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Incorporating State Analysis into a Microsimulation Model Based on the Statistics of Income Public Use File

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I. Introduction

The Urban-Brookings Tax Policy Center's (TPC) microsimulation model produces revenue and distributional estimates of the U.S. federal tax system. The model allows TPC scholars to document how federal tax policies affect families of different income levels and family structures and how potential policy changes would affect both taxpayers and federal revenues. This paper describes new features recently added to the model that allow for tax analysis at the state level.

The TPC tax model is a powerful tool for tax policy analysis. The model calculates federal tax liability both under current law and under alternative policies for a representative sample of households based on the Statistics of Income (SOI) Public Use File (PUF) of the Internal Revenue Service (IRS). Based on these calculations, the model produces estimates of the revenue consequences of different tax policy choices, as well as their effects on the distribution of tax burden and marginal effective tax rates. TPC has used the model to analyze a broad range of federal policy options, from modifying specific provisions of the tax code to making comprehensive reforms. The model is similar to those used by the Congressional Budget Office (CBO), the Joint Committee on Taxation (JCT), and the Treasury's Office of Tax Analysis (OTA).¹

Microsimulation models produce estimates based on individual or household level data rather than aggregate information. The TPC tax model calculates tax liability based on detailed information for each tax unit in our database.² The tax model database includes national weights that quantify how many units are represented by individual records. Estimates for the entire population may then be derived by summing the products of individual estimates and the national weights.

¹ See CBO (2001) and JCT (2005) for a description of their models.

² A tax unit is an individual, or a married couple who would file a tax return jointly, along with all dependents of that individual or married couple. The tax model database includes both tax units filing tax returns and those not filing tax returns. See Section II for more detail.

To extend the TPC tax model to state-level analysis, we have developed additional weights that can be used to make the tax model database representative of each state. We divide each observation's national weight into 52 state weights (50 states, District of Columbia, and other areas). For example, an observation may represent 500 tax units nationally, 60 units in California, 50 units in New York, 1 unit in New Hampshire, and so on, with all of its state weights summing to five hundred. Using the appropriate weights, we can perform the same revenue and distributional analysis of federal tax policies that we do at the national level for any state. Not only can we analyze a wide array of federal policy proposals in detail for particular states, we can also analyze which states would be affected relatively more than others.

We impute state weights to the tax model database using a method proposed by Schirm and Zaslavsky (1997). The method guarantees that the derived state weights always sum up to the national weights, and that state weighted totals of chosen observed characteristics match their state targets. With a comprehensive set of state targets, this latter constraint ensures that the state-weighted tax model database is representative of all states. In the absence of any recent public use tax records that were drawn to be representative of states, this reweighting approach allows us to fully utilize the most recent tax information available in the PUF and various published statistics. A useful byproduct of our approach is that we can use our full sample of 273,496 observations in our database for every state, providing enough observations for detailed distributional analysis and analysis of proposals affecting small segments of the population, particularly high income tax filers.³

Despite great need, there is little existing capacity for revenue and distributional analysis of tax policy by state. The CBO, JCT, and OTA models only produce national estimates of federal taxes.⁴ Some state revenue departments have their own microsimulation models but their models can only perform

³ The tax model has 273,496 observations derived from 150,047 tax-filing records from the 2004 PUF and 16,419 records from the March 2005 Current Population Survey. See Section II for more detail.

⁴ OTA has developed state weights but to date does not produce public estimates by state.

analysis for their particular states and their outputs are usually confidential. The National Bureau of Economic Research and John Bakija of Williams College have developed state income tax calculators, but both require users to provide state representative data. The Institute on Taxation and Economic Policy (ITEP) has a microsimulation model and a state-representative sample with which it can do both federal and state analysis. The ITEP model uses a sample of federal tax records from 1988 that was drawn to be representative at the state-level.⁵ The Pew Charitable Trusts are currently developing a microsimulation model for state-level analysis based on household survey data with imputations from the PUF and published SOI tabulations of federal tax items by state. With our state modelling capabilities, we join ITEP and the Pew Charitable Trusts in addressing this lack of state-level tax analysis. An advantage of our model is that it is based on a recent sample of federal tax records and is calibrated to match an extensive set of federal income tax information at the state level. As a result, our model is likely to produce estimates of policy proposals' impacts at the state level comparable to ones that could have been produced using IRS population data.

The rest of this paper is structured as follows. We describe the TPC tax model in section II and the Schirm and Zaslavsky's methodology for imputing state weights in Section III. We discuss how we implemented the imputation on TPC's tax model in Section IV and show how closely state-weighted tabulations from the tax model database match targets derived from published IRS tables for inputs to calculating federal income tax liability such as wages, deductions, etc. We further assess how well the tax model database can be used to represent states by comparing calculated tax values to values from SOI tabulations in Section V. To demonstrate the capabilities of the state-weighted model we show the baseline distribution of federal tax burden by state and tax changes by state under three selected federal policy changes in Section VI. Finally, we conclude the study in Section VII.

⁵ See ITEP (2014) for its model description.

II. Overview of TPC Tax Model

The TPC tax model is based on data from the 2004 PUF, which contains 150,047 records with detailed information from federal individual income tax returns filed in the 2004 calendar year.⁶ We add additional information on demographics and sources of income that are not reported on tax returns through a statistical match of the PUF with the March 2005 Current Population Survey (CPS) produced by the U.S. Census Bureau and the Bureau of Labor Statistics. That match also generates a sample of tax units not filing income tax returns (“non-filers”). The complete dataset combines filers from the PUF and non-filers from the CPS, allowing distributional analysis on the entire population and analysis of proposals potentially affecting non-filers under current law.⁷ We further augment the PUF-CPS data with information on wealth and retirement account contributions from the Survey of Consumer Finances; information on expenditures from the Consumer Expenditure Survey, Medical Expenditure Panel Survey, and American Housing Survey; information on post-secondary students from the National Postsecondary Student Aid Study; and information on employer offered health benefits from the Kaiser/HRET survey.⁸

After developing the database for 2004, we “age” the data to the present based on observed growth in various types of income and the number of returns and observed demographic trends. We age the data into the future using CBO projections of growth in income, IRS projections of growth in the number of tax returns, and Bureau of the Census projections of the age-composition of the population.

⁶ For further description of the TPC tax model See Rohaly, Carasso, and Saleem (2005) and <http://www.taxpolicycenter.org/taxtopics/Brief-Description-of-the-Model-2013.cfm>.

⁷ The matching process often requires splitting PUF records. That is, a record from 2004 PUF may be matched to more than one CPS record; each of the PUF-CPS matched record is treated as a unique tax unit. The complete dataset has 273,496 records based on 150,047 tax-filing records from the PUF and 16,419 non-filing records from the CPS.

⁸ The Survey of Consumer Finances is produced by the Federal Reserve Board. The Consumer Expenditure Survey is collected for the Bureau of Labor Statistics by the U.S. Census Bureau. The Medical Expenditure Panel Survey is produced by the Agency for Healthcare Research and Quality. The American Housing Survey is sponsored by the Department of Housing and Urban Development and conducted by the U.S. Census Bureau. The National Postsecondary Student Aid Study is produced by the National Center for Education Statistics. The Kaiser/HRET annual survey of employer sponsored health benefits is sponsored by the Kaiser Family Foundation and Health Research & Educational Trust.

We use a two-step process to produce a representative sample of the population in years beyond 2004. We first inflate the dollar amounts of income, adjustments, deductions, and credits on each record by their appropriate forecasted per capita growth rates. We use CBO's forecast for per capita growth in major income sources such as wages, capital gains, and non-wage income (interest, dividends, Social Security benefits, and others). We assume that most other items grow at CBO's projected growth rate for per capita personal income. In the second stage of the extrapolation, we use a linear programming algorithm to adjust the weights on each record so that the major income items, adjustments, and deductions match aggregate targets.

Based on the extrapolated data set, we can simulate policy options using a detailed tax calculator that captures most features of the U.S. federal individual income tax system. Additionally, we calculate payroll taxes for Social Security and Medicare and expected estate taxes as well as distribute CBO projections of corporate income tax liability to individuals. Using consumption imputations, the model can also simulate a variety of indirect taxes including certain excise taxes, broad-based consumption taxes, and environmental taxes.

III. State Weight Imputation: Methodology

To impute state weights to the Tax Model database, we adapt a constrained, parametric regression methodology proposed by Schirm and Zaslavsky (1997). The methodology imposes two constraints: The summation of each observation's state weights must be identical to its national weight, and the weighted totals of variables chosen as explanatory variables in the regression specification match their targeted totals within a specified tolerance level. Its parametric nature is specified with an identifying assumption that state weights as a proportion of national weights must be identical for all observations with similar characteristics. These constraints and parametric specification together bring about a unique solution to the state weights (Schirm and Zaslavsky, 2001, page 9).

To be specific, the parametric specification is a Poisson regression. Define W^h as observation h 's federal weight, w_s^h as h 's state weight for state s ($s = 1$ to S , where S is the number of states) and thus $\sum_s w_s^h = W^h$, $\underline{x}^h = (x_1^h, x_2^h, \dots, x_k^h, \dots, x_K^h)$ as h 's observed characteristics where K is the number of characteristics accounted for in the estimation, X_{ks} as the state s 's weighted total of x_k , i.e. $X_{ks} = \sum_h w_s^h x_k^h$, $\underline{X}_s = (X_{1s}, X_{2s}, \dots, X_{ks}, \dots, X_{Ks})$, δ^h as h 's state-independent constant, and $\underline{\beta}_s = (\beta_{1s}, \beta_{2s}, \dots, \beta_{ks}, \dots, \beta_{Ks})$ as the state-specific coefficient estimates for state s . The regression specification is as follows:

$$w_s^h = \exp(\underline{\beta}_s' \underline{x}^h + \delta^h) \quad (1)$$

Notice that the state share w_s^h/W^h does not depend on h 's idiosyncratic parameter δ^h , i.e. state shares only depend on h 's characteristics \underline{x}^h . To see this, it can be derived from (1) that $\frac{w_s^h}{W^h} = \frac{\exp(\underline{\beta}_s' \underline{x}^h)}{\sum_q \exp(\underline{\beta}_q' \underline{x}^h)}$ which is not a function of δ^h . This identifying assumption, with the two aforementioned constraints:

$$\sum_s w_s^h = W^h \quad (2)$$

$$\sum_h w_s^h x_k^h = X_{ks} \quad (3)$$

bring about a unique set of state weights.⁹

We estimate this constrained model using a maximum likelihood, iterative two-step approach.

Denote $\delta_{(i)}^h$ as the household-specific constant and $\underline{\beta}_{s(i)}$ as the state-specific coefficient estimates derived from the i^{th} iteration.¹⁰ In the first step of the i^{th} iteration, we substitute (1) into (2) to obtain:

⁹ Without the parametric assumption, there would be an infinite number of solutions for state weights that satisfy constraints (2) and (3). The parametric assumption reduces the number of unknowns to only ($\underline{\beta}$ and δ). With more observations than the number of parameters ($\underline{\beta}$ and δ) plus the number of constraints, the solution of ($\underline{\beta}$ and δ) will be unique in general.

The following trivial example shows how the identifying assumption brings about a unique set of state weights. Suppose that we had two observations, A and B , with identical characteristics. Their federal weights are W^A and W^B , respectively. Suppose also that there were only two states 1 and 2 and the targeted state weights were W_1 and W_2 , respectively. By construction, $W_1 + W_2 = W^A + W^B$. Without the identifying assumption, there would be an infinite number of solutions for $(w_1^A, w_2^A, w_1^B, w_2^B)$. In contrast, with the identifying assumption, the state 1 and 2 shares of all the federal weights must be identical for both observations given their identical characteristics. As a result, we obtain the unique state weights $w_s^h = \left(\frac{W_s}{W_1 + W_2}\right) W^h$ for $s = 1$ and 2 and $h = A$ and B .

$$\delta_{(i)}^h = \ln \left(\frac{W^h}{\sum_s \exp(\underline{\beta}'_{s(i-1)} \underline{x}^h)} \right)$$

Then, in the second step of the i^{th} iteration, we derive $\underline{\beta}_{s(i)}$ using a Newton-Raphson method. That is, based on $\underline{\beta}_{s(i-1)}$ and the remaining distances between the targeted and derived totals, $\underline{d}_s \equiv \underline{X}_s - \sum_h w_s^h \underline{x}^h$ with $\underline{d}_s = (d_{1s}, d_{2s}, \dots, d_{ks}, \dots, d_{Ks})$:

$$\underline{\beta}_{s(i)} = \underline{\beta}_{s(i-1)} + D_{s(i)}^{-1} \underline{d}_s$$

with the first-order partial derivative matrix $D_{s(i)} \equiv \sum_h w_{s(i)}^h \underline{x}^h \underline{x}^{h'}$, and $w_{s(i)}^h = \exp(\underline{\beta}'_{s(i-1)} \underline{x}^h + \delta_{(i)}^h)$.

The iterations continue until every difference (d_{ks} for all k and s) is within a pre-specified tolerance level. Finally, we calculate state weights using equation (1) with the derived coefficient estimates of δ^h and $\underline{\beta}_s$.

IV. State Weight Imputation: Implementation

To estimate the Schirm and Zaslavsky's constrained model, we stratify observations in the tax model database for tax year 2011 into nine groups based on Adjusted Gross Income (AGI) and perform the estimation for each AGI group separately.¹¹ Not only does the estimation by AGI group reduce the computational burden through a substantial reduction in the number of observations involved, but it also allows us to match state targets by AGI group, greatly improving the ultimate quality of the state-weighted database. For instance, targeting by state-AGI group allows us to capture variations across states in the composition of income among high income returns.

Table 1 lists the targeted variables in our estimations by AGI group. Targeted variables are either the number of returns with non-zero values for an item or the total amount of the item on federal individual income tax returns for tax year 2011. The estimation process uses these targets as

¹⁰ As a starting point, $\underline{\beta}_{s(0)}$ is set to zero, resulting in the federal weights being equally split across all S states.

¹¹ These nine AGI groups are: (1) Less than \$1, (2) \$1 to under \$25,000, (3) \$25,000 to under \$50,000, (4) \$50,000 to under \$75,000, (5) \$75,000 to under \$100,000, (6) \$100,000 to under \$200,000, (7) \$200,000 to under \$500,000, (8) \$500,000 to under \$1,000,000, and (9) \$1,000,000 or more.

explanatory variables and targeted totals by state as constraints. Targets were derived from state tables produced by the IRS' Statistics of Income Division (SOI).¹² We target between 46 and 51 variables in each AGI group including most of the items needed to calculate federal income taxes. Targets include number of returns and joint returns; number of exemptions;¹³ wages, interest, dividends, capital gains, business income, and numerous other income components; adjusted gross income; and state and local income tax deduction, state and local sales tax deduction, real estate tax deduction, mortgage interest deduction, charitable deduction, and other deductions. Generally we did not target calculated tax outcomes such as tax liability and credits. However, to better capture variation in head of household status across states and income groups, and the interaction of marital status and presence of dependents, we also targeted the Earned Income Tax Credit.¹⁴

We have to address three additional issues when implementing the estimation procedure. First, because SOI state tabulations are only available for families filing tax returns, we cannot directly apply our estimation approach for non-filing tax units. Instead we exclude non-filers when estimating the model and then impute state weights for non-filers using coefficient estimates for tax filers with AGI of at least \$1 but less than \$25,000.¹⁵

Second, we need to adjust the targets from SOI state tables to be consistent with national totals in the tax model database. The tax model database was built to match targets from federal SOI tables which often differ somewhat from national totals in SOI state tables.¹⁶ One of the estimation constraints

¹² See "Table 2. Individual Income and Tax Data, by State and Size of Adjusted Gross Income, Tax Year 2011" which can be found at <http://www.irs.gov/uac/SOI-Tax-Stats-Historic-Table-2>.

¹³ We did not target the number of dependent exemptions due to collinearity between number of exemptions and marital status.

¹⁴ For 2011, SOI Table 2 did not provide separate counts of returns for all filing statuses.

¹⁵ Average AGI among non-filers in the 2011 tax model database is \$1,924. We use coefficients from the \$1 to \$25,000 group as opposed to the less than \$1 group because latter includes tax units with negative AGI which are often more similar to high income tax units than low income tax units.

¹⁶ Federal SOI tables are based on a sample of tax returns while state SOI tables are based on all returns. SOI cleans the federal sample to adjust for inconsistencies in the data. The SOI federal tables are: Table 1.2 All Returns: Adjusted Gross Income, Exemptions, Deductions, and Tax Items, by Size of Adjusted Gross Income and by Marital Status, Tax Year 2011, Table 1.4 All Returns: Sources of Income, Adjustments, and Tax Items, by Size of

requires that the weighted totals of targeted variables match their targeted totals within a tolerance level which can only be achieved if a targeted variable's SOI totals across all states equal its weighted federal total in the tax model database. Even though a derived total of any state may deviate from its target, it must be the case that the summation across all states of the derived federal total must equal the federal total in the tax model database. As a result, we adjust each target by the ratio of its federal weighted tax model total and its SOI total across all states.¹⁷ This adjustment yields a set of adjusted targeted state totals whose summations across all states are exactly the weighted federal totals in the tax model. Adjusted targets are generally quite similar to actual values in SOI state tables.¹⁸

Third, unless the sample is state representative, it is difficult for the estimation procedure to simultaneously satisfy all state constraints given the initial national weights. To facilitate convergence, we first modify national weights in such a way that weighted national totals are unchanged but the combination of national weights is more conducive to convergence. We do this by implementing the Schirm and Zaslavsky's methodology for each state separately (i.e. $S = 2$, with $s = 1$ for the targeted state and $s = 2$ for all other states combined) and then replacing each tax model observation's national weight with the sum of its 52 state weights. Using the derived national weights as a starting point, we reweight

Adjusted Gross Income, Tax Year 2011, Table 2.1 Returns with Itemized Deductions: Sources of Income, Adjustments, Itemized Deductions by Type, Exemptions, and Tax Items, by Size of Adjusted Gross Income, Tax Year 2011, Table 2.3 All Returns: Exemptions by Type and Number of Exemptions, by Size of Adjusted Gross Income, Tax Year 2011, Table 2.5 Returns with Earned Income Credit, by Size of Adjusted Gross Income, Tax Year 2011, and Table 3.3 All Returns: Tax Liability, Tax Credits, and Tax Payments, by Size of Adjusted Gross Income, Tax Year 2011.

¹⁷ In addition to these scaled adjustments, we also adjust values of several targeted totals that cannot be supported by data points available in the tax model database. In general, these adjustments are necessary when SOI state totals are too extreme (e.g. unemployment compensation in New York for tax units with more than \$1,000,000 in AGI).

¹⁸ See Appendix Table A for more detail. Adjustments to targets are generally less than 5 percent. One exception is targets for the less than \$1 AGI group where the number of returns with zero or negative AGI in federal SOI tables is 20 percent lower than in state SOI tables. Another exception is targets for itemized deductions in the \$1 to \$25,000 AGI group. The tax model cannot match the relatively small number of returns itemizing deductions at the lowest AGI levels because it does not allow returns to itemize deductions if the standard deduction results in lower tax liability.

the observations again to match SOI federal totals in more detail than the state targets.^{19 20} At this point, we can successfully employ the weight splitting procedure to create a set of consistent national and state weights simultaneously matching all national and state targets for all but three AGI groups.

For these three AGI groups (less than \$1, at least \$100,000 but less than \$200,000 and at least \$200,000 but less than \$500,000), we need to drop some key targeted variables in order for the estimation to converge with $S = 52$ due to insufficient data points in the Tax Model database.²¹ As an alternative, we use the state weights derived from applying the Schirm and Zaslavsky' methodology separately for each state and use the sum of these weights as the national weight for these three AGI groups. This results in their weighted totals matching all of the state targets and most of the federal targets we used when originally creating the tax model database.

Taking into account the three issues discussed above, we estimate Schirm and Zaslavsky's constrained model, setting the tolerance level at ten percent of the adjusted targets. Then, with the derived coefficient estimates, we impute state weights for every observation in the tax model. State weighted totals for targeted variables in the tax model database must be within ten percent of adjusted targets by construction. In fact, Table 2 shows that the state-weighted totals match targets much closer

¹⁹ The state targets are a strict subset of the federal targets. In addition, the Tax Model database was calibrated to match federal targets for 13 AGI groups as opposed to the 9 AGI groups for the state targets, with tax units with AGI at least \$1 but less than \$25,000 further divided into two groups by the \$10,000 AGI break and tax units with AGI at least \$1,000,000 further divided into four groups by the AGI breaks of \$2,000,000, \$5,000,000 and \$10,000,000, respectively.

²⁰ We do this using a variation of the Schirm and Zaslavsky methodology to adjust the national weights to match national targets. We scale up the national weights by a constant factor and then employ the procedure to divide the weights between the nation and residual (i.e. $S=2$, with $s=1$ for nation and $s=2$ for residual with residual targets equaling the difference between scaled-up weighted totals and national totals).

²¹ Because equation (3) cannot be satisfied exactly in general, we proceed by setting a tolerance level to ten percent. That is, based on the derived coefficient estimates for any AGI group, every weighted state total of any targeted variable ($\sum_h w_s^h x_k^h$) must be within ten percent of the targeted state total (X_{ks}). We chose ten percent to guarantee that the reweighted tax model database is closely representative for all states, and at the same time flexible enough to admit a large set of targeted variables.

At the ten percent tolerance level, the following crucial targeted variables would need to be excluded from the estimations in order for the estimations to converge: (a) salaries and wages in AGI, taxable interest, qualified dividends, business or profession net income (less loss) and self-employment tax for tax units with AGI less than \$1, (b) state income tax refund amount for tax units with AGI at least \$100,000 but less than \$200,000, and (c) state sales tax deduction amount for tax units with AGI at least \$200,000 but less than \$500,000.

in general. To be specific, out of 22,204 targets overall, only 30 targets (accounting for 0.1% of all targets) have weighted state totals deviating from their adjusted targeted totals by more than five percent.²² This is a byproduct of the employed estimation technique.²³ The next section assesses whether our tax model produces reasonable estimate of federal tax liability across states when using the state-weighted tax model database.

V. Comparing State Tax Outcomes to Published SOI Tables

The prior section showed that we successfully create state weights which when applied to the tax model database produce tabulations closely matching published SOI tables for inputs into calculation of income taxes (exemptions, income components, deductions, etc.). This section compares values produced by the tax calculator based on inputs from the tax model database to published SOI tabulations by state. Calculated taxes may differ from SOI values for a state because SOI targets are not available for all items entering tax calculation. Furthermore, while we use a rich set of state targets by AGI group, we do not have targets for cross-tabulations of these items. For instance, while we match the number of returns with capital gains and returns with dividends in every AGI group in every state, we may not match the true number of returns with both capital gains and dividends. And finally, the tax model does not always match SOI tabulations of calculated tax values in 2011 at the national level, making it impossible to match every SOI tabulation by state simultaneously.

²² In addition, out of 22,204 targets overall, only 266 targets (accounting for 1.2% of all targets) have weighted state totals deviating from their adjusted targeted totals by more than one percent.

²³ Recall that the estimation repeatedly searched for the best way to satisfy all constraints via a change in the coefficient estimates. In essence, it evaluated the differences between weighted and targeted totals, and changed coefficient estimates to reduce such differences accordingly. For this to work, most differences must be sufficiently close to zero so that a slight change in the coefficient estimates, which would cause all differences to change somewhat, should still result in these differences being relatively close to zero. Loosely speaking, it is as if this were a process of eliminating the largest difference observed in the previous iteration, and the process repeated until the last large difference was eliminated. That is, the iterations stopped when every weighted state totals are within ten percent of its targeted total, and so the ten-percent tolerance should be binding for only one target.

Tables 3a-3e show that our simulations of current law federal income taxes by state are close to SOI tabulations. The model's estimates for income taxes net of credits are within 3.5 percent of SOI totals for all states. Taxable income and income tax before credits are very close to SOI totals as well. Our projections of taxable income are within 1.5 percent of SOI tabulations for all states, income tax before credits are within 2.5 percent of SOI tabulations for all states, and number of returns with positive income tax before credits are within 1.0 percent of SOI tabulations for all states except Alaska (-8.3 percent).

Our projections of the alternative minimum tax (AMT) match SOI totals less closely than tax before credits but are generally still reasonably close. Our projections for AMT dollars are within 20 percent of SOI totals for all but 2 states (Montana and New Hampshire) and our projection for the number of returns with AMT are within 20 percent of SOI totals for all but 5 states (Alaska, Nevada, New Hampshire, Tennessee, and Wyoming).

Our projections for the majority of tax credits are generally close to SOI tabulations. Our projections of Child Tax Credit (CTC) dollars are within 10 percent of targets for all but 2 states (Alaska and District of Columbia), our projections of Additional Child Tax Credit (ACTC) dollars are within 15 percent of targets for all but 2 states (Nevada and Utah), and our projections almost exactly match state targets for Earned Income Tax Credit (EITC). We match EITC tabulations very closely because, as discussed in Section IV, we use receipt of EITC and EITC dollars as targets when creating the weights. While we are close to SOI tabulations for CTC, ACTC, and EITC, which together comprise about 70 percent of all tax credits, our projections for other credits often deviate substantially from state SOI totals.

This exercise illustrates that we have greater ability to simulate tax items that are directly based on inputs we target when creating the state weights. We match SOI tabulations of tax before credits very closely because we match the distribution of each component of income very closely by state.

Families with children under age 17 and incomes below certain thresholds are eligible for the CTC and ACTC. We match less well for CTC and ACTC than tax before credits, because while we target income and the number of exemptions by state, state targets for number of exemptions by age of dependent are not available. The AMT adjusts the definition of taxable income and generally affects higher income tax filers. Our simulations match SOI figures for the AMT less well than for tax before credits, because, while we target the income distribution and the state tax deduction, which accounts for over two-thirds of AMT adjustments to income, state targets are not available for most other AMT adjustments. Our simulations often do not match well for credits other than CTC, ACTC, and EITC because SOI targets are not available by state for their key determinants such as qualified education expenses, child care expenses, and retirement contributions. Thus estimates by state of credits other than CTC, ACTC, and EITC should be treated with caution as should any estimate of tax provisions dependent on factors we do not target when creating state weights.

VI. Simulating Federal Taxes at State Level

An important use of the TPC Tax model is analyzing the distribution of federal taxes across different groups. The tax model can be used to examine the distribution of comprehensive federal tax burdens including federal income taxes, payroll taxes, estate taxes, and corporate income taxes.²⁴ Examining the current tax burden provides valuable information about the distribution of taxes across different segments of the population and the overall progressivity of the federal tax system, providing a baseline against which to evaluate various tax policy options. With the new state weights the TPC tax model can extend that analysis by simulating federal tax burdens by state.

²⁴ Tax burdens can differ from actual taxes paid. For example, when distributing tax burden, the model accounts for the present value of tax savings associated with contributions to retirement accounts. The burden measure incorporates not only the tax treatment of contributions (which affects current taxes paid) but also tax-free accrual in subsequent years as well as any taxes ultimately paid on withdrawal.

Table 4 shows average pre-tax income, federal tax burden, after-tax income, and average federal tax rate by state. We use a broad measure of pre-tax income, which we call “expanded cash income” or ECI, to analyze the distribution of federal taxes.²⁵ Mean pre-tax income is \$74,078 for the nation as a whole in 2011, varying from \$56,498 in Mississippi to \$106,784 in Connecticut. Average federal tax burden ranges from \$7,191 in Mississippi to \$20,363 in Connecticut and is \$11,842 overall. Nationally, the average federal tax rate is 16.0 percent with rates by state varying from 12.7 percent in Mississippi to 19.4 percent in the District of Columbia.

Another important use of the TPC tax model is analyzing changes in federal tax policy. The state weights allow us to show federal tax changes by state as well as the distribution of federal tax changes by income groups within specific states. We demonstrate this capability by analyzing three federal tax policy options: (1) eliminating the AMT, (2) increasing the top marginal rate, and (3) reducing the CTC. We focus on departures from current law in 2011.

(1) Eliminating the AMT

The AMT operates parallel to the regular tax and sets a floor on total tax liability. Taxpayers whose income exceeds the AMT exemption must calculate both regular tax and AMT liabilities and pay the larger amount. The AMT applies a different income definition and rate structure than the regular income tax and allows different deductions and exemptions. Because the AMT exemption is high relative to income and the AMT disallows the deduction for state and local taxes paid, we expect that repealing the AMT will affect more households in higher-income states, and particularly those with higher state taxes.

Table 5 shows the impact on federal tax burden of repealing the AMT in 2011 by state. Nationally, 3.3 percent of tax units receive a tax cut and the average federal tax cut (for all tax units) is

²⁵ ECI equals AGI plus employer provided fringe benefits, tax-exempt interest, non-taxable pension and retirement income, above-the-line adjustments, cash and cash-like transfer payments, the employer share of payroll taxes, and imputed corporate income tax liability. See Rosenberg (2013).

\$234. The percent of tax units with tax cuts ranges from 7.3 percent in New Jersey to only 1.6 percent in Mississippi and West Virginia and the average tax cut ranges from \$580 in Connecticut to \$65 in Tennessee. The rightmost columns show each state's rank in terms of average AGI and average state tax deduction and indicate which states have no state income tax. As expected the states gaining the most by repealing the AMT are higher income states with higher state tax deductions.

The tax model can also produce distributional estimates for individual states. For example, Table 6 shows tax changes under the proposal by income group in California. Almost no tax units with income below \$50,000 benefit from abolishing the AMT, with the percentage of taxpayers that benefit increasing to over 46.6 percent in the \$200,000 to \$500,000 income range, 85.0 percent in the \$500,000 to \$1,000,000 range, but falling to 34.5 percent of those with incomes over \$1,000,000.²⁶

Table 7 shows the distribution of tax change under the same policy in Louisiana, which is one of the states least affected by repealing the AMT. As in California, high-income tax units benefit more than low-income tax units, though tax cuts are lower for all income groups in Louisiana. Comparing tables 6 and 7 shows that California benefits more from repealing the AMT both because a greater share of its residents are high income and because it has higher state taxes. In California, 7.2 percent of tax units have incomes above \$200,000 compared to 4.8 percent in Louisiana. Additionally, due to higher state taxes, high income tax units in California benefit more than tax units in the same income groups in Louisiana. For instance, the average tax change for tax units with incomes between \$200,000 and \$500,000 in California is \$2,537 but only \$1,093 for the same income group in Louisiana.

(2) Raising The Top Tax Rate

²⁶ The maximum statutory tax rate under the AMT, 28 percent, was lower than the maximum statutory regular tax rate of 35 percent in 2011, so very high income tax units tended not to have any AMT, resulting in a smaller share of tax units affected in the over \$1,000,000 group than in the \$500,000 to \$1,000,000 group.

Table 8 shows the impact of raising the top marginal rate in 2011 from 35 percent to 39.6 percent by state.²⁷ Nationally, 0.4 percent of tax units would see their taxes increase and the average tax change is \$160. Across states the share of tax units affected ranges from 0.2 percent in ten states (Idaho, Vermont, Kentucky, Arkansas, South Carolina, Maine, Hawaii, New Mexico, Mississippi, and West Virginia) to 1.0 percent in Connecticut. The average tax increase ranges from \$49 in West Virginia to \$482 in Connecticut. The ranking of tax changes closely follows the state ranking based on SOI tabulations of share of tax filers with taxable income above \$500,000, as shown in the last column of Table 8.

(3) Reducing Amount and Refundability of Child Tax Credit to 2000 Law

Taxpayers can claim the Child Tax Credit (CTC) for each child under age 17. The credit is \$1,000 per eligible child, with the credit starting to phase out when AGI exceeds \$110,000 for joint filers and \$75,000 for single filers. If the total credit claimed exceeds taxes owed, taxpayers can receive some or all of the balance as a refund, known as the Additional Child Tax Credit (ACTC). Currently, the ACTC is limited to 15 percent of earnings above \$3,000.²⁸

Table 9 shows the impact by state of changing the CTC rules in 2011 to what they were in 2000. The amount of CTC would be reduced to \$500 and the refundable portion would be limited only to families with three or more children.²⁹ Nationally, 22 percent of tax units pay higher taxes with the average tax increase equal to \$239. By state, the percent of tax units with a tax increase ranges from 17 percent in the District of Columbia to 32 percent in Mississippi. The average tax increase ranges from

²⁷ In 2011 the 35 percent tax bracket started at \$379,150 of taxable income for joint and single filers. The American Taxpayer Relief Act raised the top rate to 39.6 percent above \$450,000 for joint filers and \$400,000 for single filers in 2013.

²⁸ The earnings threshold for the ACTC is scheduled to increase to \$10,000 (indexed for inflation after 2001) in 2018.

²⁹ Under 2000 law families with three or more eligible children could receive a refundable CTC limited to an amount equal to their payroll taxes minus any refundable EITC received.

\$163 in Massachusetts to \$368 in Mississippi. As expected, the ranking by average tax increase closely follows SOI ranking by number of dependent exemptions shown in the last column.

VII. Conclusion

We have added the capability to analyze federal taxes at the state level to the TPC tax model. To do so, we add to every observation in the tax model database a set of state weights that sum to the observation's federal weight. Using the appropriate state weights the tax model database can now be representative of any state. By construction, the state-weighted tax model database matches published IRS tabulations by state for most determinants of federal individual income tax liability such as exemptions, components of income, and deductions. As a result, simulations of current law income taxes using the state-weighted tax model closely match IRS tabulations by state as well.

The state weights allow us to distribute national estimates of federal tax burden to states. Not only can we evaluate the impacts of a wide array of federal policy proposals across states but we can examine the distribution of changes within states. Future work will use these new capabilities to analyze recently discussed potential federal policy changes that are of particular interest to states, such as eliminating or reducing the state income tax deduction.

Additionally, the state-weighted tax model database can be used in conjunction with state income tax calculators to perform revenue and distributional analysis for state income taxes. Future work will examine the current law distribution of state income taxes within each state as well as analyze policy changes that states are considering as they continue to emerge from the Great Recession of 2008.

Our new state capabilities can also be used to examine interactions between federal and state tax policy. For instance, recent deficit commissions have proposed broadening the federal individual income tax base which would change the definition of taxable income for states that currently "piggy back" on the federal provisions. We can utilize these capacities to show the impact on state income tax

revenues and distributional effects across state populations for states that choose to continue to use federal income definitions or modify their tax codes in response to changes.

The need for tax analysis at the state level is particularly acute in the current economic and fiscal environment. States may face increasing fiscal pressures due to still lackluster economic recovery, greater public pension costs and Medicaid long-term care costs due to an aging population, and any costs the federal government ultimately passes on to states when addressing its own long-term fiscal imbalance. Revenue and distributional analysis of current and proposed tax policies at the federal and state level provide federal and state policymakers invaluable information as they decide how to meet these ongoing challenges.

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Table 1. State Targets for Weight Splitting Procedure

Targeted Item	Type ¹	AGI Group								
		Under \$1	\$1 under \$25,000	\$25,000 under \$50,000	\$50,000 under \$75,000	\$75,000 under \$100,000	\$100,000 under \$200,000	\$200,000 under \$500,000	\$500,000 under \$1,000,000	\$1,000,000 or more
Number of returns	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
Number of joint returns	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
Number of exemptions	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
Adjusted gross income (AGI)	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Salaries and wages in AGI	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Taxable interest	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ordinary dividends	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Qualified dividends	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
State and local income tax refunds	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Business or profession net income (less loss)	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Net capital gain (less loss) in AGI	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Taxable individual retirement arrangements distributions	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Taxable pensions and annuities in AGI	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Number of farm returns	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
Unemployment compensation	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Taxable social security benefits in AGI	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Partnership/S-corp net income (less loss)	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Self-employed health insurance deduction	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Individual retirement arrangement payments	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Student loan interest deduction	Number	✓	✓	✓	✓	✓	✓	N/A	N/A	N/A
	Amount	✓	✓	✓	✓	✓	✓	N/A	N/A	N/A
Total itemized deductions	Number	N/A	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	N/A		✓	✓	✓	✓	✓	✓	✓
State and local income taxes	Number	N/A	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	N/A	✓	✓	✓	✓	✓	✓	✓	✓
State and local general sales taxes	Number	N/A	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	N/A	✓	✓	✓	✓	✓	✓	✓	✓
Real estate taxes	Number	N/A	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	N/A	✓	✓	✓	✓	✓	✓	✓	✓
Home mortgage interest paid	Number	N/A	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	N/A	✓	✓	✓	✓	✓	✓	✓	✓
Charitable contributions	Number	N/A	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	N/A	✓	✓	✓	✓	✓	✓	✓	✓
Self-employment tax	Number	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Amount	✓	✓	✓	✓	✓	✓	✓	✓	✓
Earned income credit	Number	✓	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A
	Amount	✓	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A

Notes: Check indicates variable was part of the estimation constraint for given AGI group. N/A indicates that variable is irrelevant due to the state totals equaling \$0 for the given AGI group. Blank cells indicate that the targets were available but omitted in order for the algorithm to converge.

¹Number of returns with item or total dollars for item.

Table 2. Count of State Totals with Larger than Five Percent Deviation from Adjusted Targets

Targeted Item	Type ¹	AGI Group									All
		Under \$1	\$1 under \$25,000	\$25,000 under \$50,000	\$50,000 under \$75,000	\$75,000 under \$100,000	\$100,000 under \$200,000	\$200,000 under \$500,000	\$500,000 under \$1,000,000	\$1,000,000 or more	
Number of returns	Number	-	-	-	-	-	-	-	-	-	-
Number of joint returns	Number	-	-	-	-	-	-	-	-	-	-
Number of exemptions	Number	-	-	-	-	-	-	-	-	-	-
Adjusted gross income (AGI)	Amount	-	-	-	-	-	-	-	-	-	-
Salaries and wages in AGI	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	-	-	-	-	-	-	-	-	-
Taxable interest	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	-	-	-	1	-	-	3	-	4
Ordinary dividends	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	-	-	-	-	-	-	-	-	-
Qualified dividends	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	-	-	-	-	-	-	-	-	-
State and local income tax refunds	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	-	-	-	1	-	-	-	-	1
Business or profession net income (less loss)	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	-	-	-	-	-	-	-	-	-
Net capital gain (less loss) in AGI	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	3	-	1	1	-	-	-	-	5
Taxable individual retirement arrangements distributions	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	-	-	-	-	-	-	-	-	-
Taxable pensions and annuities in AGI	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	-	-	-	-	-	-	-	-	-
Number of farm returns	Number	-	-	-	-	1	-	-	-	-	1
Unemployment compensation	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	-	-	-	-	-	-	-	-	-
Taxable social security benefits in AGI	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	-	-	-	-	-	-	-	-	-
Partnership/S-corp net income (less loss)	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	6	2	-	1	-	-	-	-	9
Self-employed health insurance deduction	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	-	-	-	-	-	-	-	-	-
Individual retirement arrangement payments	Number	-	-	-	-	-	-	-	-	-	-
	Amount	-	-	-	-	-	-	-	-	-	-
Student loan interest deduction	Number	-	-	-	-	-	-	N/A	N/A	N/A	-
	Amount	-	-	-	-	-	-	N/A	N/A	N/A	-
Total itemized deductions	Number	N/A	-	-	-	-	-	-	-	-	-
	Amount	N/A	-	-	-	-	-	-	-	-	-
State and local income taxes	Number	N/A	-	-	-	-	-	-	-	-	-
	Amount	N/A	-	-	-	-	-	-	-	1	1
State and local general sales taxes	Number	N/A	-	-	-	-	-	3	-	-	3
	Amount	N/A	-	-	-	-	-	5	-	-	5
Real estate taxes	Number	N/A	-	-	-	-	-	-	-	-	-
	Amount	N/A	-	-	-	-	-	-	-	-	-
Home mortgage interest paid	Number	N/A	-	-	-	-	-	-	-	-	-
	Amount	N/A	-	-	-	-	-	-	-	-	-
Charitable contributions	Number	N/A	-	-	-	-	-	-	-	-	-
	Amount	N/A	-	-	-	-	-	-	-	-	-
Self-employment tax	Number	1	-	-	-	-	-	-	-	-	1
	Amount	-	-	-	-	-	-	-	-	-	-
Earned income credit	Number	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A	-
	Amount	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A	-
All Targets		1	9	2	1	5	-	8	3	1	30

Notes: We used 22,204 state-AGI targets. N/A indicates that the variable is irrelevant due to the state totals equaling \$0 for the given AGI group.

¹Number of returns with item or total dollars for item.

Table 3a. Comparing Simulated Income Tax Values from State-Weighted Tax Model to IRS Tabulations -- Tax Year 2011

	US	min across states	max across states	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA
	percent difference from IRS tabulations													
Taxable income (\$)	0.2	-1.4	1.5	0.0	-0.4	-0.4	0.6	0.9	0.1	0.7	0.3	0.7	-0.3	-0.2
Income tax before credits (# ret >0) ²	0.0	-8.3	0.8	0.4	-8.3	0.8	0.0	0.2	0.0	-0.5	-0.3	-0.3	0.6	-0.1
Income tax before credits (\$)	0.1	-1.6	2.3	-0.1	-0.1	-1.6	0.8	0.7	-0.4	1.1	0.7	2.0	-0.6	0.3
AMT (# ret>0)	7.9	-3.5	45.5	15.0	45.5	18.5	6.8	1.9	9.5	5.2	8.2	12.3	14.9	-3.0
AMT (\$)	3.8	-21.2	44.0	-8.5	16.5	1.5	3.0	-4.2	-5.2	8.3	3.6	8.7	0.7	10.6
Child Tax Credit (# ret>0)	0.8	-15.2	19.5	2.6	-15.2	-1.3	-5.0	1.8	0.0	-3.8	-0.4	19.5	8.3	5.6
Child Tax Credit (\$)	2.1	-13.0	18.3	2.8	-13.0	-1.0	-3.8	7.7	-2.0	-0.5	2.4	18.3	10.0	7.5
EITC (# ret>0)	-0.2	-0.3	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1
EITC (\$)	-0.1	-0.3	0.0	0.0	-0.2	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	0.0	0.0	0.0
Additional Child Tax Credit (# ret>0)	-3.5	-10.2	8.1	2.5	-5.4	-7.4	-2.5	-7.2	-6.4	-3.2	-3.9	2.9	-1.5	-3.0
Additional Child Tax Credit (\$)	-4.8	-20.3	12.3	3.2	-8.9	-12.8	0.0	-7.0	-14.7	2.9	-2.8	5.2	-4.6	-7.2
Other Credits (\$) ¹	-4.0	-20.3	95.2	-7.0	90.5	35.3	36.6	-9.9	24.6	-8.4	0.1	-9.9	-16.2	-11.8
Income tax net of credits (\$)	0.6	-2.7	3.4	0.3	-1.7	-2.2	0.2	1.4	-0.5	1.5	1.2	2.7	0.5	1.4

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-5S) and IRS, "Table 2. Individual Income and Tax Data, by State and Size of Adjusted Gross Income, Tax Year 2011." <http://www.irs.gov/uac/SOI-Tax-Stats-Historic-Table-2>.

¹Foreign Tax Credit, Child Care Credit, Retirement Savings Credit, Nonrefundable Education Credits, Refundable Education Credits, and other credits.

²Number of returns with non-zero value for relevant item.

Table 3b. Comparing Simulated Income Tax Values from State-Weighted Tax Model to IRS Tabulations -- Tax Year 2011

	US	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA
	percent difference from IRS tabulations											
Taxable income (\$)	0.2	0.2	-1.4	0.4	-1.0	0.1	0.0	0.4	0.3	0.5	1.4	0.0
Income tax before credits (# ret >0) ²	0.0	-1.2	-1.1	0.2	0.2	-0.3	-0.2	-0.2	-0.2	-0.6	-0.3	-0.6
Income tax before credits (\$)	0.1	0.6	-0.7	-0.5	-1.1	0.7	0.3	1.0	0.3	1.5	2.3	0.0
AMT (# ret>0)	7.9	14.2	8.0	14.4	10.0	10.3	9.6	11.1	7.5	3.1	2.3	9.4
AMT (\$)	3.8	1.5	12.4	12.4	5.3	7.7	6.4	3.5	0.0	-2.3	2.4	4.0
Child Tax Credit (# ret>0)	0.8	1.7	0.7	2.5	-0.7	-3.0	-4.0	-3.3	0.0	-0.1	3.1	-0.3
Child Tax Credit (\$)	2.1	0.2	-4.1	5.2	-0.7	-5.5	-5.0	-1.7	0.1	-0.2	6.2	0.7
EITC (# ret>0)	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2
EITC (\$)	-0.1	-0.2	-0.3	-0.1	-0.1	-0.2	-0.2	-0.1	0.0	-0.2	-0.1	-0.1
Additional Child Tax Credit (# ret>0)	-3.5	4.1	-2.1	-5.9	-2.0	-2.1	-5.8	-2.7	5.4	6.0	-3.8	0.8
Additional Child Tax Credit (\$)	-4.8	3.0	-6.9	-8.1	-7.1	-5.2	-9.3	-3.6	11.6	8.8	-3.8	6.1
Other Credits (\$) ¹	-4.0	5.3	9.0	-5.1	27.9	29.6	34.1	24.5	20.6	10.2	-3.8	13.1
Income tax net of credits (\$)	0.6	2.7	-0.4	-0.1	-1.7	0.9	0.2	0.9	-0.5	1.7	3.0	-0.2

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-5S) and IRS, "Table 2. Individual Income and Tax Data, by State and Size of Adjusted Gross Income, Tax Year 2011." <http://www.irs.gov/uac/SOI-Tax-Stats-Historic-Table-2>.

¹Foreign Tax Credit, Child Care Credit, Retirement Savings Credit, Nonrefundable Education Credits, Refundable Education Credits, and other credits.

²Number of returns with non-zero value for relevant item.

Table 3c. Comparing Simulated Income Tax Values from State-Weighted Tax Model to IRS Tabulations -- Tax Year 2011

	US	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY
	percent difference from IRS tabulations											
Taxable income (\$)	0.2	-0.7	0.1	0.7	-0.7	-0.1	0.3	0.6	0.7	-0.2	0.2	1.5
Income tax before credits (# ret >0) ²	0.0	-0.2	-0.2	0.0	-0.5	-0.5	-0.1	0.7	-0.2	-0.7	-0.2	-0.2
Income tax before credits (\$)	0.1	-0.6	0.7	1.2	-0.4	0.0	1.0	0.6	1.9	0.0	0.0	1.6
AMT (# ret>0)	7.9	15.6	6.7	12.6	9.2	-3.5	9.3	37.5	29.1	8.4	17.2	1.7
AMT (\$)	3.8	7.9	4.1	2.1	4.4	-21.2	5.4	17.4	44.0	14.8	8.9	1.0
Child Tax Credit (# ret>0)	0.8	3.2	2.0	1.1	-1.8	-1.0	-1.7	1.4	1.4	-0.1	-5.5	3.7
Child Tax Credit (\$)	2.1	2.1	-1.3	1.3	-3.6	-5.7	-5.1	4.6	-1.0	6.2	-5.6	6.7
EITC (# ret>0)	-0.2	-0.1	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
EITC (\$)	-0.1	0.0	-0.2	0.0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0.0
Additional Child Tax Credit (# ret>0)	-3.5	3.1	-1.6	3.5	0.8	3.9	-3.2	-10.2	2.9	-6.6	-2.5	0.6
Additional Child Tax Credit (\$)	-4.8	0.6	-9.1	7.7	1.6	1.8	-6.5	-16.4	5.6	-1.2	2.0	3.6
Other Credits (\$) ¹	-4.0	-14.1	8.4	-20.3	28.1	23.6	48.5	6.8	79.5	0.2	56.1	-19.7
Income tax net of credits (\$)	0.6	0.3	1.2	3.4	-0.9	0.3	0.6	1.3	0.2	0.1	-1.4	2.6

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-5S) and IRS, "Table 2. Individual Income and Tax Data, by State and Size of Adjusted Gross Income, Tax Year 2011."
<http://www.irs.gov/uac/SOI-Tax-Stats-Historic-Table-2>.

¹Foreign Tax Credit, Child Care Credit, Retirement Savings Credit, Nonrefundable Education Credits, Refundable Education Credits, and other credits.

²Number of returns with non-zero value for relevant item.

Table 3d. Comparing Simulated Income Tax Values from State-Weighted Tax Model to IRS Tabulations -- Tax Year 2011

	US	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX
	percent difference from IRS tabulations											
Taxable income (\$)	0.2	-0.4	-0.4	0.0	0.0	1.0	-0.1	-1.3	-0.5	-0.5	-0.7	-0.2
Income tax before credits (# ret >0) ²	0.0	0.7	-0.4	-0.2	-0.2	0.2	-0.1	-0.8	0.3	-0.4	0.1	0.4
Income tax before credits (\$)	0.1	0.0	-0.2	0.4	0.1	1.7	-0.2	-0.8	-0.3	0.9	-0.7	-0.6
AMT (# ret>0)	7.9	5.8	14.2	6.0	11.5	5.2	13.7	14.8	10.3	15.5	20.5	15.9
AMT (\$)	3.8	4.7	12.5	5.8	2.0	-2.2	6.8	12.2	5.5	18.2	1.8	15.9
Child Tax Credit (# ret>0)	0.8	-3.4	-3.4	-0.5	-6.0	3.8	0.3	-1.8	-0.4	-0.2	1.7	-2.1
Child Tax Credit (\$)	2.1	-0.1	-9.3	-1.8	-6.9	2.7	0.5	0.4	1.8	-4.4	3.6	0.4
EITC (# ret>0)	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2
EITC (\$)	-0.1	-0.1	-0.2	-0.1	-0.1	-0.2	-0.1	-0.1	0.0	-0.2	0.0	-0.1
Additional Child Tax Credit (# ret>0)	-3.5	-7.0	-0.8	2.9	-3.4	-1.4	1.2	-1.5	-1.8	-2.4	-1.1	-6.6
Additional Child Tax Credit (\$)	-4.8	-8.8	-3.4	2.2	-4.2	-5.6	2.9	3.6	-1.4	-7.9	-5.1	-7.0
Other Credits (\$) ¹	-4.0	8.8	95.2	10.3	68.8	15.0	24.3	1.0	0.6	42.3	50.7	20.1
Income tax net of credits (\$)	0.6	0.6	-1.6	0.2	-0.7	1.9	-0.8	-0.9	0.0	1.1	-2.7	-1.1

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-5S) and IRS, "Table 2. Individual Income and Tax Data, by State and Size of Adjusted Gross Income, Tax Year 2011."
<http://www.irs.gov/uac/SOI-Tax-Stats-Historic-Table-2>.

¹Foreign Tax Credit, Child Care Credit, Retirement Savings Credit, Nonrefundable Education Credits, Refundable Education Credits, and other credits.

²Number of returns with non-zero value for relevant item.

Table 3e. Comparing Simulated Income Tax Values from State-Weighted Tax Model to IRS Tabulations -- Tax Year 2011

	US	UT	VT	VA	WA	WV	WI	WY
	percent difference from IRS tabulations							
Taxable income (\$)	0.2	0.2	0.0	-1.4	0.0	0.1	-0.2	-0.3
Income tax before credits (# ret >0) ²	0.0	0.6	-0.3	-0.6	-0.1	-0.5	-0.2	0.4
Income tax before credits (\$)	0.1	0.0	0.5	-1.6	-0.3	0.1	0.8	-0.4
AMT (# ret>0)	7.9	13.1	8.8	7.2	13.7	8.0	16.7	29.0
AMT (\$)	3.8	4.9	-2.8	8.4	2.7	7.8	14.6	-17.3
Child Tax Credit (# ret>0)	0.8	2.5	-2.6	-0.4	1.7	-2.9	0.1	-1.5
Child Tax Credit (\$)	2.1	-4.9	-3.0	-1.2	2.2	-2.8	-0.5	-5.0
EITC (# ret>0)	-0.2	-0.3	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2
EITC (\$)	-0.1	-0.3	-0.2	-0.1	-0.2	-0.1	-0.1	-0.2
Additional Child Tax Credit (# ret>0)	-3.5	-9.6	8.1	-1.2	-4.9	6.5	-3.7	-5.3
Additional Child Tax Credit (\$)	-4.8	-20.3	9.4	-1.9	-10.9	12.3	-11.3	-13.5
Other Credits (\$) ¹	-4.0	7.5	17.9	17.3	45.0	78.0	19.0	49.3
Income tax net of credits (\$)	0.6	1.3	0.6	-2.0	-1.3	-2.2	0.8	-1.3

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-5S) and IRS, "Table 2. Individual Income and Tax Data, by State and Size of Adjusted Gross Income, Tax Year 2011." <http://www.irs.gov/uac/SOI-Tax-Stats-Historic-Table-2>.

¹Foreign Tax Credit, Child Care Credit, Retirement Savings Credit, Nonrefundable Education Credits, Refundable Education Credits, and other credits.

²Number of returns with non-zero value for relevant item.

Table 4. Baseline Distribution of Income and Federal Taxes by State, 2011
Ranked by Federal Tax Rate

	Federal Tax Rate Rank	Number of Tax Units ¹ (thousands)	Avg Pre-Tax Income (\$) ²	Avg Federal Tax (\$) ³	Avg After-Tax Income (\$) ³	Federal Tax Rate ⁴
United States		159,037	74,078	11,842	62,236	16.0
District of Columbia	1	351	95,325	18,539	76,786	19.4
Connecticut	2	1,843	106,784	20,363	86,420	19.1
Massachusetts	3	3,377	96,720	17,689	79,031	18.3
New York	4	10,228	87,169	15,628	71,541	17.9
New Jersey	5	4,661	93,277	16,501	76,776	17.7
Maryland	6	2,988	88,351	15,177	73,173	17.2
North Dakota	7	343	81,483	13,807	67,675	16.9
New Hampshire	8	692	84,651	14,228	70,423	16.8
Wyoming	9	319	78,522	13,152	65,371	16.7
Virginia	10	3,987	86,597	14,454	72,143	16.7
Colorado	11	2,589	81,007	13,391	67,615	16.5
Illinois	12	6,642	78,165	12,884	65,280	16.5
California	13	19,043	78,846	12,981	65,865	16.5
Alaska	14	426	70,783	11,638	59,146	16.4
Texas	15	12,238	75,013	12,289	62,724	16.4
Washington	16	3,524	79,566	13,034	66,531	16.4
Minnesota	17	2,706	80,856	13,207	67,649	16.3
Pennsylvania	18	6,677	73,328	11,661	61,667	15.9
Rhode Island	19	541	75,098	11,912	63,186	15.9
Delaware	20	459	74,107	11,602	62,506	15.7
Florida	21	10,693	65,196	10,113	55,083	15.5
Vermont	22	334	69,950	10,817	59,133	15.5
Kansas	23	1,449	71,585	11,056	60,529	15.4
Nevada	24	1,452	66,939	10,333	56,607	15.4
South Dakota	25	425	69,672	10,704	58,968	15.4
Nebraska	26	896	72,776	11,148	61,628	15.3
Wisconsin	27	2,966	71,020	10,820	60,199	15.2
Iowa	28	1,456	72,522	11,010	61,511	15.2
Ohio	29	5,793	67,067	10,155	56,912	15.1
Oklahoma	30	1,749	67,977	10,226	57,752	15.0
Louisiana	31	2,082	66,045	9,841	56,204	14.9
Missouri	32	2,918	67,524	10,049	57,475	14.9
Maine	33	654	66,400	9,837	56,563	14.8
Hawaii	34	728	67,033	9,916	57,117	14.8
Oregon	35	1,946	67,587	9,984	57,603	14.8
Michigan	36	5,119	65,696	9,653	56,043	14.7
Georgia	37	5,162	62,531	9,091	53,440	14.5
Tennessee	38	3,137	63,701	9,244	54,457	14.5
Arizona	39	3,096	66,241	9,600	56,642	14.5
North Carolina	40	4,681	65,932	9,486	56,446	14.4
Montana	41	508	63,860	9,183	54,678	14.4
Indiana	42	3,332	63,862	9,154	54,708	14.3
West Virginia	43	876	61,381	8,685	52,696	14.1
Kentucky	44	2,025	62,448	8,826	53,622	14.1
Alabama	45	2,225	63,750	8,973	54,777	14.1
Arkansas	46	1,318	62,674	8,798	53,875	14.0
Utah	47	1,267	69,702	9,763	59,939	14.0
New Mexico	48	1,030	58,697	8,104	50,593	13.8
South Carolina	49	2,245	61,766	8,479	53,287	13.7
Idaho	50	731	62,991	8,448	54,543	13.4
Mississippi	51	1,338	56,498	7,191	49,307	12.7

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-5S).

¹Includes both filing and non-filing units but excludes those that are dependents of other tax units.

²Expanded cash income equals AGI plus employer provided fringe benefit, tax-exempt interest, non-taxable pension and retirement income, above-the-line adjustments, cash and cash-like transfer payments, employer share of payroll taxes, and imputed corporate income tax liability.

³Federal tax includes individual income, corporate income, Social Security, Medicare, and estate taxes.

⁴Average federal tax as a percentage of average expanded cash income.

Table 5. Average Federal Tax Change from Repealing AMT by State, 2011
Ranked by Average Dollar Tax Change

	Tax Change Rank	% with Tax Cut	Avg Tax Change (\$)¹	Avg Tax Change (%)¹	IRS AGI Rank²	IRS State Tax Ded Rank²	No Income Tax State
United States		3.3	-234	-2.0			
Connecticut	1	6.6	-580	-2.8	1	1	
New Jersey	2	7.3	-567	-3.4	4	2	
New York	3	5.6	-552	-3.5	5	3	
District of Columbia	4	6.5	-495	-2.7	2	5	
Massachusetts	5	5.8	-417	-2.4	3	6	
California	6	4.6	-392	-3.0	9	7	
Maryland	7	5.5	-351	-2.3	6	4	
Virginia	8	4.6	-267	-1.8	7	13	
Minnesota	9	3.7	-260	-2.0	14	9	
Illinois	10	4.0	-257	-2.0	13	10	
Rhode Island	11	3.6	-243	-2.0	18	11	
New Hampshire	12	3.7	-216	-1.5	8	17	limited³
Oregon	13	2.9	-215	-2.2	27	8	
Vermont	14	2.7	-211	-1.9	31	15	
Wisconsin	15	2.9	-197	-1.8	23	12	
Pennsylvania	16	3.2	-189	-1.6	20	14	
Ohio	17	2.8	-180	-1.8	34	19	
Colorado	18	3.1	-179	-1.3	10	23	
North Carolina	19	2.6	-176	-1.9	35	18	
Kansas	20	2.6	-175	-1.6	21	20	
Maine	21	2.4	-174	-1.8	40	16	
Nebraska	22	2.7	-172	-1.5	22	21	
Delaware	23	2.8	-170	-1.5	19	22	
Georgia	24	2.5	-152	-1.7	43	26	
Iowa	25	2.4	-147	-1.3	24	24	
Missouri	26	2.3	-139	-1.4	32	30	
Utah	27	2.3	-136	-1.4	25	25	
Hawaii	28	2.2	-136	-1.4	28	27	
North Dakota	29	2.6	-135	-1.0	15	43	
Texas	30	2.7	-133	-1.1	17	39	yes
Idaho	31	1.8	-130	-1.5	49	31	
Montana	32	1.9	-128	-1.4	46	32	
Kentucky	33	2.0	-127	-1.4	45	29	
Michigan	34	2.3	-127	-1.3	36	28	
Florida	35	1.9	-124	-1.2	37	44	yes
South Carolina	36	2.0	-122	-1.4	48	34	
Oklahoma	37	2.1	-119	-1.2	26	37	
Arkansas	38	1.8	-119	-1.4	47	38	
Washington	39	2.5	-117	-0.9	11	33	yes
Nevada	40	1.8	-109	-1.1	30	45	yes
Wyoming	41	1.9	-109	-0.8	12	50	yes
Arizona	42	2.1	-107	-1.1	33	35	
Indiana	43	1.8	-100	-1.1	39	36	
Louisiana	44	2.1	-98	-1.0	38	46	
West Virginia	45	1.5	-95	-1.1	44	41	
New Mexico	46	1.7	-87	-1.1	50	40	
South Dakota	47	1.6	-77	-0.7	29	51	yes
Alabama	48	1.7	-74	-0.8	42	42	
Mississippi	49	1.5	-71	-1.0	51	47	
Alaska	50	2.0	-71	-0.6	16	49	yes
Tennessee	51	1.6	-65	-0.7	41	48	limited³

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-55).

¹Including units with no change.

²Ranking based on SOI, "Table 2. Individual Income and Tax Data, by State and Size of Adjusted Gross Income, Tax Year 2011." <http://www.irs.gov/uac/SOI-Tax-Stats-Historic-Table-2>.

³New Hampshire and Tennessee only tax interest and dividends.

Table 6
Effect of Repealing Federal AMT on California Residents, 2011
Baseline: Current Law
Distribution of Federal Tax Change by Expanded Cash Income Level, 2011 ¹
Detail Table

Expanded Cash Income Level (thousands of 2013 dollars) ²	Percent of Tax Units ³		Percent Change in After-Tax Income ⁴	Share of Total Federal Tax Change	Average Federal Tax Change		Share of Federal Taxes		Average Federal Tax Rate ⁵	
	With Tax Cut	With Tax Increase			Dollars	Percent	Change (% Points)	Under the Proposal	Change (% Points)	Under the Proposal
Less than 20	0.0	0.0	0.0	0.0	0	0.0	0.0	0.3	0.0	1.5
20-50	0.1	0.0	0.0	0.0	0	0.0	0.1	4.7	0.0	5.9
50-75	1.0	0.0	0.0	0.3	-8	-0.1	0.2	7.2	0.0	11.1
75-100	2.4	0.0	0.1	1.0	-44	-0.4	0.2	7.8	-0.1	13.7
100-200	4.4	0.0	0.2	6.6	-177	-0.8	0.6	25.1	-0.1	16.4
200-500	46.6	0.0	1.2	39.2	-2,537	-4.6	-0.4	25.3	-0.9	19.3
500-1,000	85.0	0.0	2.6	25.8	-12,377	-7.9	-0.5	9.4	-1.9	22.6
More than 1,000	34.5	0.0	1.4	26.0	-31,062	-3.9	-0.2	19.9	-1.0	25.7
All	4.6	0.0	0.6	100.0	-392	-3.0	0.0	100.0	-0.5	16.0

Baseline Distribution of Income and Federal Taxes in California
by Expanded Cash Income Level, 2011 ¹

Expanded Cash Income Level (thousands of 2013 dollars) ²	Tax Units		Pre-Tax Income		Federal Tax Burden		After-Tax Income ⁴		Average Federal Tax Rate ⁵
	Number (thousands)	Percent of Total	Average (dollars)	Percent of Total	Average (dollars)	Percent of Total	Average (dollars)	Percent of Total	
Less than 20	4,489	23.6	11,470	3.4	173	0.3	11,297	4.0	1.5
20-50	5,909	31.0	32,076	12.6	1,905	4.6	30,170	14.2	5.9
50-75	2,617	13.7	59,244	10.3	6,571	7.0	52,674	11.0	11.1
75-100	1,637	8.6	83,411	9.1	11,489	7.6	71,922	9.4	13.8
100-200	2,770	14.5	133,014	24.5	21,941	24.6	111,073	24.5	16.5
200-500	1,155	6.1	272,191	20.9	54,982	25.7	217,208	20.0	20.2
500-1,000	155	0.8	639,093	6.6	156,975	9.9	482,117	6.0	24.6
More than 1,000	62	0.3	2,977,662	12.4	795,014	20.1	2,182,648	10.9	26.7
All	19,043	100.0	78,846	100.0	12,981	100.0	65,865	100.0	16.5

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-55).

Number of AMT Taxpayers (millions). Baseline: 0.8

Proposal: 0

* Less than 0.05

(1) Calendar year. Baseline is current law. For a description of TPC's current law baseline see

<http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm>

(2) Includes both filing and non-filing units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see

<http://www.taxpolicycenter.org/TaxModel/income.cfm>

(3) Includes tax units with a change in federal tax burden of \$10 or more in absolute value.

(4) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); and estate tax.

(5) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, and the estate tax) as a percentage of average expanded cash income.

Table 7
Effect of Repealing Federal AMT on Louisiana Residents, 2011
Baseline: Current Law
Distribution of Federal Tax Change by Expanded Cash Income Level, 2011 ¹
Detail Table

Expanded Cash Income Level (thousands of 2013 dollars) ²	Percent of Tax Units ³		Percent Change in After-Tax Income ⁴	Share of Total Federal Tax Change	Average Federal Tax Change		Share of Federal Taxes		Average Federal Tax Rate ⁵	
	With Tax Cut	With Tax Increase			Dollars	Percent	Change (% Points)	Under the Proposal	Change (% Points)	Under the Proposal
Less than 20	0.0	0.0	0.0	0.0	0	0.0	0.0	-0.3	0.0	-1.2
20-50	0.0	0.0	0.0	0.0	0	0.0	0.1	5.2	0.0	4.6
50-75	0.9	0.0	0.0	1.1	-7.0	-0.1	0.1	10.9	0.0	11.9
75-100	2.0	0.0	0.1	3.1	-36.0	-0.3	0.1	10.4	0.0	14.4
100-200	1.6	0.0	0.1	11.1	-78.0	-0.4	0.2	31.5	-0.1	16.8
200-500	28.4	0.0	0.5	45.3	-1,093.0	-2.0	-0.2	22.8	-0.4	20.5
500-1,000	64.6	0.0	1.1	26.4	-5,279.0	-3.4	-0.2	7.7	-0.8	23.6
More than 1,000	22.5	0.0	0.4	11.7	-6,215.0	-1.0	0.0	11.7	-0.3	27.6
All	2.1	0.0	0.2	100.0	-98.0	-1.0	0.0	100.0	-0.2	14.8

Baseline Distribution of Income and Federal Taxes in Louisiana
by Expanded Cash Income Level, 2011 ¹

Expanded Cash Income Level (thousands of 2013 dollars) ²	Tax Units		Pre-Tax Income		Federal Tax Burden		After-Tax Income ⁴		Average Federal Tax Rate ⁵
	Number (thousands)	Percent of Total	Average (dollars)	Percent of Total	Average (dollars)	Percent of Total	Average (dollars)	Percent of Total	
Less than 20	468	22.5	11,711	4.0	-145	-0.3	11,856	4.7	-1.2
20-50	712	34.2	32,355	16.8	1,481	5.1	30,875	18.8	4.6
50-75	316	15.2	58,921	13.5	6,987	10.8	51,934	14.0	11.9
75-100	177	8.5	83,341	10.7	11,994	10.3	71,347	10.8	14.4
100-200	291	14.0	130,865	27.7	22,034	31.3	108,831	27.1	16.8
200-500	85	4.1	266,180	16.4	55,572	23.0	210,608	15.3	20.9
500-1,000	10	0.5	644,295	4.8	157,512	7.9	486,783	4.3	24.4
More than 1,000	4	0.2	2,227,498	6.2	620,341	11.6	1,607,157	5.3	27.8
All	2,082	100.0	66,045	100.0	9,841	100.0	56,204	100.0	14.9

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-5S).

Number of AMT Taxpayers (millions). Baseline: 0.8

Proposal: 0

* Less than 0.05

(1) Calendar year. Baseline is current law. For a description of TPC's current law baseline see

<http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm>

(2) Includes both filing and non-filing units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see

<http://www.taxpolicycenter.org/TaxModel/income.cfm>

(3) Includes tax units with a change in federal tax burden of \$10 or more in absolute value.

(4) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); and estate tax.

(5) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, and the estate tax) as a percentage of average expanded cash income.

Table 8. Average Tax Change from Increasing Top Marginal Rate to 39.6 Percent by State, 2011¹
Ranked by Average Dollar Tax Change

	Tax Change Rank	Percent with Tax Increase	Avg Tax Change (\$) ²	Avg Tax Change (%) ²	IRS Share of Returns with AGI above 500K Rank ³
United States		0.4	160	1.3	
Connecticut	1	1.0	482	2.4	1
New York	2	0.7	329	2.1	5
District of Columbia	3	0.9	308	1.7	2
Massachusetts	4	0.7	284	1.6	4
New Jersey	5	0.7	248	1.5	3
Texas	6	0.6	216	1.8	8
California	7	0.5	189	1.5	6
North Dakota	8	0.6	183	1.3	10
Illinois	9	0.5	174	1.3	7
Wyoming	10	0.4	174	1.3	16
Florida	11	0.4	173	1.7	14
Maryland	12	0.5	154	1.0	9
Washington	13	0.5	150	1.2	15
South Dakota	14	0.5	147	1.4	20
New Hampshire	15	0.6	144	1.0	19
Colorado	16	0.5	143	1.1	12
Nevada	17	0.4	142	1.4	22
Minnesota	18	0.4	138	1.0	13
Virginia	19	0.5	138	1.0	11
Oklahoma	20	0.4	135	1.3	18
Pennsylvania	21	0.4	123	1.1	17
Tennessee	22	0.4	112	1.2	30
Alaska	23	0.5	110	0.9	23
Rhode Island	24	0.3	108	0.9	24
Kansas	25	0.3	106	1.0	21
Alabama	26	0.3	105	1.2	42
Wisconsin	27	0.3	104	1.0	32
Louisiana	28	0.4	103	1.1	29
Nebraska	29	0.3	103	0.9	27
Missouri	30	0.3	100	1.0	31
Georgia	31	0.3	98	1.1	26
Michigan	32	0.3	95	1.0	37
Arizona	33	0.4	93	1.0	33
Delaware	34	0.3	86	0.7	25
Utah	35	0.3	86	0.9	28
Ohio	36	0.3	86	0.8	35
Iowa	37	0.3	80	0.7	38
North Carolina	38	0.3	80	0.8	34
Montana	39	0.2	79	0.9	39
Indiana	40	0.3	74	0.8	41
Idaho	41	0.2	71	0.8	45
Vermont	42	0.2	66	0.6	40
Oregon	43	0.2	64	0.6	36
Kentucky	44	0.2	61	0.7	47
Arkansas	45	0.2	60	0.7	44
South Carolina	46	0.2	60	0.7	43
Maine	47	0.2	55	0.6	48
Hawaii	48	0.2	53	0.5	46
New Mexico	49	0.2	53	0.7	50
Mississippi	50	0.2	51	0.7	51
West Virginia	51	0.2	49	0.6	49

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-5S).

¹The top rate was 35 percent in 2011. The American Taxpayer Relief Act raised the top rate to 39.6 percent in 2013.

²Including units with no change.

³Ranking based on SOI, "Table 2. Individual Income and Tax Data, by State and Size of Adjusted Gross Income, Tax Year 2011." <http://www.irs.gov/uac/SOI-Tax-Stats-Historic-Table-2>.

Table 9. Average Tax Change from Child Tax Credit Reverting to 2000 Law by State, 2011¹
Ranked by Average Dollar Tax Change

	Tax Change Rank	Percent with Tax Increase	Avg Tax Change (\$)	Avg Tax Change (%)	IRS Number of Dep Exemption Rank ²
United States		22.4	239	2.0	
Mississippi	1	31.9	368	5.1	2
Utah	2	29.1	337	3.4	1
Louisiana	3	29.1	323	3.3	10
Alabama	4	28.0	313	3.5	8
Texas	5	27.3	308	2.5	3
Arkansas	6	26.7	296	3.4	12
Georgia	7	25.5	287	3.2	6
Idaho	8	25.8	287	3.4	7
Arizona	9	25.2	285	3.0	5
South Carolina	10	25.7	283	3.3	13
Oklahoma	11	25.0	274	2.7	16
North Carolina	12	24.8	273	2.9	9
Tennessee	13	24.8	271	2.9	18
New Mexico	14	24.1	267	3.3	15
California	15	23.5	261	2.0	4
Kentucky	16	24.4	258	2.9	19
Nevada	17	23.2	253	2.5	11
Indiana	18	23.0	244	2.7	17
Nebraska	19	23.3	241	2.2	23
Illinois	20	22.2	237	1.8	14
Missouri	21	22.6	237	2.4	28
Kansas	22	22.1	232	2.1	20
Ohio	23	21.9	225	2.2	33
Delaware	24	21.8	224	1.9	27
Iowa	25	22.2	223	2.0	31
Colorado	26	21.6	221	1.7	21
West Virginia	27	21.4	220	2.5	37
South Dakota	28	21.4	218	2.0	39
Florida	29	20.4	217	2.2	43
Virginia	30	21.4	217	1.5	26
Michigan	31	20.8	215	2.2	29
Hawaii	32	20.9	215	2.2	36
Maryland	33	20.9	209	1.4	24
Washington	34	20.5	208	1.6	25
Oregon	35	20.3	207	2.1	30
New York	36	19.9	206	1.3	34
Wisconsin	37	20.6	206	1.9	35
Montana	38	20.2	205	2.2	47
Minnesota	39	20.8	204	1.5	32
North Dakota	40	20.0	193	1.4	46
New Jersey	41	18.8	192	1.2	22
Maine	42	19.7	191	1.9	49
Wyoming	43	19.4	191	1.5	42
Rhode Island	44	19.3	190	1.6	45
Pennsylvania	45	18.9	188	1.6	41
Vermont	46	17.8	170	1.6	50
Connecticut	47	17.4	169	0.8	38
Alaska	48	17.5	168	1.4	40
District of Columbia	49	16.7	168	0.9	51
New Hampshire	50	18.5	167	1.2	48
Massachusetts	51	17.2	163	0.9	44

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0613-5S).

¹Simulation reduces CTC from \$1,000 to \$500 and eliminates refundability for most families. Under 2000 law only families with three or more children can receive refundable CTC with the amount limited to their payroll taxes minus ETIC.

²Ranking based on SOI, "Table 2. Individual Income and Tax Data, by State and Size of Adjusted Gross Income, Tax Year 2011." <http://www.irs.gov/uac/SOI-Tax-Stats-Historic-Table-2>.

Appendix Table A1. Percent Difference between Adjusted State Targets and State SOI Tabulations

Targeted Item	Type ¹	AGI Group									
		All	Under \$1 ²	\$1 under \$25,000	\$25,000 under \$50,000	\$50,000 under \$75,000	\$75,000 under \$100,000	\$100,000 under \$200,000	\$200,000 under \$500,000	\$500,000 under \$1,000,000	\$1,000,000 or more
Number of returns	Number	-0.7	-19.6	-0.6	0.0	-0.6	0.3	-0.2	0.0	-0.8	-1.1
Number of joint returns	Number	-0.2	-12.5	0.8	-0.4	-1.1	0.7	0.3	0.1	-0.5	-0.4
Number of exemptions	Number	-0.6	-16.9	-0.7	-0.2	-0.8	0.6	0.3	-0.5	-1.7	-0.6
Adjusted gross income (AGI)	Amount	-0.1	-3.3	-0.5	-0.1	-0.6	0.3	-0.1	0.1	-0.7	0.1
Salaries and wages in AGI	Number	-0.4	1.0	-0.7	0.3	-1.1	0.1	-0.6	0.4	-0.4	-0.1
	Amount	-0.3	0.5	-0.8	0.0	-1.2	-0.1	-0.2	0.2	0.0	0.0
Taxable interest	Number	-0.2	-1.2	0.0	-0.4	-1.4	0.9	-0.1	0.6	-0.8	-1.0
	Amount	-2.4	-0.2	-16.0	-12.8	-4.7	1.0	-0.3	5.8	6.9	-1.0
Ordinary dividends	Number	0.2	-5.1	0.7	-1.7	2.4	-0.3	0.4	0.8	-1.1	-0.5
	Amount	1.4	0.7	5.1	-4.9	4.7	0.6	2.6	1.7	0.2	1.2
Qualified dividends	Number	0.4	-5.1	1.3	-1.1	2.1	-0.3	0.6	0.6	-1.1	-0.3
	Amount	1.8	0.4	6.6	-5.7	4.9	3.2	2.6	1.9	2.4	1.4
State and local income tax refunds	Number	-0.8	-9.7	-2.4	-2.5	-0.4	-0.8	0.5	-1.6	0.1	-2.0
	Amount	-0.5	-1.1	-3.6	-1.1	-1.6	2.7	1.8	-3.9	-2.6	-2.8
Business or profession net income (less loss)	Number	-1.2	-2.0	-1.2	0.5	-0.9	-1.9	-1.7	-4.2	-9.3	-6.8
	Amount	-1.8	-21.0	-0.8	-2.0	-1.1	2.8	-4.8	-2.3	-5.8	-7.3
Net capital gain (less loss) in AGI	Number	-8.7	-10.6	-10.9	-11.1	-8.4	-8.7	-7.8	-4.7	-4.8	-1.8
	Amount	1.6	-0.6	22.4	1.8	-12.5	-0.3	-1.7	-0.4	-2.9	3.2
Taxable individual retirement arrangements distributions	Number	0.3	-4.2	0.1	-1.3	4.0	1.2	-1.9	2.1	0.1	1.6
	Amount	1.1	-3.4	-1.4	-1.5	5.4	4.2	-0.4	-1.6	9.8	0.7
Taxable pensions and annuities in AGI	Number	1.2	4.5	1.6	1.7	0.5	1.1	0.7	1.0	2.8	1.2
	Amount	1.7	8.1	2.6	2.3	1.2	0.8	2.4	-1.1	-0.7	3.1
Number of farm returns	Number	-3.6	-9.2	0.0	-4.5	-10.3	1.9	-2.2	-1.1	-4.8	-6.1
Unemployment compensation	Number	-0.8	-18.2	-0.5	-1.5	-2.5	0.5	2.3	2.3	-2.5	6.3
	Amount	0.1	-17.9	-0.8	0.1	0.5	-1.6	5.7	7.1	-7.0	6.9
Taxable social security benefits in AGI	Number	0.8	-15.8	1.2	0.4	2.1	1.8	-1.5	0.4	2.6	-1.9
	Amount	0.3	32.4	-0.4	-0.9	1.7	3.3	-2.3	-0.3	2.9	-7.2
Partnership/S-corp net income (less loss)	Number	-2.9	-15.2	-8.3	-7.1	-3.8	2.5	0.9	0.9	-2.2	-0.4
	Amount	-0.1	-1.2	41.6	-19.0	-12.5	2.3	3.1	1.8	-2.0	-0.4
Self-employed health insurance deduction	Number	-1.4	-9.7	-1.7	-2.3	-3.8	5.3	2.1	-4.4	-4.1	-0.7
	Amount	-2.0	-4.1	-0.3	-5.0	-11.6	5.7	2.6	-2.9	-3.8	-2.1
Individual retirement arrangement payments	Number	1.3	10.0	-4.2	5.4	-0.8	-2.5	3.0	8.3	-1.9	-4.4
	Amount	-0.8	3.1	-7.8	7.5	-6.7	-4.9	0.3	5.4	-0.8	-2.8
Student loan interest deduction	Number	-0.4	-1.9	-1.2	-0.3	-1.3	3.1	-0.9	N/A	N/A	N/A
	Amount	-1.4	9.2	-5.7	-1.6	-0.8	6.2	-5.1	N/A	N/A	N/A
Total itemized deductions ³	Number	-3.3	N/A	-26.6	-2.8	-0.9	-0.1	-0.3	-0.2	-1.0	-1.1
	Amount	-4.0	N/A	-25.6	-3.7	-3.3	-2.4	-3.9	-2.6	0.1	-0.4
State and local income taxes ³	Number	-1.8	N/A	-19.7	-2.7	-0.9	-0.2	-0.5	-0.3	-1.1	-1.8
	Amount	-0.7	N/A	-32.4	-5.2	-0.1	1.0	-1.0	0.1	1.0	-0.7
State and local general sales taxes ³	Number	-6.5	N/A	-28.5	-3.3	-0.6	0.7	1.1	0.2	0.2	3.9
	Amount	-9.9	N/A	-49.4	-11.6	-4.6	0.6	-3.3	-3.1	-4.8	9.0
Real estate taxes ³	Number	-2.0	N/A	-22.5	-1.4	-0.6	-0.2	0.2	0.0	-0.6	-0.6
	Amount	-1.1	N/A	-26.0	0.0	1.6	-0.8	0.2	0.6	1.2	0.1
Home mortgage interest paid ³	Number	-0.8	N/A	-21.6	-0.6	-0.2	1.3	1.3	1.4	1.5	1.7
	Amount	1.8	N/A	-21.2	3.0	2.6	4.5	2.2	3.5	2.5	3.2
Charitable contributions ³	Number	-2.1	N/A	-19.1	-3.3	-0.3	0.5	-0.4	-0.2	-0.9	-1.1
	Amount	-0.6	N/A	-14.0	-3.9	-0.3	2.3	-1.0	1.0	-1.4	0.2
Self-employment tax	Number	-0.7	-31.4	-0.5	2.1	0.0	-2.4	1.0	-0.4	-1.4	1.8
	Amount	0.7	-25.8	-0.6	1.2	1.8	1.9	1.6	2.7	0.5	0.1
Earned income credit	Number	-0.2	0.1	0.1	-1.0	N/A	N/A	N/A	N/A	N/A	N/A
	Amount	-0.1	-4.8	0.3	-1.6	N/A	N/A	N/A	N/A	N/A	N/A

Notes: N/A indicates that variable is irrelevant due to the state totals equaling \$0 for the given AGI. Adjusted target for each state-AGI group equals state SOI tabulation * (National Sum in Tax Model / Sum of State SOI Tabulations).

¹Number of returns with item or total dollars for item.

²The tax model matches federal SOI tables which have 20% fewer returns with zero and negative AGI than state SOI tables.

³The tax model has fewer returns with itemized deductions in the \$1 to \$25,000 AGI group than federal and state SOI tables because it does not allow tax filers to itemize if the standard deduction results in lower tax liability.