A SURTAX ON HIGH-INCOME HOUSEHOLDS ON THE 1040: CONSUMPTION VERSUS INCOME

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THIS PAPER HAS TWO SECTIONS. THE FIRST section uses IRS data for 2006 to make a rough estimate of how much revenue might be raised from a 10 percent income surtax on high-income households. The income surtax would be applied to taxable income above a threshold; we perform calculations for several thresholds, ranging from $500,000 to $10,000,000. The second section explains why a consumption surtax on high-income households is likely to cause a much smaller reduction in aggregate saving than an income surtax, and discusses some practical aspects of implementing a cash-flow consumption surtax on high-income households, including a detailed description of a supplemental consumption-surtax form to be included in the 1040 personal income tax return.

AN INCOME SURTAX ON HIGH-INCOME HOUSEHOLDS

Consider a 10 percent (10 percentage point) income surtax which would raise the top income tax rate from 35 percent to 45 percent on taxable income above a threshold. Roughly how much revenue would be raised for the following values of a threshold: $500,000, $1,000,000, $1,500,000, $2,000,000, $5,000,000, or $10,000,000? To get an accurate estimate would require micro-simulation, which we do not attempt in this paper. Instead, we try to get a very rough estimate using IRS data for 2006 presented in the last six rows of the bottom block of Table 1.1, "Selected Income and Tax Items, by Size and Accumulated Size of Adjusted Gross Income" of U.S. Department of the Treasury (2008). Specifically we use the data from column 10 (Taxable Income, Number of Returns) and column 11 (Taxable Income, Amount), which we replicate in the first three columns of our Table 1. Our rough calculation makes several simplifying assumptions which we describe below.

Table 1 shows results for an income surtax with a taxable income threshold of $500,000. As shown in the first row, for 2006 there are 587,466 tax returns with AGI between $500,000 and $1,000,000 that have total taxable income of $347.608241 billion, so the average taxable income per return is $591,708 ($347,608,241/587,466). To simplify, we assume every household in this AGI bracket has taxable income of $591,708.[1] With this assumption, and a threshold of $500,000, each return has surtaxable income of $91,708 so, with 587,466 returns, total surtaxable income is $53.9 billion as shown in the last column of Table 1. Repeating this calculation for each AGI bracket in Table 1 and summing yields total surtaxable income of $953.9 billion (last row column 6). Total taxable income of all returns (last row column 3) with AGI above $500,000 is $1,424.1 billion.

Table 2 shows results for an income surtax with taxable income thresholds ranging from $500,000 to $10,000,000 on the assumption that there is a zero taxable income elasticity. We focus on the first row of Table 2 which gives results for a threshold of $500,000, thereby extending the results from Table 1 (note that the two numbers in the bottom row of Table 1, $1,424.1 and $953.9, are repeated in the first row of Table 2). Total surtaxable income ($953.9 billion) is 67.0 percent of the total taxable income of households with AGI over $500,000 ($1,421.1 billion) and is 17.5 percent of the total taxable income of the entire population ($5,460.5 billion, not shown). If taxable income is unaffected by the imposition of the surtax—that is, if there is zero taxable income elasticity with respect to the net of tax rate—then a 10 percent surtax would yield tax revenue of $95.4 billion (10% of $953.9 billion), and total surtax revenue ($95.4 billion) would be 9.3 percent of population tax revenue [2] ($1,023.9 billion, not shown).

The remaining rows in Table 2 report results for taxable income thresholds ranging from $1,000,000 to $10,000,000. The results in each row are obtained in the same way as the results in row 1 were obtained. For example, when the threshold is $1,000,000, the first row of Table 1 is eliminated, and surtaxable income per return equals taxable income per return minus $1,000,000. As the threshold increases, surtax revenue declines. But even with a threshold of $1,000,000, if there is zero taxable income elasticity, a 10 percent surtax would still raise revenue equal to 7.1 percent of total income tax revenue from the entire population.

Table 1
Taxable Income and Surtaxable Income for a Threshold of $500,000

AGI Range	*Number Taxable Income Returns*	*Taxable Income ($billions)*	*Taxable Income per Return* ($)*	*Surtaxable Income per Return ($)*	*Surtaxable Income ($billions)*
$0.5m-$1.0m	587,466	$347.6	$591,707.8	$91,707.8	$53.9
$1.0m-$1.5m	149,994	$161.3	$1,075,667.3	$575,667.3	$86.3
$1.5m-$2.0m	63,752	$98.0	$1,537,353.3	$1,037,353.3	$66.1
$2.0m-$5.0m	98,377	$264.8	$2,691,490.2	$2,191,490.2	$215.6
$5.0m-$10.0m	24,884	$153.6	$6,173,994.7	$5,673,994.7	$141.2
+$10.0m	15,911	$398.7	$25,058,165.9	$24,558,165.9	$390.7
Sum		$1,424.1			$953.9

Table 2
Taxable Income, Surtaxable Income and Surtax Revenue for Various Thresholds – Taxable Income Unaffected by Imposition of the Surtax-Elasticity Zero

Taxable Income Threshold	*Taxable Income ($billions)*	*Surtaxable Income ($billions)*	*Surtaxable/ Taxable Income*	*Surtaxable/ Population Taxable Income*	*Surtax Revenue ($billions)*	*Surtax/ Population Tax Revenue*
$0.5m	$1,424.1	$953.9	67 percent	17.5 percent	$95.4	9.3 percent
$1.0m	$1,076.5	$723.5	67 percent	13.3 percent	$72.4	7.1 percent
$1.5m	$915.1	$610.7	67 percent	11.2 percent	$61.1	6.0 percent
$2.0m	$817.1	$538.8	66 percent	9.9 percent	$53.9	5.3 percent
$5.0m	$552.3	$348.4	63 percent	6.4 percent	$34.8	3.4 percent
$10.0m	$398.7	$239.6	60 percent	4.4 percent	$24.0	2.3 percent

*Assume every household in each AGI range has a taxable income equal to the average taxable income per return in the AGI range.

Table 3 shows results for an income surtax with taxable income thresholds ranging from $500,000 to $10,000,000 on the assumption that there is a non-zero taxable income elasticity. Based on Gruber and Saez (2002), we use 0.57 as the value for the elasticity of taxable income with respect to the net of tax rate, ε, but it should be noted that a recent study by Giertz (2007) estimates a somewhat smaller value for the elasticity.[3] If a surtax is imposed, there is now a decline in surtaxable income, ΔY, so the change in tax revenue is given by

$$\Delta T = (\Delta t) Y_1 - t_0(\Delta Y),$$

where Δt is the surtax rate ($\Delta t > 0$), Y_1 is taxable income when the surtax is in effect, t_0 is the tax rate prior to the surtax, and ΔY, $Y_0 - Y_1$, is the decrease in taxable income due to the surtax ($\Delta Y > 0$). The first term raises tax revenue and the second term reduces it. The first term is the surtax times surtaxable income when the surtax is in effect. The second term is the initial tax rate times the fall in income due to the surtax.[4]

We get the decrease in surtaxable income, ΔY, in row 1 of Table 3 as follows. A 10 percent surtax would raise the tax rate from 35 percent to 45 percent and reduce the net of tax rate from 65 percent to 55 percent, or 10%/65% =15.4% of itself. With $\varepsilon = 0.57$, taxable income would fall (0.57)(15.4%) = 8.79% of itself.[5] Since surtaxable income is 67 percent of taxable income (row 1, column 4 of Table 2), then surtaxable income would decrease 8.79% /.67 = 13.1% of itself,[6] and 13.1 percent of $953.9 billion equals $125.0 billion so that surtaxable income falls from $953.9 billion to $828.9 billion. Applying the above formula, $\Delta T = (\Delta t) Y_1 - t_0(\Delta Y)$, we obtain $\Delta T = (10\%)(\$828.9) - (35\%)$

Table 3
Surtaxable Income and Surtax Revenue for Various Thresholds – Taxable Income Reduced by Imposition of the Surtax-Elasticity 0.57

Taxable Income Threshold	*Surtaxable Income with Zero Elasticity ($billions)* Y_0	*Surtaxable Income Decrease Due to Elasticity ($billions)* ΔY	*Surtaxable Income Due to Elasticity ($billions)* Y_1	*Surtax Revenue ($billions) ΔT= 10 percent (Y_1)-35 percent (ΔY)*	*Surtax Revenue/ Surtax Revenue with Zero Elasticity*	*Surtax Revenue/ Population Tax Revenue*
$0.5m	$953.9	$125.0	$828.9	$39.1	41 percent	3.8 percent
$1.0m	$723.5	$94.4	$629.1	$29.8	41 percent	2.9 percent
$1.5m	$610.7	$80.3	$530.4	$24.9	41 percent	2.4 percent
$2.0m	$538.8	$71.8	$467.0	$21.6	40 percent	2.1 percent
$5.0m	$348.4	$48.5	$299.9	$13.0	37 percent	1.3 percent
$10.0m	$239.6	$35.0	$204.6	$8.2	34 percent	0.8 percent

($125.0) = $82.9 – $43.8 = $39.1 billion, as shown in Table 3. Note that the surtax revenue in Table 3 ($39.1 billion) where the taxable income elasticity $\varepsilon = 0.57$ is 41 percent of the surtax revenue in Table 2 ($95.4 billion) where the taxable income elasticity $\varepsilon = 0.00$. Consequently, surtax revenue as a percent of population tax revenue in Table 3 (3.8%) is 41 percent of surtax revenue as a percent of population tax revenue in Table 2 (9.3%). Even with a taxable income elasticity of 0.57, a 10 percent surtax would raise revenue equal to 3.8 percent of population tax revenue.

The remaining rows in Table 3 report results for taxable income thresholds ranging from $1,000,000 to $10,000,000. The results in each row are obtained in the same way as the results in row 1 were obtained. As the threshold increases, surtax revenue declines. But even with a threshold of $1,000,000, if there is a taxable income elasticity of 0.57, a 10 percent surtax would still raise revenue equal to 2.9 percent of total income tax revenue from the entire population.

A CONSUMPTION SURTAX ON HIGH-INCOME HOUSEHOLDS

In another paper (Lewis and Seidman, 2008), we investigated the consequences for saving of introducing a surtax on high-income households. The consequences depended on the kind of surtax. We compared an income surtax to a consumption surtax using data from the 2005 Consumer Expenditure Survey (U.S. Department of Labor, 2005). Given the assumptions and data in that paper, a 5 percent income surtax caused a substantial reduction in saving while a consumption surtax which raised the same revenue caused virtually no reduction in saving. There are three reasons why a consumption surtax reduces saving less than an income surtax: the disposable income effect (a consumption surtax reduces the disposable income of high savers less than of low savers[7]), the disincentive effect (an income surtax reduces the after-tax return to saving), and the positive behavioral effect (under a consumption surtax, households will realize that saving is "tax deductible").

A numerical example illustrates how each surtax would work. Consider a 5 percent income surtax. The 5 percent income surtax would be levied on a household's income in excess of $500,000; for example, a household with income of $600,000 would pay a surtax of $5,000 (5% of $100,000). The consumption surtax would be levied on any household that met two criteria: income over $500,000 *and* consumption over $400,000; for such a household, the surtax would be levied on consumption over $400,000. For example, with a 10 percent consumption surtax, a household that meets the income criterion (income over $500,000) and has consumption of $450,000 would pay a surtax of $5,000 (10% of $50,000). In our earlier paper, we set the income surtax rate at 5 percent,

but adjusted the consumption surtax rate to raise the same revenue.

The income threshold plays a crucial practical role in the consumption surtax: It exempts nearly all households from having to compute their consumption. As soon as a household computes its income, it would know whether it must fill out the consumption surtax form; in this example, as long as its income is less than $500,000, it would not have to fill out the consumption surtax form. Roughly 99 percent of taxpayers would quickly know they are exempt from having to compute their consumption. This exemption of 99 percent of taxpayers from a burdensome computation is a crucial difference between the consumption surtax and the current alternative minimum tax (AMT). Many households must go through a calculation of their AMT in order to determine whether they must pay it. By contrast, for 99 percent of households, as soon as the household computes its AGI it would know it doesn't have to fill out the consumption surtax form.

It should be acknowledged that some high-income households may try to expand consumption in a year when their income falls below the income threshold—either exogenously or endogenously. For example, a household with stock market losses in a given year might decide this is the year to buy an expensive car. Or a business owner, in a high consumption year, may request that a customer delay a large payment past December 31. Another concern is whether a household whose income rises slightly above the income threshold would suffer a huge tax increase by qualifying for the consumption surtax. It should be recognized, however, that while such a household would have to fill out the consumption surtax form, that household may not owe any consumption surtax due to the consumption threshold.

Andrews (1980) described the implementation of a consumption surtax on affluent households; a more recent description is given in Seidman (2006). Both descriptions rely on the analysis of the cash flow consumption tax given in U.S. Department of the Treasury (1977, revised 1982) and Seidman (1997). The consumption surtax would be implemented annually through the 1040 personal income tax return. Only households with an adjusted gross income (AGI) above a high AGI threshold—for example, $500,000 in 2008 (the threshold should be indexed to nominal income growth in the economy)—would be required to fill out the consumption-surtax form of their 1040 income tax return. All households with an AGI below the threshold would be exempt from filling out the surtax form. A household with AGI above the AGI threshold and consumption above the consumption threshold would be taxed on consumption above the consumption threshold. This consumption surtax would raise tax revenue from high-income households while increasing their incentive to save and invest.

On the consumption-surtax form, the high-income household would compute its consumption in the past calendar year by subtraction: It would sum its cash inflows and then subtract non-consumption cash outflows—all saving would therefore be tax deductible in the year it occurs. This subtraction would yield its cash-flow consumption.

A household's consumption would equal the sum of three components: (1) its cash-flow consumption, (2) its housing consumption, and (3) its consumption financed by others. Each will be discussed in turn. An abridged consumption surtax form with a numerical example is shown in Table 4.

To compute its cash-flow consumption, the household would sum its cash inflows and then subtract non-consumption cash outflows.[8] This computation is shown in lines 1 through 17 in Table 4. A key point is that what matters is *not* whether an item is "income" but whether it is a cash inflow that must be included in order to yield an accurate computation of cash-flow consumption. Line 1 is the same as under an income tax. All interest, including state and local government bond interest, must be included in cash inflows in line 2 to accurately compute the household's consumption. Omission of any component from the computation would cause an error in computed consumption for some households. Note that line 3, withdrawals from a bank account or an investment fund, are cash inflows, not income. On line 4 revenue from the sale of stocks and bonds is a cash inflow, not income (which would require subtraction of the cost of purchasing these assets—note therefore that this entry is *not* capital gains income, but only sales revenue). On line 5, borrowing is a cash inflow, not income, but it is cash inflows that are needed to compute the household's cash-flow consumption; note that, on line 12, loan repayments (principal plus interest) would be a deductible non-consumption cash outflow.

Line 11 treats purchase of housing and home improvements as an investment that is deductible in the year it occurs; but housing consumption will be

Table 4
The Consumption Surtax Form on the 1040

Cash Inflows	
1. Wages and salaries	$1,000,000
2. Interest, dividends, cash withdrawal from business	$ 50,000
3. Withdrawals from bank accounts or investment funds	$ 20,000
4. Sale of stocks, bonds, financial assets, housing, and durables	$ 200,000
5. Borrowing	$ 20,000
6. Cash gifts and bequests received	$ 10,000
7. Pension, Social Security, and insurance cash benefits	$ 0
8. Total (add lines 1, 2, 3, 4, 5, 6, 7)	$1,300,000
Non-Consumption Cash Outflows	
9. Deposits into bank accounts or investment funds	$ 90,000
10. Purchase of stocks, bonds, and financial assets	$ 60,000
11. Purchase of housing and home improvements	$ 10,000
12. Loan repayments	$ 10,000
13. Charitable contributions	$ 50,000
14. Extraordinary medical expenses	$ 0
15. Taxes withheld or paid minus tax refunds	$ 180,000
16. Total (add lines 9, 10, 11, 12, 13, 14, 15)	$ 400,000
17. Cash-flow consumption (subtract line 16 from line 8)	$ 900,000
18. Housing consumption by home owners	$ 50,000
19. Consumption financed by others	$ 50,000
20. Total Consumption (add lines 17, 18, 19)	$1,000,000
21. Consumption Surtax (5% in excess of $500,000)	$ 25,000

included on line 18 (as explained below). Charitable contributions would be deductible on line 13, but gifts and bequests to family members and friends would not be deductible. Line 14 excludes extraordinary medical expenses from taxable consumption.

Line 15 gives tax cash-flows: taxes actually withheld or paid minus tax refunds actually received during the preceding calendar year. These non-consumption cash outflows must be subtracted to determine cash actually used for household consumption. Line 15 includes any tax payment made with a federal or state income tax return; any refund received after the tax return is processed would be subtracted from taxes paid on line 15. Note that line 15 does not require any knowledge of how much income or consumption tax is owed for the preceding calendar year. It only requires actual tax payments made, taxes withheld, and refunds received.

Subtracting line 16 from line 8 yields cash-flow consumption on line 17.

Line 18 gives the estimated housing consumption this year by a home owner. Note that if the household is a renter its housing consumption has already been included in cash-flow consumption. Conceptually, housing consumption of a home owner equals the rent that would be paid if the house were rented in a competitive market. In practice, this would be measured as X percent of the estimated current price P of the home, where X percent equals the average ratio of rent to house value according to recent data. The consumption surtax form would provide the numerical value of X percent that has been determined by technicians according to recent data. The IRS would provide instructions to households for determining the estimated market value P of their home. If the estimated market value is $1,000,000 and technicians estimate that according to recent data the average value of X percent is 5 percent , then estimated housing consumption is $50,000.

Line 19 gives consumption financed by others. High-income households often enjoy consumption financed by business firms. Some firms provide high-income employees with cars, recreation, vacations, jet planes, health, and other fringe benefits. Other firms provide customers or clients with entertainment, recreation, or vacation. Under the current personal income tax, a household is supposed to report this "in-kind" income and be taxed

Table 5
A Graduated Rate Schedule for the Consumption Surtax

Consumption	*Tax Rate*
$500,000-$1,000,000	5 percent
$1,000,000-$1,500,000	10 percent
$1,500,000-$2,000,000	15 percent
$2,000,000-$2,500,000	20 percent

on it on the 1040. Enforcement of this requirement needs to be strengthened under the current income tax. Under the consumption surtax, a high-income household would be required to report the dollar value of all consumption financed by others on line 19. To facilitate this reporting and improve compliance, business firms and individuals that finance consumption for high-income households would be required to provide the dollar value to the household and to the IRS. For example, if a business firm provides a $50,000 car for an executive, the firm must report the $50,000 to the executive and to the IRS, and the executive must include it in the consumption surtax form of the 1040. For both the current income tax and the consumption surtax, the IRS should be given resources to detect and audit both in-kind income and consumption of high-income households.

In this example in Table 4, a rate of 5 percent is applied to its consumption above the threshold. Since the household's consumption is $1,000,000 in line 20, its surtax in line 21 equals 0.05($1,000,000-$500,000)=$25,000.

The consumption surtax rate on consumption above the threshold can be either a single rate or a set of graduated rates. Table 5 illustrates a set of graduated rates.

Table 6 shows the additional tax—consumption surtax plus income tax—incurred by a household when it earns an additional $1,000 of income. The household faces a 35 percent income tax rate so it pays an additional $350 in income tax. If the household saves or gives to charity the remaining $650, there is no consumption surtax. Suppose instead that the household consumes and pays a consumption surtax out of the remaining $650. Then the household's consumption equals $650/$(1 + t_c)$. In the top row, t_c = 5% so consumption is $619 and the consumption surtax is $31; the household's income tax plus consumption surtax equals $350 + $31 = $381 so the total tax rate on the additional income equals 38.1 percent. In the bottom row, t_c = 20% so consumption is $542 and the consumption surtax is $108; the household's income tax plus consumption surtax is $350 + $108 = $458 so the total tax rate on the additional income equals 45.8 percent. More generally, if t_y is the income tax rate and t_c is the consumption surtax rate, then if all additional income is devoted to consumption and taxes (none to saving or charity), the total tax rate on additional income equals $\Sigma t = (t_y + t_c)/(1 + t_c) < 1$.[9]

CONCLUSION

Using IRS data for 2006, we made a rough estimate of how much revenue might be raised from a 10 percent income surtax on high-income households. We applied the income surtax to taxable income above thresholds ranging from $500,000 to $10,000,000. We then explained why a consumption surtax on high-income households is likely to cause a much smaller reduction in aggregate saving than an income surtax and then discussed practical aspects of implementing a cash-flow consumption surtax on high-income households, including a detailed description of a supplemental consumption-surtax form to be included in the 1040 personal income tax return.

Table 6
Consumption Surtax Plus Income Tax on an Additional $1,000 of Income

Household's C Bracket	*C Rate*	*Consumption*	*C Tax*	*Y Tax*	*ΣTax*	*ΣTax%*
$500,000-$1,000,000	5%	$619	$ 31	$350	$381	38.1%
$1,000,000-$1,500,000	10%	$591	$ 59	$350	$409	40.9%
$1,500,000-$2,000,000	15%	$565	$ 85	$350	$435	43.5%
$2,000,000-$2,500,000	20%	$542	$108	$350	$458	45.8%

Notes

[1] In reality, some returns have taxable income greater than $591,708 and some have taxable income less than $591,708. If the taxable income threshold were $500,000, a tax return with taxable income of $791,708 would have surtaxable income of $291,708 while a tax return with taxable income of $391,708 would have surtaxable income of $0. Suppose there are two returns with taxable income $591,708. If a 10 percent surtax were imposed on taxable income above $500,000, each would pay 0.1($91,708) = $9,171 for a total of $18,342. Suppose instead there are two returns, one with taxable income $791,708, the other, $391,708. If a 10 percent surtax were imposed on taxable income above $500,000, the first return would pay 0.1($291,708) = $29,171, while the second would pay $0 for a total of $29,171. Thus, the total surtax depends on the distribution that generates the average of $591,708.

Note that if the surtax could be negative when taxable income is less than $500,000, then total surtax would not depend on the distribution that generates the average of $591,708. In this example, the second person would "pay" a negative surtax of .1($391,708-$500,000)=0.1(-$108,292)=-$10,829, so the total surtax would be $29,171-$10,829=$18,342, exactly the same as when the two returns each had taxable income of $591,708.

We don't have the distribution of individual taxable incomes, only the average. If we make the assumption that each return equals the average, then we can make the calculation of total surtax—but our calculation will understate the total surtax (in the example above, if we assume both returns have $591,708, and both have surtaxable income of $91,708, then the 10 percent surtax would raise $18,342; but if one return had $791,708, and the other, $391,708, then the 10 percent surtax would raise $29,171).

[2] Income tax revenue from the entire population.

[3] Gruber and Saez (2002) write that their finding of an overall taxable income elasticity of 0.4 is "primarily due to a very elastic response of taxable income for taxpayers who have incomes above $100,000 per year, who have an elasticity of 0.57, while for those with incomes below $100,000 per year the elasticity is less than one-third as large."

[4] Let Y be surtaxable income and t be the tax rate that applies to all surtaxable income. Initially, $T_0 = t_0 Y_0$. If a surtax, Δt, raises the tax rate to t_1, then $T_1 = t_1 Y_1$. With a positive taxable income elasticity, $Y_1 < Y_0$ so $\Delta Y = Y_0 - Y_1 > 0$. Then $\Delta T = T_1 - T_0 = t_1 Y_1 - t_0 Y_0 = (t_0 + \Delta t) Y_1 - t_0 Y_0$ where Δt is the surtax ($\Delta t > 0$). Replacing Y_0 by $(Y_1 + \Delta Y)$, $\Delta T = t_0 Y_1 + (\Delta t) Y_1 - t_0 (Y_1 + \Delta Y)$ so $\Delta T = (\Delta t) Y_1 - t_0 (\Delta Y)$, where $\Delta t > 0$ and $\Delta Y > 0$.

[5] We simplify our calculation by assuming the tax rate on all surtaxable income increases from 35 percent to 45 percent. Actually, the tax rate on capital gains and dividend surtaxable income would increase from 15 percent to 25 percent , so the net of tax rate would fall from 85 percent to 75 percent or only 10%/85% = 11.8% of itself; with ε = 0.57, taxable income would fall only (.57)(11.8%) = 6.73% of itself.

[6] ε = percent $\Delta TI / \%\Delta(1 - t)$, so $\%\Delta TI = \varepsilon[\%\Delta(1 - t)]$; percent $\Delta TI = \Delta TI / TI$; $\%\Delta STI = \Delta STI / STI$. Let $s \equiv STI / TI$. $\Delta TI = \Delta STI$ while $STI = s(TI)$, so $\%\Delta STI = \Delta TI / s(TI) = (1/s)\Delta TI / TI = (1/s)\%\Delta TI$; thus $\%\Delta STI = \%\Delta TI / s$.

[7] This disposable income effect is explained with a simple numerical example in chapter 9 of Seidman (2009) and in Lewis and Seidman (1998).

[8] Andrews (1980), U.S. Department of the Treasury (1977), and Seidman (1997, 2006) discuss the mechanics of a household consumption tax return.

[9] This formula is derived as follows: For $1 of income, $(1 - t_y)$ is left, $(1 - t_y)/(1 + t_c)$ is consumed, $t_c(1 - t_y)/(1 + t_c)$ is the consumption surtax, $t_y + [t_c(1 - t_y)/(1 + t_c)]$ is total tax, which equals $(t_y + t_c)/(1 + t_c)$.

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