Taxing Sales under the FairTax:
What Rate Works?

by

Paul Bachman
Director of Research, Beacon Hill Institute, Suffolk University

Jonathan Haughton
Associate Professor of Economics
Senior Economist, Beacon Hill Institute
Suffolk University

Laurence J. Kotlikoff
Professor of Economics, Boston University
Research Associate, National Bureau of Economic Research

Alfonso Sanchez-Penalver
Economist, Beacon Hill Institute, Suffolk University

David G. Tuerck
Chairman and Professor of Economics
Executive Director, Beacon Hill Institute
Suffolk University

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Abstract

As specified in Congressional bill H.R. 25/S. 25, the FairTax is a proposal to replace the federal personal income tax, corporate income tax, payroll (FICA) tax, capital gains, alternative minimum, self-employment, and estate and gifts taxes with a single-rate federal retail sales tax. The FairTax also provides a prebate to each household based on its demographic composition. The prebate is set to ensure that households pay no taxes net on spending up to the poverty level.

Bill Gale (2005) and the President's Advisory Panel on Federal Tax Reform (2005) suggest that the effective (tax inclusive) tax rate needed to implement H.R. 25 is far higher than the proposed 23% rate. This study, which builds on Gale's (2005) analysis, shows that a 23% rate is eminently feasible and suggests why Gale and the Tax Panel reached the opposite conclusion.

This paper begins by projecting the FairTax's 2007 tax base net of its rebate. Next it calculates the tax rate needed to maintain the real levels of federal and state spending under the FairTax. It then determines if an effective rate of 23% would be sufficient to fund 2007 estimated spending or if not, the amount by which non-Social Security federal expenditures would need to be reduced. Finally, it shows that the FairTax imposes no additional real fiscal burdens on state and local government, notwithstanding the requirement that such governments pay the FairTax when they purchase goods and services.

Implementing the FairTax rate of 23% would produce $2,586 billion in federal tax revenues which is $358 billion more than the $2,228 billion in tax revenues generated by the taxes it repeals. Adjusting the base for the prebate and the administrative credit paid to businesses and states for collecting the tax results in a net tax base of $9,355 billion. In 2007, spending at current levels is projected to be $3,285 billion. Revenues from the FairTax at a 23% tax rate, plus other federal revenues, are estimated to yield $3,209 billion which is $76 billion less than current CBO spending projections for 2007. The $76 billion amounts to only 2.73% of non-Social Security spending ($2,177 – $2,101). This is a remarkably small adjustment when set against the more than 30% rise in the real value of these expenditures since 2000.

Ensuring real revenue neutrality at the federal level, given the net base of $9,355 billion, implies a rate of 23.82% on a tax-inclusive basis and 31.27% on a tax-exclusive basis. These and other calculations presented here ignore a) general equilibrium feedback (supply-side and demand-side) effects that could significantly raise the FairTax base (see, for example, Kotlikoff and Jokisch, 2005), b) the possibility that tax evasion would exceed the considerable amount automatically incorporated here via the use of NIPA data, which undercount consumption expenditures due to evasion under the current tax system, and c) the roughly $1 trillion real capital gain the federal government would secure on its outstanding nominal debt, were consumer prices to rise by the full amount of the FairTax.

The FairTax redistributes real purchasing power from state and local governments to their state and local income-tax taxpayers. It does so by reducing factor prices relative to consumer prices and, thereby, reducing the real value (measured at consumer prices) of state and local income tax payments, which are assessed on factor incomes (namely, factor supplies times factor prices). Gale (2005) and the Tax Panel (2005) recognized this loss in real state and local government revenues in claiming that these governments need to be compensated for having to pay the FairTax. But what they apparently missed is that this loss to these governments is exactly offset by a gain to their taxpayers. Were state and local governments to maintain their real income tax collections – the assumption made here – by increasing their tax rates appropriately, their taxpayers' real tax burdens would remain unchanged and there would be no need for the federal government to compensate state and local governments for having to pay the FairTax on their purchases. The second is that H.R. 25 does not preclude state and local governments from levying their sales taxes on the FairTax-inclusive price of consumer goods and services. This produces significantly more revenue compared to levying their sales taxes on producer prices. Moreover, Gale (2005) and the Tax Panel (2005) arrived at a higher tax rate because they did not estimate the Fairtax rate, but instead estimated a sales tax of their own design which had a substantially narrower base.

1. Introduction

The FairTax plan, as specified in Congressional bill H.R. 25/S.25 – The Fair Tax Act of 2005 – proposes to replace most of the existing federal taxes with a comprehensive consumption tax in the form of a national retail sales tax, effective January 1, 2007. The Act would repeal the federal income tax (including the capital gains tax and the alternative minimum tax), the corporate income tax, federal payroll taxes, the self-employment tax, and the estate and gift tax. The Act is intended to be revenue neutral, and would replace lost federal revenue with a national retail consumption tax (the "FairTax") levied at a tax-inclusive rate of 23 percent.

H.R. 25 calls for revenue, rather than spending, neutrality. Revenue neutrality commonly means using different taxes to generate the same number of nominal dollars. But most tax changes have little potential to change prices, so nominal revenue neutrality generally equates to real revenue neutrality, which, in turn, equates to real spending neutrality. The FairTax has the potential to significantly change both the prices paid by consumers and those received by producers. Consequently, focusing on nominal revenue neutrality would beg the question of what would happen to these prices and, thus, to real spending levels.

In this paper, we focus on real revenue/real spending neutrality. To be precise, we determine what FairTax rate is needed, not only for the federal government but also for state and local governments, to maintain their real spending levels after the switch to the FairTax. Focusing on real rather than nominal neutrality has the decided advantage that one can determine the revenue-neutral FairTax tax rate without having to pin down what happens to the price level. As Gale (2005) pointed out and as our math confirms, the formula for the FairTax rate needed to achieve real revenue/real spending neutrality on a flow basis is independent of the price level.

Some critics of the FairTax argue that the rate needed for this purpose would be far greater than 23 percent; Gale (2005) argues that it would be at least 31 percent.[1] The most important finding of our paper is that the 23 percent called for in H.R. 25/S. 25 is, in fact, very close to the required rate.[2] Indeed, the requisite 23.82 percent rate is so close to 23.0 percent that only a 2.73 percent cut in non-Social Security federal expenditures from the CBO projected spending level for 2007 is needed to accommodate a 23.0 percent rate. This is a remarkably small adjustment when set against the more than 30 percent rise in the real value of these expenditures since 2000. It is important to note that theses calculations are based on the "static" assumption that implementation of the FairTax would have no effect on the tax base; in so doing, they ignore the expansive effect that the FairTax could be expected to exert on the base as it eliminates the bias against saving inherent in the existing tax system.

These calculations ignore a) general equilibrium feedback (supply-side and demand-side) effects that could significantly raise the FairTax base (see, for example, Kotlikoff and Jokisch, 2005, or Tuerck et al., 2006b), b) the possibility that tax evasion would exceed the considerable amount of evasion automatically incorporated in our calculations given our use of NIPA data, which undercount consumption expenditures due to evasion under the current tax system, and c) the

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[1] See Gale (2005) and President's Advisory Panel on Federal Tax Reform, "Simple, Fair, and Pro-Growth" (November 2005) from http://www.taxreformpanel.gov/final-report/TaxReform_Intro.pdf and Gale, "The National Retail Sales Tax: What Would the Rate Have to Be?" 889-91.

[2] The different findings stem, in part, from the mistaken assumption by Gale and, we presume, by the President's Tax Panel (which has not disclosed its methodology) that state and local governments need to be compensated for having to pay the FairTax, in part from our use of updated data, in part from the focus on different years, in part from other methodological refinements and choices, and, in part, from our decision in this study to ignore (modulo some passing remarks) issues of tax evasion, expansion of the tax base due to general equilibrium effects, and capital gains on outstanding government debt.

roughly $1 trillion real capital gain the federal government would secure on its outstanding nominal debt, were consumer prices to rise by the full amount of the FairTax.

The next section measures the size of the FairTax tax base. Section 3 determines the tax rate required to maintain the level of real non-Social Security federal spending under the FairTax. Section 4 considers the level of real non-Social Security federal spending cut needed to accommodate a 23 percent FairTax rate. Section 5 indicates that if state and local governments continue to collect the same real revenues from their taxpayers, they will be able to maintain their real spending levels, notwithstanding the requirement that they pay the FairTax on their purchases. Section 6 concludes with brief discussions of general equilibrium feedback effects, tax evasion, the huge potential capital gain accruing to the federal government from implementing the FairTax, and what may be the FairTax's most significant feature – its potential to enhance budgetary discipline.

2. The FairTax Tax Base

H.R. 25/S. 25 calls for a tax on "all consumption of goods and services in the United States." This consists, for the most part, of what the National Income and Product Accounts defines as "personal consumption expenditures" and "government consumption expenditures." Table 1 shows that consumption, so measured, comprised approximately 86 percent of Gross Domestic Product (GDP) in 2005.[3]

Table 1 GDP and Consumption, United States, 2001-2005 ($ billions)					
	2001	**2002**	**2003**	**2004**	**2005**
Gross Domestic Product	10,128	10,470	10,971	11,734	12,494
Personal Consumption Expenditures	7,055	7,351	7,710	8,214	8,746
Government Consumption Expenditures	1,502	1,617	1,737	1,843	1,963
Total Consumption (personal + government)*	8,557	8,968	9,447	10,058	10,709
As a % of GDP	84.5	85.7	86.1	85.7	85.8

Source: U.S. Bureau of Economic Analysis, *National Income and Product Accounts* [accessed 2006]. U.S. Congress, Congressional Budget Office, *Budget and Economic Outlook for Fiscal Years 2007 to 2016* (2006).
Note: * Totals may not add due to rounding.

Although Table 1 provides a rough sense of the base on which the FairTax would be levied, a number of further adjustments are required. As indicated in Table 2, the most important of these have to do with the treatment of housing and educational expenditures.

2.1 Personal Consumption Expenditures

The FairTax has special provisions when it comes to taxing housing, education, financial intermediation services, and travel. We also need to make an adjustment for state and local sales taxes.

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[3] The remaining 14 percent consisted of gross private domestic investment and net exports, neither of which are part of the FairTax base. The FairTax treats exports and imports on a destination tax basis. It exempts exports and taxes imports.

2.1.1 Housing

Explicit rental payments are subject to taxation under the FairTax. Implicit rents on existing owner-occupied housing and farms are not. On the other hand, the FairTax implicitly taxes imputed rent on newly constructed housing via a pre-payment approach that levies the FairTax on their initial sale.[4] Thus, we remove the value of imputed rent for housing and farm dwellings from the base. Since purchases of new homes are counted as investment in new structures in the NIPA accounts, we add these figures to the base.

Under the FairTax improvements to single-family homes, and realtors' fees, which represent payments for services provided, are also taxable. These expenditures are counted as investment and not consumption in the NIPA tables, and they are added to the FairTax base. It should be noted that, under the FairTax, there is no tax on the resale of houses or any other property that was previously subject to the FairTax or that was owned by a consumer on the changeover date.

2.1.2 Education

Tuition and job training expenditures are treated as an investment in human capital and, as such, are excluded from the FairTax base.

2.1.3 Financial Intermediation

The FairTax calls for the taxation of both explicit and implicit financial intermediation services that consumers pay to financial services firms. Explicit financial intermediation services include fees for brokerage, banking, loan origination, mutual fund management and other financial services, and are counted in personal consumption expenditures in the NIPA tables.

Implicit financial intermediation services are defined by H.R. 25/S. 25 as the difference between the basic interest rate (as defined in section 805) and the rate paid on an investment, account or debt. The difference between actual interest payments (e.g., new home mortgage interest) and basic interest payments (the ten-year bond yield) is taxable. Thus, for example, a taxpayer with a mortgage rate of 7% would have 29% of the mortgage interest payment subject to tax if the Treasury rate were 5 percent. Implicit financial intermediation services are not included in the accounting of personal consumption expenditures in NIPA. Consequently, we have calculated our own values for implicit financial intermediation services for home mortgage, non-profit and personal borrowing.[5]

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[4] According to the National Association of Realtors, approximately 23 percent of newly constructed homes are purchased for investment purposes. These homes would not be subject to the FairTax when they are newly built, but the payments made by the renters of these units would be subject to the FairTax. We make an adjustment to account for these purchases. If the houses are later sold by the business to a consumer (i.e., converted from a business or investment purpose to a consumption purpose) these sales would be taxed under the FairTax. We do not attempt to estimate the revenue from this provision. It could, however, be substantial over time.

[5] In Table 2, line 9, implicit fees are imputed as follows: the excess of the basic interest rate (as defined in section 805 of H.R. 25/S. 25) over the rate paid on such investment. The value for implicit fees for home mortgages is derived by estimating the principal ($6,481.9 billion in 2007) by dividing the total interest payments listed in NIPA Table 7.11, line 16 ($465.4 billion in 2007) by the new-home mortgage interest rate listed in table B-73 of the 2006 *Economic Report of the President* (EROP), which was 7.18% in 2007. We apply the basic interest rate defined as the 10-year bond rate listed in Table B-73 of the EROP to the principle ($6,481.9 billion x 5.20% = $337.1 billion). The difference between total home mortgage payments and the basic interest payments ($465.4 billion - $337.1 billion = $128.3 billion) is the taxable implicit financial intermediation fee. This calculation is repeated for nonprofit interest using the new-home mortgage rate.
The implicit fee for personal interest paid is calculated by applying the basic interest rate (three-year U.S. Treasury securities rate) from Table B-73, EROP to the Federal Reserve estimate for total outstanding consumer credit (for 2007: $2,414.9 billion x 3.7% = $89.35 billion). This figure is subtracted from the total interest paid by persons listed in NIPA Table 7.11, line 17 ($244 billion in 2007) to arrive at our estimate of the implicit financial

2.1.4 Travel

As a destination principle sales tax, the FairTax applies to all retail purchases within the United States regardless of the nationality of the purchaser or the origin of the goods. Adjustments to the accounts are necessary to capture purchases made by nonresidents visiting the United States and to subtract overseas purchases made by U.S. residents.[6]

2.1.5 Adjusting for State and Local Taxes

The portion of state and local sales taxes that applies to sales at the retail level is deducted in order to avoid cascading or levying the FairTax on top of state and local sales taxes. Since the FairTax does not apply to intermediate transactions (businesses-to-business sales), the state and local sales taxes that apply to these transactions are automatically excluded from the base. We have adjusted our calculations to reflect an estimate that 40% of state and local sales taxes apply to business transactions.[7]

2.1.6 Other Adjustments

Food produced and consumed on farms never reaches retail markets and is not subject to the FairTax. We subtract this figure from the base.

Finally, nonprofit institutions are treated as persons by the NIPA tables, and thus their consumption expenditures are included in the private tax base. The consumption expenditures of nonprofit institutions comprise of their operating expenditures, including wages and salaries of nonprofit workers, but do not include their sales of goods and services to individuals. The FairTax taxes non-profits' sales of goods and services to individuals and their purchases of goods and services that are not sold on to individuals, including capital goods. However, the FairTax does not tax the salaries and wages of nonprofit workers, and thus an adjustment is needed. We remove those salaries and wages of nonprofit workers that are not involved in the production of goods and services sold to individuals.[8] We also remove the capital consumption allowance, since it is impractical to tax the consumption of capital.

2.2 Government Consumption Spending

Government consumption is included in the FairTax base in order to put personal and government consumption expenditures on an equal footing.[9] Government consumption

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intermediation service for personal credit that is subject to the FairTax (for 2007: $244 billion – $89.35 billion = $154.6 billion).

[6] According to officials from the Bureau of Economic Analysis, NIPA Table 2.5.5, line 112: "expenditures in the U.S. by non-residents" includes travel to the United States by non-residents.

[7] Raymond J. Ring, Jr., "Consumers' Share and Producers' Share of the General Sales Tax," *National Tax Journal* 52, no. 1 (March 1999): 79-90.

[8] The Personal Consumption Expenditure (PCE) within the NIPA accounts includes the final consumption of nonprofit institutions serving households (NIPA Table 2.9, line 57, $183.7 billion) and their sales to households (NIPA Table 2.9, line 64, $676.8 billion). We estimate and remove the wage and salary portion of the final consumption expenditures of nonprofit institutions. First, we remove the portion of nonprofit final consumption expenditures that is attributable to educational nonprofit institutions, since they have already been removed from the base institutions (NIPA Table 2.9, line 61 minus line 67, $52 billion). This leaves the final consumption expenditures at $131.7 billion. Next we estimate the ratio of wages and salaries to total expenditures of non-profits by taking NIPA Table 1.13, line 51 and dividing it by the sum of NIPA Table 2.9, lines 58 and 70; the result equals 51.65%. We apply this ratio to the $131.7 billion to get $68 billion. This represents our estimate of the salaries and wages of nonprofit employees that are not involved in the production of goods and services that are sold to households.

[9] William G. Gale, Evan F. Koenig, Diane Lim Rogers and John Sabelhaus, "Taxing Government in a National Retail Sales Tax", Congressional Budget Office, Macroeconomic Analysis and Tax Analysis Divisions, Technical Paper Series, No. 1999-5 (Washington D.C.: CBO, October 1998), 3.

expenditures currently include payroll taxes paid by government and income taxes and payroll taxes paid by its employees with respect to government wages. They also reflect payroll and income taxes paid in the course of producing consumption goods bought by government from private-sector firms. The intent of the FairTax is to substitute a sales tax for all of these taxes. Failing to tax government consumption, while taxing only private consumption, would make government consumption expenditures artificially cheap in comparison to private consumption expenditures, and could cause the provision of some goods and services to migrate from the private sector to the government sector. Activities such as trash collection and transportation services are taxed under the FairTax, whether provided by government or the private sector.

2.3 The Size of the FairTax Base

Since the effective date of H.R. 25/S. 25 is January 1, 2007, we estimate the tax base for the FairTax and the federal tax revenues that would be replaced by these proposals for calendar year 2007. The Congressional Budget Office (CBO) provides estimates of several important economic statistics and tax revenues for the major federal taxes (see Table 3).[10] As detailed in Appendix B, we use the latest available CBO data to form 2007 projections of tax-base components.

We find the 2007 FairTax base to be $11,244 billion. Starting with personal consumption expenditures of $9,772 billion, we make adjustments for housing by adding the purchase of new homes and the improvement of existing homes. The imputed rent for owner-occupied housing and farm dwellings is removed since the tax due on the imputed rent will become prepaid when the property is sold as a new dwelling.[11]

We also adjust for education tuition (excluded under the FairTax), taxable interest and financial intermediation, foreign travel, and other items.[12] The net effect of these adjustments is to reduce the private consumption base to $9,235 billion, as Table 2 shows.

Next, we add government consumption at the state, local and federal levels to the base. We subtract wages paid to government employees who provide education and training, and we subtract capital consumption allowance (since it is impractical to tax the consumption of capital).[13] We add spending for new buildings and equipment to the base. State and local government consumption, thus adjusted, equals $1,093 billion; federal government consumption equals $916 billion. These amounts sum to $11,244 billion dollars, representing 81% of 2007 U.S. GDP as projected by the Congressional Budget Office.[14]

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[10] U.S. Congress, Congressional Budget Office, "Budget and Economic Outlook for Fiscal Years 2007 to 2016," Washington D.C., Government Printing Office, January 2006.
[11] Table 2, line 2 according to March 2005 report by the National Association of Realtors, 23% of homes purchased in 2004 were for investment purposes. Also, 79% of homes purchased for investment purposes are single-family homes. These numbers provide a basis for this estimate.
[12] Table 2, line 8 includes 'Other,' (see NIPA 2.5.5, line 110) which consists of (1) fees paid to business schools and computer management training, technical and trades schools, etc., and (2) current expenditures (including consumption of fixed capital) by nonprofit research organizations and by grant-making foundations for education and research. Gale (1999) includes it while Burton and Mastromarco (1997) exclude it. We have chosen to include half of its value.
[13] According to BEA, government consumption expenditures include the consumption of fixed capital; given the impracticality of collecting tax on the consumption of capital, we have removed it from the base in the form of the capital consumption allowance.
[14] U.S. Congress, Congressional Budget Office, "Budget and Economic Outlook for Fiscal Years 2007 to 2016," Washington D.C., Government Printing Office, January 2006, 26.

Table 2 Computation of the FairTax Base, 2007 ($ billions)

Line	Taxable Consumption Categories	2007	Source
	Private Consumption Spending		
1	Personal Consumption Expenditures	9,772	NIPA 1.1.5, line 2
	Housing		
2	Purchase of New Homes	394	NIPA 5.4.5B, line 36
3	Purchases of New Mobile Homes	9	NIPA 5.4.5B, line 40
4	Improvements to Single-Family Homes	176	NIPA 5.4.5B, line 42
5	Brokers Commissions on Housing	121	NIPA 5.4.5B, line 43
6	Less: Imputed Rent on Housing	-1,067	NIPA 2.4.5, line 49
7	Less: Imputed Rent on Farm Dwellings	-15	NIPA 2.4.5, line 51
	Education		
8	Less: Education Expenditure	-221	NIPA 2.4.5, lines 95, 96, and 50% of 97
	Financial Services		
9	Plus: Taxable Home Mortgage Interest	128	NIPA 7.11, line 16, EROP, Table B-73
10	Plus: Taxable Nonprofit Interest	5	NIPA 7.11, line 18, EROP, Table B-73
11	Plus: Taxable Personal Interest	155	NIPA 7.11, line 17, EROP, Table B-73
	Travel		
12	Plus: Expenditure in U.S. by Nonresidents	115	NIPA 2.5.5, line 112
13	Less: Expenditure Abroad by U.S. Residents (non-durables)	-8	NIPA 2.5.5, line 111
14	Less: Foreign Travel by U.S. Residents (services)	-54	NIPA 2.5.5, line 110 (50%)
	Other		
15	Less: Food Produced and Consumed on Farms	-0.6	NIPA 2.5.5, line 6
16	Less: State Sales Taxes	-263	NIPA 3.3, line 7 (60%)
17	Less: Salaries and Wages of Non-Profits	-68	NIPA 2.9, line 62 minus line 68, multiplied by 52% (% of nonprofit wages to total expenses)
18	Plus: Capital Spending by Non-Profits (net of capital)	58	NIPA 6.7, line 8, minus NIPA 7.5, line 20
19	**Subtotal, Private Consumption Base**	**9,235**	
	Government Consumption Spending		
	State and Local Government		
20	State and Local Government Consumption	1,333	NIPA 3.3, line 22
21	Less: Current Education Spending (Wages and Salaries)	-403	NIPA 6.3D, line 94
22	Less: Capital Consumption Allowance	-163	NIPA 3.3, line 38
	State and Local Government Investment:		
23	Gross Purchases of New Structures	263	NIPA 3.95, line 24
24	Gross Purchases of Equipment	63	NIPA 3.9.5, line 25
25	**Subtotal, State and Local Tax Base**	**1,093**	
	Federal Government Spending		
26	Federal Government Consumption	845	NIPA 3.9.5, line 7
27	Less: Capital Consumption Allowance	-108	NIPA 3.2, line 44
28	Subsidies	60	NIPA 3.2, line 31
	Federal Government Investment:		
29	Gross Purchases of New Structures	17	NIPA 3.9.5, line 9
30	Gross Purchases of Equipment and Software	102	NIPA 3.9.5, line 10
31	**Subtotal, Federal Government Tax Base**	**916**	
32	**Gross FairTax Base**	**11,244**	
33	As a % of GDP	81%	
34	Untaxed Federal Government Spending (GN)	272	NIPA 3.2, line 28 (57.23%), IRS, SOI Table 1.4

Note: Totals may not add due to rounding.

We note that when calculating the FairTax rate we do not discount the amount we estimate that federal government would save because of the reduced tax administration and enforcement duties that it would have under the FairTax. This reduced spending would imply a lower tax

burden on the private sector as well as state and local government, which would then increase their respective consumption levels leaving the FairTax base unchanged.

3. The FairTax Rate

Given the base, we can calculate the rate at which the FairTax must be levied once we know how much tax revenue needs to be raised. Two main items need to be computed, namely the 2007 revenue to be replaced and the revenue needed to cover the prebate.

3.1 Replacing Tax Revenue

Table 3 details the amount of revenue currently raised by individual and corporation income taxes, social insurance and retirement contributions, and estate and gift taxes on a calendar year basis – taxes that would be repealed and replaced by the FairTax.[15] In calendar year 2005, these taxes yielded $2,059 billion or 16.5% of GDP. In 2007 these taxes are expected to yield $2,288 billion or 16.4% of GDP. These figures are based on CBO estimates that assume that all tax provisions scheduled to expire before 2016, including the tax cuts enacted between 2001 and 2004, do not expire.[16]

Table 3 Revenue from Income, Payroll and Estate/Gift Taxes, 2003-2007 ($ billions)					
	Actual		Estimates		
Description	**2003**	**2004**	**2005**	**2006**	**2007**
Individual income taxes	798	839	945	1,019	1,101
Corporation income taxes	146	212	284	298	290
Social insurance and retirement receipts	718	749	804	841	871
Estate and gift taxes	23	25	26	27	26
Total	**1,685**	**1,825**	**2,059**	**2,185**	**2,288**
Gross Domestic Product	10,971	11,734	12,494	13,262	13,959
Memo: Taxes as % of GDP	15.4	15.6	16.5	16.5	16.4
Sources: NIPA Table 1.1.5. Estimates from U.S. Congress, Congressional Budget Office, "Budget and Economic Outlook for Fiscal Years 2007 to 2016" (2006). Note: Totals may not add due to rounding.					

It is worth considering what the FairTax rate would be if it were not for the prebate. To calculate the rate before the prebate is included, we would divide the gross FairTax base (line 31 in Table 2) by the unadjusted revenues to be replaced, as listed in Table 3 under the total for 2007 to get

$20.35\% \left(= \dfrac{2,288}{11,244} \right).$ In the absence of the prebate the FairTax rate would be 20.35%, well

below that called for in H.R. 25.

3.2 The Prebate

As discussed in Kotlikoff and Rapson (2005) and Tuerck et al. (2006a), the FairTax's prebate makes the FairTax highly progressive when measured relative to the economically meaningful basis of lifetime income. The prebate is based on the federal poverty guidelines adjusted to

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[15] Since the federal fiscal year begins October 1, calendar year 2007 contains the last 9 months of fiscal year 2007 and the first 3 months of fiscal year 2008. We adjusted the fiscal year revenue numbers to calendar year 2007 by adding 3/4 of the fiscal year 2007 total revenues to 1/4 of the total revenues for fiscal year 2008.

[16] Congressional Budget Office, "Budget and Economic Outlook for Fiscal Years 2007 to 2016," 105.

remove any marriage penalty. The prebate may be thought of as a rebate, except that it is paid at the beginning of each month in advance of that month's consumption expenditures. The size of the monthly prebate provided to a given household is set at the amount of FairTax that household would pay over the course of the month, were it consuming at the federal poverty line.

More precisely, the prebate equals the FairTax tax rate multiplied by the family consumption allowance divided by 12, where the family consumption allowance is based on the size of the household.[17]   An additional adjustment is made in the case of married couples to prevent a marriage penalty since the poverty level for a family of two is not twice the poverty level of a single person living alone.

Table 4 Computing the FairTax Base Reduction Due to the Prebate for 2007			
I. Single Households			
Household Size	**Family Consumption Allowance**	**Number of Households**	**Base Reduction**
1	$10,016	29,858	$299,049,690
2	$13,490	12,719	$171,584,833
3	$16,965	6,645	$112,727,257
4	$20,440	3,233	$66,092,706
5	$23,915	1,441	$34,464,747
6	$27,390	489	$13,406,258
7 or more	$30,864	395	$12,179,087
Subtotal, Single Households		54,781	**$709,504,577**
II. Married Households			
2	$20,031	24,991	$500,599,437
3	$23,506	11,489	$270,055,951
4	$26,981	12,980	$350,222,029
5	$30,456	5,775	$175,871,370
6	$33,930	2,009	$68,177,390
7 or more	$37,405	1,006	$37,636,330
Subtotal, Married Households		58,250	**$1,402,562,508**
Total Prebate Base Reduction			**$2,112,067,084**
Prebate as % of GDP			**18.8%**

Take, as an example, a family of four. Its 2007 family consumption allowance is projected to be $26,981, resulting in an annual prebate of $6,205 (0.23 times $26,981). The total family consumption allowance or prebate base was estimated by using the U.S. Department of Health and Human Services Poverty Level Guidelines for 2006 and U.S. Census Bureau estimates for the number and size of households in the United States. The family consumption allowance computed for each family size/marital status combination was multiplied by the number of households in each size category to compute the total value of the prebate for that category. These totals were summed to arrive at the base on which the prebate would be calculated.

3.3 Tax-Inclusive versus Tax-Exclusive Rates

At this point, we need to clarify the difference between tax-inclusive and tax-exclusive sales tax rates. An example will help. Suppose a worker named Joe earns $125 and spends all of his

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[17] The family consumption allowance is the U.S. Department of Health and Human Services poverty level guideline plus and additional amount to eliminate a marriage penalty.

earnings. Suppose further that he pays a tax of $25. If he were subject to an income tax, he would earn $125 before tax, $100 after tax and spend $100 at the store. Thus, he would need to earn $125 to spend $100. In the case of a sales tax, he would earn $125 and pay $125 at the store. Of the $125 paid by Joe at the store, the store would remit $25 in sales tax, meaning that Joe ends up with just $100 worth of goods and services.

We may think of the tax rate as $25/$100 = 25%, which is the *tax-exclusive* rate (t_e); alternatively we may report the tax rate as $25/$125 = 20%, which is the *tax-inclusive* rate (t_i). The 23% FairTax rate set out in H.R. 25/S. 25 is a tax-inclusive rate, as is the current personal income tax, whereas most state-level sales taxes are quoted on a tax-exclusive basis. For ease of comparison, we report tax rates in both ways in Table 5.

3.4 Determining the FairTax Tax Rate

In this section we determine the rate at which the FairTax would need to be levied in 2007. To repeat, we assume that the FairTax would be neutral in the sense that it would permit the same real expenditures by federal, state, and local government as well as cover the costs of the prebate.

Under current law, the federal budget balance for 2007 may be written as

$$(1) \qquad R1_{07} + R2_{07} + DEF_{07} \equiv G_{07} + TR_{07} + GN_{07}.$$

Here

$R1_{07}$ is the revenue from taxes to be eliminated under the FairTax (including income and payroll taxes);

$R2_{07}$ is the revenue from federal excise and other taxes that will continue to be levied after the FairTax is enacted;

DEF_{07} is the federal budget deficit;

G_{07} is taxable federal government spending on goods and services;

TR_{07} measures federal transfer payments to individuals, including most Social Security payments, Medicaid and Medicare subsidies, and social programs such as food stamps, for which the recipients are not taxed under current law; and

GN_{07} represents federal spending and transfers for which the recipients would not be taxed under the FairTax, but for which they would be under current law – essentially wage and salary costs of education, plus interest payments on the government debt held by the public plus currently taxable Social Security benefits.

C_{07}:   Personal consumption at market value in 2007.

GS_{07}:   Taxable state and local government consumption at market value in 2007.

Now consider what happens with the introduction of the FairTax. Under the FairTax, equation (1) becomes:

$$(2) \qquad R_{FT} + R2_{FT} + DEF_{FT} = G_{FT} + TR_{FT} + GN_{FT} + PRE_{FT} + AC_{FT}.$$

In equation (2) the *FT* subscript indicates values under the FairTax, and the components that have the same basic names as in equation (1) – *R2*, *DEF*, *G*, *TR* and *GN* – represent the same revenue or expenditure components as in equation (1). The three new terms in equation (2) are:

R_{FT} the tax revenue to be raised by the FairTax in 2007;

PRE_{FT} the prebate. This is a new expenditure to be financed by new tax revenue raised by the FairTax; and

AC_{FT} the administrative credit that the Federal government will pay vendors and states for collecting the FairTax.

Unlike the terms in equation (1), the terms in equation (2) are not directly measurable. Two issues arising in the determination of the FairTax values are (1) the reaction of monetary authorities to the switch to the FairTax and (2) the amount of revenue needed for the FairTax to cover the real expenditures that had previously been financed by the existing federal taxes.

Because the FairTax falls on consumption, there is a question of how its imposition would affect the prices of consumer goods.

3.4.1 Accounting for Changes in Consumer and Producer Prices

At a macroeconomic level, prices depend on how the monetary authorities react to changes in tax policy, macroeconomic conditions and other variables affecting prices. In simple terms, the overall price level must be consistent with the "quantity theory" equation, whereby $MV = PY$. Here M is the money supply, V is the velocity at which money circulates, P is the price level, and Y is real income. For the purpose of this analysis, we assume that under the FairTax, V and Y would remain unchanged. Therefore a rise in the price level would be possible only if accommodated by an increase in the money supply.[18] Put another way, without monetary accommodation, prices faced by consumers under the FairTax would not rise. Any changes to the level of monetary accommodation, i.e. increase in the money supply, would cause prices to increase in the same proportion.

Let us designate α as the percentage (which could be zero) by which market prices under the FairTax would exceed expected prices in 2007 under current law. Assuming that the monetary authorities adjust only to the FairTax in setting policy for 2007, α can take values between 0 and t_e, so that $0 \leq \alpha \leq t_e$, where t_e is the tax-exclusive FairTax rate. With no change in real income or the velocity of money, the maximum amount that prices could increase when the FairTax is imposed is the amount of the tax, so the price would go up by a factor of t_e when there is full monetary accommodation. In general the relationship between pre- and post-FairTax consumer prices, P_{07}, and $P_{FT,}$ is given by

$$(3) \qquad P_{FT} = P_{07}\left(1+\alpha\right).$$

The current consumer price level, P_{07}, has two components:

1. Producer prices (*PP*): the prices producers receive. This component incorporates all unit costs of production, including unit profit margins.

2. Other federal commodity taxes (*PR2*): import duties, excise taxes and the like. Revenues from these taxes form the *R2* component of the federal government revenue mentioned above.

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[18] In fact, *Y* would not remain constant, but would rise, owing to the "dynamic" effects that would arise from replacing the existing tax system with the FairTax. We discuss this further below in connection with the evasion issue.

Under current law this means that consumer prices are

$$(4) \qquad P_{07} = PP_{07} + PR2_{07}.$$

Since the FairTax is levied on producer prices as well as on top of other federal commodity taxes, consumer prices under the FairTax satisfy

$$(5) \qquad P_{FT} = (PP_{FT} + PR2_{FT})(1 + t_e).$$

Now consider how producer prices pre- and post-imposition of the FairTax are related. This relation is given by

$$(6) \qquad PP_{FT} = PP_{07}(1 - T)(1 + \alpha),$$

where T is the rate by which producer prices under current law would fall absent any monetary accommodation. Note that this rate is not necessarily equal to the FairTax rate due to the presence of other commodity taxes.[19] Assuming the government adjusts the level of these other commodity taxes to maintain their real purchasing power, we have

$$(7) \qquad PR2_{FT} = PR2_{07}(1 + \alpha).$$

Note that

$$(8) \qquad 1 + t_e = \frac{1}{1 - t_i}.$$

Now, substituting (3), (6) and (7) in (5):

$$
\begin{aligned}
P_{07}(1 + \alpha) &= [PP_{07}(1 - T) + PR2_{07}](1 + t_e)(1 + \alpha) \\
P_{07} &= [PP_{07}(1 - T) + PR2_{07}](1 + t_e) \\
P_{07}(1 - t_i) &= PP_{07}(1 - T) + PR2_{07} \\
P_{07}(1 - t_i) &= PP_{07} + PR2_{07} - PP_{07}T \\
P_{07}(1 - t_i) &= P_{07} - PP_{07}T \\
PP_{07}T &= P_{07}t_i,
\end{aligned}
$$

we get

$$(9) \qquad T = \frac{P_{07}}{PP_{07}}t_i.$$

Letting $\gamma = \dfrac{P_{07}}{PP_{07}}$ we have:

$$(10) \qquad T = \gamma t_i.$$

---

[19] As we see later, the fact that $PR2$ is also taxed causes T to be greater than the tax-inclusive FairTax rate, t_i.

To calculate γ we use consumption and *R2*, which we estimate at \$147 billion in 2007. Hence, we have

$$\gamma = \frac{C_{07} + G_{07} + GS_{07}}{C_{07} + G_{07} + GS_{07} - R2_{07}} = \frac{11,244}{11,244 - 147} = 1.0132 \,.$$

Thus (10) becomes

(11) $T = 1.0132\, t_i \,.$

3.4.2 Dealing with Government Purchases of Goods and Services

Let us now consider the individual components of equation (2). We start with nominal government expenditures *G* (on the right-hand side of the equation) of goods and services. These expenditures must buy the same real goods and services under the FairTax as they would under current law, except for those services of the IRS that would no longer be needed because of the removal of different taxes valid under current law. Calling these IRS real savings *IRSS*,

(12) $G_{FT} = \left(G_{07} - IRSS\right)\left(1+\alpha\right).$

Nominal federal transfer payments *TR* that are not taxed under current law must remain high enough to command the same goods and services under the FairTax as they do under current law. Thus,

(13) $TR_{FT} = TR_{07}\left(1+\alpha\right).$

3.4.3 Treatment of Taxable Transfer Payments and FairTax Tax-Favored Purchases

Now consider transfer payments to individuals that are subject to income taxes under current law. Examples here include government interest payments and Social Security benefits. Maintaining the real purchasing power of these transfer payments before and after the FairTax requires taking into account that these payments will no longer be subject to income taxation.

A similar issue arises in the case of government purchase of educational services and other commodities that would not be subject to the FairTax. Assuming the tax break is passed on to purchasers of these commodities, the government's required real spending on such goods and services will be reduced.

Denote by *GN* the sum of taxable transfer payments plus federal purchases of goods and services not subject to the FairTax and assume that the average federal tax rate currently being applied to taxable transfer payments is t_{fr}, then

(14) $GN_{FT} = GN_{07}\left(1-T\right)\left(1+\alpha\right).$

Substituting (11) we can write

(15) $GN_{FT} = GN_{07}\left(1-1.0132\, t_{fr}\right)\left(1+\alpha\right).$

It is possible that some elements of *GN* would not undergo the once-and-for-all adjustment assumed by equation (15). For example, H.R. 25/S. 25 requires the indexation of Social Security benefits, which might be interpreted to mean that the portion of those benefits falling into *GN* would, in practice, be adjusted upward by α but not downward by *T*. For our purpose of maintaining government overall spending constant in real terms, the indexing of the Social Security payments included in *GN* would cause the real value of *G* and/or *TR* to decrease correspondingly. Since we are interested in the FairTax rate and not the actual values of *G*, *GN* and *TR* we consider this approach to be valid.

3.4.4 The Prebate

Nominal prebate expenditures are calculated by multiplying the total family consumption allowance or prebate base, denoted B_{07}, by the tax-inclusive rate (t_i) and the increase in the price level. Hence,

$$(16) \quad PRE_{FT} = B_{07}t_i\left(1+\alpha\right).$$

3.4.5 The FairTax's Administrative Credit

The administrative credit that will be paid to vendors and state government for collecting the FairTax, AC_{FT}, is set in H.R. 25/S. 25 at a quarter of 1% (0.25%) of the revenue collected by the retailer, and another quarter of 1% of the revenue collected by the state and local government. The federal government gets no administrative credit for collecting any FairTax revenue. In order to calculate the administrative credit, we must identify the sources of collection, and for this purpose we separate purchases done at the vendor level, predominately retailers and professionals, from those done at the government level. The latter are wages paid by the different governments to their employees.

Sales tax revenue collected at the vendor level includes all private and government retail purchases. This comprises private consumption, C_{07}, and the non-wage portion of G_{07} and GS_{07}. This revenue is first collected by the vendors, who claim a credit equal to 0.25% of revenues collected and send the remaining 99.75% (= 100% - 0.25%) to the state government. The state government then takes its 0.25% of the amount remitted by the vendor, sending the remainder to the federal government. The total administrative credit for this type of revenue, as a portion of the revenue, is therefore 0.499375% (= 0.25% + 0.25% $\times$ (1 − 0.25%) $\approx$ .50%). It is important to consider that federal wages comprise 32% of federal government purchases, and state and local government wages are 41% of state and local government purchases. This means that the non-wage portion of government purchases relevant to this type of revenue is 68% of G_{07} and 59% of GS_{07} respectively. [20]

The FairTax on state and local government wages is only collected at the state government level, and therefore would "earn" a credit of only 0.25%. This means that for the administrative credit we also have to apply a 0.25% factor to 41% of GS_{07}.

At the same time, because the federal government will not claim an administrative credit for collecting the FairTax on its own wage payments, we do not include an administrative credit for this portion of FairTax revenues.

---

[20] For the federal government, NIPA Table 6.2D, line 87 (salary and wages) is divided by the federal government tax base (G) to give the portion of the tax base that comprises wages and salaries. This percentage is subtracted from 100% to obtain the value of non-wages is the tax base. The process is repeated for state and local governments, NIPA 6.2D, line 92, except that wages and salaries for education, line 94, ($403) are subtracted from total wages and salaries since this is subtracted from the state and local government tax base.

Finally, the private sector increases its consumption by *IRSS* on the assumption that this reduction in federal government spending is passed on to taxpayers in the form of a reduced tax burden:

$$(17) \quad AC_{FT} = \left\{ 0.50\% \left[C_{07} + IRSS + 0.68\left(G_{07} - IRSS\right) + 0.59GS_{07} \right] + 0.25\% \times 0.41GS_{07} \right\} t_i \left(1+\alpha\right).$$

3.4.6 Revenue Collection Under the FairTax

We now consider the revenue side of equation (2), and begin with R_{FT}, the revenue raised by the FairTax. We know that the tax is levied on consumption: personal consumption and the consumption of federal, state and local governments. Therefore:

$$(18) \quad R_{FT} = \left(C_{FT} + G_{FT} + GS_{FT}\right) t_i.$$

In the above equation we have two new terms:

C_{FT}: Personal consumption at market value in 2007 under the FairTax.

GS_{FT}: Taxable state and local government consumption at market value in 2007 under the FairTax.

Assume that there is no monetary accommodation. The FairTax would cause producer prices and, therefore, the tax base for state and local governments to fall. Unless some measure is taken, state and local government revenue would fall. That would be the equivalent of state and local governments' providing a tax cut to their taxpayers. We assume that state and local governments take the necessary measures to maintain the real value of their revenues, which, in this setting means raising their tax rates or expanding their state sales tax bases by conforming to the FairTax base.[21] And this assumption implies that these governments will maintain the real value of their consumption purchases.

We extend this assumption to the cost saving enjoyed by the federal government in the form of reduced expenditures on the IRS: the cost saving is passed fully on to consumers.

Therefore,

$$(19) \quad C_{FT} = \left(C_{07} + IRSS\right)\left(1+\alpha\right),$$

$$(20) \quad GS_{FT} = GS_{07}\left(1+\alpha\right).$$

Substituting the relationships in equations (12), (19) and (20) into equation (18):

$$R_{FT} = \left(C_{07} + IRSS + G_{07} - IRSS + GS_{07}\right) t_i \left(1+\alpha\right)$$

$$(21) \quad R_{FT} = \left(C_{07} + G_{07} + GS_{07}\right) t_i \left(1+\alpha\right).$$

---

[21] States will have an incentive to conform their state sales tax base to the FairTax base because H.R. 25 provides that conforming states are allowed to collect state sales taxes on internet and remote sales to residents of their state. Other studies have estimated this to be a potential revenue gain of between $21.5 billion and $33.7 billion for 2008.

Now consider $R2_{FT}$. The revenue in this category is raised by excise taxes, import duties and the like. As we have mentioned previously, this revenue must buy the same goods and services for the government as it did previously. Therefore the real revenue from these sources under the FairTax must be the same as it would be under the current law. Hence

$$(22) \qquad R2_{FT} = R2_{07}(1+\alpha).$$

Let us now consider the deficit. We assume the deficit to be financed by private saving. We continue to assume that household purchasing power remains fixed. In particular, we assume that wages will adjust to keep purchasing power constant in real terms. Therefore, we further assume saving to be constant in real terms. This means that the deficit in 2007 will be the same under the FairTax, without monetary accommodation, as it would be under the current law. Thus

$$(23) \qquad DEF_{FT} = DEF_{07}(1+\alpha).$$

3.4.7 The FairTax Tax Rate Formula

Substituting expressions (12), (13), (15), (16), (17), (21), (22) and (23) in equation (2) give the equation for budget balance under the FairTax:

$$
\begin{aligned}
(24) \quad & (C_{07} + G_{07} + GS_{07})t_i(1+\alpha) + R2_{07}(1+\alpha) + DEF_{07}(1+\alpha) = \\
& (G_{07} - IRSS)(1+\alpha) + TR_{07}(1+\alpha) + GN_{07}(1-1.0132\,t_i)(1+\alpha) + B_{07}t_i(1+\alpha) + \\
& \left\{ 0.50\% \left[C_{07} + IRSS + 0.68(G_{07} - IRSS) + 0.59GS_{07} \right] + 0.25\% \times 0.41GS_{07} \right\} t_i(1+\alpha).
\end{aligned}
$$

We note that $(1+\alpha)$ accompanies every term in equation (24), so it drops from the equation. This is important since it implies that *the FairTax rate is independent of the level of monetary accommodation*. Simplifying equation (24):

$$
\begin{aligned}
(25) \quad & \left[0.9950C_{07} - 0.0016IRSS + 0.9966G_{07} + 0.9960GS_{07} \right]t_i + R2_{07} + DEF_{07} = \\
& G_{07} + TR_{07} + GN_{07}(1-1.0132\,t_i) + B_{07}t_i - IRSS.
\end{aligned}
$$

We now group the terms that are multiplied by t_i to get:

$$
\begin{aligned}
& \left[0.9950C_{07} - 0.0016IRSS + 0.9966G_{07} + 0.9960GS_{07} + 1.0132GN_{07} - B_{07} \right]t_i = \\
& G_{07} + TR_{07} + GN_{07} - R2_{07} - DEF_{07} - IRSS.
\end{aligned}
$$

$$
t_i = \frac{G_{07} + TR_{07} + GN_{07} - R2_{07} - DEF_{07} - IRSS}{0.9950C_{07} - 0.0016IRSS + 0.9966G_{07} + 0.9960GS_{07} + 1.0132GN_{07} - B_{07}}.
$$

Using (1),

$$(26) \qquad t_i = \frac{R1_{07} - IRSS}{0.9950C_{07} - 0.0016IRSS + 0.9966G_{07} + 0.9960GS_{07} + 1.0132GN_{07} - B_{07}}.$$

Inserting values from Table 5 and solving gives

$$(27) \quad t_i = \frac{2,228}{9,189 - 0.01 + 913 + 1,089 + 276 - 2,112} = 23.82\%.$$

The information required to determine the FairTax rate is set out in Table 5. The FairTax calls for the replacement of federal taxes on personal and corporate income, the gift and estate taxes, and the payroll tax. We estimate that the revenues raised by these taxes would be $2,288 billion in 2007 under the current law. We subtract the cost of the Earned Income Tax and the Child Tax Credits, which the federal government counts as spending, and represents revenue that would not be raised under the FairTax. H.R. 25/S. 25 also calls for abolishing the Internal Revenue Service, since the states would administer the FairTax. The federal agency that would take responsibility for working with the states to coordinate FairTax collections would need far fewer resources than the IRS today. Therefore, we estimate that the federal government would be able to cut $8 billion from the FY 2007 Internal Revenue Service (IRS) budget of $11.01 billion budget.[22] These adjustments reduce the revenues replaced by the FairTax to $2,228 billion.

Table 5 Computation of the 2007 FairTax Rate ($ billions)	
Revenues to be Replaced	
Gross Revenue to be Replaced	$2,288
Less: EITC and Child Tax Credit	-52
Total Revenue to be Replaced ($R1_{07}$)	**2,236**
IRS savings (*IRSS*)	-8
Adjusted Revenues to be raised ($R1_{07} - IRSS$)	**2,228**
Adjusted Tax Base (Inclusive of Tax) Components	
Personal Consumption adjusted for Administrative Fee ($0.9950C_{07}$)	9,189
State and Local Government Consumption adjusted for Administrative Fee ($0.9960GS_{07}$)	1,089
Federal Government Consumption adjusted for Administrative Fee ($0.9966G_{07}$)	913
Taxed Federal Government Transfers ($1.0132GN_{07}$)	276
Less: IRS Savings Adjustment ($0.0016IRSS$)	-0.01
Less: Prebate Base (B)	-2,112
Adjusted Tax Base	**$9,355**
Therefore tax rate (t_i) is 2,228/9,355, which equals	**23.82%**
Tax-exclusive rate(t_e) is 2,228/(9,355-2,228), which equals	**31.27%**
Note: Totals may not add due to rounding.	

As set out in Table 5, the FairTax base needs some adjustments in order to match equation (26). We have to adjust personal, state and local government and federal government consumptions by the deduction of the administrative credit fees. We must add the base for the reduction in *GN*. We reduce the base by the net effect of the IRSS in the administration credit. Finally we must deduct the prebate base. We, thus, calculate the adjusted base to be $9,355 billion. To raise

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[22] BHI estimates the following IRS appropriations for FY 2007 could be cut: Filing and Account Services ($1,619 million), Shared Services Support ($1,504 million), Compliance Services ($4,497 million), Offsetting Collections-Reimbursables ($183 million), Existing User Fees ($100 million) and New User Fees ($135 million). See U.S. Department of Treasury; "Department of Treasury – Budget In Brief FY 2007," Internal Revenue Service; available at http://www.irs.gov/pub/irs-news/fy07budgetinbrief.pdf; (Washington D.C.) 59-70; Internet; accessed 15 July 2006.

revenue of $2,228 billion from a base of $9,355 billion, the rate that must be imposed is 23.82% in tax-inclusive terms, or 31.27% in tax-exclusive terms.

4. Federal Spending with a 23% Rate

In the previous section, we showed that the FairTax rate required to keep existing federal government spending constant in real terms is 23.82%. However, H.R. 25/S. 25 calls for a rate of 23%. Although there is only a small difference between the two rates, it would be necessary for the federal government to undergo a reduction in real spending were the 23% rate to be implemented. Alternatively, the FairTax could enhance economic growth enough to increase the FairTax base three percent, in which case 23% would be sufficient to avoid any spending reduction. (As previously explained, this paper provides a purely "static" analysis, which ignores the expansive effect that the FairTax could be expected to exert on economic activity as it eliminates the existing bias against saving. In practice, therefore, it would probably be possible to implement the FairTax at the 23% rate without any reduction in federal spending. In the absence of this expansive effect, however, some reduction in spending would be necessary.)

While this reduction is also necessarily small, there is a question of just how large a reduction would be required. The answer is in part political, inasmuch as every government program has some constituency that would resist even small budget cuts.

Here we estimate the percentage reduction in federal government spending that would be required under a 23% rate; given that all spending, except that for Social Security benefits, is available for reduction.

We must take into account a number of complexities that arise in making this calculation. First, we must recognize that the available pool of spending depends partly on the rate itself. Some spending (expenditures that fall under the categories of *GN*, *AC* and *PRE*) would be less under a 23% rate than under a 23.82% rate. Second, we must recall that Social Security spending falls under the *TR* as well as the *GN* category. Social Security payments would make up 24.12% of *TR* and 47.96% of *GN* in 2007.

We define:

NSS_{FT}: the amount of non-Social Security spending that would be in place under the FairTax; and

δ: the percentage of the non-Social Security spending (identified as NSS'_{FT}) under a 23% rate that would need to be cut.

We let

(28) $NSS_{FT} = G_{FT} + .7588TR_{FT} + .5204GN_{FT} + AC_{FT} + PRE_{FT}.$

Substituting this definition in equation (2):

(29) $R_{FT} + R2_{FT} + DEF_{FT} = NSS_{FT} + .2412TR_{FT} + .4796GN_{FT}.$

From section 3.4 we know this equality will hold only when a rate of 23.82% is imposed. Note that R_{FT}, NSS_{FT} and GN_{FT} are all a function of the tax-inclusive rate. These values will be different when we impose a 23.82% rate than when we impose a 23.0% rate. Calling the values

of these categories under a 23% rate R'_{FT}, NSS'_{FT} and GN'_{FT} respectively, the corresponding equation to (29) under a 23% rate is:

$$(30) \quad R'_{FT} + R2_{FT} + DEF_{FT} = (1-\delta) NSS'_{FT} + .2412TR_{FT} + .4796GN'_{FT}.$$

In equation (30) we introduce δ because we know that the imposition of the 23.0% rate will bring in less revenue than would be needed, and we want to know what share of NSS'_{FT} that is. We now solve for δ

$$(31) \quad \delta = 1 - \frac{R'_{FT} + R2_{FT} + DEF_{FT} - .2412TR_{FT} - .4796GN'_{FT}}{NSS'_{FT}}.$$

Using the appropriate values from Table 6 in equation (31):

$$(32) \quad \delta = 1 - \frac{2,586 + 147 + 476 - 403 - 100}{2,782} = .0273.$$

Table 6 shows the values of the different revenue and spending categories that would be in place under the FairTax with a rate of 23%. It also estimates the necessary spending cut to be $64 billion, which is simply the difference between the spending that would be necessary with a 23.0% rate and the revenue that would actually be raised. The $76 billion represents 2.73% of the non-Social Security spending that would be in place if no cut were needed with a 23.0% rate.

Table 6 Federal Revenue and Expenditure under the FairTax with a 23% Rate ($ billion)		
FairTax Revenue (R'_{FT}) = 0.23 × \$11,244		2,586
Other Federal Revenue ($R2_{FT}$)		147
Deficit (DEF_{FT})		476
Total Revenue		*3,209*
Government Purchases (G_{FT})		908
Non-Taxed Transfers (TR_{FT})		1,670
Social Security (.2412 × TR_{FT})	*403*	
Non-Social Security (.7588 × TR_{FT})	*1,268*	
Taxed Transfers (GN'_{FT})		209
Social Security (.4796 × GN'_{FT})	*100*	
Non-Social Security (.5204× GN'_{FT})	*109*	
Administrative Credit (AC'_{FT})		12
Prebate (PRE'_{FT})		486
Total Spending		**3,285**
Total Social Security	*503*	
Total Non-Social Security	*2,782*	
Necessary Cut = 3,285 – 3,209		**76**
As % of Non-Social Security Spending	*2.73%*	
Note: Some numbers may not add up due to rounding.		

To put this "cut" in perspective, Table 7 displays non-Social Security spending from the CBO for calendar years 2003 to 2007.[23] The CBO expects that non-Social Security spending will increase by 3.1%, or $65 billion, between calendar year 2006 and 2007. Therefore, the "cut" in this spending necessary to implement a 23% FairTax rate can be achieved by simply holding nominal non-Social Security spending almost at its 2006 level.

Table 7
Non-Social Security Spending, 2003-2007
($ billions)

Description	Actual			Estimates	
	2003	**2004**	**2005**	**2006**	**2007**
Non-Social Security Spending	1,717.6	1,839.5	1,989.9	2,112.5	2,177.5
% Increase	7.9	7.1	8.2	6.2	3.1
2007 with $76 billion cut					$2,101.5

Sources: CBO Budget and Economic Outlook: Fiscal Years 2007-2016. Note: Totals may not add due to rounding.

5. Effect of the FairTax on State and Local Government

One critic of the FairTax has argued that it is unrealistic politically to design the FairTax base to include a portion of state and local government spending. According to this critic,

> There are several reasons why state and local purchases may not end up in a national retail sales tax base. First, although including state and local government purchases reduces the required *federal* tax *rate*, it does not reduce the *overall burden* on taxpayers. After all, state and local government purchases (and the federal sales taxes that would have to be paid on them) are financed by state and local government taxes. The tax on state and local purchases may also raise constitutional issues. It would certainly be fiercely opposed by the states.[24]

This reasoning strongly implies that the FairTax simultaneously maintains the real value of federal government spending and of consumer spending while reducing the real value of state and local government spending. After all, why else would the states "fiercely resist" the FairTax? That this reasoning is muddled can be seen in the fact that the real value of state and local government spending cannot fall unless (1) the real value of federal government and consumer spending rises or (2) the FairTax brings about a fall in real national income. Because the author eliminates (1) as a possibility and because there is no reason to expect (2), there is clearly a slip in logic here. As for constitutional issues, any burden imposed by the FairTax on state and local government would not differ materially from the burden already imposed under current law.

An important economic question must be addressed, however: "Would the FairTax impose a burden on state and local government that would create a political or philosophical barrier to its adoption?"

In approaching this question, we make three simplifying assumptions. The first is that the FairTax is adopted without monetary accommodation. This assumption should raise no objection inasmuch as we have already shown that the degree of monetary accommodation is irrelevant to the calculation of the FairTax rate or of the real burden that it imposes on consumer

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[23] Congressional Budget Office, "Budget and Economic Outlook for Fiscal Years 2007 to 2016," 105.
[24] William Gale, "The National Retail Sales Tax: What Would the Rate Have To Be?" *Tax Notes* (May 16, 2005): 898.

spending; which is to say, on federal government spending, state and local government spending and on individual spending.

As long as state and local governments raise the same revenue, in real dollars, under the FairTax as under current law, they will be able to maintain the real value of current spending. The question is whether that real revenue necessarily falls.

Second, as throughout this article, we assume a purely "static" world, in which adoption of the FairTax has no effect on economic behavior. In particular, and contrary to what a dynamic analysis would show, there is no effect on saving.

The third assumption is that the federal government imposes only an income tax and that state and local governments impose both income and sales taxes. Taxpayers deduct state income taxes when computing their federal income tax liability. As usual, we use the "07" subscript to denote baseline values, that are the values given that current law remains in effect, and the "*FT*" subscript to denote values under the FairTax. All variables are expressed in terms of constant dollars.

ft	the federal government statutory income tax rate;
sst	the state and local government sales tax rate (expressed as a tax-exclusive rate);
sit	the state and local government income tax rate;
Y_{07}	gross income;
C_{07}	personal consumption expenditures;
G_{07}	federal government purchases; and
GS_{07}	state and local government purchases.

Let t_i designate the effective federal income tax rate, so that $t_i = ft(1-sit)$, reflecting the assumption that the state income tax is deductible from federal income tax. We adopt the balanced-budget equations for federal government and for state and local government. Then

$$(33) \quad G_{07} = Y_{07}t_i \, .$$

Since after-tax income is fully devoted to gross consumption, $C_{07}(1+sst) = Y_{07}(1-t_i-sit)$,

which gives

$$(34) \quad C_{07} = Y_{07}\frac{1-t_i-sit}{1+sst} \, ,$$

$$(35) \quad GS_{07} = C_{07}sst + Y_{07}sit = Y_{07}\left[\frac{1-t_i-sit}{1+sst}sst + sit\right],$$

and

$$(36) \quad Y_{07} = C_{07} + G_{07} + GS_{07} \, .$$

We assume that the monetary authorities do not accommodate the adoption of the FairTax, which is to say that they restrain the growth of the money supply sufficiently to prevent market prices from rising. As mentioned, this is merely a simplifying assumption. We could just as well have allowed for monetary accommodation, so that there would be no fall in producer prices

under the FairTax. Doing so, however, would merely have made the algebra more complicated without changing the results.

Under above-specified assumptions, national income (in both nominal and real terms) under the FairTax equals national income in 2007:

$$(37) \quad Y_{FT} = Y_{07}$$

and

$$(38) \quad C_{FT} + G_{FT} + GS_{FT} = C_{07} + G_{07} + GS_{07}.$$

The federal government sets the FairTax rate just high enough to maintain the real value of its expenditures under current law. Because we have shown that under our assumptions the tax base for the FairTax would be equal to total consumption under current law, this implies that the (tax-inclusive) FairTax rate would be t_i. Then federal government purchases are

$$(39) \quad G_{FT} = Y_{FT}t_i = Y_{07}t_i = G_{07}.$$

Private consumers would receive lower (gross) wages under the FairTax, because producer prices fall. Since there is no $R2$ component in this example, the rate by which producer prices fall is t_i. Prices faced by private consumers are also affected, since the state and local sales tax is imposed on the reduced producer prices.[25] Here real consumption equals disposable income divided by price:

$$(40) \quad C_{FT} = \frac{Y_{07}(1-sit)(1-t_i)}{(1-t_i)(1+t_e+sst)},$$

which, after canceling and substituting for t_e, becomes

$$(41) \quad C_{FT} = \frac{Y_{07}(1-sit)}{1+\dfrac{t_i}{1-t_i}+sst}.$$

Simplifying,

$$(42) \quad C_{FT} = Y_{07}\frac{(1-sit)}{\dfrac{1}{1-t_i}+sst}$$

or

$$(43) \quad C_{FT} = Y_{07}\frac{(1-sit)(1-t_i)}{1+sst(1-t_i)}.$$

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[25] Note that in section 3.4 we did not include state and local sales taxes as components of the prices. The reason for this is that the FairTax is not imposed on top of the state and local sales tax and that for the determination of the FairTax rate those taxes are not included in the base.

State and local government purchases, then, are

$$(44) \quad GS_{FT} = \left(C_{FT} sst + Y_{07} sit \right) \left(1 - t_i \right).$$

The $(1 - t_i)$ term adjusts for the fall in gross income and in consumer prices (net of the FairTax), given the assumption of no monetary accommodation; with full monetary accommodation this term would drop out. Substituting equation (43) in (44), we can write

$$(45) \quad GS_{FT} = Y_{07} \left[\frac{\left(1 - sit \right) \left(1 - t_i \right)}{1 + sst \left(1 - t_i \right)} sst + sit \right] \left(1 - t_i \right).$$

We now compare state and local government purchases under the FairTax with the same purchases under current law. Using equations (35) and (45),

$$(46) \quad \frac{GS_{FT}}{GS_{07}} = \frac{Y_{07} \left[\dfrac{\left(1 - sit \right) \left(1 - t_i \right)}{1 + sst \left(1 - t_i \right)} sst + sit \right] \left(1 - t_i \right)}{Y_{07} \left[\dfrac{1 - t_i - sit}{1 + sst} sst + sit \right]}$$

$$= \frac{\dfrac{\left[\left(sst - sst \cdot sit \right) \left(1 - t_i \right) + sit + sit \cdot sst \left(1 - t_i \right) \right] \left(1 - t_i \right)}{1 + sst \left(1 - t_i \right)}}{\dfrac{sst - sst \cdot t_i - sst \cdot sit + sit + sit \cdot sst}{1 + sst}}$$

$$= \frac{\dfrac{\left[sst \left(1 - t_i \right) + sit \right] \left(1 - t_i \right)}{1 + sst \left(1 - t_i \right)}}{\dfrac{sst \left(1 - t_i \right) + sit}{1 + sst}}$$

$$= \frac{\left(1 + sst \right) \left(1 - t_i \right)}{1 + sst \left(1 - t_i \right)}$$

$$= \frac{1 + sst \left(1 - t_i \right) - t_i}{1 + sst \left(1 - t_i \right)}.$$

Further simplifying,

$$(47) \quad \frac{GS_{FT}}{GS_{07}} = 1 - \frac{t_i}{1 + sst \left(1 - t_i \right)}.$$

In equation (47) we find that $\dfrac{GS_{FT}}{GS_{07}} < 1$, which implies that $GS_{FT} < GS_{07}$, and which in turn implies that real state and local government spending would decrease under the FairTax, given that state and local government passively accommodates a transfer of purchasing power to consumers. Because $G_{FT} = G_{07}$, it follows from equation (38) that $C_{FT} > C_{07}$, which means that personal consumption increases. Assuming passive accommodation by state and local government, the decrease in real state and local government spending must be matched by an equal increase in real personal consumption:

$$(48) \quad C_{FT} - C_{07} = -\left(GS_{FT} - GS_{07}\right).$$

or

$$(49) \quad \Delta C = -\Delta GS .^{26}$$

Thus, although ΔGS is negative, it is matched exactly by ΔC, which is positive. Suppose, for example, that the federal income tax rate is 20% and that state and local government imposes a 5% sales tax and a 5% income tax, so that $t_i = 0.19$ and $sst = 0.05$. Then the real value of state and local government spending will fall by 18.26%. If $GS_{07} = \$1$ trillion, and the fall in state and local government spending will equal \$182.6 billion, it is matched by an equal rise in consumer purchasing power. Note that purchasing power is fully transferred to state and local taxpayers from state and local government.

To return to the question posed above, the FairTax does not necessarily impose a burden on state and local government. It would be up to state and local government, under the FairTax, to decide whether to permit the transfer identified here to take place or to recapture the lost revenue by raising tax rates or otherwise changing their tax laws. A partial solution would be to take the simple step of imposing state and local sales taxes on the FairTax-inclusive price of consumer goods.

At any rate, it is wrong to suggest that the FairTax is a kind of negative-sum game in which at least one constituency, in this case state and local government, has to lose. It should come as no surprise that a major restructuring of taxes at the federal level would require state and local government to make some accommodating restructuring of tax policy at that level, as well. With that restructuring, all parties – federal, state and local and individual – would remain whole at the end of the day.

For the determination of the rate in section 3.4 we assume that either: (1) state and local government accepts this loss in real revenue and the corresponding reduction in real spending while consumers increase their spending by ΔC or (2) state and local governments keep the real burden on their taxpayers unchanged by increasing effective tax rates sufficiently to recover the lost revenue and then use the revenue thus recaptured to maintain their real spending. Although it makes no difference to our results which assumption holds true, it also follows, as we have shown, that implementation of the FairTax does not necessarily impose a burden on state and local government. Only if state and local governments passively accept a real transfer from their coffers to those of their taxpayers is there a burden.

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[26] Appendix A provides a more detailed proof of this equality.

6. Conclusion

As calculated here, the effective (tax-inclusive) FairTax tax rate that would permit the federal government to maintain its real expenditures is 23.82%. This real revenue- and real spending-neutral rate is only slightly higher than the 23.0% rate stipulated in the FairTax legislation. Indeed, implementing the FairTax at a 23.0% rate would require a modest 2.73% reduction in real non-Social Security federal spending.

Notwithstanding suggestions to the contrary, implementation of the FairTax, including the requirement that state and local governments pay the FairTax on their purchases, entails no reduction in state and local real spending, provided these governments adjust their revenue collection so as to continue to collect the same real revenues.

Our analysis has made no direct mention of tax evasion, an issue of considerable concern to FairTax critics notwithstanding (a) the fact that the overwhelming majority of purchases of goods and services occur in major retail outlets that will surely comply with the FairTax and (b) the fact that the federal government would be able to concentrate its entire tax enforcement efforts on a single tax – the FairTax.

But the fact that we have not explicitly considered tax evasion does not mean that we have ignored it. On the contrary, we have implicitly incorporated a significant degree of tax evasion in our calculations simply by using National Income and Product Account-based projections of household consumption expenditures in forming the FairTax tax base (Easton, 2001).

The National Accounts already understate total household consumption because they make no adjustment for either underground income or the underground consumption it supports. For example, the National Accounts do not impute the income earned by drug dealers and include it as part of national income. But the income earned by drug dealers comes by way of an unrecorded retail commodity sale, which is omitted from the National Accounts measure of household consumption.

To state this point differently, if our FairTax rate calculations are biased downward due to failure to incorporate tax evasion, it is not because we are leaving out retail sales that are now unreported or that we are leaving out other sales that would go unreported, but rather because the National Accounts recorded sales we assume will be reported will, in fact, not be reported. This seems highly unlikely given that large retailers would most surely continue to account for the vast majority of retail sales.[27]

The extent of potential tax evasion under the FairTax and its implications of the FairTax tax certainly deserve careful study, but concern about the omission of tax evasion with respect to this study's findings must be set against two other omissions that militate in the opposite direction.

The first is the major capital gain that the federal government stands to accrue if, as seems likely, the Federal Reserve fully accommodates the introduction of the FairTax and permits consumer prices to rise by roughly 30%. This would reduce the real value of nominal U.S. government debt in the hands of the public (many of whom are foreigners) by about $1 trillion. Although this is a one-time windfall, it is a very large one and could certainly offset a significant amount of revenue loss from tax evasion, were such losses actually to occur.

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[27] Small firms only account for 14.9% of gross receipts by all retailers, wholesalers, and service providers. IRS Statistics of Income, reported in "Impact on Small Business of Replacing the Federal Income Tax", Joint Committee on Taxation, April 23, 1996, JCS-3-96, pp. 109-127.

The second omission that biases upward our estimate of the real revenue-neutral FairTax tax rate arises from the partial equilibrium nature of our analysis. Because we have considered no economic feedback (general equilibrium) effects, we have failed to incorporate the significant expansion of the FairTax tax base that would, over time, likely arise. Kotlikoff and Rapson (2006), Kotlikoff and Jokisch (2005), and Tuerck et al. (2006b) document the major improvement in work and saving incentives and the major potential for enhanced economic growth associated with the FairTax. These interrelated findings suggest the potential for significant reductions in the FairTax rate over time for a fixed scale of federal expenditures.

The scale of federal expenditures is, of course, projected to rise sharply over time as the baby boomers retire and as government-provided healthcare benefits continue to soar. Permitting federal expenditures to grow at their projected rates spells much higher tax rates regardless of the tax system in place. But, as documented in Kotlikoff (2005) and many others, it will surely also spell fiscal insolvency and economic collapse.

The FairTax may be uniquely equipped to restrain the pending explosion in federal spending by making the fiscal system dramatically more transparent. In particular, the FairTax would focus national attention on a single tax rate and the proposition that more spending over time means ever higher values of that tax rate. Thus, anyone in the public or in public service who advocates higher spending will clearly also be advocating higher taxes, and not for a subset of society, but for all members of society.

Appendix A: The Mathematics of State and Local Finance under the FairTax

In this appendix we provide a more detailed demonstration of why ΔC and ΔGS would be identical in absolute value but with opposite signs. We start with consumption. Using equations (34) and (43) from section 5,

$$\Delta C = C_{FT} - C_{07} = Y_{07} \frac{(1-sit)(1-t_i)}{1+sst(1-t_i)} - Y_{07} \frac{1-t_i-sit}{1+sst}$$

$$\Delta C = Y_{07} \left[\frac{(1-sit)(1-t_i)}{1+sst(1-t_i)} - \frac{1-t_i-sit}{1+sst} \right]$$

$$\Delta C = Y_{07} \frac{(1-sit)(1-t_i)(1+sst)-(1-t_i-sit)\left[1+sst(1-t_i)\right]}{\left[1+sst(1-t_i)\right](1+sst)}$$

$$\Delta C = Y_{07} \frac{(1-sit-t_i+sit\cdot t_i)(1+sst)-(1-t_i-sit)-(1-t_i-sit)sst(1-t_i)}{\left[1+sst(1-t_i)\right](1+sst)}$$

$$\Delta C = Y_{07} \frac{sit\cdot t_i+(1-sit-t_i+sit\cdot t_i)sst-(1-t_i-sit)sst+(1-t_i-sit)sst\cdot t_i}{\left[1+sst(1-t_i)\right](1+sst)}$$

$$\Delta C = Y_{07} \frac{sit\cdot t_i+sit\cdot t_i\cdot sst+(1-t_i-sit)sst\cdot ti}{\left[1+sst(1-t_i)\right](1+sst)}$$

(A.1) $\quad \Delta C = Y_{07} \frac{sit\cdot t_i+sst\cdot t_i(1-t_i)}{\left[1+sst(1-t_i)\right](1+sst)}.$

We now refer to equations (35) and (45) from section 5 to derive the change in state and local government spending:

$$\Delta GS = GS_{FT} - GS_{07} = Y_{07} \left[\frac{(1-sit)(1-t_i)}{1+sst(1-t_i)} sst(1-t_i)+sit(1-t_i)-\frac{1-t_i-sit}{1+sst} sst-sit \right],$$

$$\Delta GS = Y_{07} \left\{ \left[\frac{(1-sit)(1-t_i)}{1+sst(1-t_i)}(1-t_i)-\frac{1-t_i-sit}{1+sst} \right] sst-sit\cdot t_i \right\},$$

$$\Delta GS = Y_{07} \left\{ \left[\frac{(1-sit)(1-t_i)}{1+sst(1-t_i)}(1-t_i)-\frac{1-t_i-sit}{1+sst} \right] sst-\frac{sit\cdot t_i(1+sst)}{1+sst} \right\},$$

$$\Delta GS = Y_{07} \left\{ \left[\frac{(1-sit)(1-t_i)}{1+sst(1-t_i)}(1-t_i) - \frac{1-t_i-sit+sit \cdot t_i}{1+sst} \right] sst - \frac{sit \cdot t_i}{1+sst} \right\},$$

$$\Delta GS = Y_{07} \left\{ \left[\frac{(1-sit)(1-t_i)}{1+sst(1-t_i)}(1-t_i) - \frac{(1-t_i)(1-sit)}{1+sst} \right] sst - \frac{sit \cdot t_i}{1+sst} \right\},$$

$$\Delta GS = Y_{07} \left\{ \left[\frac{1-t_i}{1+sst(1-t_i)} - \frac{1}{1+sst} \right] (1-sit)(1-t_i) sst - \frac{sit \cdot t_i}{1+sst} \right\},$$

$$\Delta GS = Y_{07} \left\{ \left[\frac{1-t_i+sst(1-t_i)-1-sst(1-t_i)}{[1+sst(1-t_i)](1+sst)} \right] (1-sit)(1-t_i) sst - \frac{sit \cdot t_i}{1+sst} \right\},$$

$$\Delta GS = -Y_{07} \left\{ \frac{t_i(1-sit)(1-t_i) sst}{[1+sst(1-t_i)](1+sst)} + \frac{sit \cdot t_i}{1+sst} \right\},$$

$$\Delta GS = -Y_{07} \left\{ \frac{t_i(1-sit)(1-t_i) sst}{[1+sst(1-t_i)](1+sst)} + \frac{sit \cdot t_i}{1+sst} \right\}.$$

Hence,

(A.2) $$\Delta GS = -Y_{07} \frac{sit \cdot t_i + (1-t_i) sst \cdot t_i}{[1+sst(1-t_i)](1+sst)}.$$

Comparing the right-hand side of equations (A.1) and (A.2) we observe that they have the same absolute value but opposite signs, so that

(A.3) $$\Delta C = -\Delta GS.$$

Appendix B: Methodology Used to Estimate 2007 Baseline

Inflating the Base to 2007

All calculations were completed using the year in which the most recent data were available, in most cases 2004 or 2005. For those data series for which 2004 data were not available the numbers were inflated to 2004 using the Consumer Price Index (CPI), or the average growth rate over the preceding 3 years.

Forecasts from the Congressional Budget Office (CBO), "Budget and Economic Outlook for Fiscal Years 2007 to 2017" were used to obtain estimates for the year 2007. This CBO publication provides forecasts of several economic indicators and their growth rates from 2005 through 2016, and the growth rates of the CBO projections were used to estimate our data series from 2004 to 2007.

The CBO estimates of wages and salaries were adjusted down slightly (by 5% in 2005 and 4% in 2006 and 2007) to reflect the negative influence of higher short-term interest rates that already exist today and should persist through 2007. The CBO estimated that the 3-month Treasury Bill rate would be 2.8% in 2005 and 4.0% in 2006, while the rate as of November 18, 2005 had already reached 4%, according to Bloomberg.com.[28]

The CBO projected growth rate of gross domestic product (GDP) served as the default to estimate each component of the tax bases, unless a CBO forecast of another series proved more appropriate, or if the behavior of the GDP and the data series indicated an inappropriate match. In the absence of an appropriate series for estimating the tax base component, the component's own growth for the proceeding three to five years was used to forecast to 2007. The table below contains the components of the four tax bases and the variable or other method used to inflate the component to 2007. The CBO projections for the 2007 components of federal tax revenue collections were used to calculate the tax rates for each proposal. The revenue figures were adjusted to reflect the CBO estimates of total revenue if the 2001 and 2003 tax relief packages do not expire as scheduled.

Inflating the Rebate, Allowance and Deduction

The prebate for the FairTax was inflated to 2007 using the CBO estimate of CPI to inflate the Health and Human Services 2004 Poverty level guideline figures. The number of households was inflated using the United States Census Bureau estimate of population growth from 2004 to 2007 (2.77%). The increase was distributed evenly across all households, assuming that the composition of households will remain constant between 2004 and 2007.

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[54] Bloomberg.com; Market Data: rates and bonds; available at http://www.bloomberg.com/markets/rates/index.html; Internet: accessed November 18, 2005.

	Variables using to inflate data point to 2007 dollars	
	FairTax	
Line	*Taxable Items*	*Source*
1	Personal Consumption Expenditures	Gross Domestic Product (GDP)
2	Purchase of New Homes	GDP
3	Purchases of New Mobile Homes	Consumer Price Index (CPI)
4	Improvements to Single-Family Homes	GDP
5	Brokers Commissions on Housing	GDP
6	Imputed Rent on Housing	GDP
7	Imputed Rent on Farm Dwellings	GDP
8	Education Expenditure	GDP
9	Taxable Home Mortgage Interest	10-year Treasury Bond, adjusted to a 3-year bond rate, assuming a 150 basis point difference between the 10- and 3- year bonds
10	Taxable Nonprofit Interest	Same as above
11	Taxable Personal Interest	Same as above
12	Expenditure in U.S. by Nonresidents	CPI
13	Expenditure Abroad by U.S. Residents	GDP
14	Foreign Travel by U.S. Residents (services)	GDP
15	Food Produced and Consumed on Farms	Prior 3-year average growth rate
16	State Sales Taxes	GDP
17	Salaries and Wages of Non-Profits	GDP
18	Capital spending by Non-Profits	GDP
20	State and Local Govt. Consumption	GDP
21	Current Education Spending	Federal Government Spending
22	Gross Purchases of New Structures	GDP
23	Gross Purchases of Equipment	GDP
24	Capital Consumption Allowance	Federal Government Spending
26	Federal Government Consumption	Federal Government Spending
27	Subsidies	Federal Government Spending
28	Gross Purchases of New Structures	Federal Government Spending
29	Gross Purchases of Equipment and Software	Federal Government Spending
30	Capital Consumption Allowance	Federal Government Spending
34	Untaxed Federal Government Spending	Federal Government Spending

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