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# Taxing Sales Under the FairTax: What Rate Works?

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H.R. 25 and S. 25 would replace the federal personal income, corporate income, payroll, capital gains, alternative minimum, self-employment, and transfer taxes with a single-rate federal retail sales tax known as the FairTax. The FairTax also would provide a "prebate" to each household based on its demographic composition. The prebate is set to ensure that households pay no net taxes on spending up to the poverty level.

William G. Gale (2005) and the President's Advisory Panel on Federal Tax Reform (2005) have suggested that the effective (tax-inclusive) tax rate needed to implement the FairTax is far higher than the proposed 23 percent rate. This study, which builds on Gale's analysis, shows that a 23 percent rate is eminently feasible and suggests why Gale and the panel reached the opposite conclusion.

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## I. Introduction

The Fair Tax Act of 2005 (H.R. 25 and S. 25), would replace most existing federal taxes with a comprehensive consumption tax in the form of a national retail sales tax levied at a tax-inclusive rate of 23 percent, 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.

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 raise the question of what would happen to those prices and thus to real spending levels.

| 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.

In this report, 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 is independent of the price level.[1]

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. The most important finding of this report is that only a 2.73 percent cut in non-Social Security federal expenditures would be needed to accommodate a 23 percent rate.[2] That is a remarkably small adjustment when set against the more than 30 percent rise in the real value of those expenditures since 2000. It is important to note that those 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.

Those calculations ignore:

- 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);
- the possibility that tax evasion would exceed the considerable amount of evasion automatically incorporated in our calculations given our use of Na-

tional Income and Product Accounts (NIPA) data, which undercount consumption expenditures due to evasion under the current tax system; and

- 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 next section measures the size of the FairTax base. Section III determines the tax rate required to maintain the level of real non-Social Security federal spending under the FairTax. Section IV considers the level of real non-Social Security federal spending cut needed to accommodate a 23 percent FairTax rate. Section V 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, despite the requirement that they pay the FairTax on their purchases. Section VI 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.

### II. The FairTax Base

H.R. 25 calls for a tax on "all consumption of goods and services in the United States." That consists, for the most part, of what the NIPA defines as "personal consumption expenditures" and "government consumption expenditures." Table 1 shows that consumption, so measured, comprised approximately 86 percent of gross domestic product in 2005.[3]

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 those have to do with the treatment of housing and educational expenditures.

### A. Personal Consumption Expenditures

The FairTax has special provisions for 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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[1]*See* Gale (2005) and President's Advisory Panel on Federal Tax Reform (2005).

[2]The different findings stem, in part, from the mistaken assumption by Gale and, we presume, by the president's tax reform panel (which has not disclosed its method) that state and local governments should 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 (other than some passing remarks) issues of tax evasion, expansion of the tax base due to general equilibrium effects, and capital gains on outstanding government debt.

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

**1. Housing.** Explicit rental payments are subject to taxation under the FairTax. Implicit rents on existing owner-occupied housing and farms are not. However, the FairTax implicitly taxes imputed rent on newly constructed housing via a prepayment 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. Because purchases of new homes are counted as investment in new structures in the NIPA accounts, we add those figures to the base.

Under the FairTax, improvements to single-family homes and realtors' fees, which represent payments for services provided, are also taxable. Those 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. Education.** Tuition and job training expenditures are treated as an investment in human capital and, as such, are excluded from the FairTax base.

**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 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 (for example, new home mortgage interest) and basic interest payments (the 10-year bond yield) is taxable. Thus, for example, a taxpayer with a mortgage rate of 7 percent would have 29 percent 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, nonprofit, and personal borrowing.[5]

**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]

**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 to avoid cascading or levying the FairTax on top of state and local sales taxes. Because the FairTax does not apply to intermediate transactions (business-to-business sales), the state and local sales taxes that apply to those transactions are automatically excluded from the base. We have adjusted our calculations to reflect an estimate that 40 percent of state and local sales taxes apply to business transactions.[7]

**6. Other adjustments.** Food produced and consumed on farms never reaches retail markets and is not subject to the FairTax. We subtract the amount of that consumption from the base.

Finally, nonprofit institutions are treated as persons by the NIPA tables, so their consumption expenditures are included in the private tax base. The consumption expenditures of nonprofit institutions consist 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 nonprofits' 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, so an adjustment is needed. We remove the salaries and wages of nonprofit workers that are not involved in the production of goods and services sold to

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[4]According to the National Association of Realtors, approximately 23 percent of newly constructed homes are purchased for investment purposes. Those homes would not be subject to the FairTax when they are newly built, but the payments made by the renters of those units would be subject to the FairTax. We make an adjustment to account for those purchases. If the houses are later sold by the business to a consumer (that is, converted from a business or investment purpose to a consumption purpose), the 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) over the rate paid on such investment. The value for implicit fees for home mortgages is derived by estimating the principal ($6.4819 trillion in 2007) by dividing the total interest payments

**(Footnote continued in next column.)**

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 percent 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 principal ($6.4819 trillion 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). That 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 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 nonresidents.

[7]Ring (1999).

individuals.[8] We also remove the capital consumption allowance to avoid double counting.

## B. Government Consumption Spending

Government consumption is included in the FairTax base to put personal and government consumption expenditures on an equal footing.[9] Government consumption expenditures include payroll taxes paid by governments and income taxes and payroll taxes paid by their employees on 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 those taxes. Failing to tax government consumption, while taxing only private consumption, would make government consumption expenditures artificially cheap in comparison with 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.

## C. The Size of the FairTax Base

Since the effective date of H.R. 25 is January 1, 2007, we estimate the tax base for the FairTax and the federal tax revenues that would be replaced by it for calendar year 2007. The 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 trillion. Starting with personal consumption expenditures of $9.772 trillion, 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 because 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 those adjustments is to reduce the private consumption base to $9.235 trillion, 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.[13] We add spending for new buildings and equipment to the base. State and local government consumption, thus adjusted, equals $1.093 trillion; federal government consumption equals $916 billion. Those amounts sum to $11.244 trillion dollars, representing 81 percent of 2007 U.S. gross domestic product as projected by the CBO.[14]

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

## III. 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: the 2007 revenue to be replaced and the revenue needed to cover the prebate.

### A. Replacing Tax Revenue

Table 3 details the amount of revenue 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

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[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). That leaves the final consumption expenditures at $131.7 billion. Next we estimate the ratio of wages and salaries to total expenditures of nonprofits 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 percent. We apply this ratio to the $131.7 billion to get $68 billion. That 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]Gale et al. (1998).

[10]U.S. Congress (2006).

[11]Table 2, line 2, according to the Mar. 2005 report by the National Association of Realtors, 23 percent of homes purchased in 2004 were for investment purposes. Also, 79 percent of homes purchased for investment purposes are single-family homes. Those 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 trade schools, and so on, 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; to avoid double counting of the consumption of capital, we have removed capital consumption allowance from the base.

[14]U.S. Congress (2006), p. 26.

| Line | Taxable Consumption Categories | 2007 | Source |
|------|-------------------------------|------|--------|
| | **Table 2. Computation of the FairTax Base, 2007 ($ billions)** | | |
| | **Private Consumption Spending** | | |
| 1 | Personal Consumption Expenditures | 9,772 | NIPA 1.1.5, line 2 |
| | **Housing** | | |
| 2 | Purchases 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 (nondurables) | -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 Nonprofits | -68 | NIPA 2.9, line 62 minus line 68, multiplied by 52% (% of nonprofit wages to total expenses) |
| 18 | Plus: Capital Spending by Nonprofits (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 3.9.5, 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.

| 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** |
| GDP | 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, CBO, ''Budget and Economic Outlook for Fiscal Years 2007 to 2016'' (2006). <br> *Note:* Totals may not add due to rounding. | | | | | |

repealed and replaced by the FairTax.[15] In calendar year 2005, those taxes yielded $2.059 trillion or 16.5 percent of GDP. In 2007 those taxes are expected to yield $2.288 trillion or 16.4 percent of GDP. Those 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]

It is worth noting what the FairTax rate would be were it not for the prebate. To calculate the rate before the prebate is included, we would divide the gross FairTax base (line 32 in Table 2) by the unadjusted revenues to be replaced, as listed in Table 3 under the total for 2007, to get 20.35 percent (= 2,288/11,244). In the absence of the prebate, the FairTax rate would be 20.35 percent, well below that called for in H.R. 25.

## B. 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 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 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 for married couples to prevent a marriage

penalty because the poverty level for a family of two is not twice the poverty level of a single person living alone.

Take, for 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 x $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. Those totals were summed to arrive at the base on which the prebate would be calculated.

## C. Tax-Inclusive Versus Tax-Exclusive Rates

We now 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 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/$100 = 25 percent, which is the *tax-exclusive* rate ($t_e$); alternatively, we may report the tax rate as $25/$125 = 20 percent, which is the *tax-inclusive* rate ($t_i$). The 23 percent FairTax rate in H.R. 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.

## D. 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.

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[15]Since the federal fiscal year begins Oct. 1, calendar year 2007 contains the last nine months of fiscal 2007 and the first three months of fiscal 2008. We adjusted the fiscal year revenue numbers to calendar year 2007 by adding three-fourths of the fiscal 2007 total revenues to one-fourth of the total revenues for fiscal 2008.

[16]U.S. Congress, Congressional Budget Office (2006), p. 105.

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

| Table 4. Computing the FairTax Base Reduction Due to the Prebate for 2007 | | | |
|---|---|---|---|
| Household Size | Family Consumption Allowance | Number of Households (Thousands) | Base Reduction (Thousands) |
| **I. Single Households** | | | |
| 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%** |

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.

$AC_{FT}$: 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 that arise in the determination of the FairTax values are the reaction of monetary authorities to the switch to the FairTax and 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.

**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 — that is, increase in the money supply — would cause prices to increase in the same proportion.

Let us designate $\alpha$ as the percentage by which market prices under the FairTax would exceed market prices under current law in 2007. We assume that the monetary authorities determine this percentage through their control of the money supply, such 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:

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

Consumer prices have two components:

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

Other federal commodity taxes ($PR2$) — import duties, excise taxes, and the like. Revenues from those taxes form the $R2$ component of the federal government revenue mentioned above.

Under current law this means that consumer prices are:

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

Because 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 without 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:

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

Letting $t_i$ be the FairTax inclusive rate:

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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.

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

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

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

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

we get:

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

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

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

To calculate $\gamma$ 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:

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

**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. Those expenditures must buy the same real goods and services under the FairTax as they would under current law, except for IRS services that would no longer be needed because of the removal of different taxes valid under current law. Calling those IRS real savings $IRSS$:

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

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:

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

**3. Treatment of taxable transfer payments and FairTax tax-favored purchases.** Now let us consider transfer payments to individuals that are subject to income taxes under current law. Examples include government interest payments and Social Security benefits. Maintaining the real purchasing power of those transfer payments before and after the FairTax requires taking into account that the payments will no longer be subject to income taxation.

A similar issue arises in the case of government purchases of educational services and other commodities that would not be subject to the FairTax. Assuming the

tax break is passed on to purchasers of those 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, then:

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

Substituting (11) we can write:

$$(15) \qquad GN_{FT} = GN_{07} \, (1 - 1.0132 \, t_i) \, (1 + \alpha) \, .$$

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 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 $\alpha$ 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. Because we are interested in the FairTax rate and not the actual values of $G$, $GN$, and $TR$, we consider this approach to be valid.

**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:

$$(16) \qquad PRE_{FT} = B_{07} t_i \, (1 + \alpha) \, .$$

**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 at a quarter of 1 percent (0.25 percent) of the revenue collected by the retailer, and another quarter of 1 percent of the revenue collected by the state and local government. The federal government gets no administrative credit for collecting any FairTax revenue. To calculate the administrative credit, we must identify the sources of collection, and for that purpose we separate purchases done at the vendor level — predominantly 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. That amount comprises private consumption, $C_{07}$, and the nonwage portion of $G_{07}$ and $GS_{07}$. That revenue is first collected by the vendors, who claim a credit equal to 0.25 percent of revenues collected and send the remaining 99.75 percent (100 percent - 0.25 percent) to the state government. The state government then takes its 0.25 percent 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% x (1 - 0.25%) $\approx$ .50%). It's important to consider that federal wages are 32 percent of federal government purchases, and state and local government wages are 41 percent of state and local government purchases. That means that the nonwage portion of government purchases relevant to this type of revenue is 68 percent of $G_{07}$ and 59 percent of $GS_{07}$.[20]

The FairTax on state and local government wages is collected only at the state government level and therefore would "earn" a credit of only 0.25 percent. That means that for the administrative credit we also have to apply a 0.25 percent factor to 41 percent 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.

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:

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

**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:

$$(18) \qquad R_{FT} = (C_{FT} + G_{FT} + GS_{FT}) t_i \, .$$

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 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 that assumption implies that those governments will maintain the real value of their consumption purchases.

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[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. That percentage is subtracted from 100 percent to obtain the value of nonwages in 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.

[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.

| Table 5. Computation of the 2007 FairTax Rate ($ billions) | |
|---|---|
| **Revenues to be Replaced** | |
| Gross Revenue to be Replaced | $2,288 |
| Less: Earned Income Tax Credit and Child Tax Credit | -52 |
| **Total Revenue to be Replaced ($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. | |

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

Therefore:

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

$$(20) \qquad GS_{FT} = GS_{07} (1 + \alpha).$$

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

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

$$(21) \qquad R_{FT} = (C_{07} + G_{07} + G_{07}) t_i (1 + \alpha).$$

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

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

**7. The FairTax 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:

$$(24) \quad \begin{aligned} &(C_{07} + G_{07} + GS_{07}) t_i (1 + \alpha) + R2_{07}(1 + \alpha) + DEF_{07}(1 + \alpha) = \\ &G_{07} - IRSS) (1 + \alpha) + TR_{07}(1 + \alpha) + GN_{07}(1.1.0132\, t_i) (1 + \alpha) + B_{07} t_i (1 + \alpha) + \\ &\{0.50\% [C_{07} + IRSS + 0.68 (G_{07} - IRSS) + 0.59GS_{07}] + 0.25\% \times 0.41GS_{07}\} t_i (1 + \alpha). \end{aligned}$$

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

$$(25) \quad \begin{aligned} &[0.9950C_{07} - 0.0016IRSS + 0.9966G_{07} + 0.9960GS_{07}] t_i + R2_{07} + DEF_{07} = \\ &G_{07} + TR_{07} + GN_{07} (1.1.0132\, t_i) + B_{07} t_i - IRSS. \end{aligned}$$

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

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

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

Using (1):

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

Inserting values from Table 5 and solving gives:

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

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 those taxes would be $2.288 trillion in 2007 under the current law. We subtract

the cost of the earned income tax credit and the child tax credit, which the federal government counts as spending and which represents revenue that would not be raised under the FairTax. H.R. 25 also calls for abolishing the IRS, 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 now needs. Therefore, we estimate that the federal government would be able to cut $8 billion from the FY 2007 IRS budget of $11.01 billion.[22] Those adjustments reduce the revenues replaced by the FairTax to $2.228 trillion.

As set out in Table 5, the FairTax base needs some adjustments to match equation (26). We have to adjust personal, state, and local government and federal government consumption 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 trillion. To raise revenue of $2.228 trillion from a base of $9.355 trillion, the rate that must be imposed is 23.82 percent in tax-inclusive terms, or 31.27 percent in tax-exclusive terms.

## IV. Federal Spending With a 23 Percent 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 percent. However, H.R. 25 calls for a rate of 23 percent. 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 percent rate to be implemented. Alternatively, the FairTax could enhance economic growth enough to increase the FairTax base by 3 percent, in which case 23 percent would be sufficient to avoid any spending reduction. (As previously explained, this report provides a purely static analysis that 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 percent rate without any reduction in federal spending. In the absence of that expansive effect, however, some reduction in spending would be necessary.)

While that 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.

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[22]BHI estimates the following IRS appropriations for fiscal 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/fy07budget inbrief.pdf.

Here we estimate the percentage reduction in federal government spending that would be required under a 23 percent rate; all spending that would be in place under the FairTax, except 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 different under a 23 percent rate than under a 23.82 percent 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 percent of *TR* and 47.96 percent of *GN* in 2007.

We define:

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

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

We let:

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

Substituting this definition in equation (2):

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

From section 3.4 we know this equality will hold only when a rate of 23.82 percent is imposed. Note that $R_{FT}$, $NSS_{FT}$, and $GN_{FT}$ are all a function of the tax-inclusive rate. Those values will be different when we impose a 23.82 percent rate than when we impose a 23 percent rate. Calling the values of these categories under a 23 percent rate $R'_{FT}$, $NSS'_{FT}$, and $GN'_{FT}$, respectively, the corresponding equation to (29) under a 23 percent rate is:

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

In equation (30) we introduce $\delta$ because we know that the imposition of the 23 percent 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 $\delta$:

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

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

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

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 percent. It also estimates the necessary spending cut to be $76 billion, which is simply the difference between the spending that would be necessary with a 23 percent rate and the revenue that would actually be raised. The $76 billion represents 2.73 percent of the non-Social Security spending that would be in place if no cut were needed with a 23 percent rate.

| Table 6. Federal Revenue and Expenditure Under the FairTax With a 23 Percent Rate ($ billions) | | |
|---|---|---|
| FairTax Revenue ($R'_{FT}$) = 0.23 x $11,244 | | 2,586 |
| Other Federal Revenue ($R2_{FT}$) | | 147 |
| Deficit ($DEF_{FT}$) | | 476 |
| *Total Revenue* | | *3,209* |
| Government Purchases ($G_{FT}$) | | 908 |
| Nontaxed Transfers ($TR_{FT}$) | | 1,670 |
|    Social Security (.2412 x $TR_{FT}$) | 403 | |
|    Non-Social Security (.7588 x $TR_{FT}$) | 1,268 | |
| Taxed Transfers ($GN'_{FT}$) | | 209 |
|    Social Security (.4796 x $GN'_{FT}$) | 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. | | |

| Table 7. Non-Social Security Spending, 2003-2007 ($ billions) | | | | | |
|---|---|---|---|---|---|
| | Actual | | | Estimates | |
| **Description** | **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.

To put that "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 percent, or $65 billion, between calendar years 2006 and 2007. Therefore, 87 percent of the "cut" in that spending, necessary to implement a 23 percent FairTax rate, can be achieved by simply holding nominal non-Social Security spending at its 2006 level.

## V. Effects 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 that 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]

That 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 oppose" 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. 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

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[23]*See* note 16, *supra.*

[24]Gale (2005).

and local government that would create a political or philosophical barrier to its adoption?

In approaching that question, we make three simplifying assumptions. The first is that the FairTax is adopted without monetary accommodation. That 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 spending — which is to say, on federal government spending, state and local government spending, and 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, which are the values if 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.

$GS_{07}$: State and local government purchases.

In this simplified economy, we note that $t_i$, the FairTax inclusive rate, is equivalent to 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:

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

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

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

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

and

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

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

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

and

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

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, that implies that the (tax-inclusive) FairTax rate would be $t_i$. Then federal government purchases are

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

Private consumers would receive lower (gross) wages under the FairTax because producer prices fall. Because there is no *R*2 component in the example, the rate by which producer prices fall is $t_i$. Prices faced by private consumers are also affected because the state and local sales tax is imposed on the reduced producer prices.[25] Here real consumption equals disposable income divided by price:

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

which, after canceling and substituting for $t_e$, becomes:

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

Simplifying:

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

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[25]Note that in Section III.D we did not include state and local sales taxes as components of the prices. The reasons for that are 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.

or

(43) $\qquad C_{FT} = Y_{07} \dfrac{(1 - sit)\,(1 - t_i)}{1 + sst\,(1 - t_i)}$ .

State and local government purchases, then, are:

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

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

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

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

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

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

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

$\qquad = \dfrac{(1 + sst)\,(1 - t_i)}{1 + sst\,(1 - t_i)}$

$\qquad = \dfrac{1 + sst\,(1 - t_i) - t_i}{1 + sst\,(1 - t_i)}$ .

Further simplifying:

(47) $\qquad \dfrac{GS_{FT}}{GS_{07}} = 1 - \dfrac{t_i}{1 + sst\,(1 - t_i)}$ .

In equation (47) we find that $\dfrac{GS_{FT}}{GS_{07}} < 1$, which implies that $GS_{FT} < GS_{07}$, and 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) $\qquad C_{FT} - C_{07} = -(GS_{FT} - GS_{07})$ .

or

(49) $\qquad \Delta C = -\Delta GS$ .[26]

Thus, although $\Delta GS$ is negative, it is matched exactly by $\Delta C$, which is positive. Suppose, for example, that the federal income tax rate is 20 percent and that state and local government impose a 5 percent sales tax and a 5 percent 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 percent. 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 government, as well as individuals — would remain whole at the end of the day.

For the determination of the rate in Section III.D we assume that either (1) state and local government accepts that loss in real revenue and the corresponding reduction in real spending while consumers increase their spending by $\Delta C$ or (2) state and local government 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 government 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 that equality.

## VI. 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 percent. That real revenue- and real spending-neutral rate is only slightly higher than the 23 percent rate in the FairTax legislation. Indeed, implementing the FairTax at a 23 percent rate would require a modest 2.73 percent reduction in real non-Social Security federal spending.

Despite suggestions to the contrary, implementation of the FairTax, including the requirement that state and local government pay the FairTax on their purchases, entails no reduction in state and local real spending, provided those 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 despite the facts that the overwhelming majority of purchases of goods and services occur in major retail outlets that will surely comply with the FairTax and 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 NIPA-based projections of household consumption expenditures in forming the FairTax tax base (Easton, 2001).

The NIPA already understate total household consumption because they make no adjustment for either underground income or the underground consumption it supports. For example, the NIPA 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 NIPA measure of household consumption.

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

The extent of potential tax evasion under the FairTax and its implications to the FairTax certainly deserve careful study. However, concern about the omission of tax evasion regarding 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 percent. That 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 that 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.

The second omission that biases upward our estimate of the real revenue-neutral FairTax 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. Those 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 will require 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 who advocates higher spending will clearly also be advocating higher taxes, and not for a subset of society, but for all members of society.

*(Appendices begin on next page.)*

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[27]Small firms only account for 14.9 percent 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, Apr. 23, 1996, JCS-3-96, pp. 109-127.

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

In this appendix we provide a more detailed demonstration of why $\Delta C$ and $\Delta GS$ would be identical in absolute value but with opposite signs. We start with consumption. Using equations (34) and (43) from Section V:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Hence:

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

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: Method 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 CPI or the average growth rate over the preceding three years.

Forecasts from the CBO, "Budget and Economic Outlook for Fiscal Years 2007 to 2017," were used to obtain estimates for the year 2007. That 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 percent in 2005 and 4 percent 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 three-month Treasury bill rate would be 2.8 percent in 2005 and 4 percent in 2006, while the rate as of November 18, 2005, had already reached 4 percent, according to Bloomberg.com.[28]

The CBO-projected growth rate of gross domestic product 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 preceding 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 Prebate, 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 U.S. Census Bureau estimate of population growth from 2004 to 2007 (2.77 percent). 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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[28]Bloomberg.com, Market Data: Rates and Bonds, *available at* http://www.bloomberg.com/markets/rates/index.html.

| Variables Used to Inflate Data Points to 2007 Dollars | | |
|---|---|---|
| FairTax | | |
| Line | Taxable Items | Source |
| 1 | Personal Consumption Expenditures | GDP |
| 2 | Purchase of New Homes | GDP |
| 3 | Purchases of New Mobile Homes | 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 United States 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 Nonprofits | GDP |
| 18 | Capital Spending by Nonprofits | GDP |
| 20 | State and Local Government 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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