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An Analysis of Options for Reforming Georgia's Income Tax: Simplicity, Equity, and Adequacy

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I.   Introduction

In its final report in January, 2011, Georgia's *Special Council on Tax Reform and Fairness for Georgians* recommended a package of tax reforms designed to modernize the state's revenue structure toward several goals. Among these goals were: greater stability of revenues; an equitable, simple, and predictable tax structure; and a pro-growth, job-friendly environment. The Council's recommendations included a shift to greater reliance on consumption-based taxes, a flatter and simpler personal income tax, and base broadening measures for both sales and income taxes to offset lower income tax rates and to maintain revenue neutrality for the entire tax system.

Tax reform involves tradeoffs. The intention of the Tax Reform Council was to trade off an increase in consumption taxes for a reduction in income taxes, with the objective of holding revenue constant. Considering reform of just the personal income tax, there is a tradeoff between reducing the tax rate, reducing (or eliminating) the allowable value of exemptions, deductions, and credits, and the change in tax revenue. Lowering the tax rate but making no other changes will reduce revenue; lowering the tax rate and reducing the value of exemptions and deductions could either increase or decrease revenue.

There is also a tradeoff in how different taxpayers will be affected. A revenue neutral replacement of the current Georgia personal income tax with a simple, single-rate personal income tax that eliminates the myriad of deductions, exemptions, and credits that complicate the current system will increase the income tax burden on those taxpayers with relatively large values of those tax breaks while reducing tax burdens on other taxpayers. To reduce the tax magnitude of the tax increases that result from the elimination of those breaks, one can set the single rate very low, set higher personal and dependent exemptions, or some combination of the two. However, employing such measures to keep the income tax reform from becoming a tax hike for many middle income taxpayers necessarily mean a larger loss of income tax revenues that must be made up somewhere else to meet the overall reform goal of revenue neutrality. Resistance to offsetting revenue enhancements can make simplicity and fairness into conflicting goals—the need to minimize the

increase in tax burden for some taxpayers forcing policy-makers to choose between the two objectives because policy-makers can no longer satisfy both.

The purpose of this report is to analyze these trade-offs for several income tax reform options. We first consider two recent Georgia income tax reform proposals, namely the proposal from the Tax Reform Council and the proposal contained in the final version of HB 388 that was considered in the 2011 session of the General Assembly. While some analysis was previously conducted of these two options, the analysis relied on 2005 data provided by the Georgia Department of Revenue (DOR). In this report we use 2009 DOR data and provide more information regarding the nature of the change in the distribution of tax burdens. In addition, we further illustrate the trade-offs between simplicity and equity under two alternative income tax structures. We also generate estimates of the revenue effects for each option.

Section II briefly summarizes the economic considerations behind the goal of a flatter, simpler income tax system. Section III describes the procedures and data used to generate the estimates of the distribution of income tax burdens and of changes in tax revenue. Section IV provides an overview of the present Georgia personal income tax structure along with some statistics on taxpayers' deductions, exemptions, and credits at different income levels. Section V analyzes the revenue and distributive effects of the Council's proposal for income tax reform, of the proposal included in the final version of the legislature's tax reform bill (HB 388), and two other illustrative income tax reform alternatives. Section VI concludes.

The options considered in this report are but a handful of the myriad of possible options for reforming the personal income tax.[1] Our purpose is not to imply that these options are necessarily "better" than those not included, but rather to illustrate the policy tradeoffs using a few examples.

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[1] There are many other changes that could be made to the personal income tax. For a discussion of these options, see Wallace and Stephenson (2010).

II.   Economic Considerations in Tax Reform

The goals of tax reform, in general and recently in Georgia, center around issues of efficiency and equity, subject to the constraint that revenues be adequate to fund the services voters want from their government. Often the adequacy constraint manifests as a goal that the tax reform should be "revenue neutral" so that increases in some taxes are offset by cuts in other taxes, and the combined revenue is unchanged. A related goal is that taxes be structured to provide a revenue stream that is relatively stable over the business cycle. Revenue neutrality and a more stable revenue stream were goals of Georgia's Tax Reform Council, which proposed a shift to greater reliance on consumption-based taxes and less reliance on more volatile income taxes. The council proposed, among other things, to broaden the sales tax base significantly by taxing currently untaxed services and food, to simplify both corporate and personal income taxes by eliminating most credits and deductions, to replace the current personal income tax rate structure with a single rate ultimately of 4 percent, and reduce the corporate income tax rate to 4 percent.

In addition to providing a more stable revenue stream than the current structure, these base broadening and simplification measures were intended to address the efficiency of the tax system. Inefficiency arises when the tax system distorts economic behavior–that is, household consumption and saving choices, business investment and hiring decisions, etc.–by creating incentives or disincentives that favor one choice over alternatives. A system of lower rates on a broader base of income or consumption reduces such distortions and thus improves economic efficiency.[2]

Economic efficiency is also improved when the costs of tax compliance and collections are low, and when taxpayers have confidence that they know the tax implications of their choices and that the rules won't be arbitrarily changed after they have made their choices. Complexity of, and frequent changes to income taxes

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[2] There are, of course, exceptions to this principle such as when production or consumption of a good or service has negative external effects (e.g. tobacco taxes and public health expenditures) or when a tax is a means of charging for the consumption of some public good (e.g. motor fuel taxes and road costs), but such considerations are a separate matter from the core income and consumption tax structures addressed herein.

complicate personal and business investment decisions, in particular, and can hinder growth as investors face uncertainty over future taxation. As for costs, a recent study published by economists at the Laffer Center found that for every $1 American taxpayers pay in income taxes, the costs of compliance and collection amount to an additional 30 cents, with about 26 cents of that from the IRS estimated time demands on taxpayers for compliance (Laffer, Winegarden and Childs, 2011). Of course, state income tax compliance is generally less burdensome than federal, but simplicity is nevertheless a worthy goal. The same applies to others taxes as well. For example, numerous (and often changing) special exemptions from sales taxes, including temporary ones such as for back-to-school sales tax holidays, increase the compliance burden on businesses.

Equity is a more contentious issue in evaluating tax structures and proposed reforms, and choices in this regard are subjective ones, but one can nevertheless analyze equity effects of tax reforms objectively. Equity issues generally center on *vertical* and *horizontal* equity effects of a given reform, the former referring to the distributive effects across the income spectrum and the latter to the treatment of economically similar taxpayers. Horizontal equity requires, as the Georgia tax reform council put it, that "similarly situated taxpayers should pay approximately the same amount of tax" while vertical equity requires that tax structures reflect taxpayers' "ability to pay or benefits received (Tax Reform Council, 2011)." In the context of income taxes, one would want to evaluate a reform in terms of its effects on taxpayers with the same filing status and similar income levels, numbers of dependents, etc., and how the effects differ for otherwise similar taxpayers at different income levels.

Finally, a note of caution in analyzing income tax changes is in order. That is, the effects of income tax reform alternatives on tax burdens of any income group (or overall) should be considered in the context of the broader reform package, including in particular any changes to consumption taxes. However, in this report we consider the effects on equity and revenue only for income tax reforms.

III. Estimation Procedures and Income Tax Data

This report analyzes the equity effects of reform alternatives using a microsimulation model of Georgia taxpayers, applying hypothetical changes to tax rates, deductions, credits, or other terms to anonymized tax return data from the 2009 tax year, and comparing the resulting *pro forma* tax liabilities across taxpayer groups. The microsimulation results are also used as the basis for estimating the effects on income tax revenues from income tax changes.

The microsimulation model is written in a computer program known as SAS. We use SAS rather than, say, Excel because SAS allows us to process much larger numbers of observations (tax returns). Writing the SAS program is similar to creating a tax calculator like TurboTax, but with the ability to process very large numbers of tax returns at one time. However, for each proposed tax change it is necessary to modify that SAS computer code, in the same way that TurboTax has to change its program each year to reflect tax changes.

For the analysis presented in this report we begin with the actual 4.1 million Georgia personal income tax returns for tax year 2009. These data were obtained from the Georgia Department of Revenue, and are the most recent complete year tax returns available.

The Department verifies some of the lines on the tax return, but not all. We discovered that many of the tax returns contain errors in various data fields and spent several weeks cleaning these data of obvious errors. Appendix A describes the procedures that were used to identify probable errors and how they were corrected. The procedures were discussed with the Department of Revenue.

Despite the cleaning of the data, we concluded that the returns for non-Georgia residents and part-time Georgia residents could not be used in the analysis. Thus, we performed the tax distributional analysis using just the returns for full-year Georgia residents. Returns from full-year Georgia residents comprise 92.3 percent of all returns and 94.6 percent of total tax liability.

In calculating the estimated revenue effect of proposed tax changes, we assumed that the percentage change in tax liability for non-full-year residents is the same as calculated for full-year residents. Using the 2009 income tax returns we can

calculate the effect of a tax reform on tax liability for tax year 2009. To estimate the effect of a tax reform on future year revenue it is necessary to project the change in tax liability to future tax years and then convert the tax-year estimate to fiscal years. The income tax return data contain the tax liability for TY 2009, but the state receives the tax payments of this liability over several fiscal years. Thus, we distinguish between tax liability and tax revenue.

To estimate the effect on revenue in future fiscal years, we start with the effect of the tax reform on TY 2009 tax liability. We used two alternative procedures to do this, and for each we made three alternative assumptions for the timing of the receipts by the state of the tax liability. Thus, we have six revenue estimates and report in Table 1 (section VI, p. 30) the average of these six estimated revenue effects. We consider the average the midpoint of the likely revenue effect. We also report the minimum and maximum of the estimated changes. These should be considered to be extreme values—that is, it is very unlikely that revenue changes will be that large or small. Our subjective evaluation of the revenue estimates is that we are 90 percent confident that the actual revenue change would be within 5 percent, above or below, of the average reported in Table 1 below.

We made adjustments for some possible behavioral changes due to the change in the income tax. If income tax liabilities decrease, some of the resulting increase in disposable income will be spent, thereby generating tax revenue from sales and excise taxes. Tax rate changes could also affect hours worked, and thus taxable income. We account for these effects in our estimates of the revenue effects of the proposed tax changes. Appendix D describes in detail how the revenue estimates were calculated.

There are many tax return items that are not included in the income tax data provided by DOR, in large part because Georgia piggybacks on the federal income tax and many federal details are not reported on the Georgia forms. For example, we have total itemized deductions, but not the individual components. HB 388 proposed allowing a limited deduction for unreimbursed business expenses, but this is not reported in the income tax data and thus we cannot include that provision in the distribution of tax burdens. For the revenue estimate prepared for the fiscal note for

HB 388, it was necessary to generate separate revenue estimates of such provisions. For this report, the revenue estimates do not reflect the proposed changes that we cannot identify on the tax returns.

In 2009, Georgia still had a refundable low income tax credit, but effective January 1, 2010, it is no longer refundable. Since we are attempting to estimate the effect of changes beginning in 2012, we reduced the low income tax credit amount in the TY 2009 returns to reflect the elimination of the refundability of the credit.

IV. Georgia's Personal Income Tax Structure, Return Characteristics, and the Distribution of Tax Liability Under Current Law

The Georgia personal income tax piggybacks on the federal system so that calculation of one's Georgia tax liability begins with the federal adjusted gross income (FAGI).[3] The first step in determining Georgia taxable income is adjustments to FAGI—items that must be added back or subtracted from FAGI. For example, income from non-Georgia state and municipal bonds must be added back to FAGI while interest on U.S. government obligations is subtracted. Other adjustments relate to retirement income exclusions, Georgia 529 plan contributions, teachers' unreimbursed classroom expenses, and several other state/federal differences. As of 2010, there are nine specified types of additions and 22 subtractions in calculating Georgia AGI.

Taxpayers may deduct either standard or itemized deductions, consistent with the choice made at the federal level, and there are additional deductions for non-itemizers if the taxpayer or his/her spouse is over age 65 or blind. Itemizing taxpayers may deduct the amount of itemized deductions allowed on their federal return, subject to reduction for federal deductions of non-Georgia taxes and investment interest expense related to income that is exempt from Georgia taxes. Taxpayers also deduct personal and dependent exemptions, the value of which depends on filing status and the number of dependents, in arriving at taxable income. The tax due is calculated based on a graduated schedule of rates from 1 percent to 6 percent. Taxpayers reach the top marginal rate on taxable incomes over $7,000 for single filers, $10,000 for joint and head of household filers, and $5,000 for married filing separate. Finally, the taxpayer may be eligible for one or more of 14 different personal tax credits, including the low income credit, as well as 31 different business tax credits as of 2010.

For the analysis that follows, we present distributional data on income and tax burdens, as well as various other return characteristics, by income group. Full-year

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[3] See Edwards and Wallace (1997) and Wallace and Stephenson (2010) for a more detailed discussion of the structure of the Georgia personal income tax.

resident filers are ranked by FAGI and grouped into vigintiles—that is, 20 approximately equal groups, each representing five percent of filers, with the top vigintile further divided into two groups—one comprised of the top 1 percent (the 99th percentile) and one comprised of the next 4 percent of filers. For convenience, we refer to the income groups by number from 1 to 21, low to high income. Group 1, then, represents filers in the bottom 5 percent of filers and group 21 represents the top 1 percent of filers. We use FAGI to rank filers because it is the broadest measure of income available in the data.

Figure 1 shows the median FAGI for each income group as well as the threshold or minimum FAGI level for each group other than the first, for which the minimum is negative. Vertical reference lines indicate the 25th, 50th, and 75th percentiles. As Figure 1 shows, income increases slowly as one moves across the horizontal axis until you get to about the top quartile, at which point FAGI increases at an accelerating rate. Note that the FAGI threshold for the 50th percentile or group 11 (the median FAGI for all filers) is $29,414.

FIGURE 1. DISTRIBUTION OF FAGI
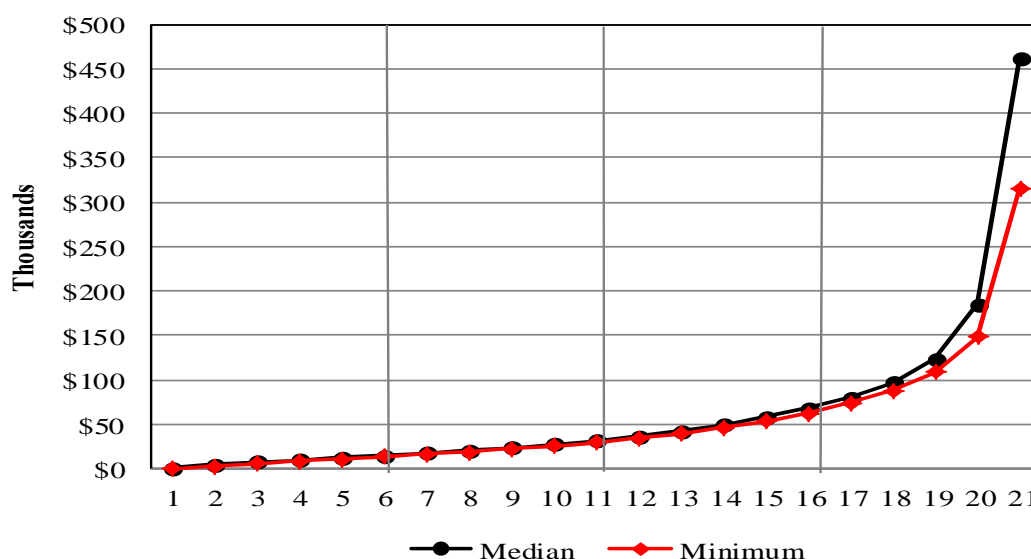
Sources: Georgia DOR and authors' calculations.

There are, of course, significant differences in the characteristics of filers within each group and across the distribution of FAGI. Figure 2 shows the composition of each income group in terms of filing status for full-year taxpayers. Appendix tables B1 through B4 present these and other key characteristics of returns for full-year resident taxpayers at various levels of FAGI. In addition to numbers of filers by filing status at each level of FAGI, the tables present the number of dependents and filers with dependents, Georgia taxable income and taxes owed, and information on returns taking itemized deductions, retirement income exclusions, the low income credit, or other credits.

FIGURE 2. FILING STATUS BY FAGI
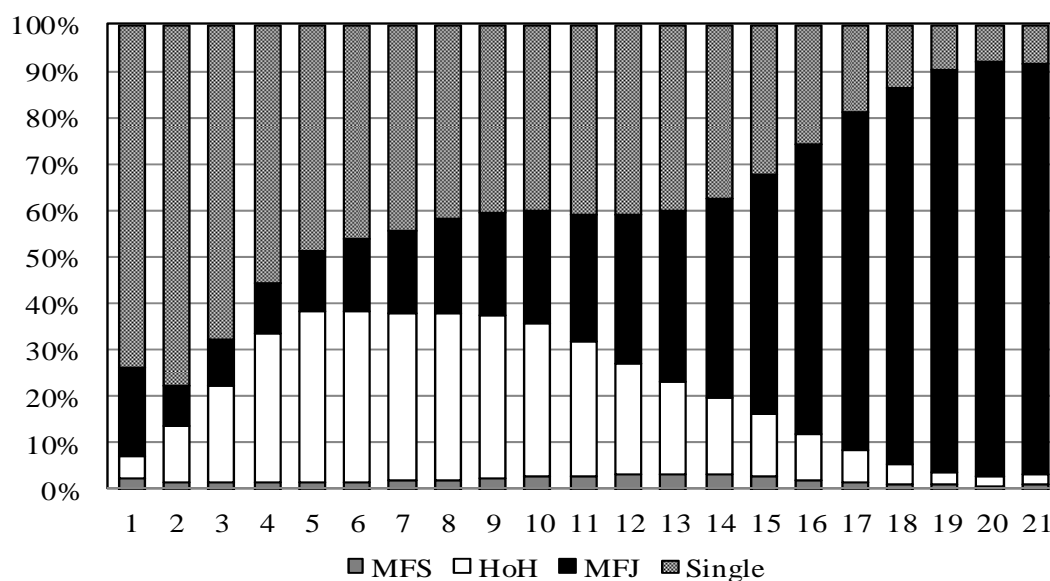
Note: MFS: married filing separate; HoH: head of household; MFJ: married filing jointly;
Sources: Georgia DOR and authors' calculations.

Finally, Figure 3 presents the median and interquartile range of average effective tax rates (AETRs) for each income group for the current tax structure. Threshold FAGI levels for the income groups are also shown below the graph for reference. The AETR for each filer is the filer's net of credits tax liability divided by FAGI. Within any income group, the AETR will differ across filers due to differences in filing status, adjustments to FAGI, and the values of deductions, exemptions, and credits. The interquartile range—that is, from the bottom to the top

of each bar, representing the range from the 25th to the 75th percentile of filers' AETRs within the income group—reflects variation in AETRs among taxpayers with similar income levels.

FIGURE 3. CURRENT CODE AETR*

Min FAGI ($,000)	<0	$2.44	$5.75	$8.60	$11.0	$13.3	$15.9	$18.8	$22.0	$25.5	$29.4	$34.0	$39.3	$45.7	$53.3	$62.4	$73.5	$87.8	$108	$148	$316
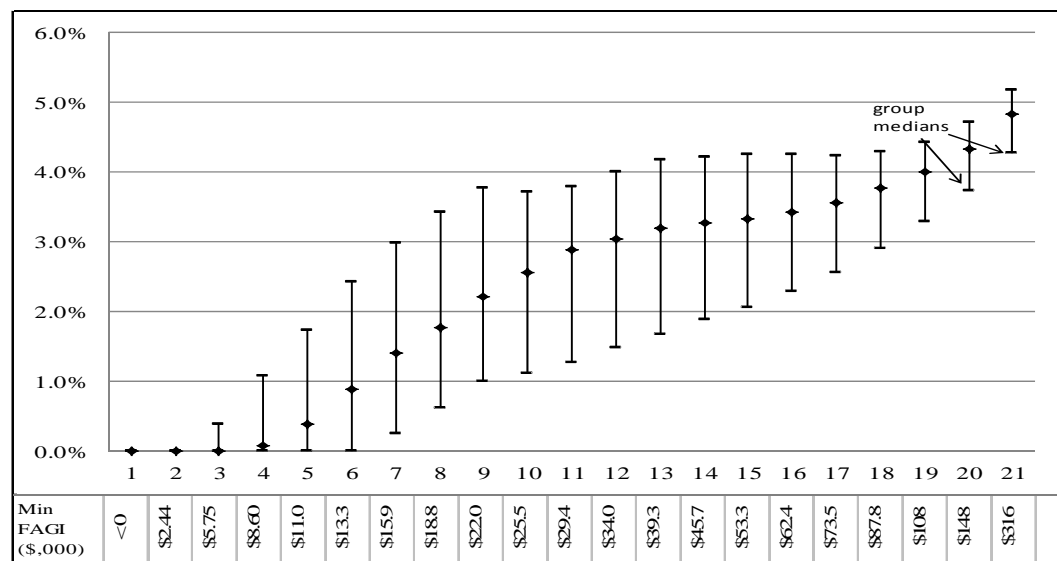
* Average Effective Tax Rate = Tax net of credits / Federal AGI

Note: Bars represent the interquartile range and diamonds represent the median of AETRs for each income group.

Sources: Georgia DOR and authors' calculations.

For example, for income group 10 (tax filers in the 5 percent of filers just below the median FAGI), the median tax liability is 2.56 percent, but the effective tax rate for the middle 50 percent of filers in the group ranges from 1.12 percent at the 25th percentile to 3.71 percent at the 75th percentile. An additional 25 percent of the filers in group 10 have an effective tax rate of less than 1.12 percent and 25 percent have an effective tax rate greater than 3.71 percent. Appendix Table C1 provides values of the effective tax rates and tax liabilities for all income groups, also including the 5th and 95th percentiles of tax liability and AETR within each income class. This reflects the variation across 90 percent of filers within each group, omitting only the more extreme outliers—filers with unique circumstances that produce unusual results. In fact, in all income groups and for any filing status, there are filers with a zero AETR.

As Figure 3 shows, the median AETR (represented by the diamonds) increases continuously as income (FAGI) increases, although not at a constant rate, suggesting that in general, the Georgia personal income tax system is progressive. However, Figure 3 also shows that within an income group there is substantial variation in the effective tax rate, suggesting that the current income tax system may have significant horizontal inequities. The variation is particularly large in the middle range of filers by FAGI.

V.   Analysis of Income Tax Reform Options

In this section we turn to an analysis of each of four income tax reform proposals, including proposals similar to the Tax Reform Council's proposal for income tax reform and the income tax changes included in the final version of the legislature's tax reform bill (HB 388), as well as two other income tax reform alternatives. For each of the reform options, we apply the provisions of the reform in a microsimulation, using the actual TY 2009 tax return data for full-time Georgia residents, to recalculate each taxpayer's tax liability as if the reform had been in effect for TY 2009. We present the effects on the distribution of tax liability across the income groups in figures below and also in more detail in tables in Appendix C. These changes in the distribution of income tax burden are static results in that we have not accounted for changes in behavior that may result from the changes in tax provisions.

We also estimate the overall revenue effect from each of the reform options on a pro forma basis for TY 2009 and project those effects forward to fiscal years 2012 through 2014 as described in Appendix D. Table 1, at the end of this section, presents the estimated revenue effects for all four of the proposals considered in terms of the change from the current law base for TY 2009 ($6,685.9 million total, $6,326.2 million for full-year residents) and projected fiscal years 2012-2014.

Effects on taxpayers at different income levels are presented in graphical form in terms of both the dollar change in tax liabilities and the AETRs of filers by income group. The AETR graph for each reform proposal is directly comparable to AETRs under current law as depicted in Figure 3. As in Figure 3, the tax change and AETR graphs in this section show the median value (denoted by a diamond) and interquartile range for each income group. The underlying data used in constructing these figures are also provided in tables in Appendix C. In addition, Appendix C tables provide the percentage of filers in each group who realize a tax increase, which we define as an increase in tax liability of the greater of $10 or 5 percent over the filer's actual 2009 tax liability.

## A.	Tax Reform Council Proposal

The Council' personal income tax recommendations were extensive. Several of the adjustments to Federal AGI were recommended for elimination, including the exclusions of retirement income (which was to be phased out), college savings (529) plan contributions, and high deductible health insurance premiums. Since amounts of most of the adjustments that were proposed to be eliminated, other than the retirement income exclusion, are not identifiable in the data or the data are not sufficiently reliable, we do not include those changes in the analysis.[4] All of the deductions (standard and itemized) and non-dependent personal exemptions were also proposed for elimination, and the dependent exemption was reduced in value from $3,000 to $2,000. The Council recommended that the current tax rate structure be eliminated and that a flat rate of 4 percent be adopted, although it would be phased in over three years.

The Council also proposed a new tax credit, referred to here as the "personal" credit, that was designed so that any filer who had used a standard deduction would be held harmless. The credit was to be calculated as the amount that a tax filer would owe under the new flat tax less what the tax filer would pay if the filer had used the standard deduction under current law (but not less than zero). The Council also proposed adding $50 to the credit so that, in essence, filers would pay the lesser of the tax owed under the new flat tax and that owed under the current system (taking the standard deduction) less $50. The credit was to be nonrefundable.

In addition, the Council proposed to eliminate all of the tax credits, with three exceptions: 1) the credit for income taxes paid in other states, 2) the federally-funded credit for energy and water efficient products, and 3) the angel investor credit, which contains a sunset in law. Tax credits other than the low income credit totaled $284 million on TY 2009 full-year resident returns, $295 million for all filers. The angel investor tax credit was signed into law in June 2010, so does not affect TY 2009 returns, but is subject to an annual cap of $10 million in available credits for all filers.

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[4] Net Schedule 1 adjustments to AGI on TY 2009 full-year resident returns totaled -$16.03 billion, of which the retirement exclusion accounted for -$12.34 billion, leaving other net Schedule 1 adjustments of -$3.69 billion.

The energy/water efficient products credit is federally funded and thus has zero net revenue effect. The total amount reported by full-year resident filers in TY 2009 for the credit for income taxes paid in other states was approximately $144 million, though the net effect on tax liabilities would likely be somewhat smaller than that because many filers did not have sufficient tax liability before credits to utilize the full amount of credits claimed. We include retention of the other states income tax credit in the analysis, but not the other two retained credits.

We estimated the effect of the Tax Commission proposal assuming first that only the first-year phase-in was implemented and then that the full phase-in was implemented. For the first-year phase-in, we assumed that the top marginal tax rate was reduced to 5 percent, that rates below 5 percent were increased to 5 percent, that no credits other than the low income credit were eliminated, that the personal credit is implemented, and that the retirement income exclusion was not eliminated but was capped at $35,000 each for the primary taxpayer and, if married filing joint, the spouse. For the full phase in, the tax rate was set at 4 percent, all credits other than the new personal credit and the other states income tax credit were eliminated, and the retirement exclusion was eliminated. For simplicity, we treated the first-year phase in and the full phase in as separate proposals and assumed each was effective January 1, 2012 in reporting the revenue estimates in Table 1.

Figure 4 shows the distribution of AETRs for the first year phase in, while Figure 5 shows the distribution of AETRs for the full phase in. Figures 6 and 7 show the distribution of the dollar change in taxes owed for the two alternatives. More details regarding the levels and changes in effective tax rates and tax liabilities are presented in the tables in the Appendix C.

For both alternatives, the effective tax rates are progressive, although with the full phase-in, the median filers above the 55th FAGI percentile (group 12 and above) have effective tax rates that are very close to the 4 percent maximum tax rate, and thus there is very little increase in the effective tax rate beyond that income level. As can be seen by the length of the vertical bars, the variation in effective tax rates within income groups is much smaller than for the current tax system (compare Figures 4 and 5 to Figure 3), and thus horizontal equity appears to be improved.

FIGURE 4. TAX REFORM COUNCIL, YEAR 1 AETR
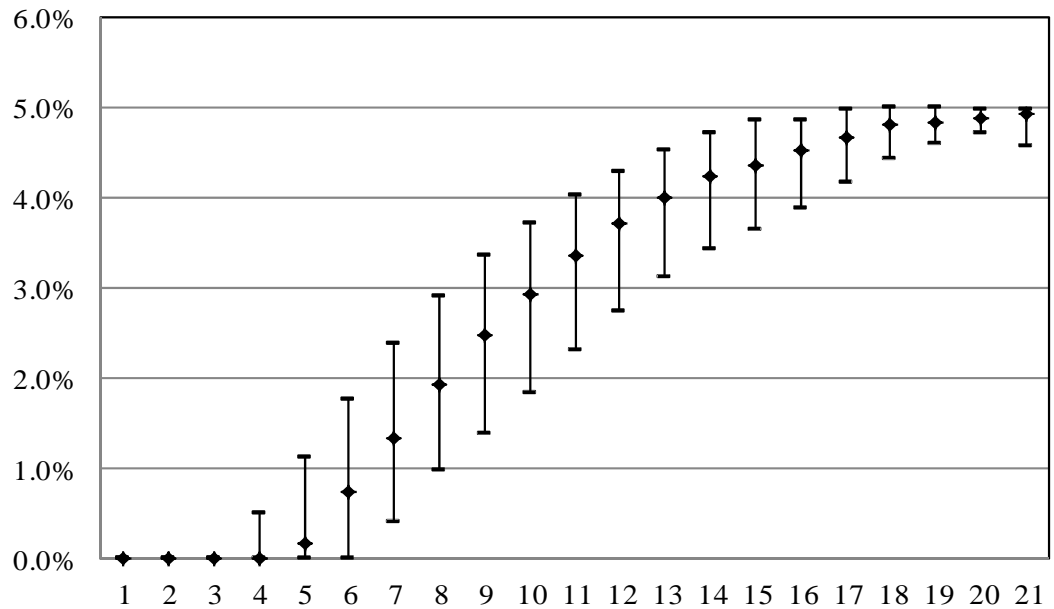
Note: Bars represent the interquartile range and diamonds represent the median of AETRs for each income group.
Sources: Georgia DOR and authors' calculations.

FIGURE 5. TAX REFORM COUNCIL, OUT YEARS AETR
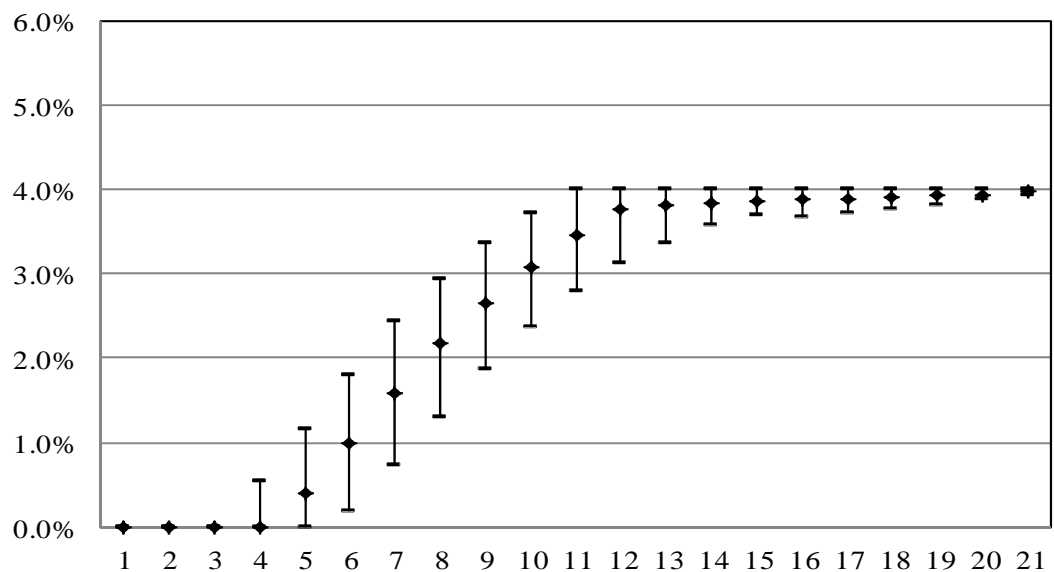
Note: Bars represent the interquartile range and diamonds represent the median of AETRs for each income group.
Sources: Georgia DOR and authors' calculations.

FIGURE 6. TAX REFORM COUNCIL, YEAR 1 ΔTAX
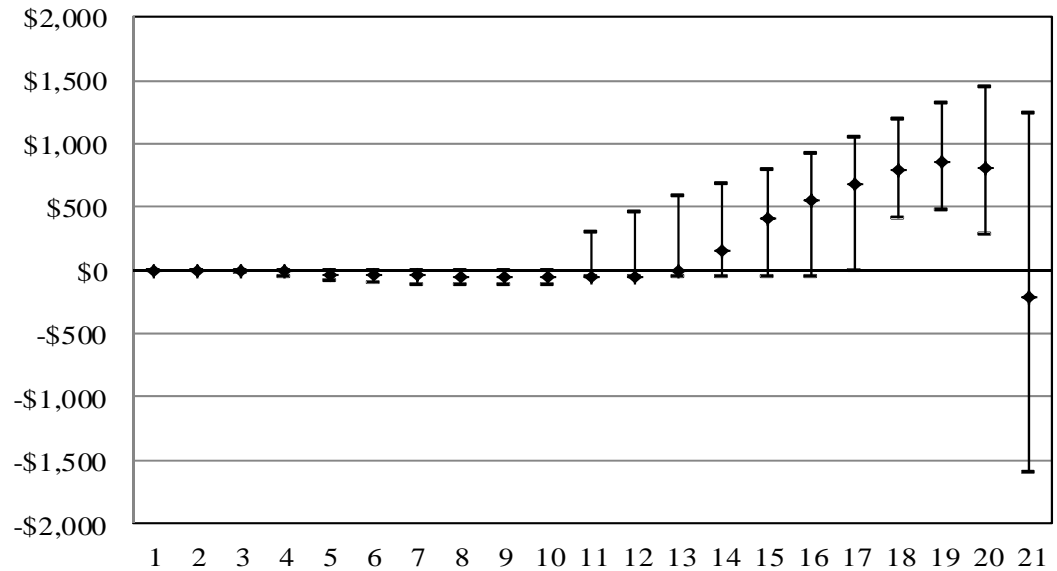
Note: Bars represent the interquartile range and diamonds represent the median of AETRs for each income group.
Sources: Georgia DOR and authors' calculations.

FIGURE 7. TAX REFORM COUNCIL, OUT YEARS ΔTAX
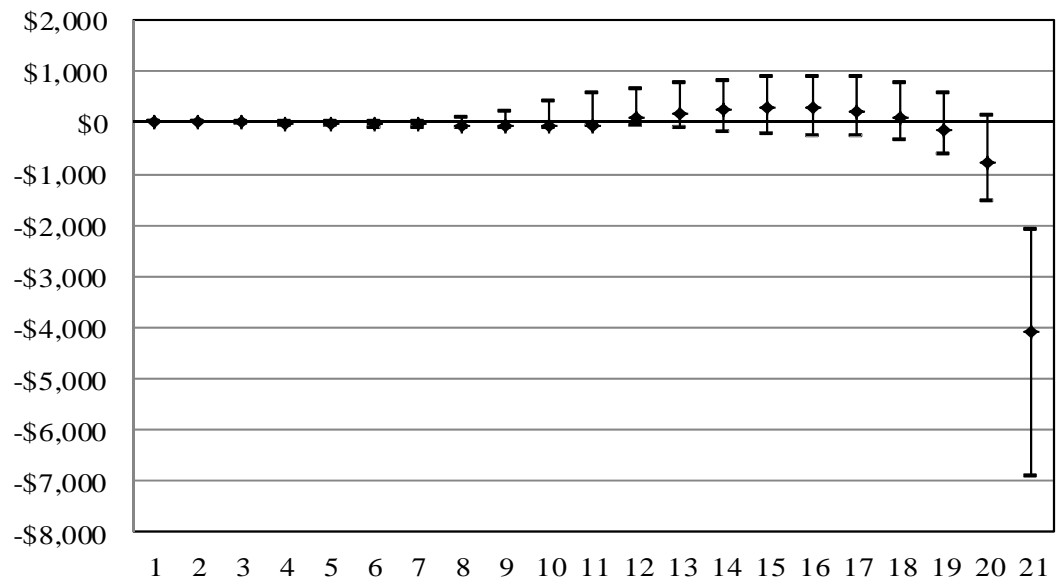
Note: Bars represent the interquartile range and diamonds represent the median of AETRs for each income group.
Sources: Georgia DOR and authors' calculations.

However, in terms of changes in tax liability (Figures 6 and 7), both the first year and fully phased-in Tax Council plans represent a tax increase for most filers in the upper half of the income distribution (above about $30,000 of FAGI). The first year changes result in small tax cuts for the median filers from groups 4 through 11, as shown in Figure 6, but increasingly large increases for a majority of filers in groups 14 through 20. The top 1 percent is fairly evenly split between filers realizing a cut and an increase in tax liability, though a majority of this group does realize a cut. Fully phased in (Figure 7), the Tax Council plan results again in little change for the lower half of the income distribution and increases for most filers in groups 12 through 18, though in this case, a majority of the top ten percent of filers (those in groups 19-21) realize significant tax cuts. In the case of the top 1 percent (filers with FAGI above $316,000), more than 75 percent of the group realizes cuts of more than $2,000.

Overall, as Table 1 shows, the Tax Council proposal would result in an increase in income tax revenue. Tax liability for TY 2009 for full-year residents would have increased by an estimated $957.8 million for the first-year phase-in alternative, or by 14.3 percent of actual TY 2009 tax liability. For FY 2014, revenues would increase by an estimated $1,334.1 million, or by 14.3 percent of forecasted FY 2014 revenue. The fully phased in alternative would have increased TY 2009 full-year resident tax liability by an estimated $330.7 million, which is 4.9 percent of actual TY 2009 tax liability. For FY 2014, tax revenue would increase by an estimated $463.2 million, or by 4.9 percent of forecasted FY 2014 revenue.

B.   Legislative Proposal (HB 388)

The Legislature modified the Tax Council's income tax recommendation during the 2011 session, with HB 388 representing the latest version of the legislative proposals. The changes to the income tax included in HB 388 and modeled for this report are as follows:

1. The retirement income exclusion is frozen at $35,000 each for the primary taxpayer and spouse, which is the level in effect for tax years 2009 through 2011.

2. The standard deduction, additional deductions for over-65 and blind taxpayers, and non-dependent exemptions are eliminated.

3. Itemized deductions are capped for all filers and phased out for taxpayers with Georgia Adjusted Gross Income (GAGI) above certain amounts. Married Filing Jointly and Head of Households are allowed up to $30,000 of itemized deduction if their incomes are $75,000 or less, and up to $17,000 if their incomes are between $75,000 and $160,000. The allowable itemized deduction phases out dollar-for-dollar above the threshold income of $160,000. For those filing as Married Filing Separately or Single the allowable itemized deductions and income limits are half that for Married Filing Jointly.

4. The current dependent exemption is replaced with a new dependent exemption. For taxpayers with GAGI of $60,000 or less, the exemption is $5,300. For taxpayers with GAGI greater than $60,000 and up to $70,000, the exemption is $3,640. For taxpayers with GAGI greater than $70,000 and up to $200,000, the exemption is $2,000. There is no dependent exemption for taxpayers with GAGI greater than $200,000.

5. The current rate structure is replaced with one tax rate: 4.6 percent for tax year 2012 and 4.55 percent for tax year 2013 and subsequent tax years. (We only model the 4.6 percent rate for this report.)

6. A new low-income tax credit is put in place in amounts specified in a table in the legislation that differ by filing status. The table specifies the credit by GAGI in $1,000 increments. For any GAGI category, the credit is calculated based on the income at the top of the category–that is, for a GAGI category of $14,001 to $15,000, the credit is based on an income of $15,000. The credit for tax year 2012 is equal to 4.6 percent of GAGI less the tax liability under the existing tax structure with the taxpayer taking the standard deduction and no dependent exemptions (but not less than zero). The credit for TY 2013 and subsequent years is calculated the same way except using a flat tax rate of 4.55 percent, though again, we only model the first year of this proposal.

There are two additional provisions in HB 388 that the data do not permit us to model. The first was the elimination of the deduction from FAGI of unearned income that is included as income on a dependent taxpayer's parent's return. The other was a provision to allow itemized deductions for unreimbursed employee business expenses deducted on one's federal return and above a threshold of $2,500, up to a maximum deduction of $8,000, notwithstanding the itemized deduction limits and phase-outs described above. The Georgia tax return data do not provide information on the value of these deductions. Thus, for our calculations (both for the

distribution and revenue) we made no adjustment for these provisions. In addition, we only considered the cut in the marginal tax rate to 4.6 percent and assume that it is effective for TY 2012

Figure 8 shows the distribution of AETRs across and within the income groups while Figure 9 shows the tax changes. This proposal results in a distribution of the median AETR that increases through the 13th income group (the 60th percentile), but become essentially flat before increasing again with the 17th income group (80th percentile). The proposal does little to reduce the range of effective tax rates within income groups, other than at the upper income levels, and actually increased the range for the mid-level income groups, possibly due to the elimination of the standard deduction and increases in the amounts of dependent exemptions.

FIGURE 8. HB 388 AETR
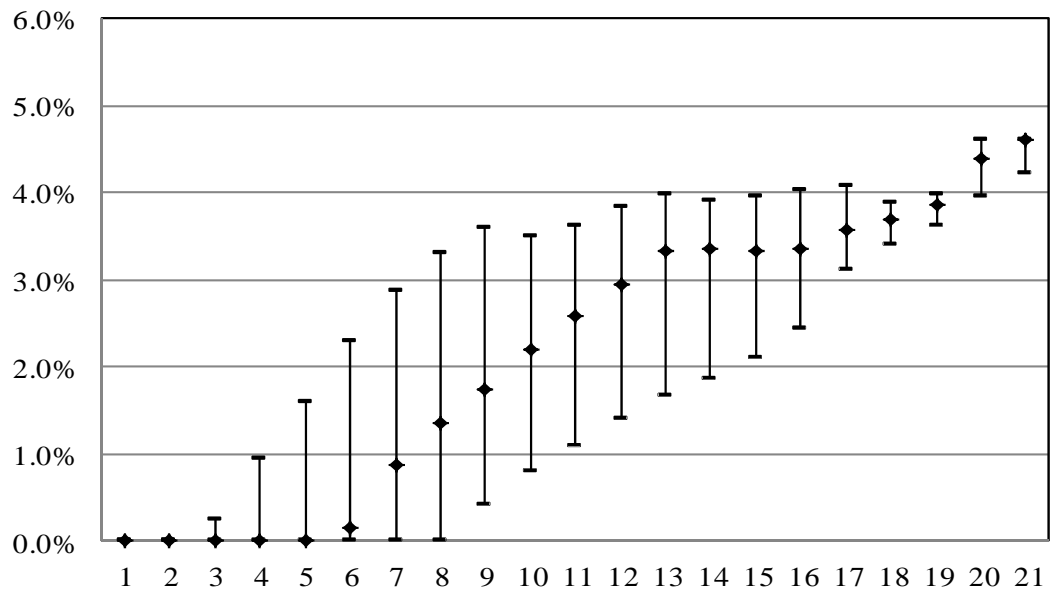
Note: Bars represent the interquartile range and diamonds represent the median of AETRs for each income group.
Sources: Georgia DOR and authors' calculations.

FIGURE 9. HB 388 Δ TAX

Note: Bars represent the interquartile range and diamonds represent the median of AETRs for each
income group.
Sources: Georgia DOR and authors' calculations.

The median dollar change in tax liability is zero or negative for all income
groups (Figure 9), but there are filers in all income groups, and 9.6 percent overall,
who would realize a tax increase. The median tax cuts for groups 1 through 12 are no
larger than $41, and no larger than $101 for the bottom 90 percent of taxpayers. Only
for the top 1 percent does the median tax cut exceed $246, but for this high income
group, almost 14 percent of filers realize a tax increase. For income groups 13
through 20, between 15 percent and 28 percent of filers realize a tax increase.

Overall, this option results in a decrease in tax revenue. For TY 2009, the microsimulation model suggests that the tax liability for full-year residents would decrease by $230.3 million, or by 3.6 percent of the actual TY 2009 tax liability. In FY 2014, we estimate that the likely reduction in tax revenue will be $319.9 million (Table 1), which is a 3.4 percent reduction from forecasted revenue for FY 2014.[5]

Finally, HB 388 significantly increases tax complexity by introducing lengthy schedules of credits that depend on filing status and income level, introducing phase-outs for dependent exemptions, and introducing complex limits on itemized deductions with gradual phase-outs and "cliff" reductions at various income levels, as well as a carve-out from the itemized deduction limits for employee business expenses with its own threshold and limit.

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[5] This revenue estimate is substantially smaller than the estimated $553 to $578 million revenue reduction in FY 2014 that was contained in the fiscal note for HB 388. Though a small part of the difference is the result of not modeling all details of legislation here, the difference is mainly due to changes in real economic changes reflected in tax returns between TY 2005 and TY 2009, particularly the sharp decline in taxable incomes from 2005 to 2009. The following table presents the differences between the two periods in terms of actual tax returns data provided by DOR and in terms of micro-simulation results using the same SAS program used for the fiscal note on HB 388. If the $423 million reduction in tax liability for FY 2005 is increased and decreased by the annual percentage change in income tax revenue from 2005 to 2014, the resulting estimated revenue loss for FY 2014 is $536 million, which is close to the estimate provided in the fiscal note.

(full-yr residents only) Tax Year of Data:	2005	2009	change	
# of Filers (thousands)	3,510	3,753	+6.9%	
FAGI (mean)	$52,880	$49,938	-5.6%	
GAGI (mean)	50,182	45,667	-9.0%	
GA Taxable Inc. (mean, actual)	35,552	32,130	-9.6%	
GA Tax Liab. (mean, adj. actual*)	1,916	1,686	-12.0%	
HB 388 Taxable Inc. (mean)	41,935	37,219	-11.2%	
HB 388 Tax Liab. (mean)	1,796	1,623	-9.6%	
HB 388 Change in Tax Liab. (mean)	($120)	($63)	-48.0%	(chg in absolute value)
HB 388 Change in Tax Liab. (total, millions)	($423)	($235)	-44.4%	(chg in absolute value)

* Actual tax liability adjusted for nonrefundability of low income credit.

C.   Alternative 1: Eliminate 6% Rate and Other Changes

We now turn to two tax reform alternatives, named Alternatives 1 and 2. Alternative 1 would eliminate the 6 percent income tax bracket and would adjust the taxable income levels for other brackets upward as follows:

Tax Rate	Single	Married Filing Jointly/ Head of Household	Married Filing Separately
		--------------------------------Filing Status-------------------------------	
1%	$0 – 1,500	$0 – 2,000	$0 – 1,000
2%	1,501 – 3,000	2,001 – 4,000	1,001 – 2,000
3%	3,001 – 6,000	4,001 – 8,000	2,001 – 4,000
4%	6,001 – 9,000	8,001 – 12,000	4,001 – 6,000
5%	> 9,000	> 12,000	> 6,000

The proposal would also impose a limit on the value of itemized deductions equal to $15,000 for Single filers, $20,000 for Married Filing Jointly and Head of Household, and $10,000 for Married Filing Separately. In addition, all credits except for the current low income tax credit and the other states income tax credit would be eliminated (the low income tax credit would continue to be nonrefundable). The retirement income exclusion would be capped at the 2011 level of $35,000 each for the taxpayer and spouse.

Figure 10 shows the distribution of AETRs within and across income groups for Alternative 1. This alternative retains the progressivity of the current income tax structure and reduces the (interquartile) range of effective tax rates within each income group as a result of the limits on itemized deductions, elimination of most credits, and across the board rate reductions. Alternative 1 also reduces the medianAETR in all income groups and also at the 75th percentile (the top of the bars) in all income groups other than above the 99th percentile (group 21).

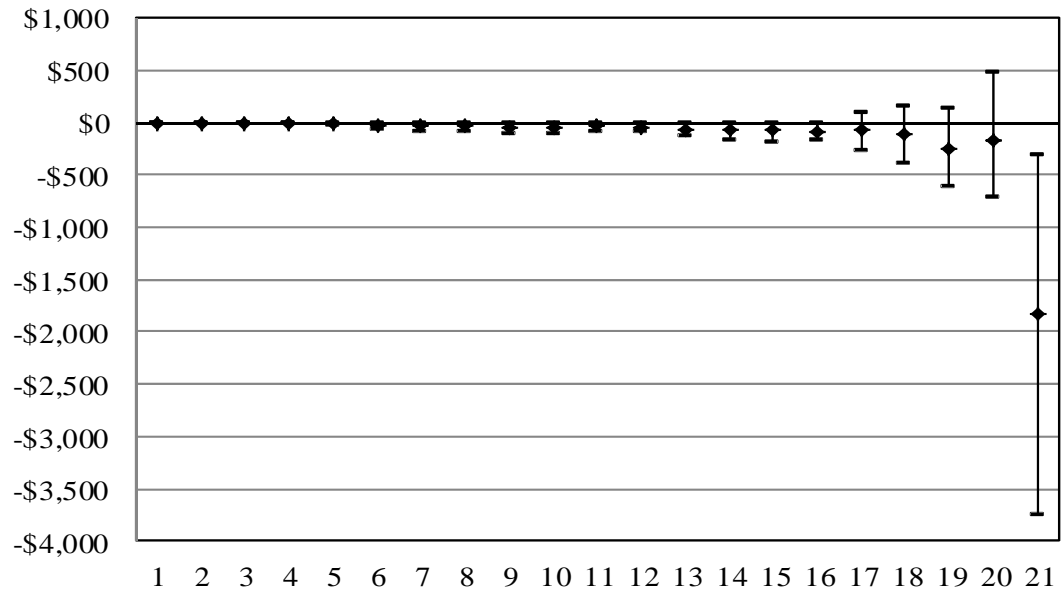**FIGURE 10. ALTERNATIVE 1 AETR**
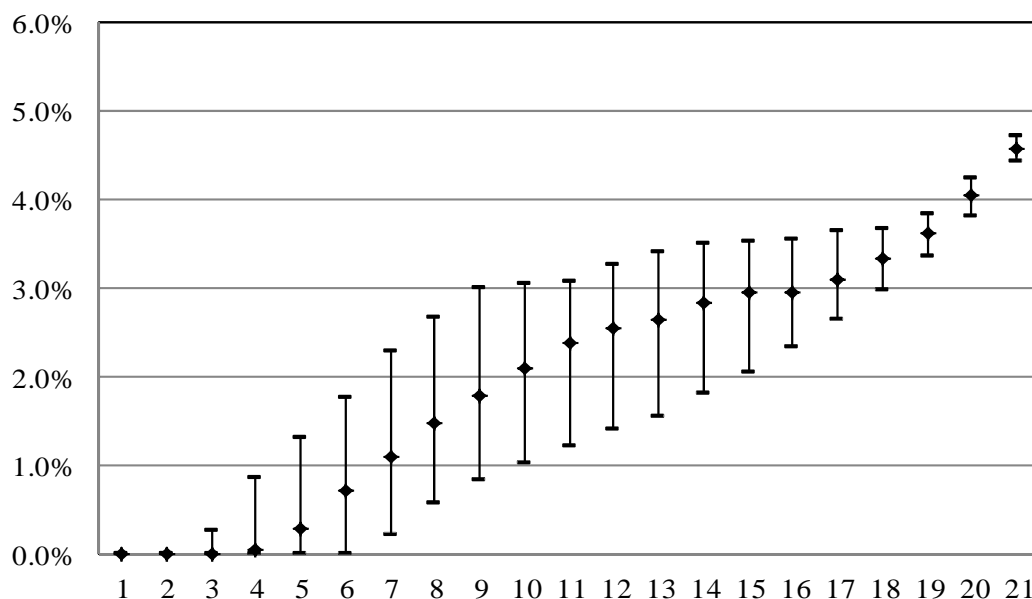
Note: Bars represent the interquartile range and diamonds represent the median of AETRs for each income group.
Sources: Georgia DOR and authors' calculations.

In dollar terms, the median effect in all income groups above the 15th percentile (group 4) is a tax cut, with the size of the cuts increasing steadily across the income groups, reaching $154 for group 10, $331 for group 15, and $685 for group 20 (Figure 11). For groups 1-3, the median change in tax liability is zero, but few in those groups owe taxes under current law and only 0.1 percent of filers in those groups face an increase under this alternative. In the bottom half of the income distribution, only 2.0 percent of filers realize a tax increase. The percentage facing an increase in tax liability rises somewhat as incomes rise due to greater numbers of itemizers at higher income levels, but does not exceed 15 percent for any group below the 95th percentile. More details of the distributive effects can be found in Appendix C.

This option results in a sizable decrease in tax revenue. For TY 2009, the microsimulation model suggests that the tax liability of full-year residents would decrease by $552.4 million, or by 8.3 percent of the actual TY 2009 tax liability. In FY 2014, we estimate that the likely reduction in tax revenue will be $769.5 million,

FIGURE 11. ALTERNATIVE 1 Δ TAX
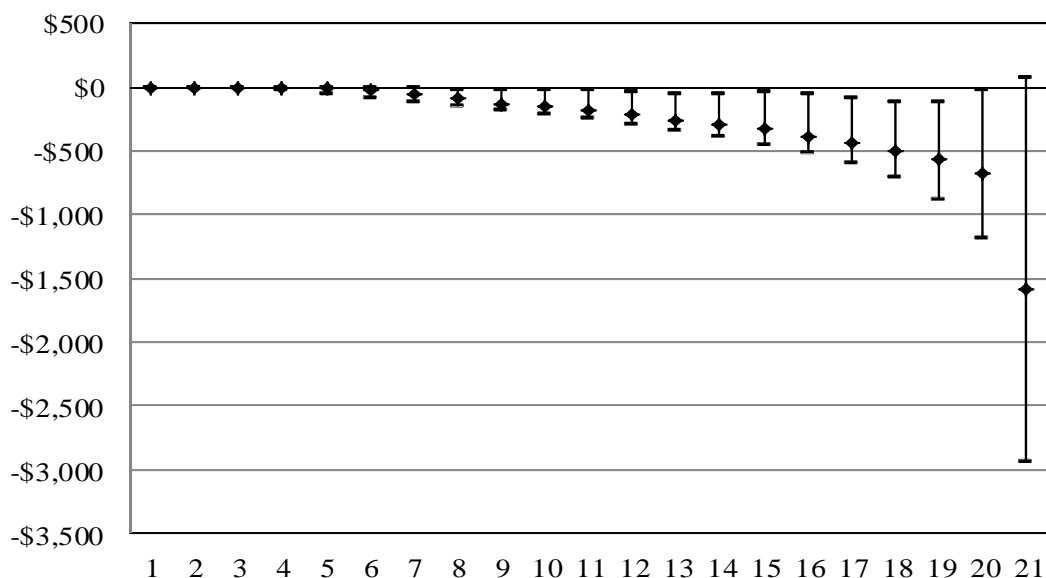
Note: Bars represent the interquartile range and diamonds represent the median of AETRs for each income group.
Sources: Georgia DOR and authors' calculations.

which is an 8.3 percent reduction from forecasted revenue for FY 2014. Table 1 provides additional forecast details.

An advantage of this alternative is its simplicity in that it makes only modest and straightforward changes to current law—simplifying the tax rate structure and reducing effective rates at all income levels, limiting itemized deductions, and eliminating most credits without introducing complex new credits or phase-outs.

D. Alternative 2: Two Rate Brackets

For greater simplification of the code, another alternative might be to replace the current rate structure with a two rate structure. For Alternative 2, we assume a tax rate of 4.8 percent on taxable incomes up to $75,000 for Singles and Married Filing Separately and up to $150,000 for Married Filing Jointly and Head of Household. A rate of 5.35 percent would apply above these income levels. All credits and deductions (both standard and itemized) would be eliminated, with the exception again of the other states income tax credit. Personal exemptions would increase to $7,000 each for the primary taxpayer, the spouse if filing married filing joint, and any

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dependents. The retirement income exclusion would again be capped at the 2011 level. No other changes are assumed.

This alternative was designed to be, as nearly as possible, revenue neutral while simplifying the tax system—that is, to simplify while cutting overall revenues as little as possible, but without producing a tax increase on more than half the filers in any income group. Figure 12 shows the AETR for this alternative. The distribution of the median AETR looks similar to that shown in Figure 3 for the current tax system, except that the median AETR does not become positive until income group 6 under Alternative 2. As Figure 13 shows, the median tax change in all income groups is zero or less. The median change for all filers is, in fact, a cut of $1 while the overall effect is an $83.2 million cut in total TY 2009 tax liabilities for full-year residents and an estimated cut of $117.4 million in FY 2014 revenues (Table 1).

FIGURE 12. ALTERNATIVE 2 AETR
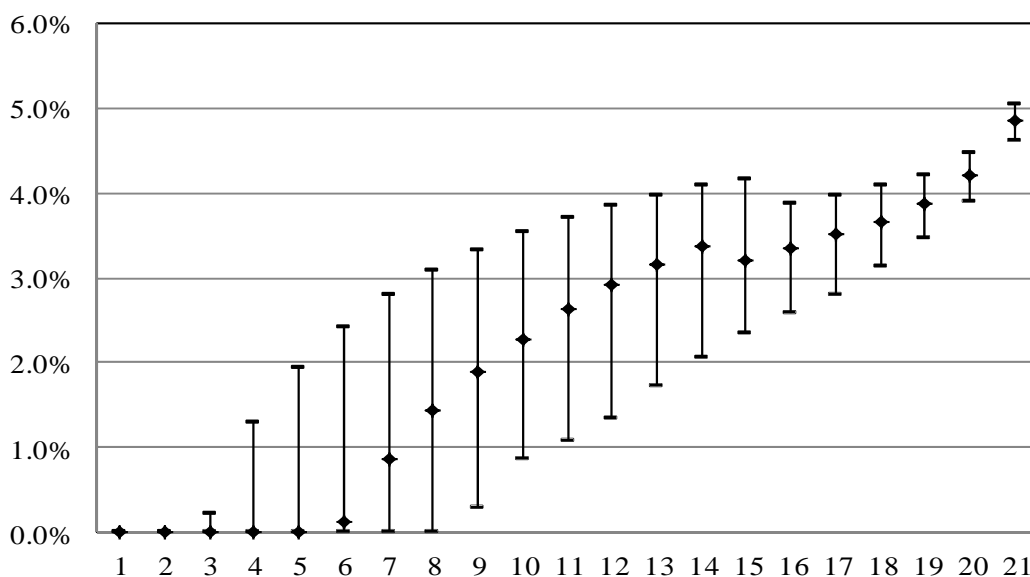
Note: Bars represent the interquartile range and diamonds represent the median of AETRs for each income group.
Sources: Georgia DOR and authors' calculations.

FIGURE 13. ALTERNATIVE 2 Δ TAX
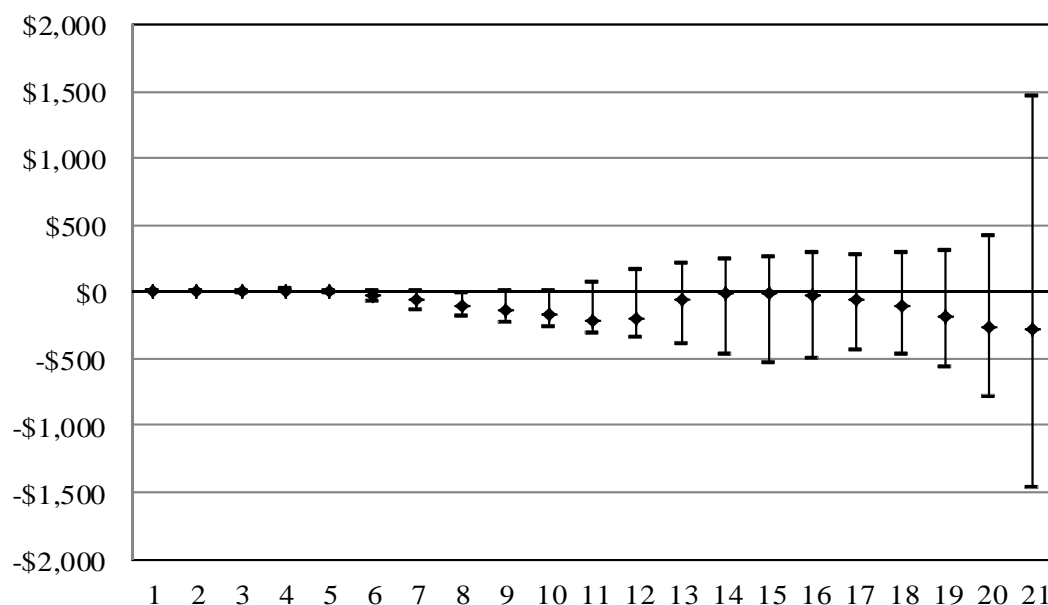
Note: Bars represent the interquartile range and diamonds represent the median of AETRs for each income group.
 Sources: Georgia DOR and authors' calculations.

The higher personal and dependent exemptions serve to offset the loss of deductions and the higher statutory rate on the first several thousand dollars of taxable income, and to preserve the progressivity of the structure. Perhaps surprisingly, in spite of the very simple, two rates and no deductions structure, there is little reduction in the variation in tax rates within most income groups, as can be seen from comparing Figure 12 and Figure 3. However, the variation in rates within income groups appears to be attributable to two factors: 1) filers with large Schedule 1 adjustments that cause FAGI and GAGI to differ greatly, and 2) differences in filing status and numbers of dependents, together with significantly larger personal and dependent exemptions. Consequently, though it is not apparent from Figure 12, this simplified tax structure likely increases horizontal equity when filers are compared on the basis of other relevant factors, in addition to FAGI. Finally, while the structure remains generally progressive, median AETRs actually decrease slightly from group 14 to group 15. Notably, however, group 15 (the 70th-74th percentiles) is the first group that is majority Married Filing Joint filers (52 percent versus 43

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percent for group 14; see Figure 2), has significantly more filers taking the retirement income exclusion than does group 14, and has slightly more claiming dependents.

A necessary consequence of such a simplifying reform, with only small overall revenue cuts, is that a significant percentage (though still a minority) of filers in most income groups is subject to a tax increase. For the upper half of the income distribution, less than a third of filers would face a tax increase. For all filers, about 22 percent face an increase. The mixed results for groups 14 through 16, in particular, are due to the loss of itemized deductions (group 14 is the lowest income group where itemizers are the majority; see Table B3), the cost of which is not entirely offset by the lowering of top marginal rates. Should a larger overall income tax revenue cut be achievable, slightly lower tax rates would clearly increase the number of filers in these groups who benefit.

VI.   Summary

This report develops a framework for analysis of proposals for reform of personal income taxes, with consideration for revenue impacts as well as reform goals of simplification, and horizontal and vertical equity. The framework is applied to the analysis of tax reforms based on the proposal from Georgia's Tax Reform Council and on one version of reforms proposed in the 2011 legislative session (HB 388), as well as two illustrative alternatives. Forecasted revenue effects are presented in Table 1 below.

TABLE 1. REVENUE ESTIMATES FOR TAX REFORM OPTIONS (IN THOUSANDS OF $)

	TY 2009		FY 2012	FY 2013	FY 2014
Current Law	**Tax Liability**		---------------Forecasted Revenue----------------		
	$6,685,860		$8,189,347	$8,754,908	$9,227,673
Reform Options Estimates:	**Change in Tax Liability[a]**		---------Change in Forecasted Revenue--------		
Tax Reform Council's Proposal, First Year	$957,778 [a]	High	$876,404	$1,377,981	$1,367,184
		Avg	$823,751	$1,320,323	$1,334,091
		Low	$772,793	$1,268,774	$1,267,852
Tax Reform Council's Proposal, Fully Phased-in	$330,680 [a]	High	$330,529	$472,525	$468,823
		Avg	$282,474	$452,754	$457,475
		Low	$264,999	$435,077	$434,761
HB 388	($230,305) [a]	High	($185,318)	($304,257)	($304,035)
		Avg	($197,538)	($316,618)	($319,920)
		Low	($210,165)	($330,445)	($327,856)
Alternative 1— 5% Top Marginal Rate	($552,447) [a]	High	($445,748)	($761,830)	($731,298)
		Avg	($475,140)	($761,563)	($769,505)
		Low	($505,510)	($794,821)	($788,593)
Alternative 2— Two Rate Brackets	($83,225) [a]	High	($67,151)	($110,249)	($110,169)
		Avg	($71,579)	($114,728)	($115,925)
		Low	($76,154)	($119,739)	($118,800)

[a]Revenue estimates for TY 2009 are for full-year residents only. The fiscal year revenue estimates are for all filers.

Note: TY 2009 revenue changes were estimated using the microsimulation model (see text for discussion of the model). As describe in Appendix D, to estimate tax revenue changes for future years, two alternative methods were used, with three alternative assumptions regarding the timing of receipts. In the table, "Avg" is the average of the 6 alternative revenue estimates, and should be considered the "most likely" revenue estimate. The high and low are extremes values, and while possible, we consider these as the limits of the possible range of revenues. Our subjective evaluation of the revenue estimates is that we are 90 percent confident that the actual revenue change would be within 5 percent of the average reported in the table.

Among the two alternatives, the first illustrates the effects of a relatively modest simplification of the current tax system–the elimination of the top (6 percent) marginal rate bracket and upward adjustment of thresholds for the five remaining rate brackets. The result is an overall reduction of forecasted FY 2014 revenues of about $779.1 million, with the benefits for taxpayers, relative to income, spread rather uniformly over the income groups. The second illustrates the effects of a much greater simplification of the tax system, but with a much smaller loss of revenues. It replaces the current system with a two rate structure, eliminates all current deductions and all but one existing credit, and increases the personal and dependent exemptions. The result of Alternative 2 is a FY 2014 estimated revenue loss of about $117.4 million with a majority of filers in all income groups realizing some tax savings, or at least no increase. Variations that allow for a greater revenue loss would obviously enable more filers to realize tax savings. Both alternatives appear to provide some improvement in horizontal equity–that is, taxpayers in similar economic circumstances paying similar amounts of tax.

While none of the options are represented as being necessarily "better" than any other, they do illustrate some of the options and their effects in terms of the main goals of reform.

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Appendix A.   Procedures for Cleaning 2009 Personal Income Tax Records

The dataset used in this report was provided by the Georgia Department of Revenue under a Memorandum of Agreement with the Fiscal Research Center. The use of the data is restricted to research purposes and is subject to strict confidential conditions. The dataset consists of income tax return data from Georgia taxpayers that has been "anonymized" by removing personal identifying information. Unique identifiers for each record are encrypted taxpayer IDs—unique 32-character alpha-numeric codes that remain the same from year-to-year, but which do not contain identifiable personal information.

The data for each return is the tax return information prior to any changes due to any audits. The information on the return is checked for consistency by the Department of Revenue, but there are obvious errors in the data, particularly in data from the schedules, but also in some Form 500 fields. The purpose of this Appendix is to summarize the work done to clean the Georgia individual income tax microdata files.

Notes regarding the specific changes made for full-year Georgia residents were maintained and made available to the Department of Revenue. In general terms, the approach to identifying errors was to recalculate taxable income, or intermediate sub- or net totals, and to compare those numbers to the corresponding reported (or scanned) numbers from the Form 500 or Schedule 1 fields. This enabled the identification and correction of a variety of common errors, from transposition or dropping of digits, and minus signs on numbers that should only be positive to random digits inserted into the middle of a number, numbers clearly in the wrong data field (possibly shifted as a result of scanning), and social security numbers or zip codes in inappropriate fields. This exercise is complete with regard to the full-year resident Form 500 data fields and the two retirement income fields of Schedule 1 for all filers. We believe that any remaining errors will not materially or adversely affect analyses utilizing these data.

Limitations of the Data

The Georgia personal income tax piggybacks on the federal income tax such that income reporting on one's Georgia return begins with Federal adjusted gross income (FAGI), to which certain adjustments are then made to arrive at Georgia adjusted gross income (GAGI), such as for retirement income included in FAGI, but excluded from GAGI. FAGI is entered on the Georgia return without detail as to the type or source of income (e.g. wage, investment, or business income). Similarly, taxpayers who itemize deductions on their federal return, and thus must also itemize on their Georgia return, enter the total of their federal itemized deductions on their Georgia return, without detail as to the type of deduction (e.g. charitable, medical, or taxes paid deductions). As a result, it is sometimes not possible to directly model or analyze potential tax changes that affect individual types or components of income or deductions differently from other types or components.

A complete list of the variables and their descriptions is available upon request.

Appendix B. 2009 Full-Year Resident Data Summary

Summary statistics of the baseline data for full-year residents are presented in Tables B1- B4. The summaries included in the tables are broken down into income percentile groups (5 percent of filers per group except for the top income group, which is split into two groups—the top 1 percent and next 4 percent) based on Federal Adjusted Gross Income. Data reported include return characteristics such as filing status and numbers of dependents as well as income, deductions, retirement exclusions, credits, and taxes owed.

The corrected file for 2009 contains 3,753,250 full-year resident filers with $187.4 billion of FAGI and $6.3 billion of net tax liability. In addition, there were 202,988 nonresident and 109,387 part-year resident filers in 2009, with a combined $70.4 billion of FAGI. After schedule 3 adjustments and other deductions, these filers reported Georgia taxable income and net tax liability of $6.9 billion and $360 million, respectively.

Table B1. Return Characteristics by Income Group - Filing Status and Dependents

2009 Full-Year Residents

Fed AGI Group		# of Filers					Dependents			
#	Percentile	Total	Single	MFJ	HoH	MFS	Filers Claiming		Mean	Sum
1	0-4th	187,666	138,362	35,593	9,559	4,152	23,007	12.3%	1.64	37,777
2	5-9th	187,657	145,910	16,123	22,698	2,926	33,891	18.1%	1.47	49,899
3	10-14th	187,678	127,323	18,353	39,085	2,917	55,748	29.7%	1.49	82,900
4	15-19th	187,667	104,080	20,334	60,670	2,583	82,643	44.0%	1.47	121,262
5	20-24th	187,668	91,135	24,562	69,293	2,678	92,125	49.1%	1.76	161,849
6	25-29th	187,650	86,439	29,320	68,819	3,072	91,906	49.0%	1.75	160,579
7	30-34th	187,679	82,924	33,443	67,819	3,493	91,220	48.6%	1.73	158,192
8	35-39th	187,637	78,649	38,060	66,949	3,979	92,752	49.4%	1.75	161,953
9	40-44th	187,679	76,326	41,283	65,725	4,345	93,042	49.6%	1.77	164,868
10	45-49th	187,654	75,500	45,513	61,680	4,961	90,766	48.4%	1.79	162,050
11	50-54th	187,672	76,699	51,700	53,856	5,417	85,417	45.5%	1.80	153,605
12	55-59th	187,633	77,003	59,866	44,781	5,983	80,398	42.8%	1.81	145,814
13	60-64th	187,666	74,834	69,641	37,083	6,108	77,696	41.4%	1.81	140,424
14	65-69th	187,663	70,023	80,341	31,456	5,843	78,037	41.6%	1.80	140,160
15	70-74th	187,667	60,206	97,071	25,386	5,004	79,853	42.6%	1.79	142,940
16	75-79th	187,665	48,237	117,239	18,473	3,716	83,254	44.4%	1.80	149,705
17	80-84th	187,667	35,540	136,393	12,780	2,954	88,219	47.0%	1.80	159,040
18	85-89th	187,658	25,620	152,022	7,944	2,072	94,734	50.5%	1.83	172,981
19	90-94th	187,661	18,497	162,173	5,429	1,562	101,110	53.9%	1.86	188,286
20	95-98th	150,131	12,109	133,752	3,264	1,006	85,809	57.2%	1.92	164,863
21	99th	37,532	3,148	33,201	754	429	22,270	59.3%	2.09	46,600
All Filers		3,753,250	1,508,564	1,395,983	773,503	75,200	1,623,897	43.3%	1.76	2,865,691

Table B2. Return Characteristics by Income Group - Income and Tax Liability

2009 Full-Year Residents

Fed AGI Group		Federal AGI				GA Taxable Inc		Net Tax*	
#	Percentile	Min	Mean	Median	Share	Mean	Median	Mean	Median
1	0-4th	Neg.	($27,074)	$387	-2.7%	$67	$0	$3	$0
2	5-9th	2,443	4,153	4,182	0.4%	110	0	1	0
3	10-14th	5,750	7,199	7,210	0.7%	1,245	973	17	0
4	15-19th	8,600	9,744	9,721	1.0%	2,436	1,840	53	7
5	20-24th	10,962	12,181	12,214	1.2%	3,585	3,280	98	44
6	25-29th	13,348	14,633	14,628	1.5%	5,365	5,631	174	124
7	30-34th	15,933	17,352	17,340	1.7%	7,391	8,087	269	235
8	35-39th	18,819	20,368	20,352	2.0%	9,634	10,796	386	373
9	40-44th	21,973	23,692	23,684	2.4%	11,997	13,628	516	535
10	45-49th	25,472	27,397	27,378	2.7%	14,454	16,466	652	701
11	50-54th	29,414	31,623	31,591	3.2%	17,199	19,562	811	895
12	55-59th	33,957	36,583	36,545	3.7%	20,354	23,138	996	1,115
13	60-64th	39,349	42,448	42,403	4.3%	23,910	26,894	1,206	1,343
14	65-69th	45,737	49,430	49,387	4.9%	28,085	31,433	1,448	1,615
15	70-74th	53,307	57,672	57,589	5.8%	33,008	36,608	1,731	1,919
16	75-79th	62,361	67,727	67,611	6.8%	39,372	43,416	2,096	2,312
17	80-84th	73,512	80,332	80,175	8.0%	47,994	52,729	2,590	2,861
18	85-89th	87,812	97,235	96,864	9.7%	60,434	65,897	3,309	3,637
19	90-94th	108,171	125,097	123,563	12.5%	82,519	87,206	4,590	4,897
20	95-98th	148,267	197,653	185,085	15.8%	142,684	137,070	8,070	7,814
21	99th	315,818	714,206	462,343	14.3%	596,454	375,550	31,544	21,013
All Filers			$49,938	$29,413	100%	$32,130	$13,933	$1,686	$575

* Tax liability net of all credits, adjusted for non-refundablity of the low income credit under current law.

Table B3. Return Characteristics by Income Group - Itemized Deductions and Retirement Exclusions

2009 Full-Year Residents

Fed AGI Group		Itemized Deductions					Retirement Exclusion			
#	Percentile	Filers	Taking	Mean	Median	Sum $ Millions	Filers	Taking	Mean	Sum $ Millions
1	0-4th	26,213	14.0%	$66,353	$18,455	$1,739	33,658	17.9%	$3,089	$104
2	5-9th	8,744	4.7%	15,462	12,337	135	24,415	13.0%	4,581	$112
3	10-14th	10,400	5.5%	15,010	11,813	156	25,500	13.6%	6,754	$172
4	15-19th	11,537	6.1%	80,207	11,756	925	24,300	12.9%	8,547	$208
5	20-24th	14,660	7.8%	14,974	11,426	220	25,815	13.8%	10,199	$263
6	25-29th	19,410	10.3%	14,335	11,680	278	27,175	14.5%	12,021	$327
7	30-34th	24,589	13.1%	33,209	12,119	817	27,005	14.4%	13,835	$374
8	35-39th	30,364	16.2%	15,136	12,315	460	25,392	13.5%	15,278	$388
9	40-44th	38,874	20.7%	14,548	12,567	566	24,575	13.1%	16,759	$412
10	45-49th	49,953	26.6%	27,454	12,861	1,371	25,376	13.5%	18,395	$467
11	50-54th	62,826	33.5%	19,708	13,346	1,238	26,378	14.1%	20,301	$536
12	55-59th	76,959	41.0%	18,697	13,908	1,439	27,188	14.5%	22,142	$602
13	60-64th	90,693	48.3%	19,353	14,621	1,755	29,344	15.6%	23,850	$700
14	65-69th	104,527	55.7%	18,874	15,348	1,973	31,296	16.7%	25,665	$803
15	70-74th	116,480	62.1%	19,616	16,364	2,285	34,515	18.4%	26,666	$920
16	75-79th	128,722	68.6%	19,875	17,552	2,558	37,081	19.8%	27,619	$1,024
17	80-84th	141,907	75.6%	21,292	18,911	3,022	37,976	20.2%	30,118	$1,144
18	85-89th	157,047	83.7%	26,312	20,944	4,132	37,217	19.8%	32,549	$1,211
19	90-94th	171,463	91.4%	27,204	24,538	4,664	35,831	19.1%	34,779	$1,246
20	95-98th	145,861	97.2%	38,559	33,744	5,624	27,549	18.3%	36,996	$1,019
21	99th	37,275	99.3%	104,641	67,667	3,900	7,273	19.4%	42,154	$307
All Filers		1,468,504	39.1%	$26,733	$18,263	$39,258	594,859	15.8%	$20,741	$12,338

Table B4. Return Characteristics by Income Group - Credits
2009 Full-Year Residents

Fed AGI Group		Low Income Credit*				Other Credits			
#	Percentile	Filers	Taking	Mean	Sum $ Millions	Filers	Taking	Mean	Sum $ Millions
1	0-4th	427	0.2%	$39	$0.02	40	0.0%	$2,109	$0.1
2	5-9th	15,625	8.3%	8	$0.12	252	0.1%	11	$0.0
3	10-14th	69,606	37.1%	16	$1.13	1,364	0.7%	31	$0.0
4	15-19th	100,676	53.6%	13	$1.32	1,511	0.8%	68	$0.1
5	20-24th	120,862	64.4%	12	$1.41	1,944	1.0%	112	$0.2
6	25-29th	132,091	70.4%	11	$1.51	3,234	1.7%	136	$0.4
7	30-34th	140,245	74.7%	9	$1.26	7,031	3.7%	132	$0.9
8	35-39th	55,766	29.7%	9	$0.51	11,680	6.2%	157	$1.8
9	40-44th		0.0%		$0.00	15,749	8.4%	194	$3.1
10	45-49th		0.0%		$0.00	18,425	9.8%	242	$4.5
11	50-54th	1	0.0%	16	$0.00	19,137	10.2%	268	$5.1
12	55-59th		0.0%		$0.00	18,867	10.1%	292	$5.5
13	60-64th		0.0%		$0.00	18,558	9.9%	302	$5.6
14	65-69th		0.0%		$0.00	19,501	10.4%	327	$6.4
15	70-74th		0.0%		$0.00	20,655	11.0%	368	$7.6
16	75-79th		0.0%		$0.00	22,861	12.2%	391	$8.9
17	80-84th	1	0.0%	2	$0.00	26,247	14.0%	444	$11.7
18	85-89th		0.0%		$0.00	29,696	15.8%	503	$14.9
19	90-94th		0.0%		$0.00	32,392	17.3%	662	$21.4
20	95-98th		0.0%		$0.00	29,578	19.7%	1,212	$35.8
21	99th		0.0%		$0.00	11,361	30.3%	13,185	$149.8
All Filers		635,300	16.9%	$11	$7.27	310,083	8.3%	$916	$284.0

* Low income credit amounts are adjusted to reflect current law; the credit was made nonrefundable in 2011.

Appendix C: Tax Liability and Average Effective Tax Rates under Current Code and Reforms

Table C1. Current Tax Code

Full-Year Residents, 2009 (N = 3,753,250)

FAGI Group	Federal AGI Minimum	Federal AGI Median	Tax Net of Credits * 5th Pctl	Tax Net of Credits * Second Quartile	Tax Net of Credits * Median	Tax Net of Credits * Upper Quartile	Tax Net of Credits * 95th Pctl	AETR ** 5th Pctl	AETR ** Second Quartile	AETR ** Median	AETR ** Upper Quartile	AETR ** 95th Pctl
1	Neg.	$387	-	-	-	-	-	-	-	-	-	-
2	$2,443	4,182	-	-	-	-	3	-	-	-	-	0.06%
3	5,750	7,210	-	-	-	27	64	-	-	-	0.38%	0.81%
4	8,600	9,721	-	-	7	104	164	-	-	0.08%	1.08%	1.53%
5	10,962	12,214	-	-	44	202	297	-	-	0.39%	1.74%	2.24%
6	13,348	14,628	-	-	124	339	453	-	-	0.88%	2.42%	2.88%
7	15,933	17,340	-	43	235	496	623	-	0.24%	1.41%	2.99%	3.35%
8	18,819	20,352	-	124	373	660	809	-	0.62%	1.77%	3.42%	3.74%
9	21,973	23,684	-	232	535	839	1,007	-	1.00%	2.21%	3.78%	4.05%
10	25,472	27,378	-	307	701	1,025	1,235	-	1.12%	2.56%	3.71%	4.30%
11	29,414	31,591	-	403	895	1,249	1,493	-	1.28%	2.88%	3.79%	4.52%
12	33,957	36,545	-	541	1,115	1,496	1,787	-	1.48%	3.03%	4.01%	4.72%
13	39,349	42,403	-	709	1,343	1,765	2,129	-	1.68%	3.19%	4.17%	4.88%
14	45,737	49,387	-	931	1,615	2,077	2,501	-	1.89%	3.28%	4.21%	5.02%
15	53,307	57,589	-	1,187	1,919	2,449	2,929	-	2.07%	3.33%	4.25%	5.12%
16	62,361	67,611	-	1,537	2,312	2,879	3,463	-	2.29%	3.42%	4.25%	5.10%
17	73,512	80,175	-	2,047	2,861	3,427	4,129	-	2.57%	3.57%	4.24%	5.07%
18	87,812	96,864	66	2,779	3,637	4,211	4,987	0.07%	2.90%	3.76%	4.28%	5.15%
19	108,171	123,563	973	3,979	4,897	5,647	6,621	0.79%	3.29%	4.00%	4.43%	5.07%
20	148,267	185,085	3,181	6,488	7,814	9,709	13,280	1.80%	3.73%	4.33%	4.71%	5.16%
21	315,818	462,343	8,595	16,461	21,013	31,533	78,191	1.68%	4.27%	4.84%	5.18%	5.57%
All		$29,413	$0	$1	$575	$1,987	$6,009	0.00%	0.00%	2.12%	3.76%	4.82%

* Tax liability net of all credits, adjusted for non-refundablity of the low income credit under current law.

** AETR: Average Effective Tax Rate = Tax net of Credits / Fed AGI.

Table C2. Tax Reform Council, Yr 1

Full-Year Residents (N = 3,753,250)   **Mean Δ Tax:** $255.19   **Total Δ Tax:** $957.8 million

FAGI Group	FAGI Minimum	Pro Forma Tax					Pro Forma AETR *				
		5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl
1	Neg.	-	-	-	-	-	-	-	-	-	-
2	2,443	-	-	-	-	-	-	-	-	-	-
3	5,750	-	-	-	-	15	-	-	-	-	0.17%
4	8,600	-	-	-	49	95	-	-	-	0.51%	0.88%
5	10,962	-	-	19	131	203	-	-	0.16%	1.11%	1.53%
6	13,348	-	-	106	252	344	-	-	0.74%	1.76%	2.17%
7	15,933	-	65	226	406	513	-	0.40%	1.32%	2.39%	2.75%
8	18,819	-	187	383	578	699	-	0.98%	1.93%	2.91%	3.22%
9	21,973	-	334	566	773	905	-	1.38%	2.47%	3.35%	3.60%
10	25,472	-	507	780	991	1,136	-	1.84%	2.93%	3.71%	3.92%
11	29,414	-	731	1,035	1,244	1,404	-	2.31%	3.35%	4.02%	4.19%
12	33,957	-	997	1,339	1,544	1,719	-	2.75%	3.72%	4.29%	4.44%
13	39,349	-	1,306	1,680	1,889	2,090	-	3.11%	4.01%	4.52%	4.66%
14	45,737	-	1,668	2,065	2,292	2,519	-	3.44%	4.24%	4.71%	4.84%
15	53,307	-	2,074	2,502	2,749	3,015	-	3.65%	4.36%	4.86%	5.00%
16	62,361	9	2,587	3,041	3,295	3,559	0.01%	3.89%	4.51%	4.86%	5.00%
17	73,512	227	3,244	3,712	3,982	4,279	0.28%	4.16%	4.67%	4.98%	5.00%
18	87,812	872	4,137	4,570	4,900	5,245	0.91%	4.43%	4.80%	5.00%	5.00%
19	108,171	2,146	5,327	5,817	6,416	7,088	1.74%	4.61%	4.84%	5.00%	5.00%
20	148,267	4,892	7,629	8,692	10,525	13,826	2.78%	4.71%	4.89%	4.99%	5.00%
21	315,818	11,800	17,150	21,424	31,246	74,882	2.29%	4.58%	4.94%	4.99%	5.09%
All		$0	$0	$704	$2,475	$6,884	-	-	2.58%	4.39%	5.00%

FAGI Group	FAGI Minimum	Δ Tax *					Δ AETR *					% Up >$10 & >5%
		5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	
1	Neg.	-	-	-	-	-	-	-	-	-	-	0.2%
2	2,443	(3)	-	-	-	-	-0.06%	-	-	-	-	0.0%
3	5,750	(55)	(27)	-	-	-	-0.70%	-0.38%	-	-	-	0.5%
4	8,600	(73)	(57)	(7)	-	-	-0.72%	-0.58%	-0.07%	-	-	2.1%
5	10,962	(96)	(78)	(32)	-	-	-0.76%	-0.67%	-0.26%	-	-	3.6%
6	13,348	(116)	(101)	(36)	-	84	-0.78%	-0.72%	-0.25%	-	0.59%	6.1%
7	15,933	(118)	(113)	(40)	(7)	232	-0.71%	-0.63%	-0.23%	-0.04%	1.34%	9.3%
8	18,819	(122)	(115)	(49)	(8)	364	-0.60%	-0.56%	-0.23%	-0.04%	1.81%	12.8%
9	21,973	(122)	(118)	(50)	-	510	-0.53%	-0.48%	-0.21%	-	2.14%	17.4%
10	25,472	(122)	(117)	(49)	-	661	-0.46%	-0.41%	-0.18%	-	2.40%	23.1%
11	29,414	(122)	(53)	(49)	292	819	-0.40%	-0.17%	-0.15%	0.92%	2.59%	29.7%
12	33,957	(122)	(52)	(48)	459	987	-0.34%	-0.15%	-0.13%	1.25%	2.70%	37.0%
13	39,349	(121)	(51)	-	581	1,162	-0.29%	-0.12%	-	1.37%	2.74%	44.0%
14	45,737	(121)	(50)	157	685	1,333	-0.25%	-0.10%	0.32%	1.39%	2.70%	51.3%
15	53,307	(120)	(49)	412	796	1,491	-0.21%	-0.09%	0.71%	1.38%	2.58%	58.2%
16	62,361	(123)	(48)	559	913	1,658	-0.19%	-0.07%	0.82%	1.35%	2.45%	65.4%
17	73,512	(98)	-	675	1,042	1,825	-0.11%	-	0.84%	1.30%	2.27%	72.2%
18	87,812	(167)	411	794	1,190	2,042	-0.18%	0.42%	0.82%	1.22%	2.11%	79.8%
19	108,171	(267)	472	857	1,311	2,296	-0.23%	0.38%	0.69%	1.06%	1.85%	83.2%
20	148,267	(517)	285	814	1,451	3,044	-0.23%	0.14%	0.43%	0.78%	1.58%	68.5%
21	315,818	(6,843)	(1,601)	(216)	1,230	5,811	-0.59%	-0.30%	-0.05%	0.27%	1.17%	28.3%
All		($121)	($50)	$0	$487	$1,388	-0.66%	-0.21%	-	0.71%	2.07%	32.8%

* **AETR** is Average Effective Tax Rate = Tax / Fed AGI; **Δ** is shorthand for "change in."

Table C3. Tax Reform Council, Out Years

Full-Year Residents (N = 3,753,250) **Mean Δ Tax:** $88.11 **Total Δ Tax:** $330.7 million

FAGI Group	FAGI Minimum	Pro Forma Tax					Pro Forma AETR *				
		5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl
1	Neg.	-	-	-	-	-	-	-	-	-	-
2	2,443	-	-	-	-	-	-	-	-	-	-
3	5,750	-	-	-	-	15	-	-	-	-	0.18%
4	8,600	-	-	-	52	96	-	-	-	0.53%	0.88%
5	10,962	-	-	51	137	204	-	-	0.40%	1.14%	1.54%
6	13,348	-	29	151	262	348	-	0.19%	1.00%	1.80%	2.52%
7	15,933	-	128	284	418	516	-	0.72%	1.59%	2.43%	2.89%
8	18,819	61	267	449	588	701	0.32%	1.30%	2.17%	2.93%	3.22%
9	21,973	189	442	632	783	906	0.82%	1.87%	2.65%	3.36%	3.60%
10	25,472	364	643	838	1,002	1,132	1.33%	2.38%	3.07%	3.72%	3.92%
11	29,414	571	869	1,089	1,242	1,339	1.81%	2.80%	3.46%	4.00%	4.00%
12	33,957	794	1,127	1,365	1,459	1,552	2.20%	3.13%	3.78%	4.00%	4.00%
13	39,349	1,047	1,424	1,610	1,708	1,808	2.51%	3.37%	3.82%	4.00%	4.00%
14	45,737	1,310	1,751	1,890	1,991	2,105	2.68%	3.59%	3.85%	4.00%	4.02%
15	53,307	1,570	2,068	2,207	2,323	2,457	2.75%	3.70%	3.87%	4.00%	4.02%
16	62,361	1,859	2,433	2,592	2,731	2,889	2.76%	3.67%	3.88%	4.00%	4.02%
17	73,512	2,195	2,892	3,074	3,249	3,437	2.75%	3.72%	3.90%	4.00%	4.01%
18	87,812	2,735	3,506	3,720	3,961	4,213	2.86%	3.77%	3.91%	4.00%	4.01%
19	108,171	3,630	4,407	4,754	5,204	5,703	3.04%	3.82%	3.93%	4.00%	4.00%
20	148,267	5,464	6,293	7,160	8,647	11,255	3.27%	3.88%	3.94%	4.00%	4.02%
21	315,818	11,611	14,169	17,693	25,955	63,089	2.42%	3.93%	3.97%	4.00%	4.13%
All		$0	$71	$911	$2,309	$5,691	-	0.54%	2.99%	3.90%	4.00%

FAGI Group	FAGI Minimum	Δ Tax *					Δ AETR *					% Up >$10 & >5%
		5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	
1	Neg.	-	-	-	-	-	-	-	-	-	-	0.3%
2	2,443	(3)	-	-	-	-	-0.06%	-	-	-	-	0.1%
3	5,750	(55)	(27)	-	-	-	-0.70%	-0.38%	-	-	-	1.1%
4	8,600	(73)	(57)	(5)	-	35	-0.72%	-0.58%	-0.05%	-	0.35%	7.9%
5	10,962	(96)	(78)	(32)	-	121	-0.76%	-0.67%	-0.25%	-	0.99%	13.0%
6	13,348	(116)	(101)	(35)	-	240	-0.78%	-0.72%	-0.24%	-	1.63%	18.7%
7	15,933	(118)	(113)	(39)	-	375	-0.70%	-0.63%	-0.22%	-	2.18%	24.1%
8	18,819	(121)	(114)	(48)	110	508	-0.60%	-0.56%	-0.23%	0.53%	2.49%	28.4%
9	21,973	(122)	(117)	(49)	222	652	-0.53%	-0.47%	-0.21%	0.94%	2.73%	34.6%
10	25,472	(122)	(117)	(48)	406	814	-0.46%	-0.40%	-0.18%	1.49%	2.96%	41.1%
11	29,414	(172)	(53)	(47)	555	992	-0.52%	-0.17%	-0.14%	1.76%	3.12%	46.7%
12	33,957	(272)	(53)	88	671	1,172	-0.72%	-0.15%	0.24%	1.83%	3.18%	50.8%
13	39,349	(384)	(100)	169	759	1,378	-0.88%	-0.23%	0.40%	1.79%	3.23%	53.8%
14	45,737	(506)	(163)	239	831	1,602	-1.02%	-0.34%	0.48%	1.68%	3.21%	56.4%
15	53,307	(631)	(220)	287	888	1,802	-1.13%	-0.39%	0.50%	1.55%	3.11%	58.4%
16	62,361	(758)	(266)	281	904	2,044	-1.09%	-0.39%	0.41%	1.34%	3.02%	58.4%
17	73,512	(884)	(251)	214	877	2,337	-1.08%	-0.31%	0.27%	1.10%	2.91%	53.9%
18	87,812	(1,112)	(345)	87	781	2,692	-1.16%	-0.35%	0.09%	0.81%	2.80%	45.4%
19	108,171	(1,407)	(632)	(156)	572	2,954	-1.15%	-0.50%	-0.13%	0.46%	2.39%	34.1%
20	148,267	(2,706)	(1,517)	(797)	133	2,818	-1.18%	-0.77%	-0.43%	0.07%	1.52%	21.9%
21	315,818	(19,824)	(6,902)	(4,086)	(2,087)	4,741	-1.56%	-1.23%	-0.93%	-0.49%	0.93%	9.6%
All		($784)	($100)	$0	$271	$1,453	-0.86%	-0.41%	-	0.62%	2.75%	32.3%

* **AETR** is Average Effective Tax Rate = Tax / Fed AGI; Δ is shorthand for "change in."

Table C4. HB 388

Full-Year Residents (N = 3,753,250)   **Mean Δ Tax:** -$61.36   **Total Δ Tax:** -$230.3 million

FAGI Group	FAGI Minimum	Pro Forma Tax 5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	Pro Forma AETR * 5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl
1	Neg.	-	-	-	-	-	-	-	-	-	-
2	2,443	-	-	-	-	-	-	-	-	-	-
3	5,750	-	-	-	18	54	-	-	-	0.24%	0.67%
4	8,600	-	-	-	90	160	-	-	-	0.95%	1.51%
5	10,962	-	-	-	185	276	-	-	-	1.59%	2.13%
6	13,348	-	-	20	321	445	-	-	0.14%	2.30%	2.85%
7	15,933	-	-	145	472	605	-	-	0.86%	2.87%	3.28%
8	18,819	-	-	280	637	787	-	-	1.35%	3.30%	3.68%
9	21,973	-	99	427	804	985	-	0.42%	1.75%	3.60%	3.96%
10	25,472	-	219	604	971	1,211	-	0.79%	2.19%	3.49%	4.23%
11	29,414	-	343	809	1,189	1,465	-	1.09%	2.58%	3.62%	4.46%
12	33,957	-	513	1,051	1,437	1,743	-	1.41%	2.93%	3.85%	4.60%
13	39,349	-	703	1,403	1,689	2,005	-	1.66%	3.34%	3.98%	4.60%
14	45,737	-	920	1,657	1,988	2,326	-	1.86%	3.35%	3.91%	4.60%
15	53,307	-	1,203	1,922	2,334	2,705	-	2.10%	3.32%	3.96%	4.60%
16	62,361	-	1,643	2,283	2,746	3,168	-	2.45%	3.35%	4.04%	4.60%
17	73,512	-	2,435	2,878	3,223	3,784	-	3.12%	3.56%	4.09%	4.60%
18	87,812	221	3,155	3,569	3,989	4,608	0.23%	3.39%	3.68%	3.89%	4.60%
19	108,171	1,326	4,161	4,697	5,276	5,919	1.07%	3.62%	3.85%	3.99%	4.60%
20	148,267	3,838	6,306	7,948	9,780	12,825	2.20%	3.95%	4.39%	4.60%	4.60%
21	315,818	10,255	15,831	19,765	28,730	68,447	1.92%	4.22%	4.60%	4.60%	4.70%
All		$0	$0	$540	$1,982	$5,693	-	-	2.01%	3.71%	4.60%

FAGI Group	FAGI Minimum	Δ Tax * 5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	Δ AETR * 5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	% Up >$10 & >5%
1	Neg.	-	-	-	-	-	-	-	-	-	-	0.1%
2	2,443	(3)	-	-	-	-	-0.06%	-	-	-	-	0.5%
3	5,750	(30)	(9)	-	-	11	-0.38%	-0.13%	-	-	0.16%	6.0%
4	8,600	(36)	(15)	-	-	6	-0.36%	-0.15%	-	-	0.07%	2.7%
5	10,962	(89)	(31)	(5)	-	1	-0.71%	-0.26%	-0.04%	-	0.01%	0.5%
6	13,348	(115)	(61)	(19)	-	1	-0.81%	-0.41%	-0.13%	-	0.01%	0.4%
7	15,933	(156)	(88)	(29)	(2)	-	-0.88%	-0.50%	-0.17%	-0.01%	-	0.3%
8	18,819	(169)	(98)	(37)	(6)	-	-0.84%	-0.48%	-0.18%	-0.03%	-	1.2%
9	21,973	(189)	(106)	(41)	(10)	-	-0.80%	-0.46%	-0.18%	-0.04%	-	2.7%
10	25,472	(204)	(104)	(40)	(8)	3	-0.75%	-0.38%	-0.15%	-0.03%	0.01%	3.8%
11	29,414	(205)	(99)	(36)	(5)	37	-0.65%	-0.31%	-0.11%	-0.02%	0.11%	5.6%
12	33,957	(208)	(97)	(39)	-	187	-0.57%	-0.27%	-0.11%	-	0.50%	9.9%
13	39,349	(217)	(125)	(67)	-	371	-0.51%	-0.29%	-0.16%	-	0.87%	15.2%
14	45,737	(269)	(177)	(69)	-	417	-0.54%	-0.37%	-0.14%	-	0.85%	15.4%
15	53,307	(350)	(197)	(62)	-	441	-0.60%	-0.34%	-0.11%	-	0.77%	15.1%
16	62,361	(429)	(178)	(82)	-	497	-0.65%	-0.26%	-0.12%	-	0.73%	15.2%
17	73,512	(478)	(263)	(64)	99	866	-0.59%	-0.33%	-0.08%	0.12%	1.07%	24.4%
18	87,812	(629)	(399)	(101)	152	1,030	-0.63%	-0.41%	-0.10%	0.16%	1.06%	25.7%
19	108,171	(972)	(624)	(246)	125	1,113	-0.75%	-0.51%	-0.20%	0.10%	0.90%	22.6%
20	148,267	(1,380)	(708)	(168)	480	2,105	-0.74%	-0.37%	-0.09%	0.25%	1.05%	27.9%
21	315,818	(12,469)	(3,755)	(1,837)	(304)	3,766	-0.98%	-0.67%	-0.41%	-0.07%	0.82%	13.6%
All		($488)	($108)	($19)	$0	$374	-0.69%	-0.32%	-0.08%	-	0.46%	9.6%

* **AETR** is Average Effective Tax Rate = Tax / Fed AGI; **Δ** is shorthand for "change in."

Table C5. Alternative 1 - Drop 6% Bracket and Other Changes

Full-Year Residents (N = 3,753,250)   **Mean Δ Tax:** -$147.19   **Total Δ Tax:** -$552.5 million

FAGI Group	FAGI Minimum	Pro Forma Tax 5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	Pro Forma AETR * 5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl
1	Neg.	-	-	-	-	-	-	-	-	-	-
2	2,443	-	-	-	-	3	-	-	-	-	0.07%
3	5,750	-	-	-	19	50	-	-	-	0.26%	0.63%
4	8,600	-	-	3	81	124	-	-	0.03%	0.85%	1.15%
5	10,962	-	-	33	152	216	-	-	0.28%	1.31%	1.64%
6	13,348	-	-	98	246	341	-	-	0.70%	1.76%	2.16%
7	15,933	-	35	180	376	481	-	0.20%	1.09%	2.27%	2.59%
8	18,819	-	112	292	514	636	-	0.55%	1.47%	2.66%	2.95%
9	21,973	-	190	433	667	804	-	0.82%	1.77%	2.99%	3.23%
10	25,472	-	279	580	830	992	-	1.02%	2.09%	3.04%	3.46%
11	29,414	-	380	738	1,011	1,207	-	1.21%	2.36%	3.06%	3.66%
12	33,957	-	507	923	1,223	1,457	-	1.39%	2.54%	3.25%	3.84%
13	39,349	-	661	1,137	1,447	1,738	-	1.55%	2.65%	3.40%	3.98%
14	45,737	-	888	1,389	1,713	2,050	-	1.80%	2.83%	3.49%	4.11%
15	53,307	-	1,169	1,670	2,031	2,406	-	2.04%	2.95%	3.53%	4.21%
16	62,361	-	1,548	2,019	2,433	2,856	-	2.32%	2.94%	3.55%	4.22%
17	73,512	1	2,056	2,509	2,908	3,419	0.00%	2.63%	3.10%	3.64%	4.18%
18	87,812	234	2,769	3,239	3,621	4,185	0.24%	2.98%	3.32%	3.65%	4.25%
19	108,171	1,210	3,851	4,430	5,019	5,703	0.98%	3.35%	3.63%	3.83%	4.26%
20	148,267	3,656	6,172	7,257	9,074	12,361	2.08%	3.81%	4.04%	4.25%	4.48%
21	315,818	11,932	15,942	20,356	30,673	78,016	2.97%	4.42%	4.57%	4.73%	4.94%
All		$0	$3	$489	$1,734	$5,491	-	0.02%	1.82%	3.22%	4.10%

FAGI Group	FAGI Minimum	Δ Tax * 5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	Δ AETR * 5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	% Up >$10 & >5%
1	Neg.	-	-	-	-	-	-	-	-	-	-	0.1%
2	2,443	-	-	-	-	-	-	-	-	-	-	0.0%
3	5,750	(15)	(8)	-	-	-	-0.19%	-0.11%	-	-	-	0.2%
4	8,600	(41)	(23)	(5)	-	-	-0.39%	-0.24%	-0.05%	-	-	0.3%
5	10,962	(78)	(51)	(13)	-	-	-0.60%	-0.44%	-0.11%	-	-	0.4%
6	13,348	(113)	(93)	(27)	-	-	-0.72%	-0.67%	-0.19%	-	-	0.8%
7	15,933	(141)	(120)	(56)	(10)	-	-0.76%	-0.73%	-0.32%	-0.06%	-	1.4%
8	18,819	(171)	(148)	(91)	(20)	-	-0.79%	-0.76%	-0.43%	-0.10%	-	3.2%
9	21,973	(204)	(177)	(129)	(20)	29	-0.82%	-0.80%	-0.54%	-0.09%	0.12%	5.6%
10	25,472	(242)	(211)	(154)	(21)	71	-0.84%	-0.77%	-0.58%	-0.08%	0.26%	8.1%
11	29,414	(285)	(249)	(186)	(28)	101	-0.86%	-0.76%	-0.58%	-0.09%	0.32%	8.5%
12	33,957	(334)	(290)	(219)	(46)	155	-0.88%	-0.78%	-0.60%	-0.13%	0.42%	9.6%
13	39,349	(391)	(335)	(255)	(59)	224	-0.90%	-0.80%	-0.60%	-0.14%	0.53%	10.0%
14	45,737	(453)	(386)	(291)	(48)	309	-0.91%	-0.78%	-0.59%	-0.10%	0.63%	10.5%
15	53,307	(528)	(447)	(331)	(42)	381	-0.92%	-0.77%	-0.58%	-0.07%	0.66%	11.1%
16	62,361	(618)	(514)	(384)	(62)	461	-0.91%	-0.76%	-0.57%	-0.09%	0.68%	11.8%
17	73,512	(729)	(600)	(444)	(91)	545	-0.90%	-0.74%	-0.56%	-0.11%	0.68%	12.4%
18	87,812	(870)	(716)	(496)	(115)	685	-0.91%	-0.74%	-0.51%	-0.12%	0.71%	13.4%
19	108,171	(1,123)	(879)	(563)	(126)	933	-0.88%	-0.73%	-0.45%	-0.10%	0.74%	14.6%
20	148,267	(1,763)	(1,181)	(685)	(23)	1,837	-0.86%	-0.62%	-0.36%	-0.01%	0.93%	17.1%
21	315,818	(7,730)	(2,935)	(1,583)	77	8,359	-0.82%	-0.58%	-0.34%	0.02%	1.37%	17.7%
All		($780)	($288)	($78)	$0	$177	-0.87%	-0.68%	-0.29%	-	0.29%	7.0%

* **AETR** is Average Effective Tax Rate = Tax / Fed AGI; Δ is shorthand for "change in."

Table C6. Alternative 2 - Two Rate Brackets

Full-Year Residents (N = 3,753,250) **Mean Δ Tax:** -$22.17   **Total Δ Tax:** -$83.2 million

FAGI Group	FAGI Minimum	Pro Forma Tax					Pro Forma AETR *				
		5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl
1	Neg.	-	-	-	-	-	-	-	-	-	-
2	2,443	-	-	-	-	-	-	-	-	-	-
3	5,750	-	-	-	16	70	-	-	-	0.21%	0.83%
4	8,600	-	-	-	124	183	-	-	-	1.30%	1.70%
5	10,962	-	-	-	226	297	-	-	-	1.93%	2.25%
6	13,348	-	-	18	342	424	-	-	0.13%	2.42%	2.68%
7	15,933	-	-	145	472	559	-	-	0.85%	2.80%	3.00%
8	18,819	-	-	286	609	706	-	-	1.43%	3.09%	3.26%
9	21,973	-	65	438	765	870	-	0.29%	1.89%	3.33%	3.47%
10	25,472	-	222	608	938	1,054	-	0.86%	2.28%	3.53%	3.65%
11	29,414	-	348	811	1,140	1,268	-	1.08%	2.62%	3.71%	3.80%
12	33,957	-	516	1,047	1,372	1,520	-	1.35%	2.92%	3.86%	3.94%
13	39,349	-	748	1,305	1,634	1,815	-	1.73%	3.17%	3.98%	4.05%
14	45,737	-	1,015	1,588	1,932	2,161	-	2.07%	3.36%	4.09%	4.16%
15	53,307	-	1,309	1,911	2,278	2,561	-	2.35%	3.20%	4.17%	4.25%
16	62,361	-	1,710	2,295	2,703	3,042	-	2.58%	3.35%	3.87%	4.32%
17	73,512	150	2,230	2,800	3,218	3,617	0.19%	2.81%	3.51%	3.98%	4.40%
18	87,812	650	2,957	3,550	3,974	4,485	0.68%	3.12%	3.67%	4.09%	4.54%
19	108,171	1,678	4,079	4,745	5,350	6,149	1.36%	3.47%	3.87%	4.21%	4.68%
20	148,267	4,117	6,474	7,604	9,556	13,059	2.35%	3.91%	4.21%	4.47%	4.87%
21	315,818	12,939	16,899	21,620	32,686	83,792	3.23%	4.62%	4.86%	5.04%	5.29%
All		$0	$0	$553	$1,939	$5,826	-	-	2.12%	3.59%	4.32%

FAGI Group	FAGI Minimum	Δ Tax					Δ AETR *					% Up >$10 & >5%
		5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	5th Pctl	Second Quartile	Median	Upper Quartile	95th Pctl	
1	Neg.	-	-	-	-	-	-	-	-	-	-	0.2%
2	2,443	(3)	-	-	-	-	-0.06%	-	-	-	-	0.3%
3	5,750	(26)	(6)	-	-	11	-0.38%	-0.08%	-	-	0.13%	5.4%
4	8,600	(28)	-	-	17	25	-0.27%	-	-	0.19%	0.25%	34.2%
5	10,962	(96)	(8)	-	9	20	-0.76%	-0.07%	-	0.07%	0.18%	21.5%
6	13,348	(138)	(76)	(20)	-	77	-0.95%	-0.50%	-0.14%	-	0.52%	7.2%
7	15,933	(200)	(135)	(57)	-	212	-1.13%	-0.78%	-0.32%	-	1.19%	9.0%
8	18,819	(336)	(186)	(97)	(2)	316	-1.60%	-0.88%	-0.47%	-0.01%	1.53%	11.2%
9	21,973	(384)	(236)	(137)	-	419	-1.59%	-0.99%	-0.57%	-	1.78%	16.3%
10	25,472	(479)	(271)	(174)	-	525	-1.79%	-0.96%	-0.64%	-	1.91%	20.6%
11	29,414	(599)	(307)	(209)	64	616	-1.90%	-0.98%	-0.69%	0.20%	1.95%	26.0%
12	33,957	(671)	(346)	(205)	163	712	-1.83%	-0.95%	-0.56%	0.45%	1.95%	30.7%
13	39,349	(739)	(392)	(61)	215	799	-1.74%	-0.93%	-0.14%	0.51%	1.88%	33.9%
14	45,737	(811)	(462)	(6)	245	880	-1.65%	-0.90%	-0.01%	0.50%	1.79%	36.0%
15	53,307	(885)	(528)	(2)	264	946	-1.57%	-0.93%	0.00%	0.46%	1.64%	36.9%
16	62,361	(949)	(497)	(23)	287	1,013	-1.38%	-0.73%	-0.03%	0.42%	1.50%	35.7%
17	73,512	(1,039)	(432)	(60)	281	1,084	-1.28%	-0.54%	-0.07%	0.35%	1.35%	33.0%
18	87,812	(1,146)	(463)	(103)	299	1,198	-1.13%	-0.47%	-0.11%	0.31%	1.24%	31.4%
19	108,171	(1,208)	(571)	(181)	312	1,412	-0.95%	-0.46%	-0.15%	0.25%	1.14%	28.7%
20	148,267	(1,449)	(791)	(269)	425	2,314	-0.74%	-0.41%	-0.14%	0.22%	1.17%	26.4%
21	315,818	(3,830)	(1,462)	(280)	1,470	10,903	-0.53%	-0.29%	-0.06%	0.30%	1.66%	28.7%
All		($780)	($232)	($1)	$12	$721	-1.44%	-0.64%	0.00%	0.06%	1.39%	22.3%

* **AETR** is Average Effective Tax Rate = Tax / Fed AGI; Δ is shorthand for "change in."

Appendix D. Projecting Revenue Effects of Tax Reform

The tax return data allow us to estimate how a change in the tax structure would affect personal income tax (PIT) liability for tax year 2009 for full-year residents. However, in order to estimate the effect on revenue for FY 2012 and beyond, additional steps have to be taken. We used two alternative methods to project the effect of a tax change. These two methods are described below. For both methods it is assumed that the tax change becomes effective January 1, 2012, and thus will affect FY 2012 revenue for only half of that fiscal year.

In order to measure the revenue effect, it is necessary to account for the timing of the tax revenue received by the state. Personal income taxes are withheld nearly uniformly over the tax year, while estimated tax payments are more likely to be paid in the first half of the tax year. When tax returns are filed in the subsequent calendar year, taxpayers either make additional tax payments or get tax refunds. On average, taxpayers receive refunds; that is, taxpayers over withhold. Using data that provides quarterly receipts from withholding and from estimated payments and payments for refunds, we calculated the timing of the income tax revenue receipts to the government. (These data were assembled by Ken Heaghney, and are based on information from the Department of Revenue.) In doing this calculation we assumed that all of the refunds paid out in a calendar year are associated with the tax liability for the prior (tax) year.[6]

We have quarterly revenue data for 6 calendar years, 2005 through 2010. We determined the timing of tax receipts by quarter, on average, for the 6 years. The following illustrates the pattern assuming a tax liability of $1,000 for tax year (TY) 2012 and the average of the timing pattern.

First half of CY 2012 (which is the second half of FY 2012): $688

Second half of CY 2012 (which is the first half of FY 2013): $598

First half of CY 2013 (which is the second half of FY 2013): -$234 (refunds)

Second half of CY 2013 (which is the first half of FY 2014): -$52 (refunds)

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[6] We are aware that some tax returns are not filed until the second year following the tax year. We do not know how many returns or tax revenue this accounts for, but we believe it is small. In any case, it only affects the allocation of revenue to fiscal years, not the total revenue estimate.

The total net revenue received over those four periods is $1,000, which is the tax liability reported on the tax return for TY 2012. Note that the TY 2012 tax liability affects revenue over two calendar years and three fiscal years.

There is some variation in the timing pattern across the 6 years. Thus, we developed revenue estimates using three different timing patterns: the average (which was used in the above illustration), the pattern for the year that had the most revenue in the first half of the tax year, and the pattern for the year that had the least revenue in the first half of the tax year. Table D1 provides the three alternative timing patterns that were used.

Using the reported quarterly tax receipts data and the assumption that refunds made in CY 2010 are associated with the tax liability for TY 2009, we estimated TY 2009 income tax liability. The estimated tax liability is $6,663.6 million, which is very close to the tax liability value reported on the TY 2009 tax return data, namely, $6,685.9 million. Thus, we are comfortable with our assumption that refunds in the second calendar year are refunds that are associated with the prior tax year.

We now describe the two alternative methods we used to develop revenue estimates for future fiscal years.

Method I

Step 1. Using the tax returns for TY 2009, we calculated the percentage change in PIT liability for TY 2009 for full-year residents as a result of a given tax reform. Refer to this percent as PCPIT, for percentage change in PIT revenue. We assume that the percentage change in tax liability for non-full-year residents is the same as for full-year residents. We also assume that the percentage change in PIT liability for future tax years for the given tax reform will equal PCPIT.

Step 2. We assume that the tax liability for a tax year, say TY 2012, equals the revenue for that fiscal year, that is, FY 2012. If PIT revenue is increasing, FY 2012 revenue will understate TY 2012 tax liability, and thus understate any revenue loss. Because of the timing of tax receipts, we cannot simply multiply the forecasted fiscal year PIT revenue by PCPIT in order to estimate the change in revenue in a fiscal year. For example, for FY 2012, a tax change will affect revenue in only the second half of FY 2012, that is, the first half of CY 2012. Given the timing pattern of receipts shown as Pattern 2 in Table D1, on average 68.8 percent of the revenue change for TY 2012 will be

TABLE D1. ALTERNATIVE TIMING PATTERN OF RECEIPT OF TAX REVENUE

Time Period	Pattern 1	Pattern 2	Pattern 3
Q1+Q2, CY 2009	65.7%	68.8%	72.0%
Q3+Q4, CY 2009	59.6%	59.8%	59.4%
Q1+Q2, CY 2010	-21.8%	-23.4%	-23.3%
Q3+Q4, CY 2010	-3.5%	-5.2%	-8.1%

TABLE D2. FORECASTING FY PIT REVENUE

	Growth Rates	Forecasted PIT Revenue
FY 2011	9.16%	$7,658,953,000 (actual revenue)
FY 2012	6.93%	$8,189,347,000
FY 2013	6.91%	$8,754,908,000
FY 2014	5.40%	$9,227,673,000

TABLE D3. ILLUSTRATION OF METHOD I

		------------------------------Tax Receipts------------------------------					
		Q1Q2-CY 2012 (FY 2012)	Q3Q4-CY 2012 (FY 2013)	Q1Q2-CY 2013 (FY 2013)	Q3Q4-CY2013 (FY 2014)	Q1Q2-CY2014 (FY 2014)	Q3Q4-CY 2014 (FY 2015)
Tax Liability Change							
TY 2012	500	344	299	-117	-26		
TY 2013	525			361	314	-123	-27
TY 2014	551					379	330
Revenue Effect							
FY 2012	344	344					
FY 2013	543		299	244			
FY 2014	544				288	256	

felt in FY 2012. Thus, to calculate the revenue effect for FY 2012, we multiplied the forecasted FY 2012 PIT revenue by PCPIT and then by 68.8 percent.

The revenue forecast we used for FY 2012 was determined by taking the actual FY 2011 PIT revenue (as reported in the DOR's July press release) and increasing it by the expected growth rate for PIT (as provided by Ken Heaghney on July 27, 2011). This means that the FY 2012 PIT revenue forecast is greater than what is reported in the Governor's Budget Report. Table D2 shows the FY revenue growth rates and PIT forecasts that were used in the estimation procedures. These forecasts account for the reduced revenue due to the increase in the allowable retirement income exclusion.

To estimate the revenue effect for FY 2013, we have to account for TY 2012 receipts that are received in the second half of CY 2012, the TY 2012 refunds that would occur in the first half of CY 2013, and the TY 2013 receipts that

are received in the first half of CY 2013. Similar calculations have to be made for future fiscal years.

Table D3 illustrates, for an arbitrary change in tax liability due to tax reform, the calculations for FY 2012 through FY 2014, given the calculation of the tax year liability. The first column of the first panel contains the increase in tax liability for the three tax years. The rest of that panel shows the pattern of tax receipts over the two calendar years. The first column of the second panel shows the revenue change for the three fiscal years, while the rest of the panel shows the distribution of that revenue over the two halves of the fiscal year. For example, the $500 change in TY liability will generate $344 (68.8 percent of 500) in the second half of FY 2012, and 299 in the first half of FY 2013. In the second half of FY 2013 (the first half of CY 2013), tax revenue will consist of 68.8 percent of $525 increase in TY 2013 liability less the $117 refund paid out in the first half of CY 2013 associated with the $500 increase in TY 2012 tax liability (-23.4 percent of $500).

Method II

Step 1. Method II starts with the PIT revenue for TY 2009 as determined from the tax return data. This is the tax liability assuming no tax reform. We then calculate the tax liability for full-year residents for the given tax reform. We calculate the percentage change in tax liability for full-year residents and adjust the actual tax liability for non-full-year residents by this percentage change. The non-full-year resident tax liability for the given tax reform is added to the tax liability for full-year residents for the given tax reform. This gives us two tax liabilities, a no tax reform liability and a tax reform liability for TY 2009. These two PIT tax year liabilities are projected to future tax years and then converted to fiscal years. The steps for doing that are the same for the two TY 2009 tax liabilities, namely the tax liability for the current tax structure and the reformed tax system.

Step 2. To calculate the percentage increase in PIT liability between TY 2009 and TY 2010 we use the quarterly PIT revenue data. However, we first had to estimate the refunds for the last two quarters in TY 2011 since that data is not yet available. To do that, we calculated the refunds in the last two quarters of TY 2010 as a percentage of refunds in the first two quarters of TY 2010, and then assumed that this same percentage would apply to TY 2011. The two TY 2009 PIT liabilities from Step 1was multiplied by this percentage increase to get estimated TY 2010 tax liabilities.

Step 3. The estimated TY 2010 liability was projected to future tax years using the growth rates for forecasted revenue for fiscal years. Since a tax year consists of half of two fiscal years, we used the weighted average of the growth rates for the two fiscal years that include the tax year. That is, for TY 2012, we used 0.5*6.93% + 0.5*6.91% = 6.92%. The fiscal year growth rates are shown in Table D2.

Step 4. The next step was to allocate the projected TY PIT revenue to fiscal years. We did that by using the timing of receipts as reported in Table D1. Table D3 illustrates how changes in tax year liabilities are allocated across fiscal years. For an explanation see the previous discussion of Table D3.

Step 5. Finally, we calculate the difference in the resulting two projected fiscal year PIT revenues (i.e., with and without tax changes) to get the estimated net revenue effect of the tax reform.

Other Considerations

As noted above, we used each of the two alternative estimation methods for each of the three alternative timing patterns shown in Table D1. Thus, we have six different revenue estimates for each tax change. We report the average of these estimated revenue effects. We consider the average the midpoint of the likely revenue effect. We also report the minimum and maximum of the estimated changes. These should be considered to be extreme values, that is, it is very unlikely that revenue changes will be that large or small. Our subjective evaluation of the revenue estimates is that we are 90 percent confident that the actual revenue change would be within 5 percent of the average reported in Table 1.

Beginning in TY 2012, the allowable retirement exclusion will increase. The forecasts of income tax revenues reflect that increase, so the revenue forecasts are lower due to the increased retirement exclusion. For income tax proposals that either eliminated or capped the retirement exclusion, it is necessary to account for this change in tax policy. Since the TY 2009 tax liability does not reflect the increase in retirement income exclusion, the estimate of the effect of the tax proposals on TY 2009 estimated revenue do not reflect the increased revenue from imposing a cap on retirement income exclusion. To account for this, it is necessary to increase the revenue forecast provided by Ken Heaghney by the amount that the forecasted increase in the retirement income exclusion reduced the revenue forecast. Thus, the estimated revenue effect of the tax proposal includes the effect of capping the retirement income exclusion.

For each of the alternative methods we assumed that we can use the percentage change in TY 2009 tax liability for future years or apply the percentage change in revenue forecast to the estimated post-reform TY 2009 tax liability. While

those assumptions seem reasonable, they do not account for different rates of change in the various tax structure provisions. To illustrate, consider the following simple example in which the tax liability equals gross taxable income less deductions times a 6 percent tax rate. Suppose in the first year income is $100 and deductions are $10, so that the tax liability is $5.40. Suppose that next year income is $115 and deductions are $15, so tax liability is $6.00, which is an 11.11 percent increase.

Suppose that the tax reform reduced the deduction by $5 in the first year. The tax liability would now be $5.70. If we assume that this tax liability increases by 11.11 percent, we would estimate that the tax liability in the second year would be $6.33. However, if deductions increased by 50 percent (which is the increase from $10 to $15), that is from $5 to $7.50, then the tax liability after reform in the second year would be $6.45.

Because gross income increased by a smaller percentage than deductions, our approach would overstate the increase in revenue. To get an accurate measure of the increase in tax liability, we would need forecasts for each provision of the income tax system. But that information is not available.

Increase in Revenue from Other Taxes

If personal income tax liabilities are reduced, taxpayers will have additional disposable income. In addition, the reduced Georgia personal income taxes will reduce the amount of taxes that Georgian can deduct for federal income tax purposes. This will result in an increase in federal income tax liabilities. To estimate this, we calculate reduction in personal income tax liability for those tax filers who itemize deductions. We assume that the marginal tax rate for these tax filers is 28 percent, so that the increase in disposable income for itemizers is equal to 72 percent of their reduced Georgia personal income tax liability. For filers who take the standard deduction, the increase in disposable income equals just the reduction in Georgia tax liability. We add these changes in disposable income for the two types of filers.

The increase in disposable income will result in an increase in tax revenue from sales taxes, tobacco taxes, alcoholic beverage taxes, and fuel taxes. Using expenditure data from the Bureau of Labor Statistic's Consumer Expenditure Survey,

we estimate that between 30 to 40 percent of the increase in disposable will be spent on taxable items. We use 40 percent for the calculation. The sales tax rate is 4 percent, while the excise taxes on tobacco, alcoholic beverage, and fuel are somewhat higher. Thus, we assume a combined tax rate of 4.2 percent.

As an example, suppose that personal income tax liability falls by $1,000 and that 39 percent of that goes to itemizers (In 2009, 39.1 percent of Georgia full-year resident filers itemized their deductions). Thus, the total increase in disposable income is equal to $891 [=1000*0.61 + 1000*0.39*0.72)]. The estimated additional tax revenue from the sales and excise taxes is $14.97 [=891*0.4*0.042]. We add this additional revenue to the estimated change in income tax revenue. The revenue estimates reported in Table 1 include this additional revenue.

Increase in Revenue from Behavioral Responses

There are many possible ways that taxpayers could respond to a reduction in the income tax rate. For example, a reduction in the marginal tax rate reduces the tax benefits of making charitable contributions, and thus could reduce contributions. The elimination of the dependent exemption could lead to households having fewer children. However, the magnitude of such changes in behavior is not likely to have a noticeable effect on tax revenue.

Of greater potential consequence is the effect on work. Reducing the marginal tax rate increases the net after tax wage for workers. This could increase the number of Georgians who are in the labor force and the number of hours that individuals work, particularly for worker who are not prime earners for the family. Existing estimates of the responsiveness of labor supply to changes in net wages suggest the effect of a reduction in the tax rate will be small. For prime age males, most studies find that a 10 percent increase in the net wage, for example, as a result of an income tax rate cut, will increase hours worked by less than 0.1 percent, and several studies suggest it would actually reduce hours worked. For females and individuals who have less attachment to the labor force (for example teenager and the elderly), the response is larger.

If Georgia reduced its income tax rate from 6 percent to 5 percent, the after tax wage rate would increase by 1.5 percent. (The cut in the tax rate applies to the gross wage, so the net after tax wage increases by more than the cut in the tax rate. This specific calculation assumes that the federal income tax rate is 28 percent.) Assuming a labor supply elasticity of 0.1, the increase in hours worked would be 0.15 percent. According to IRS data, wages and salaries are 75 percent of AGI. Thus, the change in taxable income would be 0.1125 percent. If the labor supply elasticity is assumed to be 0.6, the increase in taxable income would be 0.675 percent. We assume that income tax revenue would increase by 0.675 percent for each percentage point reduction in the marginal tax rate. The revenue estimates reported in Table 1 include this additional revenue.

Existing studies have found that states with lower tax rates will increase in-migration. However, migration is the result of long-term decisions, so that the response to a tax reduction would likely occur with a lag and thus would not be reflected in the period for which we are providing revenue estimates.

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