Using a VAT to Reform the Income Tax

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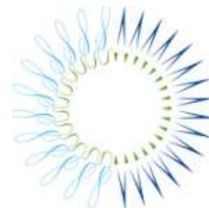

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I. Introduction

A sweeping reform of the federal tax system has been proposed by Michael J. Graetz, Professor Emeritus of Law at Yale University and currently Professor of Law at Columbia University.[1] The proposal is intended to simplify the tax system, improve economic incentives, and maintain fairness. To achieve these goals, Graetz's plan would remove most current taxpayers from the income tax rolls, reform the corporate income tax, significantly reduce the top individual and corporate rates, and adopt a value-added tax (VAT) as the principal tax paid by most Americans. Payroll, estate and gift taxes would not change.

This paper describes the Graetz proposal in detail and analyzes its effects on federal revenues, spending and the deficit, the distribution of the tax burden, marginal tax rates and other incentives, and the tax system's administrative and compliance costs. The proposal is analyzed relative to the Tax Policy Center (TPC) "Current Policy Baseline," which assumes permanent extension of the 2001, 2003, and 2010 tax cuts (except for the one-year payroll tax reduction), continuation of the 2011 AMT exemption amounts (indexed for inflation) and extension of the 2011 estate tax exemption of $5 million (indexed for inflation) and top rate of 35 percent. The analysis assumes the proposal will be effective in 2015 and be deficit neutral.

Reform the Individual Income Tax

Graetz's proposal provides a "family allowance" of $100,000 ($50,000 for single filers and $75,000 for head of household filers) that would remove most taxpayers from the income tax rolls. This allowance would replace the standard deduction and personal exemptions. Taxpayers with adjusted gross income (AGI) higher than the allowance could deduct their medical expenses, investment interest, casualty and theft losses, job expenses, and miscellaneous expenses, as under current law. A floor of two percent of AGI would apply separately to the deductions for charitable contributions and mortgage interest. No deduction would be allowed for state and local taxes. The rules for computing business income would be simplified, with some base broadening. Two tax rates would apply to taxable income: a basic rate of 16 percent and a "surtax" rate of 25.5 percent that would apply to taxable income above $100,000 ($50,000 for single filers and $75,000 for head of household filers). Capital gains would be taxed at the same rates as other income. The alternative minimum tax (AMT) and all credits except the foreign tax credit would be repealed.

The current income tax benefits for families--including personal exemptions, the child tax credit, and the earned income tax credit (EITC)--would be replaced by a new rebate based on wages and self-employment income, as well as the number of children in the family. Rebate amounts also would be designed to offset the VAT's burdens on low-income families. This integrated income tax and rebate could be administered primarily through the payroll tax system. Rebate benefits might be provided to families as they accrue through a "smart card" or similar mechanism. The rebate would be phased out for high-income workers.

[1] See Graetz (2010).

Reform the Corporate Income Tax

The Graetz proposal replaces the current corporate income tax rate structure and top rate of 35 percent with a single rate of 15 percent. This dramatically lower top rate would significantly reduce economic distortions from the corporate income tax, encourage investment in the United States, and increase reporting of income as U.S.-source by multinational corporations. The corporate income tax base would be broadened to further reduce economic distortions and partially finance the lower tax rate. The corporate AMT and all credits except the foreign tax credit would be repealed.

Adopt a VAT

Graetz's proposal includes adopting a VAT to replace the revenues used to reform the individual and corporate income taxes. A VAT is a broad-based tax on household consumption that is collected incrementally by businesses at each stage of their production and distribution of goods and services. VATs are an important source of revenue for more than 130 countries; among countries in the Organization for Economic Co-Operation and Development and other major nations, only the United States does not impose a VAT. The VAT in this proposal would have a comprehensive base and a single rate of 12.3 percent;[2] it would be "destination based" (border adjustable) and administered by the credit-invoice method used in all VAT countries except Japan. A rebate for lower-income households is included to mitigate the VAT's distributional effects. The rebate, as noted above, would be integrated with the wage-based rebate that replaces current income tax benefits for families.

Analysis of the Proposal

The Graetz proposal would affect government revenues and spending, the distribution of the tax burden, economic efficiency, and administrative and compliance costs. The proposal significantly reduces both individual and corporate income tax revenues and may indirectly affect government spending. However, through the choice of the VAT rate, the proposal can be made deficit neutral in any specific year, or over any period (such as the 10-year budget window). This analysis covers only 2015, for which the proposal was made deficit neutral (on a fully phased-in basis) by setting the VAT rate at 12.3 percent.

The proposal also is intended to maintain fairness, as measured by the distribution of the tax burden across income classes, through the choice of the individual income tax "surtax" rate, the corporate income tax rate, and the integrated income tax and VAT rebate. The distributional analysis shows that the proposal, as intended, would leave the distribution of tax burdens essentially unchanged.

Graetz's proposal would reduce effective marginal tax rates on labor income in total and, at most levels of income, improve incentives to enter the workforce and to work more hours. The VAT

[2] The VAT rate is expressed on a "tax-exclusive" basis, the same way that sales tax rates are expressed. For example, an item subject to VAT that cost $100.00 (before tax) would be subject to $12.30 of VAT and so would cost $112.30, including VAT.

does not apply to the normal return to savings (the return simply to waiting), so using VAT revenues to reduce individual and corporate income tax rates would reduce the effective tax rate on capital income generally. Thus, the proposal would encourage savings and investment. However, accrued capital gains would generally be taxed at higher effective marginal rates under the proposal, both because regular income tax rates would apply and because the VAT would tax the portion of capital gains that represents "supernormal" returns (returns to highly successful investments in excess of the normal return) earned on underlying investments. The proposal would significantly reduce current distortions in the income tax due to tax-favored forms of investment and consumption through base broadening and rate reductions.

Removing most taxpayers from the individual income tax and base broadening in both the individual and corporate income taxes would reduce administrative and compliance costs. However, adopting a VAT would impose new compliance costs on businesses, nonprofits and governments, and new administrative costs on the IRS.

Outline of the Paper

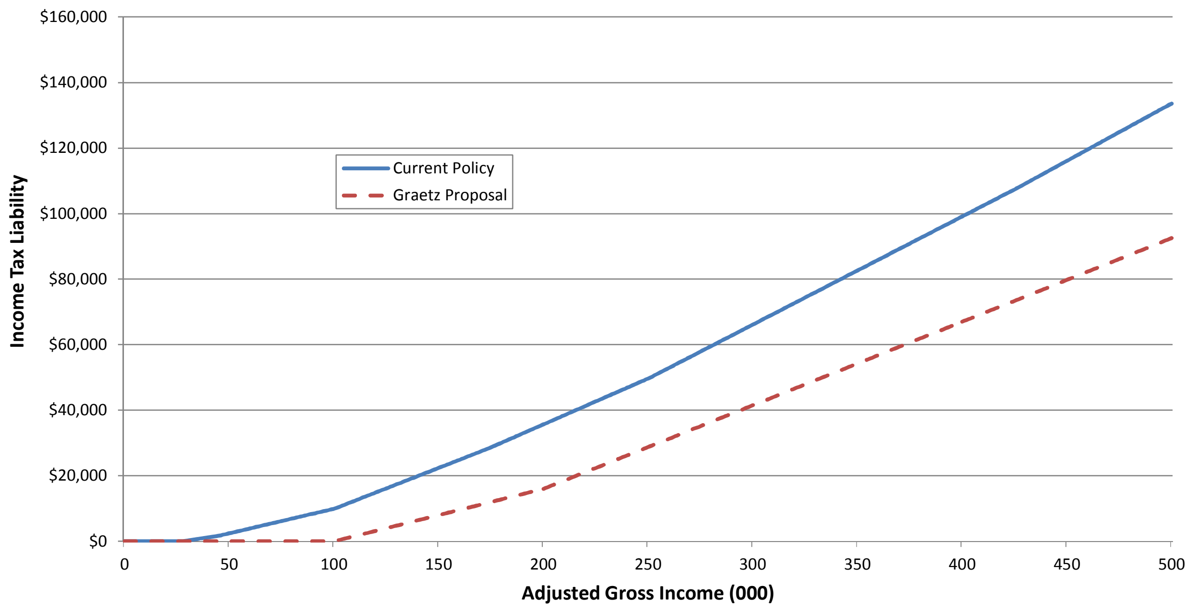
The remainder of the paper is organized as follows. Section II describes in detail the individual income tax reforms in Graetz's proposal and Section III the corporate income tax reforms. Section IV describes the structure of the VAT, its base, the design of the integrated VAT and income tax rebate, the VAT and changes in the price level, the VAT's effect on government revenues and spending, and the required VAT rate. Section V analyzes the effects of the income tax reforms and the VAT on government revenues and spending, the distribution of the tax burden, economic efficiency, and administrative and compliance costs. Appendix A provides detailed tax parameters for the Current Policy Baseline and the Graetz proposal, Appendix B describes the methodology used by the Urban-Brookings Tax Policy Center (TPC) to distribute a VAT, and Appendix C describes the Urban-Brookings Tax Policy Center (TPC) microsimulation model used in analyzing the proposal.

II. Reform the Individual Income Tax

The proposal includes individual income tax reforms that would remove most current taxpayers from the rolls, broaden the base for the remaining taxpayers by eliminating or curtailing certain deductions and eliminating all credits except the foreign tax credit, repeal the AMT, and impose only two rates, 16 percent and 25.5 percent.

The most far-reaching reform would be introducing a "family allowance" of $100,000 for joint filers, $50,000 for single filers, and $75,000 for head of household filers. The family allowance would replace the standard deduction and personal exemptions. As a result, no joint filer with an adjusted gross income (AGI) up to $100,000, or other filer with income up to $50,000 ($75,000 for a head of household), would be subject to individual income tax.

Chart 1 shows how the tax rates under the Graetz proposal compare with rates under TPC's Current Policy Baseline for a family of four that does not itemize deductions.



In addition to the family allowance, taxpayers would be allowed certain itemized deductions. The deductions for medical and dental expenses, investment interest, casualty and theft losses, job expenses, and all miscellaneous deductions would be computed in the same manner as under current law. A floor of two percent of AGI would apply separately to the itemized deductions for charitable contributions and mortgage interest; only charitable contributions and mortgage interest in excess of two percent of AGI each would be deductible. The deduction for state and local income or sales and property taxes would be repealed and therefore would no longer be included in AGI.

The rules for computing business income--the income from sole proprietorships, partnerships, S corporations, rents, and royalties--would be simplified and the base broadened. The major simplification would be allowing an immediate deduction ("expensing") for the full cost of investments in inventory and equipment for all businesses (including C corporations) with average annual gross receipts less than $1 million. Base-broadening measures that would also apply to C corporations and other business income are described below in Section III.

Taxable income would be computed by subtracting the family allowance and itemized deductions from AGI, which would be calculated in the same manner as under current law except for the changes to the computation of business income and the exclusion of state and local tax refunds.[3] Tax would be computed by applying the basic rate of 16 percent to all taxable income, and an additional 9.5 percent rate (for a "surtax" rate of 25.5 percent) to taxable income

[3] Because state and local taxes would no longer be deductible, refunds of previously deducted taxes would no longer be included in AGI.

in excess of $100,000 for joint filers, $50,000 for single filers and $75,000 for head of household filers. Both the basic and surtax rates would apply to capital gains in the same manner as other income. The AMT would be repealed, so no further calculations would be required.

The only credit allowed against tax liability would be the foreign tax credit. All other credits, including the child tax credit and the earned income tax credit (EITC), would be repealed.

The Graetz proposal is analyzed relative to the TPC Current Policy Baseline, which assumes that the 2001, 2003, and 2010 tax cuts are permanently extended, the AMT continues to be "patched" by adjusting the exemption levels for inflation, and that 2011 estate tax law (a $5 million exemption and a top rate of 35 percent) remains in effect. Appendix Table A-1 provides a summary of the individual income tax rate structure. Appendix Table A-2 summarizes the other individual income tax parameters and the AMT, estate tax and payroll tax parameters under the Current Policy Baseline and under the Graetz proposal.

The family allowance and the surtax bracket amounts would be indexed for inflation using the chained consumer price index for all items for urban consumers (the C-CPI-U), rather than the regular (unchained) CPI-U. The difference in these two measures of inflation is that the C-CPI-U takes into account consumers' abilities to avoid a portion of price increases of particular items (goods and services) by shifting their purchases to substitute items for which prices have not increased as much (or have fallen). This difference means that the C-CPI-U does not rise as quickly as the unchained CPI-U, so the level of indexed income tax parameters will rise more slowly using the C-CPI-U, reducing the revenue cost of indexing.

The proposal would repeal the deduction for personal exemptions, the child tax credit, the EITC, the education credits, and the child and dependent care tax credit, all of which provide tax benefits to families with children, in some cases conditioned on earnings from work. The EITC also provides a tax benefit to childless workers, as do personal exemptions. To replace these tax benefits, the proposal includes a new rebate for low- and middle-income workers. The rebate would be based on earnings from wages and self-employment as defined under current law for purposes of the additional child tax credit (the refundable portion of the child tax credit). The rebate's design, including the VAT offset portion for lower-income households, is described in Section IV.

III. Reform the Corporate Income Tax

The Graetz proposal includes corporate tax reforms that would broaden the base by eliminating or curtailing certain deductions, eliminating all credits except the foreign tax credit, repealing the corporate AMT, and imposing a flat, dramatically lower, rate of 15 percent.

The base-broadening provisions in the proposal would apply to corporations as well as non-corporate businesses. The following provisions[4] eliminate or curtail deductions and exemptions:

[4] These provisions are all included in the Wyden-Gregg proposal, the Bipartisan Tax Fairness and Simplification Act of 2010 (S. 3018), but Graetz's proposal excludes the Wyden-Gregg provisions to index corporate interest

- Repeal the deduction for domestic production activities;
- Repeal deferral of gain on nondealer sales;
- Repeal the inventory property sales source rule exception;
- Disallow depreciation in excess of alternative depreciation on equipment for large businesses and on structures for all businesses; and
- Eliminate a number of other provisions with smaller revenue effects.[5]

Taxable income would be computed as under current law (with the modifications to deductions listed above).

Appendix Table A-3 summarizes the major provisions of the corporate income tax and (the non-corporate business individual income tax) base under the Current Policy Baseline and under the Graetz proposal.

IV. Adopt a Valued-Added Tax (VAT)

This section describes the VAT portion of the Graetz proposal – its structure, the VAT base, the design of the integrated VAT and income tax rebate, the VAT and changes in the price level, the effect of the VAT on government revenues and spending, and the required rate of the VAT.

The Structure of the VAT

A VAT is a broad-based tax on households' consumption of goods and services, equivalent to a retail sales tax with the same broad base and same rate. Unlike a retail 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. There are two forms of VAT. One is the "credit-invoice" VAT (sometimes referred to as a "goods and services tax," or GST) that is used throughout Europe and in Canada, Australia, New Zealand, and most other countries. Under a GST, 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 is therefore the tax on the difference between its sales and its purchases from other businesses. That difference is "value added," the amount the business pays to labor and capital. The value added by all businesses through the retail level is the entire value of the good or service sold--its retail value.

The other form of VAT is the "subtraction method" VAT (sometimes referred to as a "business transfer tax" or BTT). Under a BTT, every business pays tax on the difference between its sales

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deductions for inflation, repeal deferral of active income of controlled foreign corporations, reinstitute the per country foreign tax credit limitation and prohibit advanced refunding of bonds.

[5] These provisions are shown in Appendix Table A-3.

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

and its purchases from other businesses--its value added. So the BTT base is identical to the GST base, assuming there are no exemptions.[7]

The VAT option analyzed in this paper is credit-invoice (a GST), the structure used in all major countries.[8] The VAT is also "destination-based" like other VATs in place, which means that exports are subject to VAT at a zero rate and exporters receive a credit for VAT paid on their purchases,[9] and imports are subject to VAT.

The Proposed VAT Base

The VAT base was chosen to be as broad as deemed practical, given certain administrative constraints. Since a VAT is a broad-based tax on consumption, the starting point for estimating the size of the VAT base is total consumption as defined in the National Income and Product Accounts (NIPA) prepared by the Bureau of Economic Analysis in the U.S. Department of Commerce. Several adjustments to NIPA consumption are made for administrative reasons, and some are made for policy reasons.

Housing

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, so imputed rents, as well as rents paid for tenant-occupied housing, are excluded from the VAT base.[10] Instead, VAT is applied to the full value of purchases of all new housing and improvements to all existing housing. This is called the "pre-payment" method of collecting a VAT, since the economic effect is the same as if no VAT applied at the time housing was purchased, but full VAT applied to the gross rent of all housing. The effect of this treatment on the VAT base is to replace the amounts for (net) imputed rent of owner-occupied housing and rents for tenant-occupied housing in NIPA consumption with the amount of spending on all new housing and improvements to all existing housing.

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[7] For a detailed discussion of how a GST, a BTT, and an RST work, see Toder, Nunns, and Rosenberg, "Implications of Different Bases for a VAT" (forthcoming).
[8] Unlike other countries, which require separate VAT invoices, Japan relies on commercial invoices to administer its GST. For this reason, Japan's VAT is sometimes characterized as being subtraction method.
[9] This VAT treatment of exports is called "zero rating," as opposed to "exemption" which means a seller is not subject to VAT, but does not receive a credit for the VAT paid included in purchases.
[10] Note that tenant-occupied housing excludes transient housing such as hotels, motels, etc. Rents from transient housing are generally included in VAT bases and are included in the base of the VAT in the Graetz proposal.

Foreign Travel and Expenditures

The proposed VAT base is defined to exclude the amount of "net foreign travel and expenditures abroad by U.S. residents" included in NIPA consumption. As a practical matter, this spending abroad by U.S. residents is not easily taxed, and is more straightforwardly (and perhaps properly) taxed where the expenditures occur. However, it might also be administratively difficult to remove, through refunds or zero rating, VAT on expenditures in the U. S. by nonresidents (which is the netting amount in this category of NIPA consumption). This is a small item in any event, however, so its treatment will have a negligible effect on VAT revenue.

Financial Services Provided without Charge

Direct charges by banks and other financial institutions, such as for blank checks and safe deposit boxes, are included in the VAT base in Graetz's proposal. But it is administratively difficult to include financial services that are provided without charge. For example, a bank's cost of maintaining a checking account for a customer might not be directly charged to the customer, but rather recouped by paying less interest on the customer's balance than the bank earns by investing it. It is difficult to determine what the indirect charge to the checking account customer is (the amount of interest the bank earned on balances and did not pay to the customer), so these indirect charges typically are excluded from the VAT base. However, there are alternative methods of taxing financial services that are provided without charge, and (without spelling out the precise administrative method) we assume these charges are effectively included in the proposed base.[11]

State and Local General Sales Taxes

The proposed VAT base excludes the portion of the price of goods that represents state and local general sales taxes. If the VAT is likewise removed from the base of state and local general sales taxes, computing these taxes is simplified by removing any interaction among calculated liabilities. Federal, state, and local excise taxes (such as taxes on gasoline, cigarettes, and alcoholic beverages) are generally collected early in the production/distribution chain, so they are already embodied in the prices paid by retailers for goods sold to customers. Although excises are imposed on a unit basis, separate federal, state and local excise tax rates may be imposed on an item, and the base for each rate could be different. As a practical matter, therefore, it might not be feasible to remove them from the VAT base. Further, removing the excise tax from the base could be contrary to the policy rationale for the excise tax if it is meant to correct an externality. We, therefore, assume that excise taxes are not removed from the proposed VAT base.

Nonprofits

The value of goods and services provided to households by nonprofits (including religious organizations) is included in NIPA consumption, but some adjustments are required for administrative reasons to include that consumption in the VAT base. The VAT would apply, in

[11] For a discussion of some of these alternative methods, see Merrill and Edwards (1996).

the same manner it applies to purchases from for-profit businesses, to the portion of consumption provided by nonprofits that is purchased by households through the payment of fees or charges; VAT would apply to the fee or charge, and the nonprofits could take a credit for VAT included on its invoices for related purchases from business (including other nonprofits). Because there is no fee or charge for the remaining value of consumption provided by nonprofits, their measured VAT base (their sales receipts) would be zero. But the value of this consumption is equivalent to the related purchases of nonprofits from businesses (including other nonprofits) and the amount they spend on employee compensation. Nonprofits' purchases from businesses would be subject to VAT under standard VAT rules, but compensation of employees who provide direct services to beneficiaries of nonprofits (with no fee or charge) would not be taxed. In order to include the consumption of those services in the VAT base, it would be necessary to add that portion of employee compensation to the base.

Note that this treatment of nonprofits is similar in most respects to the typical VAT treatment of nonprofits, which is to treat "commercial" activities for which there is a fee or charge, like any other business activity (VAT on receipts, credit for VAT on purchases), and other activities of nonprofits as "exempt" (no tax, since there are no receipts, but no credit for VAT on purchases). However, the base in Graetz's proposal would also include the compensation that nonprofits paid their employees engaged in these other activities. This employee compensation must be included in the VAT base to make it comprehensive, ensuring that the VAT does not distort households' consumption choices by applying preferentially to nonprofit providers.

Governments

Government engages in three categories of activity that might be included in the VAT base: commercial-type activities, provision of in-kind subsidies and transfers, and direct provision of "public" goods that it provides free of charge. The first category includes government enterprises, such as the postal service, public hospitals that charge fees to patients, state colleges and universities that charge tuition, and municipal water systems. The second includes government reimbursement for private consumption of goods and services, such as payments for health care through Medicare and Medicaid and food purchases through SNAP (formerly called the food stamp program). The third includes direct government services funded by taxpayers, such as national defense, police protection, and environmental protection. The proposed VAT base would include all the value added from all three types of government activities.

Commercial-Type Activities. The value of goods and services provided by governments and purchased by households through fees and charges are included in NIPA consumption and classified according to the consumption category of the good or service. The proposed VAT would apply to government-provided goods and services in the same manner as it would apply to those provided by for-profit businesses and nonprofits. VAT would apply to fees and charges, and a credit allowed for the VAT on associated purchases.

In-Kind Transfers. NIPA consumption also includes household consumption of goods and services, the cost of which is reimbursed by governments (in-kind government transfers). Medicare, Medicaid and SNAP (food stamps) are the most significant forms of in-kind government transfers. The goods and services covered by in-kind government transfers are

included in the proposed VAT base and taxed in the same manner as other items of consumption. For example, a health-care provider would pay tax on both the value of services paid directly by patients and the portion of his or her reimbursement that comes from private or public insurers.

Public Goods. NIPA counts the value of most goods and services provided by governments–national defense, elementary and secondary education, highways, etc.--as government spending instead of private consumption. No direct fees or charges are collected to cover the value of these “general government” goods and services; they are financed by taxes (or borrowing).

Under Graetz’s proposal, this spending would be included in the VAT base in the same manner as goods and services provided without a fee or charge by nonprofits. Government purchases would be subject to VAT, and VAT would apply to governments’ compensation of employees. As with nonprofits, government agencies providing some goods and services that were reimbursed by fees or charges would be required to allocate the VAT on purchases and to split their compensation of employees.[12]

The rationale for including government consumption in the VAT base is that it is intended to serve the same basic economic function household consumption serves: to meet individuals’ wants and needs. Further, to the extent government-provided goods and services can be provided by for-profit businesses or nonprofits, they must be included in the VAT base to ensure that consumption choices are not distorted by differential tax treatment of the provider. Not including general government spending in the VAT base makes the size of the government sector look smaller than it really is, relative to the size of the private sector, because government spending excludes VAT, while private spending includes it.[13]

Although Graetz’s proposal includes governments in the VAT base for the reasons provided above, inclusion of government in the tax base has no effect on real federal spending or deficits. At the federal level, the government is simply paying tax to itself. Its real purchases are unchanged relative to exempting government, but recorded nominal spending rises by the amount of the tax.

As discussed in more detail below, the VAT also could affect both revenues and spending of state and local governments. The proposal includes a special federal grant to state and local governments that would offset the VAT’s budgetary effect, so that real spending by state and local governments, and their deficits or surpluses, would be unaffected. To keep states and localities whole, nominal federal spending levels are adjusted by changing the amount of grants

[12] An alternative approach to taxing government used in New Zealand is to apply VAT to government budgets and allow governments to take a credit for VAT included in purchases from businesses (or other government agencies). This approach does not require allocation of VAT on purchases or splitting of compensation between commercial-type and public good government spending.

[13] Note that the current income tax includes most of the value added in the government sector. Wages of government employees and income originating in private firms that provide goods and services to governments are included in the income tax base in the same manner as similar income earned in the private sector. The only exceptions are the (imputed) return on government-owned capital, which is not subject to income tax, and the interest income earned by individuals and corporations that purchase securities issued by state and local governments.

to state and local governments, and then the income tax and VAT rates in the proposal are adjusted to maintain deficit neutrality.

Noncompliance and a Small Business Exemption

Some taxpayers will not pay their VAT in full and on time. This "compliance gap" has the same effect on revenues as narrowing the VAT base. The size of this gap for a U.S. VAT is difficult to predict. Estimates of the VAT gap in other countries vary greatly, from as low as 2 percent in Ireland and Spain in 2006, to an average of 12 percent in the European Union (EU) in 2006, to as high as 24.8 percent in Argentina in 2004 and 30 percent in Greece in 2006.[14] The U.S. Treasury assumed in 2005 that the gap for a U.S. VAT would be 15 percent, similar to the estimated compliance gap under the current federal tax system.[15]

Another issue is that most countries have a threshold for annual receipts that a firm must meet before it must register and pay VAT. Having such a threshold removes many very small firms from the VAT's administrative burden without reducing the base significantly. Threshold levels vary greatly across countries, even within the EU, where the lowest level (in the Netherlands) is less than $2,000 and the highest (in France) is more than $110,000. Even higher levels apply in some countries outside the EU; for example, the threshold in Morocco is about $200,000 and in Singapore is about $700,000.[16]

Some firms below any threshold that is set may nevertheless register and pay VAT because removal from the production chain actually increases VAT liabilities in a credit-invoice VAT. Large firms, therefore, may be unwilling to transact business with small firms that are not VAT-registered. So the effect of an exemption for small firms depends on both the size of the exemption and the extent to which firms below the threshold will nevertheless register and pay VAT. Further, income tax compliance studies in the United States have found particularly high noncompliance rates among small businesses.[17] So, part of the VAT base removed by a small business exemption would not have generated revenue in any event due to noncompliance.

Because it is difficult to predict the level of VAT noncompliance and the effect of an exemption for small business on the VAT base, it is simply assumed here that the combination of these effects will be a reduction of 15 percent in the VAT base for private consumption (before this adjustment).

The resulting VAT base in 2015 is shown in Table 1.

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[14] These figures are from Durner and Sedon (2010).
[15] See The President's Advisory Panel on Federal Tax Reform (2005), page 202.
[16] These figures are primarily from Durner, Sedon and Kothari (2010). The amounts for the EU were converted from euros using the October 21, 2010 exchange rate of $1.39.
[17] See Toder (2007).

Table 1

The VAT Base, 2015

	Level ($billions)	Percent of Consumption	Percent of GDP
NIPA Consumption	**13,035.0**	**100.0**	**70.0**
Less: Imputed rent on owner-occupied housing	1,433.2	11.0	7.7
Less: Rental of tenant-occupied housing	443.5	3.4	2.4
Plus: New housing purchases	482.5	3.7	2.6
Plus: Improvements to existing housing	421.5	3.2	2.3
Equals : Net housing adjustment	-972.7	-7.5	-5.2
Less: Net foreign travel and expenditures abroad by U.S. residents	-21.1	-0.2	-0.1
Less: State and local general sales taxes	543.2	4.2	2.9
***Equals* : Household Consumption in VAT Base**	**11,540.2**	**88.5**	**62.0**
Plus: Federal purchases of goods and services [1]	696.9	5.3	3.7
Plus: Federal employee compensation [2]	516.5	4.0	2.8
Equals : Federal spending in the VAT base	1,213.4	9.3	6.5
Plus: State and local purchases of goods and services [1]	682.8	5.2	3.7
Plus: State and local employee compensation [2]	1,218.6	9.3	6.5
Equals : State and local spending in the VAT base	1,901.4	14.6	10.2
Less: Adjustment for small business exemption and noncompliance	1,590.8	12.2	8.5
***Equals* : Effective VAT Base**	**13,064.2**	**100.2**	**70.2**
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, "The Budget and Economic Outlook: Fiscal Years 2010 to 2020" (2010); and TPC estimates.

[1] Excludes purchases for activities provided for a fee or charge and included in NIPA consumption.

[2] Excludes employee compensation to produce goods and services provided for a fee or charge and included in NIPA consumption.

The Integrated Income Tax and VAT Rebate

One of the guiding principles of the Graetz proposal is to maintain fairness. The rebate is designed to be consistent with that principle by offsetting the distributional effect of adopting the VAT and of removing the individual income tax, including refundable credits, from low- and moderate-income taxpayers. The large family allowance and the repeal of income tax credits that are part of the proposal generally reduce the individual income tax to zero for low- and moderate-income taxpayers. The change in individual income tax burdens for some of these taxpayers is this reduction. But for those low- and moderate-income taxpayers who would receive net refunds of individual income tax under the Current Policy Baseline (due to the refundable child tax credit or EITC), this change is a tax increase; for these taxpayers, the rebate must offset this increase as well as the VAT burden.

The first portion of the integrated income tax and VAT rebate is based on wages (and self-employment income) as currently reported for HI (Medicare) payroll tax purposes.[18] There are significant advantages to administering this portion of the rebate through the payroll tax system. The system is in place, applies to virtually all workers, and uses the same base as that for the rebate for the refundable portions of the current child tax credit and the EITC. But administering a rebate through the payroll tax system requires certain design decisions.

To reflect the net change in tax burdens, the rebate must phase out with income, but without additional information being supplied to employers, a payroll-based system cannot take into account wages earned in multiple jobs, or total earnings of married couples when both spouses work. Further, a payroll-based rebate cannot replicate the EITC phaseout, which is based on the higher of earnings or AGI. To minimize additional mechanisms for administering the rebate, it is based only on wages in each job, but with a "clawback" of any excess rebate for those individuals who would otherwise file income tax returns under the Graetz proposal.[19]

A second issue in a payroll-based system is how the rebate reflects family characteristics, such as whether the worker is married or a head of household, and the number of family members. The rebate must be based on the filing status of the worker and their number of eligible children, but to simplify administration, it would not be based on any other family characteristics. To set rebate amounts, the size of individual income tax changes would be computed based on the standard deduction, taxpayer personal exemption(s) and rate brackets for (a) single filers (which are half joint filer amounts for low- to moderate-income taxpayers, so would apply to married workers with working spouses), (b) heads of household and (c) married couples with one earner. Only the higher-earning spouse in two-earner couples could claim eligible children for rebate purposes. To maintain a simple structure for the rebate, all children who are eligible dependents under current law would be eligible for the rebate. Generally, these are children in the home

[18] The HI portion of the payroll tax base is used because, unlike the OASDI (social security) portion, it does not have an earnings cap.

[19] Taxpayers would not be required to file an income tax return simply to have their rebate clawed back. Note that the self-employed would continue to have to file some form of return to report self-employment payroll taxes (SECA), so they could compute their proper rebate with this return.

who are under age 19 or full-time students under the age of 24.[20] An eligible child could not claim a rebate.

The rebate design required to meet these conditions would consist of three components: a per-worker amount, a per-child amount, and an additional per-child amount for lower-wage workers.

Per-worker amount. This component of the rebate is designed to offset the burden of the VAT on labor income plus the difference in tax liabilities between the income tax under the Current Policy Baseline (taking into account only the standard deduction, taxpayer personal exemptions, rates, and the childless EITC) and the income tax under the Graetz proposal (which is zero for low- to moderate-income taxpayers). The parameters of this component of the rebate are shown in Table 2A.

Table 2A
Per Worker Rebate
(2015 dollars)

Single Worker and Two-Earner Married				Married Worker (Nonworking Spouse)				Head of Household Worker			
Earnings	Base Rebate	Phasein Rate	Phaseout Rate	Earnings	Base Rebate	Phasein Rate	Phaseout Rate	Earnings	Base Rebate	Phasein Rate	Phaseout Rate
0	0	25.1%	0%	0	0	25.1%	0%	0	0	25.1%	0%
6,100	1,530	17.1%	0%	12,200	3,059	17.1%	0%	9,150	2,294	17.1%	0%
9,000	2,025	0%	5%	18,000	4,049	0%	5%	13,500	3,037	0%	5%
49,494	0	0%	0%	98,988	0	0%	0%	74,241	0	0%	0%

Per-child amount. This component replaces the current law values of the child tax credit (including the refundable portion) and the tax savings from the personal exemption amount computed at a 15 percent tax rate, and is phased out at higher-income levels (reflecting the phase-out of the child tax credit under the Current Policy Baseline and the elimination of personal exemptions under the Graetz proposal). This component of the rebate would phase in with earnings at a 15 percent rate, to a maximum of $1,590 per child. The maximum rebate amount for a worker ($1,590 times the number of eligible children for the worker) would phase out with the earnings (or AGI, if higher for filers) in excess of $110,000 for joint filers ($75,000 for unmarried filers) at a rate of 5 percent.

Additional per-child amount. This component is designed to replace the additional value of the EITC for children, with parameters shown in Table 2B.

[20] In addition to providing a single set of age cutoffs (unlike the current dependent exemption, child tax credit and EITC), using these ages would also partially replace the benefits of education credits repealed under the proposal.

Table 2B
Additional Per Child Rebate
(2015 dollars)

One Child				Two Children				Three or More Children			
Earnings or AGI*	**Base Rebate**	**Phasein Rate**	**Phaseout Rate**	**Earnings or AGI***	**Base Rebate**	**Phasein Rate**	**Phaseout Rate**	**Earnings or AGI***	**Base Rebate**	**Phasein Rate**	**Phaseout Rate**
0	0	11%	0%	0	0	17%	0%	0	0	19%	0%
20,000	2,200	0%	0%	20,000	3,400	0%	0%	20,000	3,800	0%	0%
25,000	2,200	0%	15%	25,000	3,400	0%	15%	25,000	3,800	0%	15%
39,667	0	0%	0%	47,667	0	0%	0%	50,333	0	0%	0%

* The phaseout would be based on the higher of AGI or earnings for taxpayers with income (AGI) above the family allowance amount.

The second portion of the rebate would address the VAT burden on cash transfer payments. This burden would rise over time, as lower wages due to the VAT are reflected in the computation of cash transfer benefits. This portion of the rebate consists of an adjustment made each year 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; it would automatically be included in their benefits. This portion of the rebate does not phase out with income.

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 VAT's amount. The VAT, therefore, represents a "wedge" between the prices paid by consumers and the prices received by producers. If the Fed did not allow consumer prices to rise at the time 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 amount of the VAT. This means that payments to labor and capital would have to fall by the same amount.[21]

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 (as measured by the GDP deflator) and real GDP are unchanged from their forecast levels by any change in the tax system. For this analysis, TPC assumes that real GDP is unchanged and the Fed does not allow the consumer price level to change. With no change in the consumer price level when a VAT is introduced, the VAT wedge between consumer and producer prices will cause a reduction in returns to labor and capital.[22]

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[21] The effect of a VAT on returns to capital changes over time; see discussion in Section V.
[22] 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.

Effect of the VAT 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 wedge between consumer and producer prices will cause a reduction in returns to labor and capital. Since these returns are the base for the federal income and payroll taxes, the reduction in returns 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 be reduced. Revenues from state and local general sales taxes also would fall if they are based on sales valued at producer prices, as assumed here. Property tax revenues from business properties would fall also, since the VAT would reduce the cost of new business assets and the value of existing ("old") business assets.[23] Since the VAT base excludes rents and applies to purchases of all new residential housing and improvements, it would not change the value of residential properties or property tax revenues from residential property.

Effect on Spending

Government provision of goods and services for a fee or charge would be subject to VAT, but with no change in the consumer price level neither receipts nor costs would change.

Federal, state, and local government spending for general government purposes is included in the VAT base by imposing VAT on employee compensation and not allowing a credit for VAT on government purchases (see discussion above). Since the consumer price level is assumed not to change, (pre-VAT) wages and other forms of employee compensation would fall, as would producer (pre-VAT) prices. So, applying the VAT to spending on employee compensation would require no change in the nominal amount of this spending to hold real spending constant. Likewise, the VAT included in purchases from businesses would require no change in nominal spending on these purchases to hold real spending constant.[24]

The VAT also would apply to household consumption items paid for by in-kind government transfers. Prices (including VAT) for these items would be unchanged, so the nominal amount of this component of government spending would not need to change to hold this spending constant.

Spending on cash transfer payments also would be unchanged when the VAT is introduced. But Social Security benefits and most other cash transfer payments are directly or indirectly based on wages, so over time change with the level of wages. If wages fall when a VAT is introduced because the consumer price level is unchanged, as assumed here, these cash transfer payments will be lower for new beneficiaries as their computed benefits reflect the reduction in wages. So over time, this spending would decline. As noted above, however, a portion of the rebate would exactly offset this reduction.

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[23] This analysis holds property tax rates constant, just as all other tax rates are assumed to be held constant.
[24] Note that the same analysis applies to consumption provided by nonprofits without a fee or charge: application of the VAT would leave the nominal spending of nonprofits for employee compensation and purchases unchanged.

The nominal level of current federal grants to state and local governments also would be unchanged, since these grants finance state and local spending on compensation of employees, purchases from businesses and in-kind transfers, which would remain unchanged in nominal terms while holding the real level of such grant-financed spending constant.

Net Effect on Government Budgets

The net effect of a VAT on government budgets is the combined effect of revenue (for the federal government) from the VAT itself, the reduction in other tax revenues, and any change in nominal spending for employee compensation, purchases from businesses, in-kind transfers, cash transfer payments, and federal grants to state and local governments.

Assuming the consumer price level does not change, the VAT would reduce state and local revenues from income, general sales and business property taxes, but have no effect on the level of nominal spending required to hold the level of real spending constant. The special federal grant required to keep state and local government real spending and deficits constant would therefore be equal to the amount of the reduction in state and local income, general sales and business property tax revenues.[25]

The VAT would itself raise revenue for the federal government, but reduce federal revenues from income and payroll taxes under the assumption that the consumer price level is unchanged. The VAT would have no effect on the initial level of nominal federal spending required to hold the level of real spending constant. Over time, however, nominal spending on cash transfer payments would fall below what they would have been without the VAT (although this reduction in spending is offset by the increase in cost for a portion of the rebate; see above). Nominal spending would increase by the amount of the grant to state and local governments necessary to offset the effect of the VAT on their revenues.[26]

The Required Rate of the VAT

The VAT rate must be set to achieve deficit neutrality. The VAT, therefore, must raise enough revenue to offset the amount of individual and corporate income tax revenue lost due to the reforms in Graetz's proposal, to pay for the integrated income tax and VAT rebate amounts (which depend in part on the VAT rate), to offset the income and payroll tax revenues lost due to

[25] If the consumer price level does rise (by the full amount of the VAT), nominal returns to labor and capital would be unchanged so state and local revenues would be reduced only due to the effects of indexing of tax parameters, but spending on compensation of employees, purchases from businesses, and in-kind transfers would need to increase by the amount of the VAT to hold real spending constant, so the federal grant required to hold real state and local spending and deficits constant would need to be higher.

[26] If the consumer price level does rise (by the full amount of the VAT), nominal returns to labor and capital would be unchanged so federal revenues would decline only due to the effects of indexed tax parameters, but nominal spending on employee compensation, purchases from business, in-kind transfers, and indexed (and unindexed but separately adjusted) transfer payments would all have to increase by the amount of the VAT to hold real spending constant. The grant to state and local governments would also be higher.

the VAT, and to offset the effect of the VAT on nominal federal spending (including grants to state and local governments).

The (tax-exclusive) VAT rate that TPC estimated is required for deficit neutrality in 2015 is 12.3 percent. The assumptions underlying this estimate are discussed in Section V.

V. Effects of Graetz's Proposal

This section analyzes the effects of the proposed income tax reforms and the VAT on government revenues and spending, the distribution of the tax burden, marginal tax rates on wages and capital gains, other aspects of economic efficiency, and administrative and compliance burdens.

Government Revenues and Spending

The revenue effects of the individual income tax reforms in Graetz's proposal were estimated using the Urban-Brookings Tax Policy Center microsimulation model.[27] Standard long-run behavioral responses to changes in the tax rate on ordinary (non-capital gains) taxable income and on capital gains were taken into account, but possible short-run shifting of income and deductions was not. The estimates are of changes in calendar year 2015 liabilities, rather than changes in fiscal year receipts.

Revenue estimates for the corporate and other business income tax reforms were based on estimates prepared for the Wyden-Gregg proposal,[28] adjusted for differences (noted in Section III) in several provisions and the corporate and individual income tax rates in Graetz's proposal. These estimates are "static" and do not take into account behavioral responses of taxpayers to the provisions of the proposal.[29] The estimates are for changes in calendar year 2015 liabilities.

The revenue estimate for gross VAT revenues are based on TPC's forecast of the VAT base (Table 1). The estimate is based on calendar year tax liabilities, and assumes the rate is fully in effect on January 1, 2015 with no transitional effects on spending by consumers or producers. The individual income and payroll tax offsets were estimated using the Urban-Brookings Tax Policy Center microsimulation model, with the reformed individual income tax in place. Similarly, the corporate income tax offset reflects the reformed base and lower rate of corporate income tax. The revenue loss due to the integrated income tax and VAT rebate was estimated using TPC's microsimulation model. The effect of the VAT on real federal spending was estimated from the CBO forecast of spending in 2015 and TPC estimates of the amount of state

[27] Appendix B provides a description of the model.
[28] See Nunns and Rohaly (2010).
[29] Some behavioral responses would increase, and others decrease, revenues from the static estimates presented here. The reduction in the corporate rate from 35 percent to 15 percent would discourage corporations from shifting income abroad, increasing reported corporate profits and corporate income tax revenues. However, since retained corporate profits would be taxed at a much lower rate than other business income taxed at the individual level, some partnerships and S-corporations might switch to C corporation form and retain profits at that level, reducing revenues.

and local revenues from income, general sales and business property taxes and the long-run effect of the change in wages on cash transfer payments.

The major components of the individual income, corporate and other business income and VAT provisions of the Graetz proposal and of federal spending effects due to the VAT are shown in Table 3. Note that the revenue estimates are relative to the Current Policy Baseline, and that the (tax-exclusive) VAT rate was set at 12.3 percent in order to make the proposal deficit neutral in 2015. [30]

[30] See Appendix A for a description of the tax provisions in effect in 2015 under the Current Policy Baseline.

Table 3

Revenue Effects of the Income Tax Provisions and Revenue and Spending Effects of the VAT Provisions of the Graetz Proposal Relative to Current Policy in 2015

Provision	Amount in 2015 ($billions)
Individual Income Tax Provisions	
Repeal the AMT	-51.8
Tax Rates of 16% and 25.5% (Repeal 3.8% Surtax on Investment Income)	-17.3
Replace Standard Deduction and Personal Exemption with Family Allowance	-802.8
Eliminate Deduction for State and Local Taxes	88.8
Floors of 2 Percent of AGI on Contributions and Mortgage Interest	31.3
Eliminate All Credits Except the Foreign Tax Credit	127.3
Total for Individual Income Tax Provisions (before Rebate)	**-624.5**
Corporate and Non-Corporate Business Income Tax Provisions	
Flat Corporate Income Tax Rate of 15%	-190.4
Other Corporate and Business Income Tax Provisions	57.3
Total for Corporate and Business Income Tax Provisions	**-133.1**
Value-Added Tax (VAT) of 12.3%	
Gross VAT Revenue	1,435.1
Less: Individual Income Tax Offset	151.1
Less: Corporate Income Tax Offset	12.3
Less: Payroll Tax Offset	109.2
Equals: Total Revenue Offsets	272.7
Net VAT Receipts (before Rebate)	**1,162.4**
Integrated Income Tax and VAT Rebate [1]	**433.2**
Change in Nominal Federal Spending:	
Cash Transfer Payments	123.4
Grant to State and Local Governments	-95.0
Net Change in Nominal Federal Spending	**28.4**
Change in Federal Deficit	**0**

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-7) and TPC estimates based on several sources (see text).

[1] The cost of the rebate also includes the adjustment of all cash transfer payments to pre-VAT levels.

Distribution of the Tax Burden

The distributional effects of Graetz's proposal at 2015 levels of income were estimated using the Urban-Brookings Tax Policy Center microsimulation model. 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 new method for analyzing the VAT burden. 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. In recognition, however, of the fact that 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 developed a separate method for estimating the transitional burden of introducing a VAT. [31]

The distributional analysis of the VAT presented here is only for long-run effects, consistent with the distributional analysis of the income tax reforms. In the long run, when fully phased in, the VAT burden is borne in proportion to the sum of labor income, "supernormal returns" to capital and cash transfer income, with adjustments for the effects of changes in relative prices of items of consumption, the net change in government spending due to lower cash transfer payments but higher grants to state and local governments, reduced income and payroll tax receipts that occur because the VAT lowers wages and profits, and the portion of the integrated income tax and VAT rebate that makes the tax less regressive.

Estimates of the distributional effects in 2015 of Graetz's proposal (on a fully phased-in basis) are shown in Table 4. Distributional effects are expressed as the percentage change in after-tax income, the amount of income available for consumption or saving, a measure of the change in households' welfare.

The estimates show that the proposal leaves the distribution of the tax burden essentially unchanged. Households in the lowest income quintile have a small reduction in their total tax burden, with small increases in tax burdens in other quintiles. This pattern is the net effect of the individual and corporate income tax changes, which disproportionately benefit higher-income households, the VAT, which disproportionately burdens low- and middle-income households, and the integrated income tax and VAT rebate, which disproportionately benefits low- and moderate-income households.

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[31] TPC's new methodology is summarized in Appendix B and described in detail in Toder, Nunns and Rosenberg (2011). Note that in all TPC distributional analyses incomes are held constant; no micro- or macro-level behavioral income responses are taken into account. OTA and CBO likewise hold incomes constant in their distributional analyses.

Table 4

Distributional Analysis of the Graetz Proposal

Relative to Current Policy at Income Levels in 2015 [1]

(percentage change in after-tax income)

	Individual Income Tax Provisions (before rebate)	Corporate and Business Tax Provisions	VAT (before rebate)	Integrated Income Tax and VAT Rebate	Total Changes [2]
Lowest Quintile	-6.2	0.3	-12.3	21.6	0.4
Second Quintile	-0.5	0.3	-12.0	13.8	-0.1
Middle Quintile	5.8	0.3	-11.8	6.4	-0.4
Fourth Quintile	8.4	0.4	-11.4	3.4	-0.2
Top Quintile	6.8	1.9	-8.8	0.7	-0.1
All	5.7	1.2	-10.2	4.0	-0.2
Addendum					
80-90	9.2	0.6	-10.3	1.6	0.1
90-95	8.5	0.8	-9.7	0.7	-0.5
95-99	7.3	1.5	-8.3	0.4	0.2
Top 1 Percent	3.6	3.9	-7.5	0.1	-0.4
Top 0.1 Percent	2.3	5.4	-7.7	0.0	-0.4

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

[1] Provisions are stacked in the order listed.

[2] Total changes are relative to current policy and cumulative from left to right. For example, for the middle quintile the total change is (1+.058)x(1+.003)x(1-.118)x(1+.064)-1 = -0.4%.

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 tax rates reflect not just statutory rates that may apply, but also phase-ins, phase-outs, and other features of the tax law that in combination with statutory rates determine how much taxes change when the level of economic activity changes. These tax rates are referred to as effective marginal tax rates, or EMTRs.

The change in EMTRs in 2015 on both wages and capital gains due to the Graetz proposal were estimated using the Urban-Brookings Tax Policy Center microsimulation model. Estimates are relative to the Current Policy Baseline, and are expressed as percentage point changes in

EMTRs.[32] Note that the EMTRs on capital gains under the Current Policy Baseline include the effect of the 3.8 percent surcharge on investment income of high-income taxpayers.

The estimates (Table 5) show that the proposal would reduce EMTRs on wages overall and in all income quintiles except the top quintile, which would have an unchanged EMTR on wages overall. Reduced EMTRs on wages increase incentives to enter the workforce and to work more hours. EMTRs on capital gains are increased in all quintiles and throughout the top quintile. For all but the top quintile, the large family allowance in the individual income tax would reduce the EMTR on capital gains to zero, whereas for the top quintile the application of the top rate (25.5 percent) to capital gains would represent an increase from the 15 percent rate that generally applies under the Current Policy Baseline. 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 and generates the EMTRs shown in Table 5.[33] The VAT EMTRs on capital gains are positive for all quintiles, but decline with income because 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.

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 due to exclusions from the income or VAT tax base or differences in the tax treatment of certain portions of the income or VAT tax bases. These effects are briefly discussed here, and summarized in Table 6.

Both the income tax and the VAT bases exclude non-market production, such as cleaning your own house and leisure. 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 your own house, the value of housecleaning time is not taxed under the income tax, 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 individual and corporate income taxes and the VAT distort the choice between non-market and market production, because non-market production is untaxed. The individual and corporate income tax rate

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[32] 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.

[33] Capital gains realizations are only a proxy for the amount of supernormal returns subject to VAT associated with the underlying assets. The VAT could apply to the supernormal returns before, at the time of, or after the gain realization, or might not ever apply. For example, the gain on the sale of stock could reflect the value of retained earnings including supernormal returns previously taxed under the VAT, current supernormal returns taxed currently under the VAT, anticipated supernormal returns that will be taxed in the future under the VAT, or anticipated supernormal returns that never materialize.

Table 5

Changes in Effective Marginal Tax Rates (EMTRs) Under the Graetz Proposal Relative to Current Policy EMTRs at Income Levels in 2015

(percentage change in after-tax income)

Cash Income Percentile	EMTRs Under Current Policy	Changes from Current Policy EMTRs[1]: Individual Income Tax Provisions (before rebate)	VAT (before rebate)	Integrated Income Tax and VAT Rebate	Total Changes	EMTRs Under Graetz Proposal
			Wages			
Lowest Quintile	17.4	-2.3	9.6	-8.0	-0.7	16.7
Second Quintile	32.3	-17.2	9.5	6.9	-0.8	31.5
Middle Quintile	33.9	-15.7	9.2	4.1	-2.4	31.5
Fourth Quintile	35.9	-14.0	8.8	2.5	-2.7	33.2
Top Quintile	38.1	-8.8	7.9	0.9	0.0	38.1
All	35.7	-11.7	8.6	2.0	-1.1	34.6
Addendum						
80-90	38.3	-10.0	8.1	2.1	0.2	38.5
90-95	37.3	-9.3	8.1	0.5	-0.7	36.6
95-99	39.2	-7.7	7.7	0.1	0.1	39.3
Top 1 Percent	37.1	-7.6	8.0	0.0	0.4	37.5
Top 0.1 Percent	38.0	-8.6	7.9	0.0	-0.7	37.3
			Capital Gains			
Lowest Quintile	1.4	-1.4	6.3	0.0	4.9	6.3
Second Quintile	1.1	-1.1	6.3	0.0	5.2	6.3
Middle Quintile	5.3	-2.8	6.1	0.1	3.4	8.7
Fourth Quintile	9.1	-2.3	5.8	0.2	3.7	12.8
Top Quintile	17.9	6.9	4.2	0.0	11.1	29.0
All	16.8	6.7	4.3	0.1	11.1	27.9
Addendum						
80-90	13.1	3.6	5.0	0.7	9.3	22.4
90-95	14.6	4.7	4.7	0.3	9.7	24.3
95-99	19.9	4.9	4.3	0.0	9.2	29.1
Top 1 Percent	18.1	7.5	4.1	0.0	11.6	29.7
Top 0.1 Percent	18.2	7.4	4.1	0.0	11.5	29.7

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

[1] Provisions are stacked in the order listed.

Table 6

Effects of the Graetz Proposal on Deadweight Loss

Source of Deadweight Loss	Income Tax Provisions: Individual	Income Tax Provisions: Corporate	VAT
Economic Distortions			
Market vs. Non-Market Production	Reduced by rate reductions	Affects only future goods; reduced by rate reduction	Yes, distorts
Present vs. Future Consumption	Reduced by rate reductions	Reduced by rate reduction	No distortion
Choices Among Consumer Goods	Rate reductions and base broadening reduce tax differentials	Rate reduction and base broadening reduce tax differentials	Yes, but limited since base is very broad
Relative Returns Among Capital Goods	Rate reductions and base broadening may reduce tax differentials	Rate reduction and base broadening may reduce tax differentials	No distortion
Forms of Business Organization	Corporate rate well below top individual rate may offset corporate "double tax"	Corporate rate well below top individual rate may offset corporate "double tax"	No distortion
Forms of Business Finance	Corporate finance distortion could be increased	Reduced by rate reduction	No distortion
Administrative and Compliance Costs			
Administrative Costs for IRS	Some startup costs; Significant reduction in ongoing costs	Some startup costs; Some reduction in ongoing costs	Significant startup and ongoing costs
Compliance Costs for Individuals	Significant reduction	N/A	Minimal
Compliance Costs for Business	Significant reduction for noncorporate businesses	Some reduction	Significant startup and ongoing costs

reductions under Graetz's proposal would reduce this distortion in the income taxes, but the distortion is increased by the VAT.

Under the VAT, the tax on consumption out of this year's income would be the same, in present value, as the tax on future consumption that is financed by saving out of this year's income, because the VAT would not tax the normal return to saving. However, both the individual and the corporate income taxes reduce the normal return to saving,[34] so consumption out of this year's income is greater in present value than future consumption financed by saving out of this year's income. Thus, the income taxes, but not the VAT, distort the choice between present and future consumption. This distortion would also be reduced by the rate reductions in the Graetz proposal.

The individual income tax provides incentives to certain forms of consumption, such as health care financed by employer-provided insurance and homeownership. The corporate income tax, through differential tax treatment of certain investments or activities (for example, the domestic production activities deduction), also changes relative consumer prices, which distorts consumer choices. The rate reductions and base broadening in the individual and corporate income tax reforms in Graetz's proposal would reduce this distortion. Many of the VATs in place around the world also provide incentives to consume certain items that are omitted from the VAT base or taxed at preferential rates, but like more recently adopted VATs, the base in the proposal is very comprehensive, so distortions among consumer goods are quite limited.

The income taxes provide incentives to 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 investment patterns. The proposed income tax changes would reduce some of these distortions by reducing rates and broadening the tax base, but would exacerbate them to some extent by allowing small businesses to expense all investments in equipment and inventories. The VAT provides the equivalent of expensing for all investment by all businesses, so would be 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 relationship of the corporate income tax rate and the individual income tax rate on non-corporate business income, dividends and capital gains affect (distort) the decision to use the C corporation form or some other form of business organization. Graetz's proposal reduces the corporate income tax rate well below the top individual rate, but also increases the top rate on dividends and capital gains. It is not clear which effect would prevail in general, although it appears that the corporate rate inversion would shift incentives toward the C corporate form, reducing the net distortion present in current law. The application of the VAT would not depend on the form of business organization, so would not distort decisions about organizational form.

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[34] The normal return to retirement and certain other forms of saving is not taxed under the current income tax.

The choices between debt and equity financing and retention versus distribution of profits are also distorted by the relationship between the corporate and various individual income tax rates. The corporate rate reduction in Graetz's proposal should reduce the bias in favor of debt over equity finance. However, increasing individual income tax rates on capital gains and dividends to the same rate that applies to interest income would increase this bias because interest, but not equity payments, remains deductible under the corporate income tax. The net effect of the corporate and individual rate changes is unclear. The introduction of a corporate rate that is lower than the top individual rate might further encourage retention of profits. The application of the VAT would not depend on the source of business finance or the share of corporate profits that are paid out, so would not in itself distort decisions about the use of debt versus equity for business finance, or retention versus distribution of profits.

Administrative and Compliance Burdens

The large family allowance and other individual income tax reforms in the Graetz proposal would significantly reduce the number and complexity of returns filed, reducing administrative costs for the Internal Revenue Service (IRS). These simplifications also would significantly reduce compliance costs for individuals, many of whom would no longer be required to file an income tax return. As shown in Table 7, in 2015 there would be 147.5 million individual income tax filers under the Current Policy Baseline, but only 36.6 million income tax filers under the Graetz proposal, a reduction of 110.9 million filers. However, the self-employed would still need to file a least a portion of an income tax return and compute their net business and partnership income in order to compute and pay payroll (SECA) taxes. Including SECA filers would add 12.6 million taxpayers who would otherwise not file under the Graetz proposal. In addition, the integrated income tax and VAT rebate would require some form of coordination

Table 7

Number of Individual Income Tax Filers under the Current Policy Baseline and the Graetz Proposal in 2015

Filing Status [1]	All Tax Units (Filers [2] and Nonfilers) (000)	Filers Under the Current Policy Baseline		Filers Under the Graetz Proposal [3]		ADDENDUM: Nonfilers Who Owe SECA Under the Graetz Proposal	
		Number (000)	Percent of Tax Units	Number (000)	Percent of Tax Units	Number (000)	Percent of Tax Units
S	80,303	65,180	81.2	14,249	17.7	3,773	4.7
MFJ	62,127	55,843	89.9	19,603	31.6	6,609	10.6
HoH	26,118	24,038	92.0	1,911	7.3	2,020	7.7
MFS	2,479	2,479	100.0	863	34.8	184	7.4
Total	171,027	147,540	86.3	36,625	21.4	12,586	7.4

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

[1] S is Single; MFJ is Married Filing Jointly; HoH is Head of Household; and MFS is Married Filing Separately.

[2] The 7.1 million dependents of another taxpayer who file income tax returns under the Current Policy Baseline are included in the count of tax units.

[3] Filers under the Graetz proposal include only those tax units that have AGI in excess of their family allowance.

across jobs and verifications for claimed household status and eligible children to ensure proper claims. So some filing or reporting burden would remain for many current filers who would owe no individual income tax under the Graetz proposal. But burdens would be substantially reduced for all households with income below the taxpaying thresholds.

The proposed corporate income tax reforms would provide some simplification, and the rate reductions would reduce the incentive to engage in complex tax avoidance schemes. This decline in the incentive to avoid tax would further reduce costs of compliance for taxpayers and costs of administration for the IRS.

A VAT would be a new tax in the United States. While likely significantly less complex than the current or even a simplified income tax, it would nonetheless impose new compliance burdens on businesses, nonprofits and government agencies that also must remit the tax. Unlike the income tax, however, a VAT would place no direct compliance costs on individuals, although the new integrated income tax and VAT rebate would impose a compliance cost.

A VAT would require the IRS, or a new agency, to establish an administrative apparatus, with its own forms, instructions, regulatory guidance, processing, taxpayer service, and collection and enforcement activities. Although much of this structure might be similar to what currently exists in the IRS, there would still be a new set of procedures and a new administrative structure whether or not the IRS administered the VAT. This would require a significant appropriation in advance of the VAT's startup to establish the apparatus and pay for initial taxpayer education programs, and annual appropriations thereafter.

Parallel to the federal government's administrative apparatus, businesses and other entities would have to establish the internal procedures they would need to learn about and comply with the VAT. Small businesses are assumed to be exempt from the VAT, but they would still have some compliance costs to learn about the VAT and determine whether exemption was in their best interests. Large businesses would be directly involved in collecting and remitting VAT. Nonprofit and government entities large enough to exceed the small business exemption level would be subject to VAT, entailing compliance costs similar to those of businesses subject to VAT.[35]

A national VAT would provide a template to help improve state and local retail sales taxes by extending their bases to broadly apply to services purchased by households, removing the cascading of tax that occurs from taxing sales between businesses, and resolving the taxation of internet and other remote sellers. These improvements would most easily be achieved if state and local sales taxes piggybacked on the national VAT, as occurred to some extent in Canada. 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.

[35] Government agencies that provided some (but not all) goods and services reimbursed by fees or charges could have higher compliance cost because they would be required to allocate the VAT on purchases and to split their compensation of employees between fee or charge reimbursed and other goods and services.

Appendix A:
Individual and Corporate Income Tax Parameters Under the Current Policy Baseline and the Graetz Proposal

Table A-1

Individual Income Tax Rates Under the Current Policy Baseline and the Graetz Proposal, Tax Year 2015

(2015 dollars)

Taxable Income		Tax Rate Under:	
Over	But Not Over	Current Policy Baseline	Graetz Proposal
Single			
$0	$8,925	10%	16%
$8,925	$36,300	15%	16%
$36,300	$50,000	25%	16%
$50,000	$87,900	25%	25.5%
$87,900	$183,350	28%	25.5%
$183,350	$398,600	33%	25.5%
$398,600	--	35%	25.5%
Married Filing Jointly			
$0	$17,850	10%	16%
$17,850	$72,600	15%	16%
$72,600	$100,000	25%	16%
$100,000	$146,450	25%	25.5%
$146,450	$223,200	28%	25.5%
$223,200	$398,600	33%	25.5%
$398,600	--	35%	25.5%
Head of Household			
$0	$12,750	10%	16%
$12,750	$48,600	15%	16%
$48,600	$75,000	25%	16%
$75,000	$125,500	25%	25.5%
$125,500	$203,250	28%	25.5%
$203,250	$398,600	33%	25.5%
$398,600	--	35%	25.5%

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

Table A-2

Individual Income Tax, AMT, Estate Tax and Payroll Tax Parameters Under Current Policy and the Graetz Proposal, Tax Year 2015

(2015 dollars)

Provision	Current Policy Baseline	Graetz Proposal
	Individual Income Tax Parameters	
Standard Deduction Amounts	Single: $6,100 (indexed) MFJ: $12,200 (indexed) HoH: $8,950 (indexed)	N/A (repealed)
Personal Exemption Amount	$3,900 (indexed)	N/A (replaced by rebate)
Family Allowance Amounts	N/A	Single: $50,000 (indexed) MFJ: $100,000 (indexed) HoH: $75,000 (indexed)
Itemized Deductions	State and Local Taxes Non-business income or sales and property taxes	N/A (repealed)
	Charitable Contributions Allowed with no floor	Only contributions in excess of 2% of AGI allowed
	Mortgage Interest Allowed with no floor	Only mortgage interest in excess of 2% of AGI allowed
	All other Deductions for medical and dental expenses[1], investment interest, casualty and theft losses, job expenses, and all miscellaneous deductions computed in same manner as under current law	Same as Current Policy Baseline
Capital Gains	Maximum rate is 15% (0% if gain would otherwise be taxed at 10% or 15%); "Unearned Income" surcharge may apply	Taxed at ordinary income tax rates
Qualified Dividends	Taxed at same rates as capital gains	Taxed at ordinary income tax rates
"Net Investment Income" (Capital gains, Dividends, Interest, Rents, Royalties, etc.)	For MFJ taxpayers with MAGI over $250,000 (unmarried taxpayers with MAGI over $200,000) (neither level indexed), a surcharge rate of 3.8% applies to the lesser of net investment income and the amount by which MAGI exceeds the threshold	N/A (repealed)
Limitation on Itemized Deductions ("Pease")	N/A (repealed)	N/A (repealed)
Personal Exemptions Phase-Out ("PEP")	N/A (repealed)	N/A

Table A-2 -- Continued

Provision	Current Policy Baseline	Graetz Proposal
Child Tax Credit	$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 of the credit is limited by the AMT	N/A (replaced by rebate)
EITC	Refundable credit for childless taxpayers between ages of 25 and 64 and taxpayers with one, two or three or more children; credit phases in with earned income, reaches a maximum, then phases out with the higher of earned income or AGI: Childless Phasein rate: 7.65% Phasein ends: $6,380 (indexed) Max credit: $488 (indexed) Phaseout begins: $7,980 (indexed) Phaseout rate: 7.65% One Child Phasein rate: 34% Phasein ends: $9,570 (indexed) Max credit: $3,254 (indexed) Phaseout begins: $17,540 (indexed) Phaseout rate: 15.98% Two Children Phasein rate: 40% Phasein ends: $13,430 (indexed) Max credit: $5,372 (indexed) Phaseout begins: $17,540 (indexed) Phaseout rate: 21.06% Three or More Children Phasein rate: 45% Phasein ends: $13,430 (indexed) Max credit: $6,044 (indexed) Phaseout begins: $17,540 (indexed) Phaseout rate: 21.06% Married Couples All phaseout ranges begin $5,340 (indexed) higher than shown above The credit is not limited by the AMT	N/A (replaced by rebate)

Table A-2 -- Continued

Provision	Current Policy Baseline	Graetz Proposal
Education Credits	AOTC (modified HOPE credit) 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) Lifetime Learning Credit 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). Phaseout 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: AOTC MFJ: $160,000 (not indexed) S & HoH: $80,000 (not indexed) Lifetime Learning Credit MFJ: $107,000 (indexed) S & HoH: $53,000 (indexed)	N/A (repealed)
Other Education Incentives	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	Same as Current Policy Baseline

Table A-2 -- Continued

Provision	Current Policy Baseline	Graetz Proposal
Child Care	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 (not 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	N/A (repealed)
Foreign Tax Credit	Credit for income taxes paid to a foreign government on income earned outside the United States	Same as Current Policy Baseline
All Other Credits	Numerous credits for a range of activities including adoption, energy production- and efficiency-related, retirement savings, state and local bonds, etc.	N/A (all repealed)
	AMT Parameters	
Exemption Amounts	Exemption amounts are: MFJ: \$78,250 (indexed) S & HoH: \$50,900 (indexed)	N/A (AMT repealed)
28 Percent Bracket Threshold	\$175,000 (not indexed)	
Exemption Phase-Out Threshold	Exemption phaseout thresholds are: MFJ: \$150,000 (not indexed) S & HoH: \$112,500 (not indexed)	
Limitation on Personal Credits	All refundable and nonrefundable personal credits are allowed against both regular tax and AMT liability	
	Estate Tax Parameters	
Exemption Amount	\$5.26 million (indexed)	Same as Current Policy Baseline
Top Rate	35%	Same as Current Policy Baseline
	Payroll Tax Parameters	
Base	OASDI: Wages & self-employment up to cap of \$129,300 (indexed) HI: Wages and self-employment (no floor or cap)	Same as Current Policy Baseline
Rate	OASDI: 6.2%[2] HI: 1.45%[1] + 0.9% surcharge[3]	Same as Current Policy Baseline

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

[1] The floor for medical and dental expenses in 2015 is 10 percent of AGI (7.5 percent if a taxpayer, or either spouse on a joint return, is aged 65 or over).

[2] Rate applies to both employers and employees.

[3] Surcharge applies to MFJ taxpayers with MAGI over \$250,000 (unmarried taxpayers with MAGI over \$200,00) (unindexed).

Table A-3

Corporate and Non-Corporate Business Income Tax and Corporate AMT Parameters Under Current Policy and the Graetz Proposal, Tax Year 2011

	Current Policy Baseline	Graetz Proposal
Corporate Income Tax Rates	Graduated rates ranging from 15% to 35%, with lower rates phased out above $15 million of taxable income	Single rate of 15%
Corporate and Non-Corporate Business Tax Base	Numerous special deductions to encourage certain types of activity, including domestic production, investment (through accelerated cost recovery), energy and mineral production, etc.	Many special deductions repealed or curtailed: limit the deduction for travel on corporate aircraft, repeal expensing of intangible drilling and development costs for oil and gas wells, repeal the exception from net operating loss limitations for corporations in bankruptcy proceedings, repeal the special rules for sales or dispositions to implement FERC restructuring policies, repeal the completed contract rules, repeal percentage depletion for oil or gas wells, repeal development costs of mines or other natural deposits, repeal the special tax rate on nuclear decommissioning reserve funds), modify the effective date of the leasing provisions of American Jobs Creation Act of 2004, repeal revaluation of LIFO inventories of large integrated oil companies, repeal the lower of cost or market value of inventory rule, modify the application of rules treating inverted corporations as domestic corporations to certain transactions occurring after March 20, 2002, denial of a deduction for punitive damages, and adoption of several tax compliance provisions (increase in information return penalties, e-filing requirement for certain large organizations, implementation of standards clarifying when employee leasing companies can be held liable for their clientsÕfederal employment taxes, expansion of IRS access to information in National Directory of New Hires, modification of criminal penalties for willful failures involving tax payments and filing requirements, and penalties for failure to file certain returns electronically)
Foreign Tax Credit	Credit for income taxes paid to a foreign government on income earned outside the United States	Modified for large integrated oil companies which are dual capacity taxpayers
All Other Credits	Numerous credits for a range of activities including research and development, certain investments, low-income housing, energy production- and efficiency-related, orphan drugs, etc.	N/A (all repealed)
Corporate AMT	Additional tax based on adjustments and preferences added to taxable income less an exemption amount (which phases out), if tentative AMT (rate is 20%) exceeds regular tax	N/A (corporate AMT repealed)

Appendix B
The Urban-Brookings Tax Policy Center Methodology for Distributing a VAT

Overview

The Urban-Brooking Tax Policy Center (TPC) methodology for measuring the distributional impact of a national VAT uses two separate approaches: one for estimating the long-run distributional impact of a VAT after its transitional effects have been fully realized and it has become a permanent part of the tax system, and another for estimating the transitional effects of a VAT when it is first imposed. The long-run methodology is designed to be consistent with existing practices for estimating the distributional effects of changes in the individual income, corporate income, and payroll taxes so that a VAT can be directly compared with other taxes, while also making improvements on previous long-run methods. The methodology for estimating transitional burdens is designed to address policy makers' concerns about the short-term effects of introducing a national VAT on certain populations, particularly older individuals who might be spending down their wealth and are therefore paying VAT on consumption out of prior income that has already borne income tax.

Because proposals for a VAT have not been under active consideration recently by either the Executive Branch or the Congress, the federal tax estimating agencies – the Department of the Treasury's Office of Tax Analysis (OTA), the Joint Committee on Taxation (JCT), and the Congressional Budget Office (CBO) – have not been required recently to estimate the distributional effects of a VAT. All the agencies have prepared such estimates in the past, but this previous work may not accurately reflect how the agencies would estimate the distributional effects of a national VAT today based on their current methodologies for performing distributional analyses.

TPC's proposed new methodology for distributing the impact of a VAT makes key improvements over past methodologies:

- It separates the analysis between fully phased-in effects and transitional effects;
- In the transition, it provides a new way of estimating the burden on existing wealth that captures how it varies with an individual's age and the projected spend down of this wealth;
- It holds real government spending constant after a VAT is implemented so that the net effects of the VAT on the federal deficit are properly measured; and
- It recognizes the fact that wage-indexed cash transfer payments, such as Social Security and unemployment compensation, bear a VAT burden in the long run.

Sources and Uses of Income

For the purposes of tax analysis, households differ among each other in two ways: how they allocate their income between consumption and saving ("uses"), and how they earn their income, such as from the wages earned from labor services or the interest, dividends, and capital gains earned as a return on capital ("sources"). A pure uses approach would distribute the burden of a VAT in proportion to the amount of taxable goods and services a household consumed relative to its income. A sources approach instead would analyze a VAT as a tax on income that would exempt

current saving, but also would tax net withdrawals from saving accounts. Because exempting saving is equivalent to exempting the "normal" (expected) return on saving, the sources approach distributes the burden of a VAT in proportion to the sum of labor compensation plus "supernormal" investment returns (profits above market expectations), but treats the normal return to saving as exempt.

In principle, the sources and uses approaches yield equivalent present value results over an individual's lifetime, but in reality they have major practical and conceptual differences, and in a given year the two approaches can produce significantly different estimates of burden. Thus, the choice between the sources and uses method is a fundamental modeling decision. OTA and TPC have used a sources method to analyze the burden of consumption taxes such as a VAT.[36] A 1993 JCT pamphlet also recommended a sources approach, but JCT has not released any distributional estimates of a VAT since then.[37] A 1992 CBO study relied on a uses approach, but CBO also has not performed any recent distributional estimates of a VAT.[38]

In its new methodology, TPC for several reasons relies on a sources approach to distribute the burden of a VAT. First, the income data available from the Internal Revenue Service for the sources method is of higher quality for this purpose than the data on the ratio of consumption to income reported in the Consumer Expenditure (CE) survey. Second, all three federal agencies already use a sources method for analyzing the distribution of income and payroll taxes, so a distributional analysis of a VAT performed under the sources method would be comparable to analyses already done for other federal taxes and also would allow for a comparison of competing tax proposals. Third, all three federal agencies and TPC use some form of current income to measure economic well-being, and therefore the sources method properly aligns measures of tax burden and its timing with measures of income. TPC does, however, apply a uses method for estimating the effects of exempting selected goods and services from a VAT. The data in the CE were designed for measuring the consumer price index and therefore provide a good basis for measuring the composition of consumption by households at different income levels.

Long-Run vs. Transitional Burdens

Standard distribution tables show estimates of the long-run burden of a tax or tax change – the burden after the tax or tax change has been in place for an extended period of time. In the long-run, when fully phased in, the burden of the VAT is borne in proportion to the sum of labor income, "supernormal returns" to capital and cash transfer income, with adjustments for the effects of changes in relative prices of items of consumption, the decline in government spending associated with excluding government from the VAT base, reduced income and payroll tax receipts that occur because the VAT lowers wages and profits, and any rebate included in the policy to make the tax less regressive.

- Labor income. A VAT imposes a wedge between consumer and producer prices, reducing returns to labor and capital. So a portion of the VAT is borne in proportion to wages and other employee compensation. For consistency with how distributional analyses treat labor income under the income tax and consistency with the "cash income" measure used to rank units in the distribution tables, we distribute the VAT burden on earnings contributed to

[36] See President's Advisory Panel on Federal Tax Reform (2005) and Toder and Rosenberg (2010).
[37] See JCT (1993).
[38] See CBO (1992).

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 (including government), 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 VAT burden the same as private sector workers even though governments do 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 unchanged the after-tax return to saving.[39] 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.[40]

- Cash transfer income. In addition to returns to labor and capital, households may receive cash transfer payments. Most cash transfer payments (such as Social Security and unemployment benefits) are directly tied to wages, and the other cash transfer payments are likely to be adjusted if wages change. So, the reduction in wages following introduction of the VAT will reduce cash transfer payments over time (i.e., they will bear a VAT burden) as the computations that determine transfer benefits begin to reflect the reduction in wages 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 VAT burden on cash transfer payments is included in the distributional analysis, but the integrated income tax and VAT rebate offsets this burden for all recipients of cash transfer payments.

- Relative prices. The proposed VAT base in the Graetz proposal includes essentially all consumption goods and services. For goods and services fully subject to VAT, VAT-inclusive (consumer) prices differ from VAT-exclusive (producer) prices by the full amount of the VAT. For excluded goods and services, consumer and producer prices are the same.[41] For a household, this differential relative price effect between the consumer and producer prices of taxed and excluded goods and services means that the household would bear relatively more or less VAT than the average household, depending on whether fully taxed goods and services represent a larger or smaller share of a household's consumption than of the average household's. Our distributional analysis takes such differential price effects into account. However, because the VAT base in the Graetz proposal is so broad, there are no differential price effects.

- Government spending offset. In addition to the net change in federal revenues, the VAT affects household burdens to the extent nominal federal spending is changed to hold real spending constant, since this spending change represents a change in factor or cash transfer income. This change is included in the distributional analysis.

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[39] Under a VAT, investments are expensed through 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.

[40] 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 losings.

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

- Income and payroll tax offsets. Because a VAT lowers household incomes, it also lowers income and payroll tax liabilities. This reduction in income and payroll tax liabilities offsets a portion of the VAT burden. We directly estimate this effect using TPC's tax model, taking into account the reforms to the individual and corporate income taxes that are part of the Graetz proposal.

- Rebate. The integrated income tax and VAT rebate in the Graetz proposal is included in the distributional analysis.

Estimates of transitional burdens (not included in this paper) make two major modifications to the long-run estimates. First, current wealth holders bear a lump sum tax on their wealth because a VAT base includes returns and spending from old (pre-VAT) wealth. TPC measures the burden of this tax as the estimated annual annuity from the returns and spending down of old wealth over a tax unit's expected lifetime. The burden is higher for individuals who spend down a larger fraction of their wealth and for those with a shorter remaining life expectancy. Second, the transitional burden measure treats receipts of indexed cash transfer payments, in particular Social Security benefits, as exempt. The nominal value of these benefits would be unchanged if wages fall (see below). And the benefits are indexed to the Consumer Price Index (CPI) so the Social Security benefits of current retirees are also protected if the VAT causes the consumer price level to rise. The new TPC methodology includes separate estimates of the long-run and transitional burdens.

Price Level

A national VAT would introduce a gap between the prices consumers pay for goods and services and the prices producers receive. Depending on how the Federal Reserve reacts, either consumer prices could rise or producer prices could fall. If consumer prices rise, the nominal value of labor (wages) and income from capital would not change, but their real value (purchasing power) would fall. If instead consumer prices remain constant, then both the real and nominal values of wages would fall. The nominal value of equity capital (e.g. stocks and business assets that are not publicly traded) also would fall. Because contractual interest payments for debt capital are fixed in nominal terms, the entire transitional burden on old wealth would fall on equity owners.

All three federal agencies currently assume that real GDP and the overall price level remain constant in response to changes in tax law. However, in past work, both JCT and CBO have analyzed a VAT assuming it raises consumer prices. The assumption about the consumer price level mostly does not affect the real burden of a VAT. However, it does matter in the case of recipients of income that is fixed in nominal terms. Thus, in the transition, bond holders and recipients of un-indexed cash transfer payments bear no burden if consumer prices are unchanged, but do bear a VAT burden if consumer prices rise. The proposed new methodology assumes that consumer prices remain constant. It could be easily modified, however, to allow for an assumption that consumer prices rise when a VAT is introduced.

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

This Appendix provides a summary description 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.[42] 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).[43] 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 about 57,000 households (representing 117.2 million households in 2008) that is stratified on area of residence and represents the civilian noninstitutional

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[42] 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 publically 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.

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

population of the United States.[44] 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 C-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 are also 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.[45] 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.[46] Aging through the end of the budget period (which currently ends in 2021) 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

[44] 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).

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

[46] 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 C-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, ŅThe Urban-Brookings Tax Policy Center Microsimulation Model: Documentation and Methodology for Version 0304Ó(2005).

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 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 assumption for all the government agencies responsible for tax modeling -- 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".[47] Since taxpayers can avoid some of the effects of higher taxes through behavior, this static behavior assumption will overstate the burden of tax increases.

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[47] 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.

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.

Definitions of Tax Law and TPC Model Terms[48]

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, 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

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

employment tax, moving expenses, penalty on early withdrawal of savings, self-employed health 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 are also 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 on 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 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 applies 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

References

Congressional Budget Office. Effects of Adopting a Value-Added Tax. Washington, D.C., 1992.

Durner, Leah and Jon Sedon. VAT Administration: Issues and Enforcement. *Tax Notes* (July 26, 2010): 431-438.

Durner, Leah, Jon Sedon and Lisa Kothari. VAT Compliance: The Taxpayer's Perspective. *Tax Notes* (October 11, 2010): 245-250.

Graetz, Michael J. *100 Million Unnecessary Returns*. New Haven: Yale University Press, 2010 (revised edition).

Joint Committee on Taxation. Methodology and Issues in Measuring Changes in the Distribution of Tax Burdens. Washington, D.C., 1993. JCS-7-93.

Merrill, Peter R. and Chris R. Edwards. Cash-Flow Taxation of Financial Services. *National Tax Journal* 49 (September 1996): 487-500.

Nunns, Jim and Jeffrey Rohaly. Preliminary Revenue and Distributional Analysis of the Tax Provisions in the Bipartisan Fairness and Simplification Act of 2010. Washington, D.C.: Urban-Brookings Tax Policy Center, 2010.

President's Advisory Panel on Federal Tax Reform. *Simple, Fair, and Pro-Growth: Proposals to Fix America's Tax System*. Washington, D.C., 2005.

Rohaly, Jeffrey, Adam Carasso and Mohammed Adeel Saleem. The Urban-Brookings Tax Policy Center Microsimulation Model: Documentation and Methodology for Version 0304. Washington, D.C.: Urban-Brookings Tax Policy Center, 2005.

Toder, Eric. What is the Tax Gap? *Tax Notes* (October 22, 2007): 1-12.

Toder, Eric and Joseph Rosenberg. Effects of Imposing a Value-Added Tax to Replace Payroll Taxes or Corporate Taxes. Washington, D.C.: Urban-Brookings Tax Policy Center, 2010.

Toder, Eric, Jim Nunns and Joseph Rosenberg. Methodology for Distributing a VAT. Washington, D.C.: Urban-Brookings Tax Policy Center and the Pew Charitable Trusts, 2011. http://www.taxpolicycenter.org/UploadedPDF/1001533-Methodology-Distributing-VAT.pdf

Toder, Eric, Jim Nunns and Joseph Rosenberg. Implications of Different Bases for a VAT. Washington, D.C.: Urban-Brookings Tax Policy Center and the Pew Charitable Trusts, forthcoming.

U.S. Department of Commerce, Bureau of the Census. Current Population Survey, Annual Social and Economic (ASEC) Supplement. Washington, D.C., 2009.

U.S. Department of Commerce, Bureau of Economic Analysis. National Income and Product Accounts (NIPA). Washington, D.C.

U.S. Department of the Treasury. Internal Revenue Service. Statistics of Income Division. *Individual Income Tax Returns, 2008*. Washington, D.C., 2010.