The Distributional Effects of the Trump Tax Plan

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1. Introduction

The Republican candidate for President, Donald Trump, has proposed a set of significant changes to the federal tax code that would reduce the personal income tax rates, cut the corporation income tax rate, and abolish the estate tax.

In a companion study (Bachman et al., 2016b), we estimate that these changes would eventually raise GDP by almost ten percent relative to what it would otherwise have been. In this study we examine the distributional effects of the proposed tax changes, examining who would gain or lose, and by how much, if the changes were put into place.

The tax changes would provide modest relief to the poorest 40% of the population. The biggest relative and absolute gains would go to those in the top ten percent of the income distribution, while those in the "middle class" would also benefit to a moderate extent.

That the plan would concentrate the economic gains in the top ten percent should come as no surprise, in light of the expansive effect it would have on the overall economy. Policy makers face tradeoffs, one of which is that between the goals of expanding economic activity and of increasing income "equality." The Trump plan expands economic activity largely by reducing taxes on capital, but, because ownership of capital is concentrated in the higher income brackets, high-income taxpayers naturally gain the most. We will see how Trump handles another tradeoff – that between expanding economic activity and raising tax revenue. Because tax cuts almost always cause a loss in tax revenue and because Trump makes very substantial cuts in taxes, especially taxes on capital income, it causes a substantial loss in tax revenue.

Our study is organized as follows: the details of Trump's proposed tax changes are set out in Section 2, including an estimate of their revenue effects. We explain the methodology for measuring the distributional effects in Section 3, present the results tax by tax in Section 4, and combine the results in order to measure the overall impact in Section 5.

2. The Proposed Tax Changes

The Trump tax proposals envisage changes in the personal income tax, corporation income tax, and estate tax. We consider each in turn.

Personal Income Tax

The current federal personal income tax has seven distinct tax rates, ranging from 10% to 39.6%. Income from labor and capital is adjusted for certain expenses to give adjusted gross income, which is then reduced by subtracting personal exemptions as well as deductions (either at a standard rate, or itemized) to give taxable income. The tax rates and brackets that are applied to taxable income are

shown in the top panel of Table 2.1. The amount of tax payable may then be further reduced if the taxpayer is eligible to claim tax credits, such as the earned income credit.[1] In practice, as we document in Section 4 below, low-income households on average are net beneficiaries under the personal income tax, while high-income households are net payers.

The Trump proposal would reduce the number of non-zero tax rates from seven to three (12%, 25%, and 33%), as shown in the bottom panel of Table 2.1. The standard deduction, currently $6,300 for single filers and $12,600 for married filing jointly, would rise to $20,000 and $40,000 respectively. Itemized deductions would be capped at $100,000 for a single filer, and at $200,000 for a married couple filing jointly. The Alternative Minimum Tax would be abolished. Trump would also offer a deduction for child care expenses.

Within the personal income tax, there would a cap of 15% on business income; long-term capital gains and dividends would presumably be taxed at somewhat lower rates than other forms of income (see Table 2.1).

Figure 2.1 presents one comparison of the marginal tax rates of the Trump proposal with those currently in place. It illustrates the case of a married couple with two children filing jointly, and taking a standard deduction. The horizontal axis shows total income; under both the current system and the Trump proposal there is no tax on households with low incomes.

Table 2.1. Personal Income Tax Rates and Brackets – Currently (2016) and under Trump Proposal

| | Tax brackets ($ of taxable income per year) | | | |
	Single	Married filing jointly	Married filing separately	Head of household
Current rates/brackets				
10%	0 -	0 -	0 -	0 -
15%	9,275 -	18,550 -	9,275 -	13,250 -
25%	37,650 -	75,300 -	37,650 -	50,400 -
28%	91,150 -	151,900 -	75,950 -	130,150 -
33%	190,150 -	231,450 -	115,725 -	210,800 -
35%	413,350 -	413,350 -	206,675 -	413,350 -
39.6%	415,050 -	466,950 -	233,475 -	441,000 -
Memo items				
Standard deduction	6,300	12,600	6,300	9,300
Personal exemption	4,050	4,050	4,050	4,050
Trump rates/brackets				
12% [0% on div/Kgain]	0 -	0 -	0 -	0 -
25% [15% on div/Kgain]	37,650	75,300	37,650	50,400
33% [20% on div/Kgain]	190,150	231,450	115,725	210,800
Memo items				
Standard deduction*	20,000	40,000	20,000	30,000
Personal exemption	4,050	4,050	4,050	4,050

Notes: div/Kgain = dividends and capital gains. Standard deduction (or itemized deductions) and personal exemptions are deducted before the taxes are applied. Under current rules, exemptions are phased out at high

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[1] Kelly Phillips Erb. IRS Announces 2016 Tax Rates, Standard Deductions, Exemption Amounts and More. *Forbes*, October 21, 2015. http://www.forbes.com/sites/kellyphillipserb/2015/10/21/irs-announces-2016-tax-rates-standard-deductions-exemption-amounts-and-more/2/#20029a871e5d

incomes (between $311,300 and $433,800 for a married couple filing jointly, for instance). The Trump proposal would limit tax on business income to no more than 15%.

To determine the revenue and distributional effects of the Trump proposal, one has to simulate the impact using information on U.S. households, which differ widely in the amount and nature of their incomes, composition, and spending. In Section 3, we explain in more detail how our tax calculator model works.
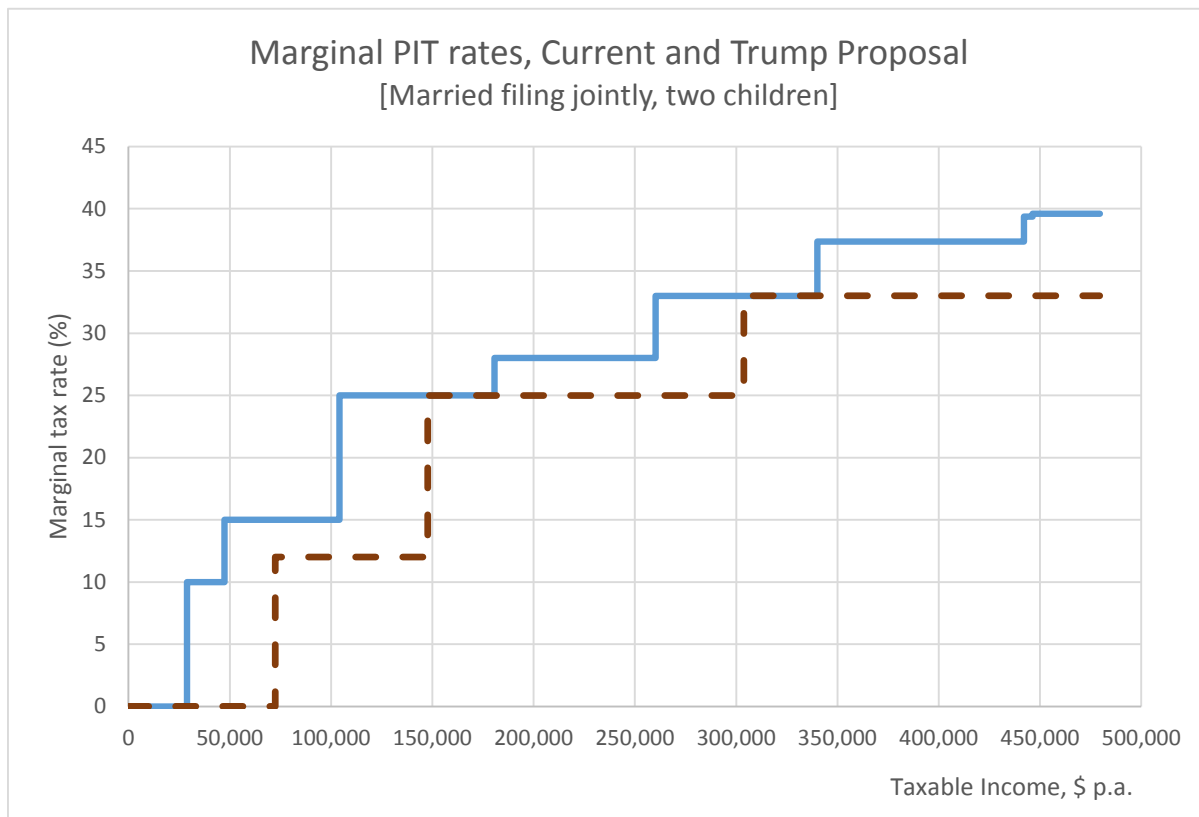
Corporate Income Tax

Under current rules, the income of C corporations is taxed on a sliding scale that rises from 15% (for taxable income below $50,000 per year) and eventually levels off at 35% (for income above $18.3 million annually). Large firms earn most of the taxable income, so in 2013 the average tax rate was 34.8% (IRS-SOI 2016, Table 5). When state and local corporation income taxes are included, the U.S. has, on paper, one of the highest tax rates in the world, and this has led to widespread calls for reforming the tax (Angelini and Tuerck 2015). The Trump proposal would cut the corporate tax rate to a flat rate of 15%.

Taxable income is measured as receipts minus the cost of goods sold, as well as other expenses including salaries, rent, depreciation, and interest paid on debt. An earlier Trump proposal called for "reducing or eliminating some corporate loopholes that cater to special interests" (NTU 2015) and said that it would "phase in a reasonable cap on the deductibility of business interest expenses," but did not provide further details. In the simulations discussed below, we assume that only half of interest

payments by businesses will be deductible. While this is speculative, it falls within the bounds of a "reasonable" cap, and does protect corporate income tax revenues to a significant degree (Bachman et al. 2016c).

Estate Tax

Upon death, the estate of the deceased may be subject to an estate tax, if the amount exceeds $5.45 million. The tax rate begins at 18% but the statutory rates rise fairly quickly to 40% on the value of estates in excess of $6.45 million. There are numerous ways to avoid all or most of the tax, so that only an estimated 0.2% of estates pay this tax (Huang and Debot 2015). The Trump proposal calls for the abolition of the estate tax.

Import Tariffs

In some of his speeches, Donald Trump has proposed levying tariffs on imports from China (45%), Mexico (35%), and Japan. The effects of such changes have been analyzed elsewhere (Tuerck, Bachman, and Conte 2016), but have not included them in this study. This is because we believe that they represent bargaining stances, rather than serious proposals that are expected to be implemented. In the conclusion (Section 5) we do add some further comments on the proposed taxes on trade.

Revenue Effects of the Trump Tax Proposals

Before turning to the distributional implications of the Trump tax proposals, it is helpful to estimate the budgetary effects. As our baseline, we use the most recent CBO revenue forecasts, published in March 2016, which are reproduced in the top panel of Table 2.2. Over the decade that spans 2017-2026, total Federal revenue is expected to total $42.1 trillion, of which just over half is attributable to individual income taxes, and a further 32% to payroll taxes.

The middle panel of Table 2.2 simulates the effects of the Trump tax proposals on revenue. Revenue from payroll and "other" taxes would not be affected; and estate and gift taxes would be abolished. For corporate income taxes we assume a flat rate of 15% (instead of an effective rate of 34.8%), but only allow half of interest expenses to be deducted when computing taxable income, and adjust for the lower implicit value of tax credits. We assume that new investment will be expensed (but may not be offset against earnings from "old" capital), and that depreciation will no longer be deductible. The net effect will be a substantial drop in revenue for most of the first decade, after which revenue will recover as the new investments yield income.

The calculation of individual income tax revenue under the Trump proposals is more complicated. Using data from the IRS public use sample – the most recent data available are for 2009 – we simulate the revenue collected under the current tax regime, and under the Trump proposals. Further details of the procedures followed are given in Section 3 below. We then take the revenue under the Trump tax rules as a proportion of revenue under current tax rules, and apply this to the CBO projections of individual income tax revenue. By this measure, this source of revenue would fall by 31% under the Trump proposals, relative to current rules. Overall, Federal revenue with the Trump taxes would be 23% below the CBO projections, or a reduction of $9.8 trillion over a ten-year period.

The lower taxes under the Trump proposals would stimulate economic growth (Bachman et al. 2016b), raising GDP to almost 9.4% higher than it would otherwise have been. This would increase tax revenues across the board. Under this scenario, the Trump taxes would raise $33.7 billion over the period 2017-26, which would represent a reduction of $8.4 trillion in revenue, equivalent to a drop of 20%.

The CBO projects that total Federal spending will total $51.4 trillion over the period 2017-2026, compared to revenue of $42.1 trillion, leaving deficits that average 4.0% of GDP (Table 2.3). The amount of publicly-held debt is expected to rise from $14.0 trillion as of the end of 2016 to $23.7 trillion by the end of 2026, by which time it will amount to 86% of GDP, up from the current level of 75% of GDP.

The reduction in Federal tax revenue under the Trump tax proposals has implications for the budget deficit and national debt. The details are worked out in Table 2.3 for the dynamic estimates under two scenarios. In the first we assume that non-interest spending follows the CBO projections, but that the reduced tax revenue (from Table 2.2) will lead to bigger deficits, greater debt, and higher spending on interest. In the second scenario, which is also the one used in our dynamic CGE model, we suppose that the budget deficit would evolve along the lines of the CBO projections, but given the reduction in tax revenue, government spending would necessarily fall.

If non-interest spending remains on the path projected by the CBO, total spending under the Trump tax proposals would add up to $52.9 trillion over 2017-26, which is higher than the CBO projection because of the higher interest cost due to the larger public debt (which in turn is a consequence of deficits that would average 8.7% of GDP). By the end of 2026, total debt would be $34.5 trillion, equivalent to 125% of GDP (or to 109% of GDP when dynamic effects are taken into account).

Under scenario 2, spending would be trimmed in line with the reduction in revenues, with the effects shown in the bottom panel of Table 2.3. Revenue would total $33.7 trillion over ten years (vs. the CBO projection of $42.1 trillion), and spending would amount to $44.4 trillion (vs. $51.4 trillion under the CBO projection), a reduction of 14 percent. Budget deficits would average 4.2% of GDP, and by 2026 the Federal debt would stand at 75% of GDP, compare to 80% under the CBO projections – mainly because GDP would be larger under the Trump tax regime.

Table 2.2. Revenue Projections: Baseline and Trump Proposals, billions of USD

Source of Revenue	Est. 2016	Projections 2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Tot/Avg 2017/26	% of CBO
CBO projections													
Individual income taxes	1,626	1,744	1,835	1,913	1,998	2,092	2,191	2,297	2,412	2,536	2,664	21,682	100.0
Corporate income taxes	329	357	366	372	400	395	401	407	417	429	444	3,988	100.0
Estate and gift taxes	20	21	21	23	23	24	25	26	27	29	30	249	100.0
Payroll taxes	1,099	1,140	1,180	1,223	1,266	1,316	1,366	1,419	1,473	1,532	1,592	13,508	100.0
Other taxes	289	246	243	241	243	254	264	275	286	300	312	2,663	100.0
So: Total tax revenue	3,364	3,508	3,645	3,772	3,931	4,082	4,247	4,423	4,615	4,825	5,042	42,089	100.0
Trump proposal, static analysis													
Individual income taxes	1,626	1,198	1,260	1,314	1,372	1,437	1,505	1,577	1,656	1,742	1,830	14,891	68.7
Corporate income taxes	329	119	117	119	122	124	127	131	134	138	141	1,272	31.9
Estate and gift taxes	20	0	0	0	0	0	0	0	0	0	0	0	0.0
Payroll taxes	1,099	1,140	1,180	1,223	1,266	1,316	1,366	1,419	1,473	1,532	1,592	13,508	100.0
Other taxes	289	246	243	241	243	254	264	275	286	300	312	2,663	100.0
So: Total tax revenue	3,364	2,703	2,800	2,897	3,004	3,131	3,262	3,401	3,549	3,711	3,875	32,333	76.8
Trump proposal, dynamic analysis													
Individual income taxes	1,626	1,258	1,324	1,380	1,441	1,509	1,581	1,657	1,740	1,830	1,922	15,643	72.1
Corporate income taxes	329	121	120	122	125	128	131	134	138	142	145	1,305	32.7
Estate and gift taxes	20	0	0	0	0	0	0	0	0	0	0	0	0.0
Payroll taxes	1,099	1,171	1,219	1,265	1,312	1,366	1,420	1,476	1,534	1,597	1,661	14,021	103.8
Other taxes	289	251	248	245	248	259	271	282	294	308	321	2,733	102.6
So: Total tax revenue	3,364	2,801	2,911	3,014	3,128	3,263	3,402	3,549	3,706	3,877	4,050	33,703	80.1

Notes and sources: Top panel from CBO (March 2016).

Table 2.3. Budgetary Projections: Baseline and Trump Proposals, billions of USD

	Est. 2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total/avg. 2017/26
CBO projections												
Total spending	3,897	4,058	4,194	4,482	4,729	4,972	5,290	5,504	5,709	6,051	6,385	**51,373**
of which: interest	253	306	365	437	501	557	613	673	728	782	839	**5,801**
Total revenue	3,364	3,508	3,645	3,772	3,931	4,082	4,247	4,423	4,615	4,825	5,042	**42,089**
Memo items:												
Deficit	-534	-550	-549	-710	-798	-890	-1,043	-1,080	-1,094	-1,226	-1,343	**-9,283**
Debt	13,951	14,572	15,177	15,934	16,771	17,692	18,766	19,880	21,012	22,280	23,672	
GDP	18,494	19,297	20,127	20,906	21,710	22,593	23,528	24,497	25,506	26,559	27,660	
Deficit as % of GDP	2.9	2.8	2.7	3.4	3.7	3.9	4.4	4.4	4.3	4.6	4.9	**4.0**
Debt as % of GDP	75.4	75.5	75.4	76.2	77.2	78.3	79.8	81.2	82.4	83.9	85.6	**79.9**
Trump proposal, static analysis												
Total spending	3,897	4,058	4,212	4,526	4,804	5,084	5,443	5,730	5,991	6,393	6,791	**53,090**
of which: interest	253	306	384	782	577	669	765	900	1,010	1,123	1,245	**7,519**
Total revenue	3,364	2,703	2,800	2,897	3,004	3,131	3,262	3,236	3,371	3,519	3,671	**30,850**
Memo items:												
Deficit	-534	-1,355	-1,412	-1,630	-1,801	-1,953	-2,180	-2,494	-2,620	-2,874	-3,120	**-22,240**
Debt	13,951	15,306	16,718	18,348	21,148	22,101	24,282	27,577	30,197	33,071	36,191	
GDP	18,494	19,297	20,127	20,906	21,710	22,593	23,528	24,497	25,506	26,559	27,660	
Deficit as % of GDP	2.9	7.0	7.0	7.8	8.3	8.6	9.3	10.2	10.3	10.8	11.3	**9.6**
Debt as % of GDP	75.4	79.3	83.1	87.8	92.8	97.8	103.2	112.6	118.4	124.5	130.8	**106.1**
Trump proposal, dynamic analysis: spending not cut												
Total spending	3,897	4,058	4,210	4,520	4,794	5,069	5,421	5,674	5,919	6,305	6,686	**52,655**
of which: interest	253	306	381	476	566	654	744	843	939	1,036	1,140	**7,084**
Total revenue	3,364	2,801	2,911	3,014	3,128	3,263	3,402	3,549	3,706	3,877	4,050	**33,703**
Memo items:												
Deficit	-534	-1,257	-1,298	-1,506	-1,666	-1,805	-2,019	-2,124	-2,213	-2,428	-2,636	**-18,952**
Debt	13,951	15,207	26,506	18,012	19,678	21,483	23,502	25,627	27,840	30,267	32,903	
GDP	18,494	20,385	21,447	22,367	23,310	24,351	25,443	26,572	27,748	28,971	30,249	
Deficit as % of GDP	2.9	6.2	6.1	6.7	7.1	7.4	7.9	8.0	8.0	8.4	8.7	**7.5**
Debt as % of GDP	75.4	74.6	77.0	80.5	84.4	88.2	92.4	96.4	100.3	104.5	108.8	**90.7**
Trump proposal, dynamic analysis: spending cut												
Total spending	3,897	3,415	3,543	3,805	4,037	4,270	4,570	4,786	4,998	5,329	5,656	**44,408**
of which: interest	253	306	365	438	503	561	620	684	744	803	868	**5,892**
Memo items:												
Deficit	-534	-614	-632	-790	-909	-1,007	-1,168	-1,237	-1,292	-1,452	-1,606	**-10,705**
Debt	13,951	14,565	15,196	15,987	16,895	17,902	19,070	20,307	21,598	23,050	24,656	
Deficit as % of GDP	2.9	3.0	2.9	3.5	3.9	4.1	4.6	4.7	4.7	5.0	5.3	**4.2**
Debt as % of GDP	75.4	71.4	70.9	71.5	72.5	73.5	75.0	76.4	77.8	79.6	81.5	**75.0**

Notes and sources: Top panel from CBO (March 2016). Spending on non-interest items assumed to follow CBO projections in all cases. All figures in nominal dollars.

3. Measuring the Distributional Effects of Tax Changes

To measure the distributional effect of the Trump tax proposals, we need to work out how the changes would affect different groups in society, from poor to rich. For this it is necessary to construct a dataset that includes information, for a sample of households, on income and expenditure.[2] Then it is possible to construct variables that mirror the incidence of taxes on each household in the sample, allocate the tax burden to each household, and summarize the results in a helpful way.

Constructing the Dataset

The central component of our database is the IRS Individual Public-Use Micro-Data files on individual federal income tax returns for 2009 – the most recent year for which such data are available. This file has records on 217 variables for 152,526 tax filers. The IRS masks the numbers somewhat, to ensure that they cannot be used to identify any given taxpayer; it uses "top coding" to set a ceiling on the reported values of many of the variables, which reduces the precision of simulations based on these data. The file oversamples high-income tax filers, but provides weights that allow us to adjust for this over-sampling.

Not all of these filers represent complete households, which is the unit of interest to us when looking at income distribution. So we exclude the 5,541 cases of tax returns filed by dependents (typically children). We also drop the 3,039 cases of married couples filing separately, because we cannot associate these returns with those of their partners, which would be needed to create household-level variables. We are thus left with a total of 143,948 tax returns that may be taken to represent households, and we adjust the sample weights to reflect these changes.

The IRS dataset provides a good deal of information on sources of income and on the direct taxes paid by individuals, which is why it is so useful in measuring the effects of eliminating direct taxes, but it does not include information on non-filers. To fill this gap we turned to the Current Population Survey (CPS) for 2009, from which we extracted records of households that did not file a federal tax return. By adding 11,480 non-filers from the CPS, we created a new dataset with 155,428 observations. The non-filers typically have too little income to be required to file an income tax return, but some may have large amounts of non-taxable income such as tax-free bonds, or may be wealthy and living off their capital. Since the IRS and CPS datasets have a number of variables in common, we were able to combine them into a single dataset. The CPS sample is also weighted, and we adjusted the weights for the combined sample so that it reflects the relative importance of filers and non-filers, and of observations within each of these groups.

The IRS/CPS dataset is not yet complete, for two reasons. First, the measures of income are incomplete: they do not, for instance, include in-kind contributions such as employer contributions to health insurance, or food stamps. Second, they do not have information on spending, which would be useful if one wants to measure the incidence of taxes that fall on outlays rather than income. A solution to this problem, following Feenberg, Mitrusi, and Poterba (1997), is to create a synthetic measure of spending,

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[2] The Trump tax proposals are targeted at changing taxes on income. However, when the effects of the tax changes on GDP and hence spending are taken into account, it is helpful to have information on expenditures as well.

drawing on information from the 2009 Consumer Expenditure Survey (CES). The CES collects detailed information on household expenditures from separate samples of households who keep diaries (mainly for food spending) or respond to a questionnaire (for most spending headings, including food, as well as income). Many of the spending categories are also top-coded, to preserve confidentiality. We use the information from the interview survey, which collected information from 35,227 households in 2009.

Since the households sampled in the CES are not the same as those in the IRS/CPS dataset, it is necessary to establish a "matching" procedure that assigns observations on spending from the CES to each observation in the IRS/CPS dataset. The imputation procedure works as follows:

1. We created a measure of household income that was highly comparable, both in the CES and IRS/CPS files, and allocated this income to ten categories.[3] We cross-tabulated this with information on whether a household received interest income (yes/no), and whether it received income from social security or pensions (yes/no). All households in the CES and IRS/CPS were assigned to one of the forty cells that resulted from this process.
2. For each household in the IRS/CPS dataset we randomly chose an observation from the corresponding cell in the CES dataset, and assigned the data for the CES variables to the IRS/CPS household.

The result of this procedure is a dataset that has detailed information from tax filings (for most cases) as well as imputed information on expenditure (and some other components of income). The variables in step 1 were chosen after some modest experimentation: the goal is to choose a small number of variables that may be found in both the IRS/CPA and CES datasets, and that correlate well with spending. A regression of the log of household spending on the income categories crossed interest income and pensions gives an adjusted R^2 of 0.58, which represents an acceptable, yet parsimonious, model.

Measuring wellbeing

In order to measure the distributional effects of tax changes, one needs a measure of wellbeing. Many past studies have used adjusted gross income (AGI), in part because it is readily available (in the IRS and CES datasets), but also because it captures many of the main components of income. However, it is incomplete, which is why, starting in 2004, the Tax Policy Foundation (TPF) created a broader measure that it called *cash income*, and that consists of AGI plus tax-exempt interest and social security income, IRA contributions, the employer share of payroll taxes, and a number of other adjustments (Rosenberg 2013, Table 1). More recently, the TPF has begun to use a measure that they refer to as *expanded cash income*, which also includes employee and employer contributions to health insurance, food stamps, and some other items.

We have created a similar measure, which we call *broad income*. A full list of the components, and their relative importance, are given in Table 3.1. We then make two further adjustments. First, we prune the top and bottom 1% of observations. This is because the bottom of the income distribution has a significant number of tax filers that report substantially negative incomes, and we do not consider that

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[3] The categories of family income in 2009 are: 0-, 10,000-, 20,000-, 30,000-, 40,000-, 50,000-, 60,000-, 75,000-, 100,000-, and 150,000-.

this is an accurate representation of wellbeing; and at the top, many of the income numbers have been top-coded, and so are not particularly informative about the upper tail of the distribution.

Table 3.1 The Components of Broad Income

	Variable label: IRS sample	CPS sample	Included in: AGI	Broad income	Used for matching
Compensation					
Wages, salaries	E00200	Incwage	*	*	*
Estimated employer contribution to pension		***		*	
Employer contribution for health insurance		Jemcontrb		*	
Employer's contribution to payroll taxes		***		*	
Self-employment and Flow-Through Income					
Business income/loss	E00900	Incbus	*	*	*
Farm income/loss	E02100	Incfarm	*	*	*
Total income from estates & trusts	E02690		*	*	
Net income from rents & royalties	E25850		*	*	
Rental income, partnerships, S-corporations	E02000	Incrent	*	*	*
Investment income					
Taxable interest	E00300	Incint	*	*	*
Tax-exempt interest	E00400			*	*
Dividends	E00600	Incdivid	*	*	*
Capital gain or loss	E01000		*	*	
Retirement income					
Non-taxable Pensions & Annuities	E01500	Incretir		*	*
Taxable IRA distributions	E01400		*	*	*
Taxable pensions & annuities	E01700		*	-*	*
Other taxable income					
Alimony	E00800	Incalim	*	*	*
Other income n.e.s.		Incoth		*	
Transfer payments					
Social security benefits	E02400	Incss		*	*
Taxable social security benefits	E02500		*	*	
Unemployment compensation	E02300	Incunemp	*	*	
Supplemental social security (SSI)		Jincssi		*	
Public assistance		Incwelfr		*	
Assistance		Incasist		*	
Disability benefits		Incdisab		*	
Child support		Incchild		*	
Worker's compensation		Incwkcom		*	
Veteran's benefits		Incvet		*	
Survivor's benefits		Incsurv		*	
Educational assistance		Inceduc		*	
Energy subsidy		Heatval		*	
SNAP benefits (ex food stamps)		Stampval		*	
Medicaid: person market value		Jpmvcaid		*	
Medicare: person market value		Jpmvcare		*	

Note: Table follows format of Table 1 in Rosenberg (2013). *** Authors' estimate.

Our second adjustment is to divide household income by the square root of the number of household members, in order to arrive at a measure of *broad income per adult equivalent*. Household size is actually a censored number, so the only available categories are 1, 2, 3, 4, and 5-or-more, but the number of large families is relatively modest – about 5% of households in our combined file – so any errors that are induced by this are manageable.

We could have simply divided broad income by the number of household members, to give *broad income per capita*, but this does not give adequate recognition to the importance of economies of scale in consumption – the observation that two people living together can live more cheaply than two people living separately. There are other approaches to measuring adult equivalences, but our approach has been widely used in studies in the U.S. (Chanfreau & Burchardt 2008), and has been used in some recent studies by the OECD (OECD c.2012). The main conclusions of our study are not substantially changed if one uses income per capita instead of income per adult equivalent.

Table 3.2 divides the sample into ten equal groups (deciles), from lowest to highest income per adult equivalent. For each decile it shows income per adult equivalent, and per capita. Also shown is expenditure per adult equivalent, and per capita, where expenditure is based on the imputation procedure outlined above. As expected, spending rises as income increases, but less quickly, a pattern also noted by Feenberg et al. (1997). Households in the lowest deciles appear to spend more than their incomes, presumably by dipping into their savings, and/or borrowing.

Table 3.2. Income and Expenditure by Decile, 2009

	Broad income:		Expenditure	
	per adult equivalent	per capita	per adult equivalent	per capita
Deciles				
1 (poor)	814	637	17,673	15,217
2	12,648	9,596	18,313	14,612
3	18,268	14,669	20,105	16,690
4	23,571	19,215	22,646	19,023
5	29,631	23,643	25,310	20,732
6	36,973	29,411	29,087	23,670
7	46,029	36,294	33,604	27,077
8	57,929	44,841	39,057	30,732
9	76,740	58,343	47,809	36,906
10 (rich)	173,591	127,889	70,290	53,284
Total	47,619	36,453	32,395	25,799

Note: Deciles refer to income per adult equivalent. Source: IRS public use file, Current Population Survey, and Consumer Expenditure Survey, all for 2009.

Attributing Tax Incidence

Our interest is in who actually bears the burden of taxes (effective incidence), which is not necessarily the same as the legal burden (statutory incidence). For instance, in a formal sense payroll taxes are paid in part by employers and in part by employees; yet most analyses of the effective incidence of payroll taxes assume that essentially all of the effective burden of these taxes falls on employees.

We make the following assumptions about the incidence of the main federal taxes:

1. *Personal income tax.* This tax is assumed to fall on the income earner. Our tax calculator model computes the amount of this tax directly.
2. *Estate and gift tax.* Following Feenberg et al. (1997) we assume that this tax falls on persons with large amounts of income from capital. We construct a variable (*capinc*) that is the sum of income from dividends (IRS variable E00600), interest (E00300+E00400), capital gains (E01000), positive income from S-corporations and partnerships (E26390), and positive income from rents and royalties (E25850). We allocated the tax in proportion to the extent to which *capinc* is greater than 5% of $5.45 million (in 2015 prices). The tax is levied only on large fortunes, and only on those who are receiving enough capital income to imply that they have a sufficiently large fortune are likely to be subject to this tax.
3. *Payroll taxes.* Social Security and Medicare taxes are levied on wages at a rate of 15.3 percent (including the employer's contribution) up to $106,800 (in 2009) and at a rate of 2.9 percent on wages above that level. For single individuals it is straightforward to compute the estimated payments of these taxes, but for married couples filing jointly it is more difficult, since we do not have information about the labor income of each. In allocating this tax, we assumed that all the household wages are attributable to a single wage earner, a simplification that somewhat underestimates the relative burden of this tax on multi-earner households.
4. *Corporate income tax.* There is no consensus on the appropriate way to measure the incidence of the corporate income tax. The traditional view, as developed by Harberger (1962), notes that although a tax on corporate profits appears to burden only the owners of corporations, in reality it hits all owners of capital. The idea is that if corporate income is taxed, owners of capital will move their resources to the non-corporate sector (partnerships, residential houses, bonds, etc.). But this inflow of capital into the non-corporate sector will drive down the return to capital, at the margin, there.

   The traditional view assumes that capital is immobile internationally, which was barely plausible in the early 1960s, and is an untenable assumption now. If capital is perfectly mobile internationally, then the net return to capital will be equalized (on a risk-adjusted basis) throughout the world. If any one country raises its tax on capital, then there will be an outflow of capital, and owners of capital will not be hurt by the tax (if the country is small) or not hurt much (if the country, like the United States, is large). The tax then is shifted back onto labor, particularly in the case of tradable goods, where firms have a limited capacity to increase their selling prices (Harberger 2006).

   Although short-term capital is highly mobile, there is far less mobility, however, over the long term (Obstfeld 1993), which is why the real return to capital has not been equalized across countries – Japan's interest rates have, for example, been consistently lower than those in the United States – and there continues to be considerable discussion of the "home bias" in investors' portfolios.

   Thus, we have taken an intermediate position between the extreme assumptions of perfect capital mobility on the one hand and perfect capital immobility on the other. We assume that half of the incidence of the U.S. corporate income tax is borne by capital owners in the U.S. and the remainder is shifted onto labor. The CBO assumes that a quarter of the incidence of this tax falls on labor, while the U.S. Treasury puts the proportion at 18% (Keightly and Sherlock 2014, pp. 16-17). The results of our study are relatively robust to the assumption made here.

5. *Excises and Other Federal Taxes.* We make the straightforward assumption that the burden of federal excise taxes is in proportion to spending by households. This is a rather crude proxy for the true tax base for these taxes, but sufficient for the purposes of this paper, given that the Trump tax proposals do not envisage changes in indirect taxes such as excises.

The proxies for the tax bases are shown in Table 3.3 for each decile (of income per adult equivalent).

Table 3.3. Proxies for Tax Incidence (2009)

Tax:	Personal income	Payroll	Corporate income		Estate & gift	Excise & other	Family size
Proxy:	Estimated actual tax	Estimated tax	Labor income	Capital income	High capital income	Expenditures	
			dollars per capita per year				
Deciles							
1 (poor)	-357	336	2,382	879	531	13,649	1.86
2	-679	827	5,425	137	5	14,689	2.21
3	-346	1,013	6,644	145	4	16,149	1.98
4	-40	1,247	8,193	218	4	18,009	1.88
5	291	1,716	11,265	346	9	19,398	1.96
6	759	2,292	15,041	644	9	21,412	1.99
7	1,374	2,929	19,236	1,058	8	23,807	2.01
8	2,453	3,727	25,123	1,456	16	26,447	2.01
9	4,544	4,407	34,463	2,248	25	29,772	2.14
10 (rich)	21,014	4,029	68,888	17,303	9,813	40,191	2.19
Total	2,810	2,252	19,665	2,443	1,042	22,352	2.03

Note: Based on IRS public use file, Current Population Survey, and Consumer Expenditure Survey, all for 2009.
Table presents amounts in per capita terms; actual proxies are total payments across all individuals in each decile.

The Incidence of Federal Taxes

Based on the proxy measures in Table 3.3, tax payments can be allocated to households. The resulting estimated current distribution of federal taxes, by decile, is set out in Table 3.4. These numbers are raw totals, in billions of dollars in 2017. So, for instance, those in the second-poorest decile will collectively pay a net $5.4 billion in federal taxes, even though this group will actually receive $63.3 billion more in personal income tax than they pay (mainly through the earned income tax credit).

Table 3.5 presents the same information as Table 3.4, but gives a percentage breakdown of tax incidence both overall (the "Total Federal" column) and by tax. The final column shows the distribution of income per adult equivalent. The most affluent tenth of the population receives 38.5% of all income and pays 52.7% of all Federal taxes; this alone makes the federal tax system progressive (in the sense that tax payments relative to income rise as income rises). Taxes on personal income, and on estates/gifts, are especially progressive, while payroll and excise taxes are not. The distribution of Federal tax payments, and of income, are shown side by side in Figure 3.1, which shows clearly the overall progressivity of the system.

Table 3.4. Estimated Incidence of Federal Taxes (2017), $bn

Tax	Personal income	Payroll	Corporate income	Estate & gift	Excise & other	Total
Deciles						
1 (poor)	-32.0	18.8	9.3	1.1	12.3	9.5
2	-63.3	48.7	6.1	0.0	14.0	5.4
3	-35.6	56.9	7.1	0.0	14.7	43.1
4	-12.5	65.9	8.5	0.0	16.3	78.2
5	7.9	89.1	11.9	0.0	18.7	127.6
6	33.5	118.6	17.0	0.0	21.7	190.8
7	69.1	152.7	23.2	0.0	25.2	270.3
8	131.6	192.8	31.5	0.0	30.1	386.0
9	261.0	203.1	46.1	0.1	37.5	547.8
10 (rich)	1384.4	193.5	196.1	19.6	55.6	1849.3
Total	1,744.0	1,140.1	356.9	20.9	246.1	3,508.1

Note: Based on IRS public use file, Current Population Survey, and Consumer Expenditure Survey, all for 2009.

Table 3.5. Estimated Incidence of Federal Taxes (2017), percentage breakdown

Tax	Personal income	Payroll	Corporate income	Estate & gift	Excise & other	Total Federal	Memo: Total income
Deciles							
1 (poor)	-1.8	1.6	2.6	5.4	5.0	0.3	1.1
2	-3.6	4.3	1.7	0.0	5.7	0.2	2.6
3	-2.0	5.0	2.0	0.1	6.0	1.2	3.6
4	-0.7	5.8	2.4	0.1	6.6	2.2	4.5
5	0.5	7.8	3.3	0.1	7.6	3.6	5.8
6	1.9	10.4	4.8	0.1	8.8	5.4	7.3
7	4.0	13.4	6.5	0.1	10.3	7.7	9.1
8	7.5	16.9	8.8	0.1	12.2	11.0	11.7
9	15.0	17.8	12.9	0.3	15.2	15.6	15.7
10 (rich)	79.4	17.0	54.9	93.7	22.6	52.7	38.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total, $bn	1,744.0	1140.1	356.9	20.9	246.1	3,508.1	

Note: Based on IRS public use file, Current Population Survey, and Consumer Expenditure Survey, all for 2009. Total income refers to positive incomes only.
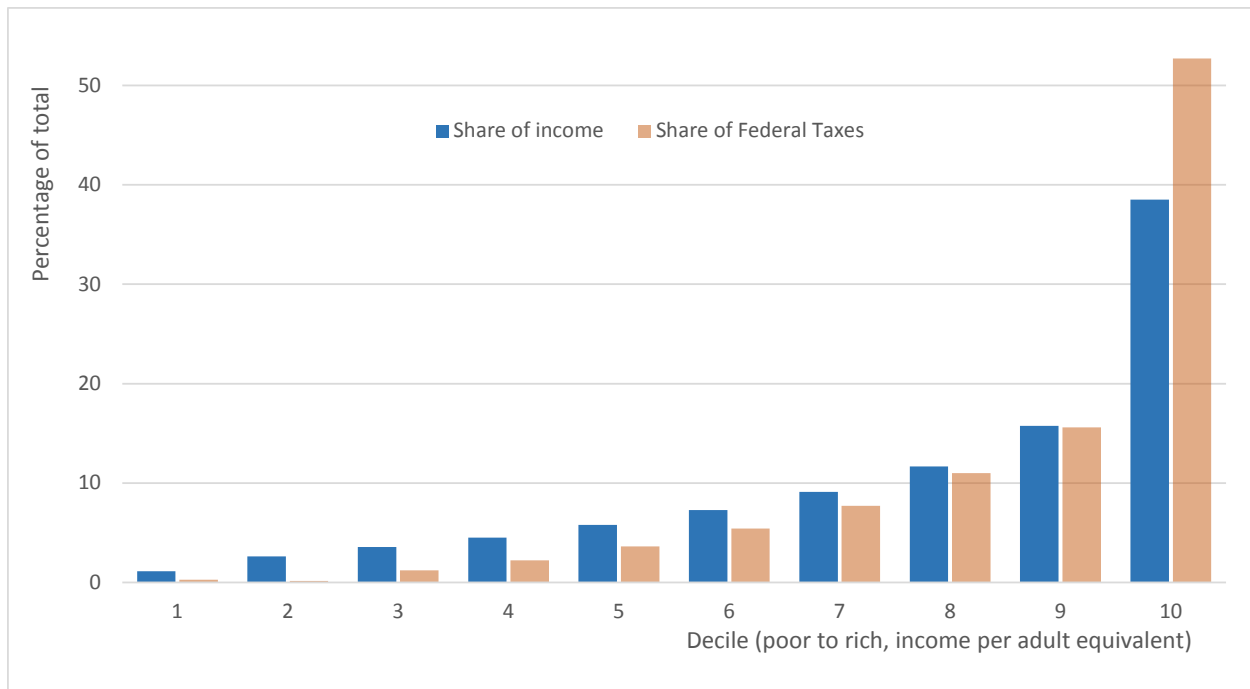
Figure 3.1. Distribution of Federal Taxes Compared With Income

4. The Distributional Effects of the Trump Tax Proposals

The main purpose of this paper is to measure the distributional effects of the Trump tax proposals. We first look at the effects of individual taxes, and then aggregate the effects to get the net overall impact of the proposed changes.

Personal income tax

Table 4.1 show the estimated revenue from the individual income tax in 2017. The "baseline" columns accept the CBO projection for total revenue ($1,744 billion) and allocate this across the deciles using the estimated tax payments from our tax calculator model. We then re-compute each person's expected tax payment (or credits) using the Trump brackets and rates, and making adjustments for deductions along the lines he has proposed. The result is an expected total revenue of $1,198 billion. The final columns in Table 4.1 show what the pattern of personal income tax revenue would be when the dynamic effects of the tax changes – essentially an increase in income of about 4% - are taken into account.

Currently, those in the top decile pay 79% of all personal income tax. The changes proposed by Trump would reduce these taxes, with 76% of the benefits going to the top decile. The eventual result is that this group would pay 81% of personal income taxes – a modest change relative to the status quo.

Table 4.1. Personal Income Tax Revenue, by Decile, $billion, 2017

| | Baseline Revenue | | Trump plan: static change | | | | Trump: Dynamic Revenue | |
| | | | Revenue | | Change | | | |
Deciles	$ bn	%	$ bn	%	$ bn	%	$ bn	%
1 (poor)	-32	-1.8	-39	-3.3	-7	1.3	-38	-3.0
2	-63	-3.6	-80	-6.6	-16	3.0	-76	-6.0
3	-36	-2.0	-45	-3.7	-9	1.6	-43	-3.4
4	-12	-0.7	-20	-1.7	-7	1.3	-19	-1.5
5	8	0.5	-3	-0.3	-11	2.0	-2	-0.2
6	33	1.9	13	1.1	-21	3.8	14	1.1
7	69	4.0	40	3.3	-29	5.4	41	3.2
8	132	7.5	101	8.4	-31	5.6	102	8.1
9	261	15.0	260	21.7	-1	0.2	261	20.7
10 (rich)	1,384	79.4	971	81.0	-414	75.8	1,019	81.0
Total	1,744	100.0	1,198	100.0	-546	100.0	1,258	100.0

Note: Deciles refer to broad income per adult equivalent.

Corporate income tax

The distributional effects of the proposed Trump changes in the corporate income tax are shown in Table 4.2. The data here refer to C-corporations, and not to partnerships or S-corporations, which are taxed at the individual level and so subsumed into the analysis of the personal income tax. Trump proposes a flat 15% tax on corporate income, with "reasonable" limits on interest deductibility (which we assume means halving the interest deduction), and expensing of investment. As discussed above, we assume that half of the tax is borne by labor (i.e. in proportion to labor income) and half by capital (i.e. in proportion to capital income).

Table 4.2. Corporation Income Tax Revenue, by Decile, $billion, 2017

| | Baseline Revenue | | Trump plan: static change | | | | Trump: Dynamic Revenue | |
| | | | Revenue | | Change | | | |
Deciles	$ bn	%	$ bn	%	$ bn	%	$ bn	%
1 (poor)	9.3	2.6	3.1	2.6	-6.2	2.6	3.1	2.6
2	6.1	1.7	2.0	1.7	-4.1	1.7	2.1	1.7
3	7.1	2.0	2.4	2.0	-4.8	2.0	2.4	2.0
4	8.5	2.4	2.8	2.4	-5.7	2.4	2.9	2.4
5	11.9	3.3	4.0	3.3	-8.0	3.3	4.0	3.3
6	17.0	4.8	5.7	4.8	-11.4	4.8	5.8	4.8
7	23.2	6.5	7.7	6.5	-15.5	6.5	7.9	6.5
8	31.5	8.8	10.5	8.8	-21.1	8.8	10.7	8.8
9	46.1	12.9	15.3	12.9	-30.8	12.9	15.6	12.9
10 (rich)	196.1	54.9	65.2	54.9	-131.0	54.9	66.5	54.9
Total	356.9	100.0	118.6	100.0	-238.3	100.0	121.0	100.0

Note: Deciles refer to income per adult equivalent.

Just over half of the burden of this tax, and hence half of the gains from reductions in this tax, accrue to those in the top decile (as measured by income per adult equivalent). Following the CBO, we assume a baseline revenue of $357 billion in 2017; after applying the Trump tax rate and the new rule on interest deductibility, we estimate that revenue would fall by $238 billion to $119 billion. When tax-induced economic growth is factored in (the "dynamic" effect), the new revenue is $121 billion.

Estate and gift tax

The Trump proposals would eliminate the estate tax (and by implication, the gift tax too). The distributional effects are shown in Table 4.3. This tax is estimated to yield just $21 billion in 2017, but because it is levied on large fortunes, it falls almost entirely on those in the top decile of the income distribution. The abolition of this tax would be a boon to wealthy Americans.

Table 4.3: Estate and Gift Tax Revenue, by Decile, $billion, 2017

Deciles	Baseline		Trump plan	
	Revenue, $ bn	%	Revenue, $ bn	*% of change*
1 (poor)	1.1	5.4	0.0	5.4
2	0.0	0.0	0.0	0.0
3	0.0	0.1	0.0	0.1
4	0.0	0.1	0.0	0.1
5	0.0	0.1	0.0	0.1
6	0.0	0.1	0.0	0.1
7	0.0	0.1	0.0	0.1
8	0.0	0.1	0.0	0.1
9	0.1	0.3	0.0	0.3
10 (rich)	19.6	93.7	0.0	93.7
Total	20.9	100.0	0.0	100.0

Note: Deciles refer to income per adult equivalent.

Overall Distributional Effect of the Trump Tax Proposals

We are now ready to compute the overall distributional effect of the Trump tax proposals. There are two good ways to present the results: first we show the reduction in taxes for each decile, both in absolute per capita terms, and relative to income. Then we show how the tax changes would affect net after-tax income.

The total size of the tax changes that result from the Trump tax proposals are broken down by decile in Table 4.4. Federal tax revenue would fall by just over $800 billion, and 70% of the gains would accrue to those in the top decile; the poorest half of the population would get 10% of the benefits from the tax cuts. Table 4.5 tells the story slightly differently. The first column of numbers shows the amount of tax paid per person (in 2017), directly and implicitly, by decile: the amounts rise from $197 in the poorest decile to $52,082 in the top tenth of the population. The effect of the Trump proposal would be to lower taxes in every decile: the middle column shows that the tax reductions would be modest for those in the

lowest quintiles, but would come to $1,000 or more per person for those in the top half of the income distribution, and over $15,000 per person for those in the top decile.

Averaged over the ten deciles, the tax burden would fall by 20.2% – with slightly lower proportionate reductions in the lower-to-middle quintiles, and higher-than-average proportionate cuts at the two ends of the distribution. The final column in Table 4.5 expresses the reduction in taxes as a proportion of income: the average tax cut comes to 3.2% of income, but exceeds 6% in the top decile.

Table 4.4. Total Federal Tax Revenue, by Decile, $billion, 2017

| | Baseline Revenue | | Trump plan: static change | | | | Trump: Dynamic Revenue | |
| | | | Revenue | | Change | | | |
	$ bn	%	$ bn	%	$ bn	%	$ bn	%
Deciles								
1 (poor)	9.5	0.3	-4.8	-0.2	-14.3	1.8	-3.1	-0.1
2	5.4	0.2	-14.9	-0.6	-20.3	2.5	-9.4	-0.3
3	43.1	1.2	29.3	1.1	-13.8	1.7	33.3	1.2
4	78.2	2.2	65.1	2.4	-13.0	1.6	68.3	2.4
5	127.6	3.6	108.7	4.0	-18.9	2.3	112.2	4.0
6	190.8	5.4	158.8	5.9	-32.0	4.0	163.3	5.8
7	270.3	7.7	225.3	8.3	-44.9	5.6	231.1	8.3
8	386.0	11.0	334.2	12.4	-51.8	6.4	341.6	12.2
9	547.8	15.6	515.9	19.1	-32.0	4.0	523.0	18.7
10 (rich)	1849.3	52.7	1284.9	47.5	-564.5	70.1	1340.7	47.9
Total	3,508	100.0	2,703	100.0	-806	100.0	2,801	100.0

Note: Deciles refer to broad income per adult equivalent.

Table 4.5. Changes in Federal Taxes Paid: Trump Proposals vs. Current Rules

	Tax paid: current rules	Tax paid: Trump proposal	Change in tax paid	% change in tax paid	% of tax cuts	Tax change as % of income
	dollars per capita in 2017			*Percentages*		
Deciles						
1 (poor)	197	-99	-296	-150.4	1.8	-3.6
2	108	-296	-404	-374.5	2.5	-2.3
3	776	527	-248	-32.0	1.7	-0.9
4	466	388	-78	-16.7	1.6	-0.2
5	8,701	7,411	-1,290	-14.8	2.3	-2.9
6	8,032	6,685	-1,347	-16.8	4.0	-2.5
7	9,978	8,319	-1,659	-16.6	5.6	-2.5
8	13,345	11,554	-1,791	-13.4	6.4	-2.2
9	17,695	16,662	-1,032	-5.8	4.0	-1.0
10 (rich)	52,082	36,185	-15,897	-30.5	70.1	-6.7
Total/Ave	10,827	8,645	-2,182	-20.2	100.0	-3.2

Note: Deciles refer to broad income per adult equivalent.

Finally, in Table 4.6, we ask what effect the Trump tax proposals would have on net (i.e. after-tax) income. Net income would rise by 11.6% on average, or by 15.6% when the growth-inducing effects of

the tax cuts are counted too. The pattern confirms what has been seen earlier: the higher one's income, the greater the absolute and relative benefits of the Trump Tax cuts.

Table 4.6. Gross and net income per adult equivalent, estimated, 2017

	Baseline		Trump: Static analysis		Trump: Dynamic analysis	
	Gross income $/ae/year	Net income $/ae/year	Net income $/ae/year	% change to baseline	Net income $/ae/year	% change to baseline
Deciles						
1 (poor)	7,548	6,946	7,851	13.0	8,037	15.7
2	16,924	16,589	17,842	7.6	18,212	9.8
3	24,446	21,628	22,530	4.2	23,224	7.4
4	31,542	26,317	27,188	3.3	28,292	7.5
5	39,655	31,303	32,541	4.0	33,906	8.3
6	49,482	37,066	39,149	5.6	40,708	9.8
7	61,605	44,146	47,049	6.6	48,823	10.6
8	77,537	53,003	56,296	6.2	58,248	9.9
9	102,728	68,520	70,516	2.9	72,950	6.5
10 (rich)	244,440	132,084	166,379	26.0	172,303	30.4
Average	66,829	44,389	49,542	11.6	51,305	15.6

5. Conclusions

This study reaches two main conclusions. First, the tax changes proposed by Donald Trump would reduce federal tax revenues by an estimated $8.4 trillion over a ten-year period, given the stimulative effects on growth reported in our companion study. This represents a 20% reduction in tax revenue relative to the CBO forecasts (or a 23% reduction if there were no dynamic revenue effects).

Second, the lion's share of the tax reductions – 70 percent – would flow to those in the top tenth of the income distribution. By the usual standard for income equality, the proposed changes would thus be sharply regressive, and substantial. The typical person in the top decile would get over $15,000 in tax cuts, compared to less than $500 per person for those in the poorest 40% of the population.

Although our conclusions are rooted in high-quality data, from the IRS public use sample, the Current Population Survey, and the Consumer Expenditure Survey, they also rest on a number of assumptions that, while we believe they are reasonable, could be questioned. We assume that the incidence of the income tax falls on those who receive labor and capital income; that half of the weight of the corporate income tax falls on earners, and half on those who own capital; and that the estate tax is borne by those who have large fortunes. The appropriate assumptions to make about the incidence of the corporate income tax are controversial, and this issue is not yet settled.

We also had to make other practical decisions: we constructed a measure of welfare that consists of a relatively broad form of income divided by the square root of the (truncated) family size. A strong case can be made that expenditure is a more reliable guide to long-term wellbeing than is income, but the difficulty here is that our measure of spending is synthetic, glued onto the income data in a way that is defensible, but not robust as support for inferences about wellbeing. Our method for adjusting for adult equivalence, while commonly used, is only one of at least 50 possible methods that have been used; fortunately, the results are not sensitive to the particular adjustment used here. And the measure of

income itself is not complete: it does not adequately include the implicit income from owning one's home (which turns out to be difficult to quantify satisfactorily), and the treatment of retirement income is imperfect (and also inherently difficult to build in well).

We have focused on the direct effects of the proposed tax changes, and have assumed that the spending trajectory projected by the Congressional Budget Office would continue to apply. This may not be appropriate, as the very wide budget deficit that would result from the tax cuts is likely to force reductions in federal expenditures, but we can only speculate about such effects. We do assume that the government could borrow to cover the deficit, without an impact on real interest rates, which may not be completely realistic. We also had to made some assumptions about the mechanics of the tax changes – the extent to which interest deductibility would be reduced, how expensing would be phased in, what rates would continue to apply on capital gains, and so on – that represent, in the absence of more details, our best assessment of what the candidate's tax proposals represent.

Despite these caveats, the key conclusions are clear: The proposed changes in federal tax rules would reduce Federal tax revenue by at least 20% over the coming decade, and seven-tenths of the windfall would accrue to the top ten percent of the income distribution, leading to a noticeable increase in inequality. Set against this, there would be a boost to GDP, reflecting the inevitable tradeoff between growth and equality in matters of tax policy.

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