95	-7.9	-8.4
95-99	-7.3	-8.8
Top 1 Percent	-7.3	-13.1
Top 0.1 Percent	-7.6	-14.4
Number on AMT (millions) ³	N/A	0.6

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-7).

¹ The number of AMT taxpayers under the Current Law Baseline is 25.4 million.

² The number of AMT taxpayers under the Current Policy Baseline is 6.1 million.

Effects on Marginal Tax Rates

Economic incentives—the reward to work effort, saving, risk taking, and other productive activities—are affected directly by the marginal tax rates that apply to returns to additional economic activity. The relevant rates reflect not just statutory rates that may apply, but also phase-ins, phase-outs and other features of tax law that, in combination with statutory rates, determine how much taxes change when the level of economic activity changes. These rates are referred to as effective marginal tax rates (EMTRs).

The change in EMTRs in 2015 on wages and capital gains due to the deficit-reduction options were estimated using the TPC microsimulation model.³³ Estimates were made for each option under each baseline and for each target year, for wages (Tables 9A through 9C) and capital gains (Tables 10A through 10C). These estimates are expressed as percentage point changes in EMTRs.

The effect of the VAT option on EMTRs is the combination of factor income reductions due to the VAT and the offset to this burden from income and payroll tax offsets and the rebate. (Because the rebate is proportional to earnings up to a ceiling amount based on the federal poverty threshold, it lowers marginal tax rates for those with earnings below the ceiling income.) Note that although a VAT does not apply to the normal return to capital, it does apply to above normal (“supernormal”) returns. TPC estimates that supernormal returns account for 75 percent of the capital income that is accumulated and realized as capital gains, and it is this portion of capital gains that is taxed under the VAT.

The estimates show that for all three target years and under both baselines, the VAT option increases the average EMTR on all wages less than the income tax rate increase option. The VAT, however, does increase the EMTR on wages in the bottom three quintiles more than the option to increase all income tax rates. But for the top quintile, and especially the top 5 percent, increases in effective marginal tax rates on wages are significantly larger under the income tax option than under the VAT option.

The pattern of changes in EMTRs on capital gains is similar for all three target years and for both baselines. The VAT option increases overall EMTRs on capital gains less than the option to increase proportionately the rates of ordinary income and capital gains taxes. The VAT increases the EMTR on capital gains by more than the increases in the proportional income tax rate in the bottom two quintiles, and by less in the top two quintiles. This pattern results because income tax rates on capital gains increase with income, whereas the VAT rate on capital gains does not change with income, but is offset by progressive income tax rates that reduce the burden more for higher-income households. The difference between the income tax option and the VAT is largest at the very top of the income distribution.

³³ The change in EMTRs for wages is calculated by increasing the wages of all workers by \$1,000; computing the change in income and payroll taxes (and VAT, for the VAT option) on that \$1,000 of wages; computing the tax change as a percent of \$1,000 (i.e., the effective rate on the marginal \$1,000 of wages); and then weighting these effective rates by current wages. EMTRs on capital gains are computed in the same manner.

Table 9A

**Effective Marginal Tax Rate (EMTR) and Changes in EMTR on Wages
Due to Options in 2015 Under the Current Law and Current Policy Baselines
for 60% Debt-to-GDP Target Year 2020**
(EMTR as a percent or percentage point change in EMTR)

Cash Income Percentile	EMTR on Wages Under Baseline	Change in EMTR on Wages Under Options		EMTR on Wages Under Options		
		VAT	Increase All Income Tax Rates	VAT	Increase All Income Tax Rates	
<u>Current Law Baseline</u>						
Lowest Quintile	20.9	1.4	0.9	22.3	21.8	
Second Quintile	33.2	2.0	1.8	35.2	35.0	
Middle Quintile	36.2	1.9	1.8	38.1	38.0	
Fourth Quintile	40.5	1.8	2.2	42.3	42.7	
Top Quintile	41.2	1.7	4.1	42.9	45.3	
All	38.8	1.8	3.0	40.6	41.8	
Addendum						
80-90	39.6	1.8	3.6	41.4	43.2	
90-95	40.6	1.7	2.3	42.3	42.9	
95-99	41.7	1.7	5.7	43.4	47.4	
Top 1 Percent	44.1	1.7	5.1	45.8	49.2	
Top 0.1 Percent	44.1	1.7	5.0	45.8	49.1	
<u>Current Policy Baseline</u>						
Lowest Quintile	17.4	7.6	3.4	25.0	20.8	
Second Quintile	32.3	10.0	8.8	42.3	41.0	
Middle Quintile	33.9	10.1	12.3	44.0	46.2	
Fourth Quintile	35.9	9.8	14.2	45.7	50.0	
Top Quintile	38.1	9.4	19.7	47.5	57.8	
All	35.7	9.6	15.7	45.3	51.4	
Addendum						
80-90	38.3	9.4	17.4	47.6	55.6	
90-95	37.3	9.6	17.4	46.8	54.6	
95-99	39.2	9.3	20.5	48.5	59.7	
Top 1 Percent	37.1	9.6	25.8	46.7	62.9	
Top 0.1 Percent	38.0	9.5	24.7	47.5	62.7	

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-7).

Table 9B

**Effective Marginal Tax Rate (EMTR) and Changes in EMTR on Wages
Due to Options in 2015 Under the Current Law and Current Policy Baselines
for 60% Debt-to-GDP Target Year 2025
(EMTR as a percent or percentage point change in EMTR)**

Cash Income Percentile	EMTR on Wages Under Baseline	Change in EMTR on Wages Under Options		EMTR on Wages Under Options		
		VAT	Increase All Income Tax Rates	VAT	Increase All Income Tax Rates	
Lowest Quintile	20.9	1.2	0.7	22.1	21.6	
Second Quintile	33.2	1.6	1.5	34.8	34.7	
Middle Quintile	36.2	1.5	1.5	37.7	37.7	
Fourth Quintile	40.5	1.4	1.8	41.9	42.3	
Top Quintile	41.2	1.4	3.3	42.6	44.5	
All	38.8	1.5	2.4	40.3	41.2	
Addendum						
80-90	39.6	1.5	2.9	41.1	42.5	
90-95	40.6	1.4	1.6	42.0	42.2	
95-99	41.7	1.4	4.7	43.1	46.4	
Top 1 Percent	44.1	1.3	4.2	45.4	48.3	
Top 0.1 Percent	44.1	1.3	4.1	45.4	48.2	
<u>Current Policy Baseline</u>						
Lowest Quintile	17.4	6.1	2.7	23.5	20.1	
Second Quintile	32.3	8.0	7.0	40.3	39.3	
Middle Quintile	33.9	8.0	9.9	41.9	43.8	
Fourth Quintile	35.9	7.8	11.4	43.7	47.2	
Top Quintile	38.1	7.5	15.8	45.6	53.8	
All	35.7	7.7	12.6	43.3	48.2	
Addendum						
80-90	38.3	7.5	13.9	45.7	52.2	
90-95	37.3	7.6	13.7	44.9	50.9	
95-99	39.2	7.4	16.2	46.6	55.4	
Top 1 Percent	37.1	7.7	21.0	44.8	58.1	
Top 0.1 Percent	38.0	7.5	19.9	45.6	57.9	

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-7).

Table 9C

**Effective Marginal Tax Rate (EMTR) and Changes in EMTR on Wages
Due to Options in 2015 Under the Current Law and Current Policy Baselines
for 60% Debt-to-GDP Target Year 2035
(EMTR as a percent or percentage point change in EMTR)**

Cash Income Percentile	EMTR on Wages Under Baseline	Change in EMTR on Wages Under Options		EMTR on Wages Under Options		
		VAT	Increase All Income Tax Rates	VAT	Increase All Income Tax Rates	
Lowest Quintile	20.9	1.7	1.0	22.6	21.9	
Second Quintile	33.2	2.4	2.1	35.6	35.3	
Middle Quintile	36.2	2.3	2.2	38.5	38.4	
Fourth Quintile	40.5	2.1	2.7	42.6	43.2	
Top Quintile	41.2	2.1	5.0	43.3	46.2	
All	38.8	2.2	3.6	41.0	42.4	
Addendum						
80-90	39.6	2.2	4.4	41.8	44.0	
90-95	40.6	2.1	3.0	42.7	43.6	
95-99	41.7	2.1	6.7	43.8	48.4	
Top 1 Percent	44.1	2.0	6.1	46.1	50.2	
Top 0.1 Percent	44.1	2.0	5.9	46.1	50.0	
<u>Current Policy Baseline</u>						
Lowest Quintile	17.4	5.8	2.6	23.2	20.0	
Second Quintile	32.3	7.6	6.7	39.9	39.0	
Middle Quintile	33.9	7.7	9.5	41.6	43.4	
Fourth Quintile	35.9	7.5	10.9	43.3	46.7	
Top Quintile	38.1	7.2	15.0	45.3	53.1	
All	35.7	7.3	12.0	43.0	47.6	
Addendum						
80-90	38.3	7.1	13.3	45.4	51.5	
90-95	37.3	7.3	13.0	44.6	50.3	
95-99	39.2	7.1	15.4	46.3	54.6	
Top 1 Percent	37.1	7.3	20.2	44.4	57.3	
Top 0.1 Percent	38.0	7.2	19.0	45.2	57.1	

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-7).

Table 10A

**Effective Marginal Tax Rate (EMTR) and Changes in EMTR on Capital Gains
Due to Options in 2015 Under the Current Law and Current Policy Baselines
for 60% Debt-to-GDP Target Year 2020**
(EMTR as a percent or percentage point change in EMTR)

Cash Income Percentile	EMTR on Capital Gains Under Baseline	Change in EMTR on Capital Gains Under Options		EMTR on Capital Under Options	
		VAT	Increase All Income Tax Rates	VAT	Increase All Income Tax Rates
<i>Current Law Baseline</i>					
Lowest Quintile	4.9	1.6	0.3	6.5	5.2
Second Quintile	6.6	1.5	0.8	8.1	7.4
Middle Quintile	11.5	1.4	1.4	12.9	12.9
Fourth Quintile	16.0	1.3	1.9	17.3	17.9
Top Quintile	23.4	1.1	2.3	24.5	25.7
All	22.6	1.2	2.4	23.8	25.0
Addendum					
80-90	18.7	1.3	2.1	20.0	20.8
90-95	22.2	1.2	1.1	23.4	23.3
95-99	24.8	1.1	2.2	25.9	27.0
Top 1 Percent	23.4	1.1	2.5	24.5	25.9
Top 0.1 Percent	23.5	1.1	2.5	24.6	26.0
<i>Current Policy Baseline</i>					
Lowest Quintile	1.4	8.3	0.1	9.7	1.5
Second Quintile	1.1	8.5	0.3	9.6	1.3
Middle Quintile	5.3	8.0	3.7	13.3	9.0
Fourth Quintile	9.1	7.5	6.3	16.6	15.4
Top Quintile	17.9	6.5	9.7	24.4	27.6
All	16.8	6.6	9.2	23.5	26.0
Addendum					
80-90	13.1	7.1	8.9	20.2	22.1
90-95	14.6	6.9	8.7	21.5	23.3
95-99	19.9	6.3	7.7	26.2	27.6
Top 1 Percent	18.1	6.5	10.3	24.6	28.4
Top 0.1 Percent	18.2	6.5	10.4	24.7	28.6

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-7).

Table 10B

**Effective Marginal Tax Rate (EMTR) and Changes in EMTR on Capital Gains
Due to Options in 2015 Under the Current Law and Current Policy Baselines
for 60% Debt-to-GDP Target Year 2025**
(EMTR as a percent or percentage point change in EMTR)

Cash Income Percentile	EMTR on Capital Gains Under Baseline	Change in EMTR on Capital Gains Under Options		EMTR on Capital Under Options	
		VAT	Increase All Income Tax Rates	VAT	Increase All Income Tax Rates
<i>Current Law Baseline</i>					
Lowest Quintile	4.9	1.3	0.3	6.2	5.2
Second Quintile	6.6	1.2	0.6	7.8	7.2
Middle Quintile	11.5	1.1	1.1	12.6	12.6
Fourth Quintile	16.0	1.0	1.6	17.0	17.6
Top Quintile	23.4	0.8	1.9	24.3	25.3
All	22.6	1.0	1.9	23.6	24.5
Addendum					
80-90	18.7	1.0	1.7	19.7	20.4
90-95	22.2	1.0	0.8	23.2	23.0
95-99	24.8	0.9	1.8	25.7	26.6
Top 1 Percent	23.4	0.9	2.0	24.3	25.4
Top 0.1 Percent	23.5	0.9	2.0	24.4	25.5
<i>Current Policy Baseline</i>					
Lowest Quintile	1.4	6.5	0.1	8.0	1.5
Second Quintile	1.1	6.8	0.2	7.9	1.3
Middle Quintile	5.3	6.4	3.0	11.7	8.3
Fourth Quintile	9.1	6.0	5.1	15.1	14.2
Top Quintile	17.9	5.2	7.7	23.1	25.6
All	16.8	5.3	7.3	22.1	24.2
Addendum					
80-90	13.1	5.6	7.2	18.8	20.3
90-95	14.6	5.5	6.9	20.1	21.5
95-99	19.9	5.0	5.9	24.9	25.8
Top 1 Percent	18.1	5.2	8.3	23.3	26.3
Top 0.1 Percent	18.2	5.2	8.4	23.4	26.6

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-7).

Table 10C

**Effective Marginal Tax Rate (EMTR) and Changes in EMTR on Capital Gains
Due to Options in 2015 Under the Current Law and Current Policy Baselines
for 60% Debt-to-GDP Target Year 2035**
(EMTR as a percent or percentage point change in EMTR)

Cash Income Percentile	EMTR on Capital Gains Under Baseline	Change in EMTR on Capital Gains Under Options		EMTR on Capital Under Options	
		VAT	Increase All Income Tax Rates	VAT	Increase All Income Tax Rates
<i>Current Law Baseline</i>					
Lowest Quintile	4.9	1.9	0.4	6.8	5.3
Second Quintile	6.6	1.9	0.9	8.5	7.5
Middle Quintile	11.5	1.7	1.7	13.2	13.2
Fourth Quintile	16.0	1.6	2.3	17.6	18.3
Top Quintile	23.4	1.3	2.8	24.7	26.2
All	22.6	1.4	2.8	24.0	25.4
Addendum					
80-90	18.7	1.5	2.6	20.2	21.3
90-95	22.2	1.4	1.4	23.6	23.6
95-99	24.8	1.3	2.6	26.1	27.4
Top 1 Percent	23.4	1.4	3.0	24.8	26.4
Top 0.1 Percent	23.5	1.3	2.9	24.8	26.4
<i>Current Policy Baseline</i>					
Lowest Quintile	1.4	6.2	0.1	7.6	1.5
Second Quintile	1.1	6.5	0.2	7.6	1.3
Middle Quintile	5.3	6.1	2.9	11.4	8.2
Fourth Quintile	9.1	5.7	4.9	14.8	13.9
Top Quintile	17.9	5.0	7.4	22.8	25.2
All	16.8	5.0	7.0	21.9	23.8
Addendum					
80-90	13.1	5.4	6.8	18.5	20.0
90-95	14.6	5.2	6.6	19.9	21.2
95-99	19.9	4.8	5.6	24.6	25.5
Top 1 Percent	18.1	4.9	7.9	23.0	26.0
Top 0.1 Percent	18.2	4.9	8.0	23.2	26.2

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-7).

Changes in Economic Distortions

In addition to changing EMTRs, which were calculated above for items that are in the income and VAT tax bases, the options could distort economic decisions because of exclusions from the income or VAT tax bases, or differences in the tax treatment of certain portions of the income or VAT tax bases.

Both the income tax and the VAT bases exclude non-market production, such as cleaning your own house and leisure (Table 11). If housecleaning is produced in the market—that is, if you hire someone to clean your house—you must earn income to pay for it (which is taxed under the income tax), and the payment itself would be taxed under the VAT. But if you clean the house yourself, the value of your time spent housecleaning is not taxed, and the value of the housecleaning would not be subject to VAT. Similarly, time spent working produces income subject to income tax, whereas leisure time does not. So both the income tax and the VAT distort the choice between non-market and market production, because non-market production is untaxed.

Under the VAT, the tax on consumption out of this year's income is the same, in present value, as the tax on consumption in the future that is financed by saving out of this year's income, because the VAT would not tax the normal return to saving.³⁴ However, the income tax generally taxes the normal return to saving,³⁵ so consumption out of this year's income is greater in present value than consumption in the future financed by saving out of this year's income. Thus, the income tax, but not the VAT, favors present over future consumption.

The income tax provides incentives for certain forms of consumption, such as health care financed by employer-provided insurance and homeownership. The VAT considered here would also provide incentives to consume items that are omitted from the VAT base. So both taxes distort choices among consumer goods.

The income tax also provides incentives for certain forms of investment, such as research and development, investment by small business, and investments that receive accelerated forms of cost recovery. These investment incentives distort the investment pattern. The VAT provides an incentive that is equivalent to allowing expensing for all investment by all businesses, and so is neutral with respect to investment choices.

The corporate income tax applies only to income earned by regular (“C”) corporations, whereas income earned by businesses organized in other forms (e.g., as sole proprietorships, partnerships, or S corporations) is taxed only under the individual income tax. The income of C corporations is also taxed when received by individuals as dividends, or realized as capital gains on the sale of stock that reflects the value of retained earnings (this is often referred to as the “double tax” on corporate income). So the two levels of tax on income of corporations discourage use of the C

³⁴ A VAT does tax supernormal returns, but these returns do not affect the choice of whether to consume now or in the future.

³⁵ The normal return to saving in qualified retirement plans and certain other forms of saving is not taxed under the current income tax.

Table 11

Effects of Options on Deadweight Loss

Source of Deadweight Loss	Income Tax Rate Increases	VAT
<u>Economic Distortions</u>		
Market vs. Non-Market Production	Distortion increased by rate increases	Distorts
Present vs. Future Consumption	Distortion increased by rate increases	No distortion
Choices Among Consumer Goods	Distortion increased for goods and services that are tax-favored	Distorts since some goods and services get favorable treatment
Relative Returns Among Capital goods	Distortion increased for investments that are tax-favored	No distortion
Forms of Business Organization	Distortion increased by higher level of individual to corporate rates	No distortion
Forms of Business Finance	Corporate finance distortion could be reduced	No distortion
<u>Administrative and Compliance Costs</u>		
Administrative Costs for IRS	Minimal	Significant startup and ongoing costs
Compliance Costs for Individuals	Some costs (for tax planning)	Minimal
Compliance Costs for Business	Non-corporate businesses would have some tax planning costs	Significant startup and ongoing costs

corporate form compared with other forms of business organization. Because it is administratively difficult for many large, publicly-traded business enterprises to organize themselves as partnerships or S corporations, the tax system also favors those industries (such as agriculture and real estate) where the use of flow-through businesses is more prevalent over industries where the dominant business form is the C corporation. There are other distortions in the taxation of C corporations' income. The income tax favors the use of corporate debt, which is subject to a single level of tax, over corporate equity. It also distorts the choice of assets by investors, leading to an inefficient allocation of risk-bearing. Individuals in high tax brackets are encouraged to hold equity, which benefits from preferential treatment of capital gains (and dividends under the Current Policy Baseline) in the individual income tax, while individuals in low tax brackets and those investing through tax-free retirement plans are encouraged to hold bonds, which are fully taxable.

In contrast, a VAT does not discriminate among forms of business organization or sources of business finance, so it would not distort decisions about organizational form, the use of debt versus equity for business finance, or portfolio choices of individual investors.

Although a VAT would cause fewer economic distortions than an income tax, the overall effect on economic distortions from raising any given amount of revenue from a VAT could be larger or smaller than from raising the same revenue from the income tax. Only careful and detailed empirical analysis can indicate the likely size of economic distortions, which depend critically on the specific choices made about tax bases and rates, the timing of implementation, and administrative mechanisms, and the responsiveness of households and businesses to those choices.

Administrative and Compliance Burdens

The option to increase income tax rates would lead to some tax planning costs for both individuals and businesses, who would try to minimize the impact of higher rates (particularly as they were introduced, but also over time) through changes in the timing of income or deductions, changes in how they characterize income (e.g., between wages and capital gains), and in other ways. But except for some increased efforts to seek tax-favored or exempt income, raising rates would not require additional calculations or new forms, and so the additional compliance burden would be small. The Internal Revenue Service (IRS) could easily implement higher income tax rates.

A VAT would be a new tax for the United States. The VAT outlined in this paper would be significantly less complex than the current income tax, and would not impose additional burdens on non-business taxpayers, aside from any additional costs of claiming the rebate. A new VAT would nonetheless be quite complex for businesses, nonprofits and governments, and would involve substantial startup costs. A VAT would require the IRS, or a new agency, to establish a new administrative apparatus, with its own forms, instructions, regulatory guidance, processing, taxpayer service, and collection and enforcement activities. While much of this apparatus might be similar to what exists in the IRS to administer taxes, it would still be a major addition to the tax administrative structure. These costs would be incurred regardless of whether the VAT is administered by the IRS or a new agency. A new VAT would require a significant appropriation

in advance of startup to establish the VAT rules and procedures and to pay for initial taxpayer education programs. And it would require additional annual appropriations thereafter.

Parallel to the federal government's administrative needs, businesses and other entities would have to establish internal processes to learn about and comply with the VAT. Small businesses would likely be exempt from the VAT, but even exempt businesses would have some compliance costs to learn about it and determine whether exemption was in their best interests. Large businesses would all be directly involved in collecting and remitting VAT, or, if excluded from it through zero-rating, at a minimum in determining their eligibility for VAT refunds and filing refund claims. The commercial activities of nonprofits and governments would be subject to VAT, entailing compliance costs similar to those of any other business subject to VAT. Further, the excluded activities of governments and nonprofits would entail compliance costs similar to those of businesses excluded from VAT.

A national VAT could provide a template to help reform state and local retail sales taxes. It could be used to extend their bases to apply to services purchased by households, which would remove the cascading of tax that occurs from taxing sales between businesses, and would resolve the taxation of Internet and other remote sellers. These reforms would most easily be achieved if state and local sales taxes piggybacked on the national VAT. Combining administration of a national VAT and piggybacked state and local sales taxes would reduce compliance costs for businesses and total administrative costs for governments.

**Appendix A:
Tax Parameters Under the Current Law and Current Policy Baselines**

Table A-1

**2015 Individual Income Tax Rates
Under the Current Law and Current Policy Baselines
(2015 dollars)**

Taxable Income		Tax Rate Under:	
Over	But Not Over	Current Law Baseline	Current Policy Baseline
<i><u>Single</u></i>			
\$0	\$8,925	15.0%	10.0%
\$8,925	\$36,300	15.0%	15.0%
\$36,300	\$87,900	28.0%	25.0%
\$87,900	\$183,350	31.0%	28.0%
\$183,350	\$398,600	36.0%	33.0%
\$398,600	--	39.6%	35.0%
<i><u>Married Filing Jointly</u></i>			
\$0	\$17,850	15.0%	10.0%
\$17,850	\$60,600	15.0%	15.0%
\$60,600	\$72,600	28.0%	15.0%
\$72,600	\$146,450	28.0%	25.0%
\$146,450	\$223,200	31.0%	28.0%
\$223,200	\$398,600	36.0%	33.0%
\$398,600	--	39.6%	35.0%
<i><u>Head of Household</u></i>			
\$0	\$12,750	15.0%	10.0%
\$12,750	\$48,600	15.0%	15.0%
\$48,600	\$125,500	28.0%	25.0%
\$125,500	\$203,250	31.0%	28.0%
\$203,250	\$398,600	36.0%	33.0%
\$398,600	--	39.6%	35.0%

Source: Urban-Brookings Tax Policy Center Microsimulation Model (versions 0509-6 and 0509-7).

Table A-2
2015 Individual Income Tax, AMT, Estate Tax and Payroll Tax Parameters
Under the Current Law and Current Policy Baselines
(2015 dollars)

Provision	Current Law Baseline	Current Policy Baseline
<i>Individual Income Tax Parameters</i>		
Standard Deduction Amounts	Single: \$6,100 (indexed) MFJ: \$10,150 (indexed) HoH: \$8,950 (indexed)	Single: \$6,100 (indexed) MFJ: \$12,200 (indexed) HoH: \$8,950 (indexed)
Personal Exemption Amount	\$3,900 (indexed)	\$3,900 (indexed)
Capital Gains	Maximum rate is 20% (10% if gain would otherwise be taxed at 15%); for property held more than five years maximum rate is 18% (8%); "Unearned Income" surcharge may apply	Maximum rate is 15% (0% if gain would otherwise be taxed at 10% or 15%); "Unearned Income" surcharge may apply
Qualified Dividends	Taxed at ordinary income tax rates	Taxed at same rates as capital gains
"Net Investment Income" (Capital gains, Dividends, Interest, Rents, Royalties, etc.)	For MFJ taxpayers with MAGI over \$250,000 (unmarried taxpayers with MAGI over \$200,00) (neither level indexed), a surcharge rate of 3.8% applies to the lesser of unearned income and the amount by which MAGI exceeds the threshold	Same as Current Law
Limitation on Itemized Deductions ("Pease")	Deductions (other than medical expenses, investment interest, and casualty, theft, or wagering losses) reduced (but not more than 80%) by 3% of excess of AGI over \$178,250 (indexed)	N/A (repealed)
Personal Exemption Phase-Out ("PEP")	Deduction for personal exemptions reduced by 2% for each \$2,500 (or fraction thereof) of excess of AGI over: Single: \$178,250 (indexed) MFJ: \$267,400 (indexed) HoH: \$222,800 (indexed)	N/A (repealed)
Child Tax Credit	\$500 nonrefundable credit for each child under age 17, phased out by \$50 for each \$1,000 (or fraction thereof) of the excess of modified AGI over: MFJ: \$110,000 (not indexed) S & HoH: \$75,000 (not indexed) Credit refundable for taxpayers with 3 or more children to extent taxpayers' Social Security taxes exceed their EITC Both portions limited by the AMT	\$1,000 nonrefundable credit for each child under age 17, phased out by \$50 for each \$1,000 (or fraction thereof) of the excess of modified AGI over: MFJ: \$110,000 (not indexed) S & HoH: \$75,000 (not indexed) Refundable portion of credit based on 15% of AGI in excess of \$3,000 (not indexed); taxpayers with 3 or more children can use current law alternative if it is higher Neither portion limited by the AMT

Table A-2 -- Continued

Provision	Current Law Baseline	Current Policy Baseline
<p>EITC</p>	<p>Refundable credit for childless taxpayers between ages of 25 and 64 and taxpayers with one child or two or more children; credit phases in with earned income, reaches a maximum, then phases out with the higher of earned income or AGI, as follows:</p> <p><u>Childless</u></p> <p>Phasein rate: 7.65%</p> <p>Phasein ends: \$6,380 (indexed)</p> <p>Max credit: \$488 (indexed)</p> <p>Phaseout begins: \$7,980 (indexed)</p> <p>Phaseout rate: 7.65%</p> <p><u>One Child</u></p> <p>Phasein rate: 34%</p> <p>Phasein ends: \$9,570 (indexed)</p> <p>Max credit: \$3,254 (indexed)</p> <p>Phaseout begins: \$17,540 (indexed)</p> <p>Phaseout rate: 15.98%</p> <p><u>Two or More Children</u></p> <p>Phasein rate: 40%</p> <p>Phasein ends: \$13,430 (indexed)</p> <p>Max credit: \$5,372 (indexed)</p> <p>Phaseout begins: \$17,540 (indexed)</p> <p>Phaseout rate: 21.06%</p> <p>The credit is limited by the AMT</p>	<p>Differs from Current Law in three key respects:</p> <p>(1) there is a credit for three or more children with the following parameters: <u>Three or More Children</u></p> <p>Phasein rate: 45%</p> <p>Phasein ends: \$13,430 (indexed)</p> <p>Max credit: \$6,044 (indexed)</p> <p>Phaseout begins: \$17,540 (indexed)</p> <p>Phaseout rate: 21.06%</p> <p>(2) the phaseout begins (and ends) for MFJ at levels \$5,340 (indexed) above those specified for Current Law (which apply to unmarried filers under the Current Policy Baseline); and</p> <p>(3) the credit is not limited by the AMT.</p> <p>There are also some simplifications from pre-2001 law.</p>
<p>Education Credits</p>	<p><u>HOPE Credit</u></p> <p>Nonrefundable credit for tuition and fees up to \$2,600 for first two years of at least half time enrollment in a post secondary degree or certificate program. Credit is 100% of first \$1,300 and 50% of next \$1,300 of expenses (max of \$1,950/student). (Amounts indexed for inflation)</p> <p><u>Lifetime Learning Credit</u></p> <p>Nonrefundable credit of 20% for tuition and fees up to \$10,000 for enrollment in a post secondary course (maximum credit is \$2,000 per student).</p> <p><u>Phaseout</u></p> <p>Both credits phase out pro rata over a \$20,000 range for MFJ (\$10,000 for S & HoH) (ranges not indexed) at MAGI beginning at:</p> <p>MFJ: \$107,000 (indexed)</p> <p>S & HoH: \$53,000 (indexed)</p>	<p><u>AOTC (modified HOPE credit)</u></p> <p>Partially refundable credit for tuition and fees up to \$4,000 for first four years of at least half time enrollment in a post secondary degree or certificate program. Credit is 100% of first \$2,000 and 25% of next \$2,000 of expenses (max of \$2,500/student). (Amounts not indexed for inflation)</p> <p><u>Phaseout</u></p> <p>Credit phaseouts begin at MAGI of</p> <p>MFJ: \$160,000 (not indexed)</p> <p>S & HoH: \$80,000 (not indexed)</p> <p><u>Lifetime Learning Credit</u></p> <p>Same as Current Law</p>

Table A-2 -- Continued

Provision	Current Law Baseline	Current Policy Baseline
Other Education Incentives	No exclusion for NHSC and Armed Forces Health Professions scholarships or for employer-provided educational assistance unless the expenses are related to the employee's current job; student loan interest (up to \$2,500) only deductible for 60 months and phaseout range for MFJ is \$60,000 to \$75,000 (\$40,000 to \$55,000 for unmarried taxpayers) (ranges not indexed); contributions to Coverdell education savings accounts limited to \$500, the phaseout range for MFJ is \$150,000 to \$160,000 (not indexed) and other EGTRRA changes no longer apply; EGTRRA education-related arbitrage and private activity tax-exempt bond provisions no longer apply	Continues exclusions for NHSC and Armed Forces Health Professions scholarships and for employer-provided educational assistance; the deduction for student loan interest with no time limit and a phaseout range for MFJ of \$125,000 and \$155,000 (\$60,000 and \$75,000 for unmarried taxpayers) (ranges indexed); the deduction for contributions to Coverdell education savings accounts with a \$2,000 contribution limit, a phaseout range for MFJ filers of \$190,000 to \$220,000 (\$95,000 and \$110,000 for unmarried taxpayers) (ranges not indexed), extension of purposes to elementary and secondary education, and other EGTRRA changes; and education-related tax-exempt bond provisions in EGTRRA
Child Care	The CDCTC is 30% of expenses up to \$2,400 for 1 dependent and \$4,800 for two or more, with the rate reduced by 1% (but not below 20%) for each \$2,000 that AGI exceeds \$10,000 (no amounts indexed) There is no child care-related employer credit	The CDCTC is 35% of expenses up to \$3,000 for 1 dependent and \$6,000 for two or more, with the rate reduced by 1% (but not below 20%) for each \$2,000 that AGI exceeds \$15,000 (no amounts indexed) Employers can receive a credit of 25% for child care expenses and 10% of child care resource and referral services for employees, up to \$150,000 per year
AMT Parameters		
Exemption Amounts	Exemption amounts are: MFJ: \$45,000 (not indexed) S & HoH: \$33,750 (not indexed)	Exemption amounts are: MFJ: \$78,250 (indexed) S & HoH: \$50,900 (indexed)
28 Percent Bracket Threshold	\$175,000 (not indexed)	\$175,000 (not indexed)
Exemption Phase-Out Threshold	Exemption phaseout thresholds are: MFJ: \$150,000 (not indexed) S & HoH: \$112,500 (not indexed)	Exemption phaseout thresholds are: MFJ: \$150,000 (not indexed) S & HoH: \$112,500 (not indexed)
Limitation on Personal Credits	With the exception of the child credit and several other credits, nonrefundable personal credits are allowed only to the extent that regular tax liability exceeds AMT liability	All nonrefundable personal credits are allowed against both regular and AMT liability

Table A-2 -- Continued

Provision	Current Law Baseline	Current Policy Baseline
<i>Estate Tax Parameters</i>		
Exemption Amount	\$1 million (not indexed)	\$5.26 million (indexed)
Top Rate	55%	35%
<i>Payroll Tax Parameters</i>		
Base	OASDI: Wages and self-employment up to cap of \$129,300 HI: Wages and self-employment (no floor or cap)	Same as Current Law
Rate	OASDI: 6.2% ¹ HI: 1.45% ¹ + 0.9% surcharge ²	Same as Current Law

Sources: Urban-Brookings Tax Policy Center Microsimulation Model (versions 0509-6 and 0509-7) and Joint Committee on Taxation, "Technical Explanation of the Revenue Provisions Contained in the "Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010," Scheduled for Consideration by the United States Senate" (JCX-55-10).

¹ Rate applies to both employers and employees.

² Surcharge applies to MFJ taxpayers with MAGI over \$250,000 (unmarried taxpayers with MAGI over \$200,000) (neither level indexed).

Appendix B: The Urban-Brookings Tax Policy Center Microsimulation Model

This Appendix provides a summary of how the TPC model is constructed, how it is extrapolated to represent future years, the macro- and microeconomic assumptions used in modeling and the definition of key terms used in the TPC model and in the tax law.

How the Model is Constructed

The TPC model is a “microsimulation” model, one that is based on records for individual taxpayer units. The basic microdata file used in the TPC model is the Public Use File (PUF) prepared by the Statistics of Income (SOI) Division of IRS. The PUF is a version of the annual SOI sample of individual income tax returns that has been processed to insure that the record for a specific taxpayer cannot be determined, so is smaller than the full SOI sample.³⁶ The full SOI sample is very large and highly stratified on income. In 2008 for example, the sample size was 329,000 returns (of 142.6 million returns filed), with sampling rates ranging from 0.1 percent (for income groups covering most filers) to 100 percent (for very high income groups).³⁷ The SOI file includes comprehensive data on the income reported on tax returns, as well as reported amounts for exemptions, deductions, income tax liability, tax credits, self-employment tax and tax payments. Sampling error for all common items is quite small because of the large sample size. Extensive testing of the data also reduces nonsampling error. The current TPC model is based on the 2004 PUF and will be updated to the recently-released 2006 PUF.

The PUF for each year contains all of the information required to accurately compute individual income tax liability, and most of the information required to compute payroll taxes (only wage splits on joint returns, which can be imputed from other sources, is missing). These are the largest two sources of federal tax revenues, accounting for over 80 percent of the total. However, like the full SOI sample from which it is created, the PUF lacks basic demographic information, information on nontaxable forms of income including transfer payments, and information on savings, consumption and wealth. But the PUF does contain sufficient information to permit statistical matching to, or imputations from regressions on, other microdata files.

TPC supplements the PUF through matching and imputations to provide missing information. The most important statistical match is to the Current Population Survey (CPS), conducted annually by the Bureau of the Census in the U.S. Department of Commerce. The CPS is a monthly survey of a sample of 57,000 households (representing 117.2 million households in 2008) that is stratified on area of residence and represents the civilian noninstitutional population

³⁶ This processing is sometimes referred to as “disclosure proofing,” because it is designed to avoid disclosure (possible identification) of the tax return information for a specific taxpayer. The steps in this process include averaging certain data fields which might contain unique information that is publicly available (and therefore would identify a taxpayer) across multiple return records (called “blurring”), and subsampling returns that are sampled at very high rates in the SOI sample.

³⁷ For further information on the SOI sample see U.S. Department of the Treasury, *Individual Income Tax Returns, 2008* (2010).

of the United States.³⁸ The primary purpose of the CPS is to obtain data on employment, unemployment and other information related to employment such as hours worked, industry, occupation and wages. The CPS also collects information on the demographic characteristics of the population, such as age, sex, race, marital status, educational attainment and family structure. Further, in March of each year the CPS has a supplement that collects additional data on work experience, income, noncash benefits, and migration.

The basic steps in the statistical match to the CPS are to create tax units from the households on the CPS, and to conduct the match through a constrained matching technique (called predictive mean matching). TPC uses the resulting CPS match to impute nonfilers, age and gender, wage splits for married couples, cash and in-kind transfers and employer coverage for health insurance. Through a similar process, TPC uses matching or regression imputations to other files to provide information on pension coverage and assets, the value of health insurance coverage, saving, consumption levels and shares among different goods and services, and wealth. Table B-1 summarizes the sources of data for the TPC microsimulation model.

The simulation portion of the model is a set of calculators – for individual income taxes, payroll taxes, and estate taxes – that use the information on the matched data file to calculate individual income, payroll (OASDI and HI) and estate tax liabilities under current law and under proposals. There is also a calculator for a portion of the VAT burden on relative prices, but the basic VAT calculations are performed “off-model” and attributed to specific forms of income. Corporate income tax calculations also are performed off-model, with the burden of current law or proposed changes attributed to capital income on the model for distributional estimates. The model also contains programs that gather the results of calculations and prepares tabular outputs.

Extrapolation of the Model

The PUF matched to the CPS and other files represents the entire population in the base year of the PUF. The current (2004 PUF-based) TPC model contains 162,000 unique taxpayer records.³⁹ This base-year data file is “aged” to future years based on forecasts and projections for the growth in income by type from the Congressional Budget Office (CBO), the growth in the number of tax returns filed from the IRS, and the demographic composition of the population from the Bureau of the Census.⁴⁰ Aging through the end of the budget period (which currently ends in 2020) is done in two stages. In Stage 1, dollar amounts for income, adjustments, deductions and credits are increased by their corresponding forecasted per capita growth rates. CBO provides forecasts for most major sources of income (such as wages, capital gains, interest, dividends, Social Security benefits), so the per capita growth rates are based on these forecasted amounts. For other items that are not separately forecast by CBO, TPC generally uses the CBO forecast for per capita personal income for the growth rate. In Stage 2, a linear programming

³⁸ The CPS also includes Armed Forces personnel living off post or on post with their families. For a full description of the CPS, see U.S. Department of Commerce, Bureau of the Census, “Current Population Survey, Annual Social and Economic (ASEC) Supplement” (2009).

³⁹ The file contains a total of approximately 200,000 records, since some records are split as part of the matching process.

⁴⁰ In some instances the PUF is “re-benchmarked” to the latest SOI data, based on published tables, so that the beginning point of the aging procedure is this re-benchmarked file.

Table B-1
Data Sources for the
Urban-Brookings Tax Policy Center Microsimulation Model

Model Component		Data Source
Base Microdata File		SOI (PUF)
Nonfilers		Statistical match to CPS, then identification of nonfiling units
Age and Gender		CPS match file
Wage Splits		CPS match file
Cash Transfers		CPS match file
In-Kind Transfers (except medical)		CPS match file
Pensions	Coverage	SIPP, PSID
	Assets	SCF (dc plans)
Health Insurance	Coverage	CPS match file
	Value	MEPS, benchmarked to NHA
Education		Imputed from NPSAS
Savings		Imputation from DYNASIM3
Consumption	Level	CE, benchmarked to NIPA
	Shares	CE
Wealth		SCF

Source: Jeffrey Rohaly, Adam Carasso and Mohammed Adeel Saleem, “The Urban-Brookings Tax Policy Center Microsimulation Model: Documentation and Methodology for Version 0304” (2005).

algorithm is used to adjust the weights on each record so that aggregate targets for major sources of income, adjustments and deductions are hit. The distribution of total income or any source of income is not targeted.

Modeling Assumptions

The CBO macroeconomic forecast for the price level and output (GDP) under current law are assumed to be unchanged by any proposed change in taxes. So, no “macroeconomic feedback” effects are taken into account in revenue, distributional, or other estimates produced by TPC’s model. This “macro static” assumption is the standard budget estimating assumption followed by all the government agencies responsible for tax modeling, including the U.S. Treasury Department’s Office of Tax Analysis (OTA), the staff of the Congressional Joint Committee on Taxation (JCT), and the Tax Analysis Division in the Congressional Budget Office (CBO).

Microeconomic behavior, however, is assumed to be affected by proposed tax changes and is taken into account to the extent possible in revenue and other estimates (except distributional estimates, see below). “Micro dynamic” behavior may be of three types. First, taxpayers may simply change the timing of an action that affects their tax liability. For example, if tax rates are scheduled to increase next year, taxpayers may delay deductions such as charitable contributions and, if they can, speed up income such as capital gains realizations. Second, taxpayers may change the legal form in which they conduct transactions or business. For example, if IRA or 401(k) contribution limits are increased, some taxpayers may simply shift their savings from taxable accounts to an IRA or 401(k) without changing their level of savings. As another example, the relationship between the tax rates on corporations and on individuals (and specifically capital gains and dividends) may encourage some taxpayers to change the legal form of their business without changing the amount of business they do. Third, taxpayers may alter their mix of consumption, financial investment or real investment without changing aggregate factor supplies (which would imply a change in real GDP, which is assumed to remain unchanged).

The TPC model contains two forms of microeconomic behavioral parameters to reflect the second and third types of behavior. One form is a response function for capital gains, and separately for “ordinary” (non-capital gains) income, to changes in tax rates. For capital gains, responsiveness to tax rate changes increases with the rate, while for ordinary income the response (the “taxable income elasticity”) does not change. The response to changes in tax rates on ordinary income is meant to represent various behavioral shifts, such as taking more compensation in the form of fringe benefits or consuming more deductible items, without being explicit about what those shifts are. A second form is specific responses to certain tax changes. For example, taxpayers are modeled as shifting taxable savings to pay down mortgages in response to proposed limitations on the mortgage interest deduction. Pure timing responses, the first type of behavior, are not incorporated in the model and have to be taken into account “off-model.”

As noted above, distributional analysis is performed without taking into account microeconomic behavior; the estimates are “static.”⁴¹ Since taxpayers can avoid some of the effects of higher taxes through behavior, this static behavior assumption will overstate the burden of tax increases. However, this assumption will understate the benefit of tax cuts, since behavioral responses will allow taxpayers to take greater advantage of them. So, the static assumption is never quite right, but it provides consistent treatment of tax increases and tax decreases, which is particularly important in proposals that combine increases and decreases. Further, the static assumption allows direct comparisons of distributional estimates across proposals, which would not be possible if behavioral changes were included in the estimates.

⁴¹ Note that while micro behavior is static, taxpayers are still allowed to optimize their tax calculation – for example, by switching from itemizing to taking the standard deduction.

Definitions of Tax Law and TPC Model Terms⁴²

AGI (Adjusted Gross Income). The amount of income counted to determine a filing unit's tax liability, measured before subtracting personal exemptions and the standard or itemized deductions. AGI excludes certain types of income received (e.g., municipal bond interest and most Social Security income) or payments made (e.g., alimony paid, IRA deductions, moving expenses). (See also Taxable Income.)

Alternative Minimum Tax (AMT). A supplemental income tax originally intended to ensure that high-income filers do not take undue advantage of tax preferences to reduce or eliminate their tax liability. The most common "preference" items, however, are for state and local tax deductions, personal exemptions, and miscellaneous itemized deductions -- not items normally thought of as preferences or shelters. Increasingly, this complicated tax applies to middle-income filers, in part because its exemption was not indexed for inflation and in part because Congress did not adjust the AMT to coordinate it with the 2001-2003 (EGTRRA and JGTRRA) tax cuts.

Capital Gains. The difference between the purchase and sale price of capital assets net of brokers' fees and other costs. Capital gains are generally taxable upon sale (or "realization"). Long-term gains, those realized after a year or longer, are taxed at lower rates than short-term gains, which are taxed at the same rates as other ("ordinary") income, such as wages and salaries. Taxpayers can deduct up to \$3,000 of net losses (losses in excess of gains) each year against other income; taxpayers can carry over losses above that amount and deduct them from future gains.

Carryover of basis. Transfer of basis value to a person to whom assets are transferred. The basis of an asset equals its cost, with some adjustments for items like depreciation. When an asset is sold, the realized gain equal sales price less basis (e.g., General Motors stock bought for \$1,000 and sold for \$3,000 has a basis of \$1,000 and a gain of \$2,000). The federal estate tax not only imposes no tax on unrealized capital gains in the decedent's estate, but also allows heirs to set the basis of an inherited asset equal to the asset's value on the date the decedent died. (In the example, the heirs get to treat \$3,000 as their basis even though no one ever paid tax on the \$2,000 of gains). Carryover of basis would require heirs to assume the decedent's basis for all inherited assets (\$1,000 in the example). Under current law, beneficiaries of gifts from living donors must carry over the donor's basis. However, EGTRRA temporarily eliminated the estate tax and required carryover of basis for the estates of people who died in 2010, but this treatment was eliminated (unless its application is elected by the estate's executor) by the tax cut extensions enacted at the end of 2010.

Cash Income. A broad income concept used for distribution tables similar to the measures used by the Joint Committee on Taxation and Treasury's Office of Tax Analysis. Cash income equals adjusted gross income (AGI) minus taxable state and local tax refunds, plus total deductions from AGI (IRA deductions, student loan interest deduction, alimony paid, one-half of self employment tax, moving expenses, penalty on early withdrawal of savings, self-employed health

⁴² The entries, with some updates, are from the TPC Glossary at <http://www.taxpolicycenter.org/briefing-book/glossary/definitions.cfm>.

insurance deduction and medical savings account deduction, Keogh and self-employed SEP and SIMPLE plans), non-taxable pension income, tax-exempt interest, non-taxable social security benefits, cash transfers, workers' compensation, employers' contribution to tax deferred retirement savings plans, employers' share of payroll taxes, and corporate tax liability.

Charitable Deductions. Deductions allowed for gifts to charity. Since 1917, individual federal taxpayers have been allowed to deduct gifts to charitable and certain other nonprofit organizations. Corporations also are allowed a deduction under a stricter limit. Among other reasons, the deduction was intended to subsidize the activities of private organizations that provide viable alternatives to direct government programs.

Child and Dependent Care Credit (CDCTC). A tax credit based on eligible child care expenses incurred by some taxpayers deemed to be gainfully employed or students. The credit varies with the expenses incurred, the number of eligible children and the taxpayer's AGI. A separate exclusion is available for some employer-provided child care.

Child Credit (CTC). A tax credit of \$1,000 per qualifying child (in 2010, scheduled to revert to \$500 at the end of 2012). The credit is partially refundable for filers with earnings over a threshold, with the refundable portion limited to 15 percent of earnings above the threshold. This form of refundability is scheduled to expire at the end of 2012, leaving refundability only in limited instances for families with three or more children.

Consumer Price Index. A measure of the change over time in the prices, inclusive of sales and excise taxes, paid by urban households for a representative market basket of consumer goods and services.

Consumption Tax. Tax based on consumption of goods or services. Term often applied to sales taxes such as a retail sales tax or value-added tax (VAT), but the term applies to any tax that exempts net saving from the base. Consumption taxes can be collected wholly from retailers (such as the retail sales taxes levied by U.S. state and local governments), from all businesses on the difference between their sales and purchases (such as the "value-added taxes" imposed by national governments throughout the world, with the notable exception of the United States), from businesses and wage earners (such as the "flat tax" and "X-tax," which are bifurcated value-added taxes with the labor portion of value-added collected from individuals instead of businesses), and a consumed income tax (an income tax with a deduction for net saving). The common feature that distinguishes consumption tax from an income tax is that under a consumption tax purchases of assets are immediately deductible, whereas under an income tax purchases of assets are capitalized with their costs deducted only as they decline in value.

Corporate Income Tax. A tax levied on corporate profits. A corporation's taxable income is its total income minus allowable current expenses and capital depreciation.

Deduction. A reduction in taxable income for certain expenses. Some deductions, such as that for contributions to an Individual Retirement Account (IRA), are "above the line" meaning they are available to all taxpayers with the qualifying expense. Most deductions in the federal income tax, such as those for home mortgage interest and state and local taxes, are only available to

those who itemize deductions. Most taxpayers choose not to itemize and instead claim the standard deduction because it provides a greater tax benefit. Because marginal tax rates increase with taxable income, deductions benefit high-income more than low-income taxpayers. Deductions cannot reduce taxable income below zero.

Dependent. An individual supported by a tax filer for over half of a calendar year. Federal tax law stipulates five tests to determine whether a filer may claim someone as a dependent and thus qualify for an exemption: a relationship test, a joint return test, a citizen-or-resident test, an income test, and a support test. In 2010, a tax filer may reduce taxable income by \$3,650 for each dependent exemption.

Depreciation. A measurement of the declining value of assets over time because of physical deterioration or obsolescence. Taxpayers may use “facts and circumstances” to claim when assets depreciate, but typically tax depreciation is calculated by a schedule of deductions, usually over the asset’s “useful life” as specified in the tax code, through which the full cost of an asset can be written off. Accelerated depreciation means a speed-up in deductions so that more can be taken in earlier years compared with taking the same amount of depreciation in every year (called straight-line depreciation).

Earned Income Tax Credit (EITC). A refundable tax credit that supplements the earnings of low-income workers. The credit is a fixed percentage of earnings up to a base level, remains constant over a range above the base level (the “plateau”), and then phases out as income rises further. Those income ranges depend on both the taxpayer’s filing status and number of children in the taxpayer’s family. In contrast, the credit rate depends only on the number of children. Married couples with two or more children ordinarily receive the largest credit, a maximum of \$5,036 in 2010, but families with three or more children can receive up to \$5,666 under a temporary provision. Childless workers get the smallest credit, no more than \$457 in 2010. Originally enacted in 1975, the EITC is now the largest federal means-tested transfer program.

Economic Growth and Taxpayer Relief and Reconciliation Act of 2001 (EGTRRA). A tax bill that reduced most tax rates, increased the child tax credit and made much more of it partially refundable, expanded tax-free retirement savings, reduced marriage penalties, increased the child and dependent care tax credit, and phased out the estate tax. Most provisions were scheduled to phase in slowly between 2001 and 2010 and then to expire at the end of 2010, but the expiration date has now been extended to the end of 2012. JGTRRA (see below) accelerated some of the EGTRRA tax cuts and added others.

Estate Tax. A tax levied on the value of a person’s estate at the time of his or her death. The federal estate tax applied only to large estates, those worth over \$3.5 million for people dying in 2009, with a top rate of 45 percent. No tax is owed on transfers to spouses or to charities and special provisions apply to farms and small businesses. The tax disappeared entirely in 2010 (with carryover basis, however, unless an election is made by the estate’s executor), applies to estates worth over \$5 million for people dying in 2011 and 2012 with a top rate of 35 percent, and will then revert in 2013 to the provisions in 2001 law (exemption of \$1 million and a top rate of 55 percent). (See also Carryover of Basis and Gift Tax.)

Federal Fiscal Year (FY). The period commencing October 1 and ending September 30 of the following year. For example, fiscal year 2011 runs from October 1, 2010 to September 30, 2011. Prior to 1976, the fiscal year ran from July 1 through June 30. A transition quarter was used in 1976 to bridge the gap between FY 1976 and FY 1977.

Filing Status. All income tax filers fall into one of five categories, depending on their marital status and family structure. A single person without children files as a single; a single parent with dependent children files as a head of household; a married couple, with or without children, files either as "married filing joint" or "married filing separate;" and a recent widow(er) may file as a qualifying widow(er), which is the same, in effect, as "married filing joint." All filers face the same rate schedule but bracket-widths, standard deduction amounts, and qualification criteria for certain credits and deductions vary by filing status.

Flat Tax. A proposal for fundamental tax reform that would replace the income tax system with a single-rate (or flat-rate) tax on businesses and individuals. Most flat tax proposals are designed to be consumption rather than income taxes, and most are really not "flat" because they grant an exemption at least for the first dollars of earnings.

Gift Tax. A tax levied on gifts in excess of a specified threshold. Any tax still due must be paid when the donor dies and is incorporated into the decedent's estate tax. (See also Estate Tax.)

Indexation. Annual adjustments to various parameters in the tax code to account for inflation and prevent bracket creep. Since 1981, many features of the federal individual income tax, including personal exemptions and tax brackets, have been indexed for inflation based on changes in the Consumer Price Index. For instance, with 5 percent inflation, a personal exemption of \$1,000 would be raised to \$1,050. More broadly, the term applies to all efforts to adjust measures of income to account for the effects of price inflation.

IRA (Individual Retirement Account). Retirement accounts funded by individuals through their own contributions or by rolling over benefits earned under an employer-sponsored plan. Typically, contributions to IRAs are deductible, income accrues within IRAs tax-free, and distributions from IRAs are fully taxable. For a Roth IRA, contributions are not deductible, income accrues tax-free and distributions are also tax-free.

Itemized Deductions. Particular kinds of expenses that taxpayers may use to reduce their taxable income. The most common itemized deductions are for state and local taxes, mortgage interest, charitable contributions, medical expenses, and specified miscellaneous expenses. (See also Standard Deduction.)

The Jobs and Growth Tax Relief Reconciliation Act of 2003 (JGTRRA). The 2003 tax act that accelerated the phase-in of tax rate reductions scheduled under EGTRRA, reduced the tax rates applicable to capital gains and dividends, accelerated increases in the child credit amount, and temporarily raised the exemption amounts for the alternative minimum tax (AMT). Most provisions were scheduled to expire at the end of 2010, but the expiration date has now been extended to the end of 2012. The temporary increase in the exemption amounts for the AMT

under JGTRRA have been extended several times and are now scheduled to expire at the end of 2011.

Marginal Tax Rate. The additional tax that would be paid on an additional dollar of income. It is a measure of the effect of the tax system on incentives to work more, save more, and shelter more income from tax. Provisions such as the phase out of tax credits can cause marginal tax rates to differ from statutory tax rates.

Marriage Bonus. The reduction in tax that a married couple owes because they may file as a couple rather than separately. Marriage bonuses result from the combination of treating a family as a single tax unit and progressive tax rates. In general, couples in which spouses have quite different incomes receive marriage bonuses. (See also Marriage Penalty.)

Marriage Penalty. The additional tax that a married couple pays because they must file as a couple rather than separately. Marriage penalties result from the combination of treating a family as a single tax unit and progressive tax rates. In general, couples in which spouses have similar incomes incur marriage penalties. (See also Marriage Bonus.)

Nonfilers. Persons or households who do not file tax returns. Nonfiling tax units -- that is nonfilers grouped together as they would if they filed income tax returns -- are included in the TPC database to get a complete picture of all households, not just those who file income tax returns. Most nonfilers do not work; many are elderly.

Nominal Income. Income that has not been adjusted for inflation and the consequent decrease in its value. (See also Real Income.)

OASDI (Old Age, Survivors, and Disability Insurance). The Social Security programs that pay monthly benefits to retired workers and their spouses and children, to survivors of deceased workers, and to disabled workers and their spouses and children.

Payroll Taxes. Taxes imposed on employers, employees, or both that are levied on some or all of workers' earnings. Employers and employees each pay Social Security taxes equal to 6.2 percent of all employee earnings up to a cap (\$106,800 in 2010) and Medicare taxes of 1.45 percent on all earnings with no cap. Those taxes are referred to by the names of their authorizing acts: FICA (Federal Insurance Contributions Act) or SECA (Self-Employment Contributions Act), depending on the worker's employment status. Employers also pay State and Federal Unemployment Taxes (SUTA and FUTA) that cover the costs of unemployment insurance.

Personal Exemption. A per person amount of income that is shielded from income tax. In calculating taxable income, tax filers may subtract the value of the personal exemption times the number of people in the tax unit. The personal exemption (\$3,650 in 2010) is indexed for inflation to maintain its real value over time.

Poverty Guidelines. Income levels used to determine eligibility for participation in means-tested federal programs. The guidelines equal a base amount for each household plus a constant additional amount for each household member. One set of guidelines applies to the contiguous

48 states; Alaska and Hawaii each has its own set, as do U.S. territories. The guidelines are indexed annually to the Consumer Price Index. (See also Poverty Levels.)

Poverty Levels. (also called "poverty thresholds") The level of pre-tax cash income below which a family is considered to be officially "poor." Thresholds vary by family size, age of head, and number of children. When established in 1965, the thresholds were set at three times the cost of a minimally adequate diet and indexed annually for changes in the price of food. (See also Poverty Guidelines.)

Progressivity. A measure of how tax burdens increase with income. A progressive tax claims a proportionately larger share of income from higher-income than from lower-income taxpayers. Conversely, a regressive tax takes a larger share of income from lower-income households than from higher-income ones. Taxes that claim the same percentage of income from all taxpayers are termed "proportional."

Real income. The value of income after accounting for inflation. Real income is usually calculated by subtracting inflationary income (e.g., capital gains due to inflation) from nominal income. (See also Nominal Income.)

Refundable Tax Credit. A tax credit payable even if it exceeds an individual's tax liability. Tax credits may generally be used only to reduce positive tax liability and are limited to the amount of tax the individual otherwise would owe. Unlike other tax credits, the refundable portion of a tax credit is scored as an outlay in government budget accounts -- that is, it is treated the same as direct spending. (See, for example, Earned Income Tax Credit.)

Standard Deduction. A deduction that taxpayers may claim on their tax returns in lieu of itemizing deductions such as charitable contributions, mortgage interest, and state and local taxes. Typically, taxpayers with small deductible amounts that could be itemized choose to take the standard deduction. Single filers, heads of household, and married couples filing jointly have different standard deductions. Roughly two-thirds of tax filers claim a standard deduction. (See also Itemized Deductions.)

Tax Burden. The total cost of taxation borne by a household or individual. The burden includes not only the costs of taxes paid directly but also those taxes paid indirectly through lower wages or a reduced return on an investment. For example, in addition to the employee portion of payroll taxes, a worker may also bear the employer's share in the form of lower wages or fringe benefits.

Tax Expenditure. A revenue loss attributable to a provision of federal tax laws that allows a special exclusion, exemption, or deduction from gross income or provides a special credit, preferential tax rate, or deferral of tax liability. Tax expenditures often result from tax provisions used to promote social programs in place of direct spending.

Taxability Threshold. The level of income at which filing units of a specific size and filing status first pay a tax before considering tax credits. The amount varies with filing status, allowable adjustments, deductions, and exemptions. Tax credits can further increase the amount of untaxed income.

Tax Filers. Any tax filing unit that files a tax return. Tax filers differ from taxpayers in that many tax filers have no tax liability and file returns only to receive amounts withheld from their paychecks or refundable tax credits.

Tax Filing Unit. A tax filing unit consists of an individual or married couple that would—if their income exceeded the relevant filing threshold—be required to file an individual income tax return. The tax filing unit also includes any other persons who might be claimed as dependents on the unit's tax return. For example, a single person who files a tax return for herself is one tax unit, as is a married couple with three children that files one tax return for the whole family. In contrast, a family of three in which each parent files a return as "married filing separate" and the working child files a separate return is considered three tax units. (Note that the Tax Policy Center includes in its sample of "tax filing units" not only tax filers but also nonfiling individuals, families, and households -- that is, the groupings they would be in if they filed a tax return -- to get a more complete picture of how taxes affect the entire population.)

Tax Policy Center Microsimulation Model. A microsimulation model developed by the Tax Policy Center and based on data from the IRS Statistics of Income (SOI) public use files. TPC uses the model to estimate how proposals would affect revenue, the distribution of tax burdens, and incentives to work and save. It is very similar to the models used by the Treasury Department, the Joint Committee on Taxation, and the Congressional Budget Office.

Acronyms for Data Used in the TPC Model

CE	Consumer Expenditure Survey (conducted by the Census Bureau for the Bureau of Labor Statistics)
CPS	Current Population Survey (conducted by the Census Bureau)
DC	Defined contribution retirement plan (such as a 401(k))
DYNASIM3	Dynamic Simulation of Income Model (an Urban Institute microsimulation model)
MEPS	Medical Expenditure Panel Survey (conducted by the Agency for Healthcare Research and Quality)
NHA	National Health Accounts (prepared by the Centers for Medicare & Medicaid Services)
NIPA	National Income and Product Accounts (produced by the Bureau of Economic Analysis)
NPSAS	National Postsecondary Student Aid Study
PSID	Panel Survey of Income Dynamics (conducted by the Survey Research Center, Institute for Social Research, University of Michigan)
PUF	Public Use File (prepared by the IRS Statistics of Income Division)
SCF	Survey of Consumer Finances (conducted by the Board of Governors of the Federal Reserve System)
SIPP	Survey of Income and Program Participation (conducted by the Census Bureau)
SOI	Statistics of Income (Division of IRS)
SSA	Social Security Administration

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