



**A MACROECONOMIC ANALYSIS  
OF THE FAIRTAX PROPOSAL**

July 2006

**[www.arduinlaffermoore.com](http://www.arduinlaffermoore.com)**

©2006 Arduin, Laffer & Moore Econometrics. All rights reserved.

No portion of this report may be reproduced in any form without prior consent. The information has been compiled from sources we believe to be reliable, but we do not hold ourselves responsible for its correctness. Opinions are presented without guarantee.



## A MACROECONOMIC ANALYSIS OF THE FAIRTAX PROPOSAL

Incentives drive all economic behavior. Taxes are a negative incentive. People do not work, invest, or engage in entrepreneurial activities in order to pay taxes. They engage in such economic activities in order to earn after-tax income. When the government increases its share of the income earned by its citizens, the incentive to engage in growth-enhancing economic activities falls; alternatively, the disincentive to these activities rises. The higher the tax on the next dollar earned (the marginal tax rate) the larger the disincentive. However, without taxes the government cannot operate. From an economic efficiency perspective, the appropriate goal for tax policy is to establish a tax system that minimizes the tax disincentives on economic activities, given the revenue needs of the government.<sup>1</sup>

### Costs of the Current Tax System

Based on this criterion, the current tax code is an abysmal failure. First, the compliance costs are too large. Studies estimate the costs of compliance with the current tax system to be around \$200 billion annually.<sup>2</sup> And, compliance costs are only one of the current system's difficulties. More importantly, decisions to invest, save, and consume are all distorted due to the complexity, numerous loopholes, exemptions, and social engineering prevalent throughout our current tax code. The \$200 billion figure does not even begin to address these costs. In a recent GAO study, the literature examining these efficiency costs were reviewed, finding that, "Although none of these studies, either individually or in the aggregate, provide a basis for estimating the total efficiency cost of the tax system, they do indicate that those total costs are likely to be large. The two most comprehensive studies we found show costs on the *order of magnitude of 2 to 5 percent of GDP* each year (as of the mid-1990s)."<sup>3</sup> Furthermore, as a direct result of these inefficiencies, our current tax code imposes a marginal tax rate that is far higher than necessary, providing larger than necessary economic disincentives. High and invasive taxes also induce people to employ greater attempts to minimize their tax burdens, wasting valuable productive resources in the process.

In response to these ills, Americans For Fair Taxation (FairTax.org) has created the FairTax proposal, which has been introduced in the 109<sup>th</sup> Congress by Representative John Linder

---

<sup>1</sup> There are other goals people associate with the tax system including income redistribution or using the tax system to restrain the growth of government. For this paper, we will not evaluate either the current or FairTax systems on any other criteria except for the FairTax's impact on removing tax distortions and subsequently its impact on economic growth. This evaluation of the economic impacts of the FairTax will include a distributional analysis of the impacts as part of the growth impacts of the FairTax reform.

<sup>2</sup> Edwards, Chris, "Options for Tax Reform," *Cato Policy Analysis*, No. 536, February 24, 2005. In another recent study, the GAO found the lowest compliance costs to total "...\$107 billion (roughly 1 percent of GDP) per year; however, other studies estimate costs 1.5 times as large." United States Government Accountability Office, (August 2005) *Tax Policy: Summary of Estimates of the Costs of the Federal Tax System*.

<sup>3</sup> United States Government Accountability Office, (August 2005) *Tax Policy: Summary of Estimates of the Costs of the Federal Tax System*. Emphasis added.

(GA-7).<sup>4</sup> The FairTax addresses the ills of the current tax code by simplifying the tax structure, removing the tax on savings and investment, and lowering the effective marginal tax rates throughout the economy. Removing the current code's prevalent distortions allows the FairTax proposal to offer a revenue-neutral replacement tax system that contains a much lower effective marginal tax rate. Lower marginal tax rates create significant and positive incentives for individuals to both increase their work effort and report work efforts that are currently performed but not reported. Another primary benefit from the FairTax proposal is its impact on savings and capital development. The current tax code penalizes savings by taxing it excessively. As a result, the incentives for residents of the U.S. to save are diminished. As a consumption-based tax, the FairTax removes these disincentives, eliciting significant dynamic impacts that will raise the level of savings in the U.S. The FairTax is consequently a marked improvement over the current tax system because it eliminates many of the adverse incentives enshrined in our current tax system, producing beneficial incentives in their stead.

In this paper, we evaluate the macroeconomic implications of abandoning our current tax system and replacing it with the FairTax proposal. We begin this investigation with an overview of the proposal being examined: the FairTax. Following this brief overview, we then examine the current income-based tax system with specific attention on its adverse impacts on economic activity. As of late, the topic of tax reform has received a great deal of attention, with much of this research devoted to analyzing the impacts from switching the current tax system to a consumption-based system. Consequently, following the review of the adverse impacts from our current tax system, we provide a brief review of the tax reform research, with specific attention on areas of agreement and disagreement.

It is clear from this review that the majority of analysts that have examined a consumption-based tax conclude it will increase economic growth in the long term (generally within a 5 - 10 year period). There are, however, some disagreements over the impact of a consumption-based tax over the short term (generally within a 1 - 5 year period). Although many analyses show a positive impact, others find the benefits to be muted in the short term due to a marked decrease in consumption spending in the U.S. We consequently examine the assumptions that lead to the different results in the short term and find that the assumptions that lead to a negative short-term effect do not adequately represent all current economic drivers – especially international capital flows and a comprehensive accounting of savings. Based on this review, we employ a standard economic growth model utilizing the assumptions we believe most accurately reflect our current macroeconomy.

This analysis shows that in both the short and long term, a policy shift from our current tax system toward the FairTax would greatly benefit the U.S. economy by increasing economic growth, savings, foreign investment, and personal income.

---

<sup>4</sup> In the 109<sup>th</sup> Congress, this proposal is H.R. 25. Rep. Linder is the primary sponsor, while over 50 members have co-sponsored this legislation. The Senate bill, S. 25, has been sponsored by Senator Saxby Chambliss (GA).

## The FairTax Proposal

Under The Fair Tax Act of 2005 (H.R. 25 and S. 25),<sup>5</sup> all federal income taxes and payroll taxes would be repealed. The specific taxes repealed include:

- Personal income taxes
- Estate taxes
- Gift taxes
- Capital gains taxes
- The alternative minimum tax
- Social Security and Medicare taxes
- Self-employment taxes
- Corporate taxes

To ensure that income taxes are not reinstated in the future, the FairTax plan also calls for the repeal of the 16<sup>th</sup> Amendment to the U.S. Constitution – the amendment granting the federal government the power to tax income.<sup>6</sup> The federal government would subsequently raise the vast majority of its revenues through a single-rate sales tax levied at the point of purchase on all goods and services for personal consumption, the FairTax. By design, the sales tax rate established in the FairTax proposal is a revenue-neutral rate of 23 percent inclusive.

Much has been said regarding the appropriate tax rate and how to measure that rate. In order to appropriately compare the FairTax proposal to the current tax system the tax rates must be placed on a comparable basis. This is not the case for direct comparisons of income taxes and sales taxes because the tax rates are calculated differently. The simplified example in Table 1 illustrates the issue of tax basis.

**Table 1: The Equality between Tax-Inclusive and Tax-Exclusive Rates**

	<b>Scenario 1: National Income Tax</b>	<b>Scenario 2: National Sales Tax</b>
Income	\$50,000	\$50,000
Tax Rate	20.0%	25.0%
Tax Base	Income	Value of goods purchased
Income Tax Payment	\$10,000	\$ -
Goods Purchased	\$40,000	\$40,000
Sales Tax Payment	\$ -	\$10,000

Table 1 shows a family that earns \$50,000 annually under two different scenarios: (1) a national income tax; and (2) a national sales tax. Under scenario (1), a national income tax, this family pays a 20 percent marginal income tax on every dollar they earn, or for this family a total tax payment of \$10,000. The family's income can be divided into two parts: \$40,000 of after-tax income, which they subsequently spend on goods and \$10,000 in tax payments. The basis for

<sup>5</sup> In the 109<sup>th</sup> Congress, this proposal is H.R. 25. Rep. Linder is the primary sponsor, while over 50 members have co-sponsored this legislation.

<sup>6</sup> See H.J. Res. 16, sponsored by Representative Steve King (IA-5).

calculating the income tax does not take this distinction into account. The income tax payment is determined by multiplying the gross income earned by 20 percent, which includes the portion of the gross income that is owed in taxes. In public finance jargon, the 20 percent tax rate is considered to be on a “tax-inclusive” basis because the tax payments are included as part of the total base that is used to determine total taxes paid.

Sales taxes do not typically work this way. Typically, sales taxes are levied on the pre-tax retail price or what is termed a “tax-exclusive” basis. Consequently, raising a \$10,000 tax payment based on the aforementioned \$40,000 in spending requires a 25 percent sales tax rate or mark-up from the pre-tax price – scenario (2) of Table 1. This calculation is based on a tax-exclusive basis because the \$10,000 tax payment is not included as part of the tax base.

Under either the 25 percent sales tax rate or the 20 percent income tax rate, this family still makes the same \$10,000 tax payment. The percentages differ because they are calculated as a percentage of different bases. This equivalency can be seen by converting the 25 percent sales tax into a tax-inclusive basis. Including the sales tax payment of \$10,000 into the calculation, the total tax payment is the \$40,000 in consumption expenditures plus the \$10,000 in tax payments or \$50,000. The \$10,000 payment is 20 percent of this figure – the exact same rate as a 20 percent marginal income tax. Consequently, it is useful to calculate either the income tax on a tax-exclusive basis or the sales tax on a tax-inclusive basis for comparative purposes. For this paper, the FairTax rate is discussed on an equivalent tax-inclusive basis – this has the benefit of maintaining rate consistency with the current tax system. Consequently, the 23 percent FairTax has the impact of marking up pre-tax retail prices by 30 percent.

The 23 percent national sales tax is applied to the final consumption of all new goods and services. Business-to-business purchases are not taxed, because the tax will be collected once the ultimate user purchases the good or service. Similarly, used goods are not taxed as the tax has been already collected when the good was originally sold. The FairTax also removes all exemptions in the current tax code and replaces them with a family consumption allowance which is equal to the Health and Human Services poverty guideline plus an additional amount in the case of a married couple to prevent a marriage penalty. A monthly sales tax rebate is provided to each qualified household which is equal to the family consumption allowance divided by twelve times the FairTax rate.<sup>7</sup>

### *Testing the Rate*

The next question with respect to the FairTax is whether the 23 percent consumption tax rate is high enough in order to provide a revenue-neutral proposal. A simple test illustrates this point. Table 2 presents the 2004 revenues for the federal government from the income tax sources the FairTax intends to eliminate, including all social insurance taxes.

---

<sup>7</sup> See *Federal Register*, Vol. 69, No. 30, February 13, 2004, pp. 7336-7338.

**Table 2: Revenues Raised in 2004 from Taxes Replaced by the FairTax Proposal**

<b>Tax Source</b>	<b><u>\$Billions</u></b>
Individual Income*	\$809.0
Social Insurance Taxes	\$733.4
Corporate taxes	\$189.4
Estate and Gift Taxes	\$24.8
<b>Total Revenues Replaced</b>	<b>\$1,756.6</b>
Total Receipts	\$1,880.1
<b>Percentage of Total Receipts</b>	<b>93.4%</b>

\*Individual Income tax receipts include: Personal income taxes, Capital gains taxes, taxes on dividend income, and the Alternative minimum tax.

Source: Congressional Budget Office, Historical Budget Data, <http://www.cbo.gov>.

Table 2 illustrates that the FairTax is fairly described as tax replacement – not tax reform – replacing over 93 percent of the federal government’s current revenues. In lieu of these taxes, the FairTax would impose a 23 percent sales tax on all final consumption expenditures on new purchases. Total revenues would be the sum of all of these collections net of the prebate. Table 3 presents the estimated FairTax tax base as of 2004, the estimated value of the FairTax prebate based on poverty guidelines and demographics, and the resulting estimated tax revenues from the FairTax based on 2004 data.

**Table 3: Estimated 2004 Revenues if the FairTax Proposal were in Effect**

<b><u>Description of Taxable Item</u></b>	<b><u>Tax Base (2004)</u></b>
Personal consumption expenditures	\$8,214.30
+ Purchases of new homes	\$572.20
+ Improvements to Residential Structures	\$147.00
- Imputed rent on housing	(\$904.70)
- Foreign travel by U.S. residents (one-half)	(\$91.60)
- Food produced and consumed on farms	(\$0.20)
+ Total Government Consumption	\$1,843.40
+ Total Government Gross Investment	\$372.50
- Education expenditures	(\$211.30)
+ Expenditures in U.S. by nonresidents	\$96.60
<b>Gross FairTax Tax Base</b>	<b>\$10,038.20</b>
Total Gross FairTax Revenues	\$2,308.79
Estimated Prebate Value	\$446.14
<b>Total FairTax Revenues</b>	<b>1,862.65</b>

Sources: Bureau of Economic Analysis, National Income Product Accounts. U.S. Census Current Population Reports 2004.

Based on static calculations, a 23 percent FairTax raises a similar amount of revenues (\$106 billion more based on our calculations) as the current income taxes it is designed to replace. As

such, it is appropriate to deem this proposal a revenue-neutral proposition based on the static methodology. Given the dynamic growth effects from implementing this proposal, the static estimate is, of course, a lower bound of the potential revenues the proposal will generate and the upper bound of the revenue-neutral rate.

### **The Current U.S. Tax System**

Although we call our current tax system an income-based tax system, the federal government currently imposes a complex hybrid tax system. This is due to the tax reductions for pre-approved savings vehicles (e.g., Investment Retirement Accounts (IRAs), College Education Savings Accounts (529s), Health Savings Accounts (HSAs), 401Ks, pensions, etc.) that skew the tax base away from total income earned toward total consumption expenditures spent. The current federal tax system can subsequently be more appropriately described as an income/consumption tax. However, the complexity inherent in our current hybrid system distorts capital allocation by imposing incentives that may or may not be efficient. Compounding these issues, there are numerous other exemptions, deductions, carry-forwards, carry-backwards, depreciation allowances (which likely bear little resemblance to actual economic depreciation of the assets), and marginal tax rates that differ depending upon pre-approved circumstances, such as whether you are married or single or whether you own a home. However, other circumstances, such as living in a place with a higher cost of living, are not taken into account.

Removing these complex and arbitrary rules provides macroeconomic benefits that cannot be fully accounted for in a macroeconomic model. The inability to quantify a benefit makes the benefit no less real or no less important. From this perspective, the macroeconomic benefits developed below can be accurately viewed as a lower-end estimate of the benefits from switching to the consumption-based tax as laid out in the FairTax proposal.

#### *The Current Tax System and its Disincentives*

Converting our current complex tax system into the simple national retail sales tax system represented by the FairTax creates two primary economic effects. Economists deem these the income effect and the substitution effect. The income effect examines the changed behavior that directly arises from changes in income or wealth. For example, people will tend to increase the amount of consumption in response to an increase in income. The substitution effect examines the changed behavior that arises from changes in the relative costs of different goods or activities. For example, a switch in tax policy that reduces the costs of one good compared to another will provide incentives for people to consume more of the former at the expense of the latter. The primary benefits to the economy from replacing our current tax code with the FairTax proposal that are accounted for in our model arise in the following areas:

- Work effort
- Work demand (and subsequently wages)
- Savings
- Investment and subsequently, greater capital accumulation

Other benefits will arise. These include lower compliance costs under the FairTax proposal that will presumably be less than the current compliance costs in excess of \$200 billion, the increased

efforts toward productive activities as opposed to tax compliance and tax minimization, as well as the reduction in informal activities as more economic activity that is not reported becomes recognized. Although these impacts are real, they are difficult to quantify and we do not attempt to account for them in our analysis – another instance reinforcing the view that our analysis provides a lower-end projection of the macroeconomic benefits from the FairTax proposal.

Our analysis also understates the macroeconomic benefits of the FairTax due to the fact that our model does not take into account several of the taxes the FairTax would eliminate: the estate tax, the gift tax, and the alternative minimum tax (AMT). The estate and gift taxes impact families' financial planning activities as well as their incentives. These costs steer valuable resources away from productive activities toward tax minimization activities. Consequently, removing these taxes will elicit significant and beneficial economic impacts.<sup>8</sup> Several types of models can be designed to account for the inefficiencies associated with these taxes.<sup>9</sup> As our model does not consider these impacts, the assumption serves to lessen the estimated benefits of the FairTax compared to the actual economic benefits created.

The impact of the AMT is twofold.<sup>10</sup> First, by running what is in effect a dual income tax system, it raises compliance costs and complexity (not to mention taxpayer resentment). Second, the AMT raises the marginal income tax rate faced by many middle-class families.<sup>11</sup> Consequently, the expected impact from including the AMT in our model would be to raise the current marginal income tax rate on families subjected to the tax, which is increasing every passing year due to the lack of inflation indexing associated with the AMT earnings limits. Again, the impact from not including this complexity is to lessen the benefits from implementing the FairTax system as a replacement to our current tax system. Table 4 summarizes all of the aforementioned assumptions supporting the notion that the macroeconomic benefits estimated are a lower-end estimate.

---

<sup>8</sup> For instance, a 1996 Heritage Foundation study found that the repeal of the estate tax could generate \$11 billion in increased output annually. See Beach, William W., (1996) "The Case for Repealing the Estate Tax," *Heritage Backgrounder No. 1091*, August 21, 1996.

<sup>9</sup> Specifically, in evaluating alternative tax proposals, some models take into account the incentive for people to leave money and assets to their children through creating models termed Computable General Equilibrium (CGE) models that incorporate overlapping generations. Such models use a construct termed a lifetime utility (happiness) function and a lifetime budget constraint that incorporates the desired level of money that the person would like to bequeath to their children. Under such a construct, the estate tax effectively creates a tax wedge distorting decisions regarding investment, consumption, and bequeaths, and such distortions can be explicitly taken into account.

<sup>10</sup> For a more complete analysis of the adverse impacts from the Alternative Minimum Tax see Plotkin, Joseph and Coors, Andrew C., "The AMT: Another Reason To Hate April 15<sup>th</sup>," Laffer Associates, February 7, 2005.

<sup>11</sup> *Ibid.*

**Table 4: Conservative Assumptions Used to Model Economic Impact from the FairTax**

- |  |
|--|
| <ul style="list-style-type: none"> <li>(1) No accounting for economic benefit from removing complex and arbitrary tax laws</li> <li>(2) No accounting for lower compliance costs from implementing the FairTax</li> <li>(3) No accounting for more efficient use of resources – away from tax minimization toward economic maximization</li> <li>(4) Model does not incorporate impact from the repeal of the estate, gift or AMT taxes</li> </ul> |
|--|

This leaves the taxes that our model is designed to evaluate. Economic models divide productive inputs into two general categories: labor and capital. The income taxes the FairTax is designed to replace fall into these categories as well. Starting with the personal income tax (PIT), this tax “approximates the sum of labor and capital income and thus, bears a resemblance to national income as measured by economists.”<sup>12</sup> The PIT is applied to all wages and salaries earned by employees (a tax on labor), the earnings of the self-employed, as well as earnings received as part of income earned by owners and partners of firms (a tax on capital). These revenues were approximately 43.0 percent of total federal receipts during 2004.<sup>13</sup> Based on data from the Tax Foundation, the relevant marginal income tax rates and income brackets adjusted for the 2004 tax year are described in Table 5.<sup>14</sup>

**Table 5: 2004 Statutory Tax Rates and Brackets**

Married Filing Jointly		Married Filing Separately		Single		Head of Household	
Marginal Tax Rate	Income Bracket	Marginal Tax Rate	Income Bracket	Marginal Tax Rate	Income Bracket	Marginal Tax Rate	Income Bracket
10.0%	> \$0	10.0%	> \$0	10.0%	> \$0	10.0%	> \$0
15.0%	> \$14,300	15.0%	> \$7,150	15.0%	> \$7,150	15.0%	> \$10,200
25.0%	> \$58,100	25.0%	> \$29,050	25.0%	> \$29,050	25.0%	> \$38,900
28.0%	> \$117,250	28.0%	> \$58,625	28.0%	> \$70,350	28.0%	> \$100,500
33.0%	> \$178,650	33.0%	> \$89,325	33.0%	> \$146,750	33.0%	> \$162,700
35.0%	> \$319,100	35.0%	> \$159,550	35.0%	> \$319,900	35.0%	> \$319,100

For any economic decision (i.e., work effort, saving, or investing) there are two primary considerations: (1) the marginal tax rate on the next dollar earned; and (2) total after-tax income.

<sup>12</sup> Brumbaugh, David L., Esenwein, Gregg A., and Gravelle, Jane G., “Overview of the Federal Tax System,” *CRS Report for Congress RL32808*, March 10, 2005.

<sup>13</sup> Congressional Budget Office, Historical Tables, [www.cbo.gov](http://www.cbo.gov).

<sup>14</sup> The Tax Foundation, *Facts and Figures on Government Finance, 38<sup>th</sup> Edition*, 2005, p. 115.

To see why the marginal tax rate matters, imagine the work or investing incentives a person would face if the marginal tax rate on the next dollar earned was 100.0 percent. Under this scenario, every extra dollar a person earns would go straight to the government. Regardless if the tax rate on the previous dollar earned was zero, there is very little incentive for anyone to work, save or invest under such a punitive tax rate. Now imagine the work or investing incentives a person would face if the marginal tax rate on the next dollar earned was zero. Under this scenario, the investor or worker would get to keep the full value of the income or return that they earn. Obviously, the second scenario is more favorable to the worker or investor than the first.

A tax cut that increases the after-tax income for the next dollar earned raises the reward to work, thereby increasing the cost of leisure. The cost of leisure can be measured by the amount of other consumption goods that people could purchase (e.g., sending the kids to a better school or purchasing a high-definition TV) with the extra work effort. This opportunity cost to leisure increases following a decrease in the marginal income tax rate. Whenever a good's cost increases, rational people will economize on its use. These incentives are encapsulated by the aforementioned substitution effect that induces people to work more. Because the substitution effect captures the trade-off between work and leisure, it is the marginal tax rate (the amount of extra consumption that a person must give up by not working) that is the appropriate incentive driver.

However, the ultimate impact on hours worked is not solely determined by the substitution effect. The second primary economic effect from a policy change, the income effect, also plays an important role. The income effect works against the incentives summarized by the substitution effect. When a tax reduction increases the after-tax income for workers, the "income effect" induces workers to consume more of all normal consumption goods. Economists consider leisure a type of "consumption" good. Consequently, due to the income effect, people can be expected to work less. The desire to work less inhibits the economic growth impact of the tax policy change. Interestingly, economic growth over time is associated with people working less, although this phenomenon appears to have stabilized significantly since the second half of the 20<sup>th</sup> century.<sup>15</sup> Whether workers work more or less, it is difficult to argue that they are not better off following an increase in their take-home pay even if work effort and output do not increase. After all, higher after-tax wages have widened the number of options available to them. As a consequence, from a theoretical point of view, increasing the after-tax wage is a positive development for workers in the U.S. whether or not actual hours worked increases or decreases.

The extent to which an increase in after-tax wages raises overall economic growth is an empirical question. To account for both the substitution and income effects separately, our model incorporates both of these impacts into the labor supply function. Economists typically incorporate dynamic behavioral changes into an economic model using measured statistical relationships between the percentage change in the price and the percentage change in the

---

<sup>15</sup> Horowitz, Carl, (2004) "The Wrong Way to Shorten the Work Week," Ludwig von Mises Institute, August 30, <http://www.mises.org>, states that "During 1900-70 the average workweek declined from about 60 to 40 hours." For a more recent discussion addressing the changing work week landscape and the measurement issues associated with this phenomenon see Kirkland, Katie, (2000) "On the Decline in Average Weekly Hours Worked," *Monthly Labor Review*, July.

activity. This relationship is termed elasticity. Although elasticities are crucial in accurately determining a policy's impact, estimates are typically fraught with uncertainty and disagreements. Nevertheless, in order to proceed, an estimate is necessary. A recent Congressional Budget Office study summarized the empirical literature on labor supply elasticities, which examines the percentage change in labor effort due to a percentage change in the worker's wage.<sup>16</sup> The range of estimates for the income elasticity for the entire workforce is -0.2 to -0.1; the range of estimates for the substitution elasticity for the entire workforce is 0.2 to 0.4. For our analysis, we use the upper-end estimates from both the income (-0.2) and substitution (+0.4) elasticities.

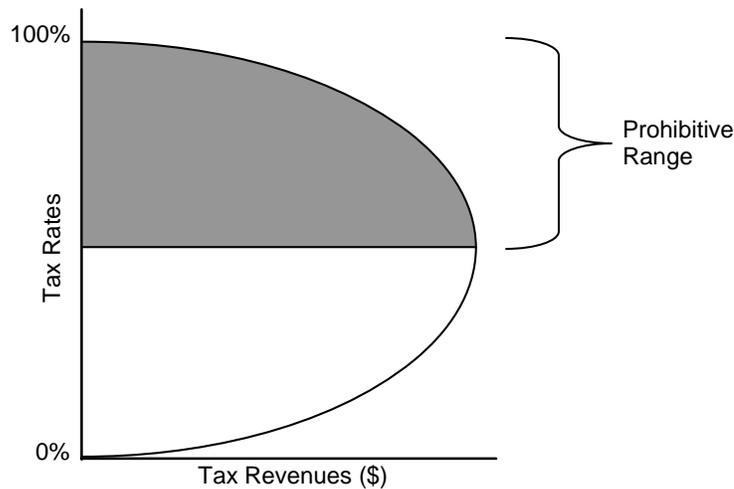
A further consideration comes into play. The income effect captures the change in people's take-home pay. The average tax rate more accurately reflects this trade-off than the marginal tax rate: it is indicative of the amount of after-tax income a worker can actually consume, save, or give away. Consequently, estimates of both the marginal and average tax rates are necessary in order to understand the incentive impacts on workers, savers, and investors from the current tax system.

Government revenues are not immune from the incentive drivers discussed above, either.<sup>17</sup> Tax collections are a game of cat and mouse: the individual wants to maximize his return on labor (after-tax income) and the government wants to maximize revenues it receives from the working individual. It is clear that the government will raise no revenue by levying a zero percent tax on income; the government takes none of the income earned so government revenues are zero. Similarly, the government can expect to raise no revenue by levying a 100.0 percent tax on income; there is no incentive for anyone to work so taking 100 percent of nothing is still nothing. This effect (i.e., the Laffer Curve Effect) incorporates the economy's dynamic realities and importantly illustrates that government revenues are not always raised when the marginal tax rate is increased; see Figure 1 (on the following page). Similarly, government revenues can be significantly enhanced when tax reforms lead to positive growth-enhancing incentives that grow the tax base. The FairTax cuts the marginal tax on income to zero providing strong growth-enhancing incentives throughout the economy. The government will, consequently, share in the beneficial growth impacts. The resulting growth in the economy and consequently the consumption base will lead to a larger tax base and lead to even larger revenues over the aforementioned static estimates.

---

<sup>16</sup> Congressional Budget Office, (1996) "Labor Supply and Taxes," *Congressional Budget Office Memorandum*, January 1996.

<sup>17</sup> N. Gregory Mankiw and Matthew Weinzierl examined the dynamic impacts from tax cuts in a recent working paper. ***They found that in nearly all cases, tax cuts are partly self-financing due to the economy's dynamic responses***; Mankiw, Gregory N. and Weinzierl, Matthew, (2005) "Dynamic Scoring: A Back-of-the-Envelope Guide," *Working Paper*, Revised: April 7, 2005. For an early estimate of the dynamic impact from labor supply response see: Boskin, M., (1973) "The Economics of the Labor Supply," in Cian, Glen G. and Watts, Harold W., eds., *Income Maintenance and Labor Supply*. Chicago: Rand McNally. Boskin also examined the dynamic impact with respect to capital and savings in: Boskin, M., (1978) "Taxation, Saving and the Rate of Interest," *Journal of Political Economy*, Volume 86, April 1978, pp. S3 – S28.

**Figure 1: The Laffer Curve**

### *Labor Supply and Demand*

Measuring the economically relevant effective marginal tax rates and average tax rates on salaries and wages is not a straightforward exercise. This difficulty is illustrated by the fact that the Internal Revenue Service Statistics of Income (SOI)<sup>18</sup> calculates the average tax rate as a percentage of several different measures of income.<sup>19</sup> The actual rates vary depending upon which measure of income is used. For instance, is the relevant measure for the average tax rate the rate imposed on total wages and salaries? Perhaps it is Adjusted Gross Income (AGI) or even taxable income (which is AGI adjusted for relevant deductions)? For instance, in 2003 the average tax rate is estimated to be 13.1 percent of Adjusted Gross Income (AGI) as measured by the IRS, down from 15.2 percent in 2001. However, the average tax rate in 2003 is also estimated to be 8.2 percent of personal income, down from 10.2 percent in 2001; and 17.9 percent of taxable income, down from 20.8 percent in 2001.

Much of the confusion across the different income concepts arises due to the myriad of deductions and exemptions inherent in the current tax code. For example, given five tax accountants preparing an individual's tax return, you would likely get five different tax rates, further complicating the analysis. For our purposes, we are interested in the representative tax rate only for the purpose of understanding the income effect induced through replacing the current tax system with the FairTax. In other words, how will people change their economic choices because of the change in their after-tax income? For this purpose, tax receipts as a percent of total earnings seems most relevant. Due to the progressive tax structure outlined in Table 5, these averages will vary depending upon each taxpayer's differing income and

<sup>18</sup> United States Internal Revenue Service, (2005) *SOI Tax Stats - SOI Bulletin: Spring 2005 - Historical Tables and Appendix*, Table 3.

<sup>19</sup> Another symptom of the problems with our current tax system is the definition of income. For instance, in order to foster comparison between data that the IRS collects and data collected by the Bureau of Economic Analysis, Adjusted Gross Income (AGI) as well as total personal income needs to be adjusted in order to meet the definitions in the NIPA accounts. Utilizing the adjusted AGI provides different percentages than the percentage using the IRS definition of AGI, which provides different estimates than if the NIPA definitions of income were used.

availability to tax deductions. Using the detailed tables from the SOI,<sup>20</sup> we calculate the weighted average tax rate (effective rate) on total earnings to be 13.0 percent, which is right in line with the most recent Tax Foundation analysis examining average income tax rates.<sup>21</sup> We use this figure as the average income tax rate imposed on salaries and wages. Modifying the SOI tables in 2002 for the 2004 rates,<sup>22</sup> we calculate that the average marginal tax rate is approximately 24.4 percent.

Then there are the Social Security and Medicare taxes (OASDHI) that accounted for another 39.0 percent of total federal receipts during 2004.<sup>23</sup> The percentage levies from these taxes are 7.65 percent imposed on employers and employees for a total burden of 15.3 percent (12.4 percent for Social Security and 2.90 percent for Medicare). However, the current wage and salary cap for the Social Security tax is \$90,000 (for the 2005 tax year, and was \$87,500 for the 2004 tax year), while there is no wage cap for Medicare taxes. Due to the Social Security income limits, the weighted average tax rate and weighted average marginal tax rate are not exactly 15.3 percent.

Data from the National Income and Product Accounts (NIPA) are instrumental in accounting for these limits, however.<sup>24</sup> Total employee compensation in 2004 was \$6.7 trillion (see Table 6). Of this, \$1.3 trillion was in “Supplementals to Wages and Salaries”. At 19.4 percent of total compensation, supplements to wages and salaries is comprised of the employer contribution to social insurance plus employer contributions to private pension and profit-sharing plans. Employer contributions to private pension and profit-sharing plans were \$895.5 billion in 2004, leaving \$402.6 billion in payments for employer contributions to social insurance – payroll taxes. The \$402.6 billion in payments represents the half of the payroll tax employers pay, and equals 7.47 percent of the total \$5.4 trillion in salaries and wages earned in 2004. Adding in the employee-paid half, it is clear that the vast majority of total salary and wage income was subject to the full 15.3 percent payroll tax during 2004. For this reason, we use 15.3 percent as the average and marginal payroll tax in the model.<sup>25</sup>

### *The Labor Market Tax Wedge*

Labor earnings are designed to represent the market value of people’s work effort. As with any market, there are two sides to this transaction – those who supply the labor (workers) and those

---

<sup>20</sup> The latest detailed data is available for the 2002 tax year. The information for the calculation was based on Table 1.4--2002, Individual Income Tax, All Returns: Sources of Income, Adjustments, and Tax Items, by Size of Adjusted Gross Income.

<sup>21</sup> Ahern, William, (2005) “Summary of Federal Individual Income Tax Data,” *The Tax Foundation*, April 19.

<sup>22</sup> The information for the calculation is based on Table 3.6--2002, Individual Income Tax Returns with Modified Taxable Income: Taxable Income and Tax Classified by Each Rate at Which Tax Was Computed and by Marital Status.

<sup>23</sup> Congressional Budget Office, Historical Tables, [www.cbo.gov](http://www.cbo.gov).

<sup>24</sup> Specifically, Table 1-12 National Income by Type of Income; and Table 6-11 Employer Contributions for Employee Pension and Insurance Funds by Industry and by Type.

<sup>25</sup> Using the 15.3 percent rate is done for simplifying purposes. To the extent that this overstates the average and marginal tax burdens for those individuals that earn above the earnings limit, this assumption will increase the economic impact slightly. This is the only assumption we employ that is not conservative in nature, and all other assumptions work to decrease the economic impact slightly.

who demand the labor (firms). Our current tax system impacts decisions for both the suppliers and demanders of labor.

Workers, the suppliers of labor, actually receive the lion's share of our country's national income. Relying on modified accounting principles that more accurately reflect economic value added, the Bureau of Economic Analysis measures the total income and output of the U.S. economy. Our country's National Income captures the total amount of money that was earned by residents net of depreciation and is subdivided by how this income was earned. The values for 2004 are reproduced in Table 6 below. According to Table 6, employee compensation comprised 65.1 percent of total national income in 2004. Since 1960, this share of national income has been relatively stable – the average labor share being 64.9 percent, with a standard deviation of 1.6 percent.

**Table 6: Total U.S. National Income: 2004**

	<b><u>\$Billions</u></b>
<b>National income</b>	<b>\$10,275.9</b>
Compensation of employees	\$ 6,687.6
Wage and salary accruals	\$ 5,389.4
Supplements to wages and salaries	\$ 1,298.1
Proprietors' income with IVA and CCAdj	\$ 889.6
Rental income of persons with CCAdj	\$ 134.2
Corporate profits with IVA and CCAdj	\$ 1,161.5
Profits after tax with IVA and CCAdj	\$ 890.3
Other*	\$ 1,402.9

\* Other includes Net interest and miscellaneous payments, Taxes on production and imports, Subsidies, Net business current transfer payments, and the Current surplus of government enterprises. IVA stands for inventory valuation adjustment and CCAdj stands for capital consumption adjustment.

Source: Bureau of Economic Analysis, National Income and Product Accounts, Table 1.12.

It would be incorrect to assume that workers receive all of this income, of course. Before addressing state income taxes (which can be quite significant), the aforementioned federal income and Social Security taxes create many distortions in the labor market. First, the aforementioned “employer contribution to social insurance” is government speak for a tax. On top of this tax burden, the \$5.4 billion in salary and wages paid by employers is not fully received by workers – federal income and social insurance taxes also take a bite out of this income. However, workers do not work to pay taxes. Neither do firms produce to pay taxes. Consequently, workers determine their amount of labor effort based on their after-tax incomes. Similarly, firms determine the amount of workers they want to hire based on their costs – before-tax incomes. This difference represents the inefficiencies and distortions the current income tax system levies on the current labor market, what economists deem a “tax wedge”. Because firms

determine the amount of workers they want to hire based on before-tax incomes while workers make this decision based on after-tax incomes, it stands to reason that firms and workers are not valuing this transaction at the same rate. Moreover, removing the tax wedge provides for the opportunity for additional gains from exchange as the cost to hiring another worker would fall for a firm while simultaneously the after-tax wage would rise for the worker. Employment opportunities and take-home pay subsequently rise to the benefit of all.

Putting together the values we have previously discussed, although workers receive \$5.4 trillion in wage and salary income, the federal government collects 13.8 percent in income taxes (or \$743.8 billion) plus 7.65 percent in Social Security taxes (or \$402.6 billion). Consequently, taking only federal income and Social Security/Medicare taxes into account, workers' after-tax income is already down to 78.55 percent of the income they earned. The wedge separating workers and employers is further still. Employers must pay one-half of the Social Security taxes as well.<sup>26</sup> This is another \$402.6 billion in costs to the firm or 31.0 percent of the 2004 Supplementals estimated by the BEA.

Figure 2 (on the following page) simplifies these numbers. Figure 2 shows that for every \$100 in salary and wages earned, workers receive \$78.55 (with more tax burdens to pay). Add in the further state income tax burdens of 4.47 percent on average,<sup>27</sup> and workers are only receiving \$74.08 for every \$100 they earn. On the other hand, it costs firms \$107.65 to pay each \$100 of salary and wages. Because of this difference, the cost of a new worker to the firm is much higher than the benefit the worker receives. This gap is an inefficiency that is manifested through less employment throughout our economy.

The dynamic macroeconomic benefit of the FairTax for the labor market is created by removing the tax wedge. Removing the tax wedge creates beneficial impacts on wages and employment levels and enhances overall work incentives throughout the economy by removing inefficiencies in economic allocation.

Starting with the employer-paid payroll tax, there are several possible scenarios. As workers' effective cost to employers falls, there is an incentive for firms to hire more workers. Alternatively, employers can pass the savings from the former tax costs on to consumers through a proportionate decrease in prices (before the impact of the national sales tax is taken into account). Firms could alternatively pass the savings along to shareholders through higher profits or increased investment. Finally, a firm could employ a combination of all of these strategies. As of late, firms have not had the ability to pass along rising costs, especially labor costs. This phenomenon is cited by many as a reason why measured increases in the price level remained subdued throughout 2004 and 2005 (through October as of this writing) despite rising energy

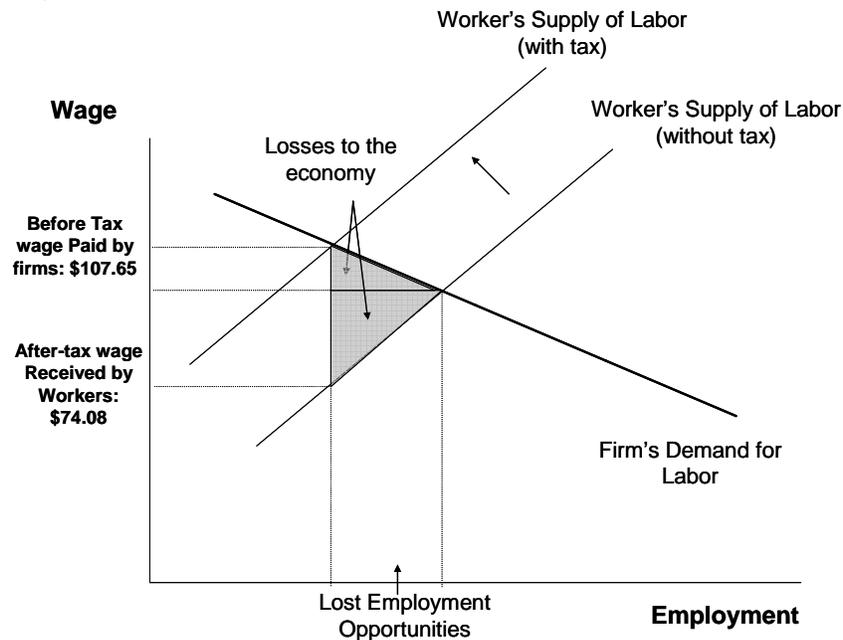
---

<sup>26</sup> It is widely believed among economists that workers actually bear the full incidence of the Social Security taxes as the wages of workers are effectively lowered by an amount large enough to cover the "employer" part of the Social Security tax. Whether this is the case or not, the important point for our purposes here is to trace the wedge between the labor costs to the firm compared to the income received by workers. The wedge could alternatively be developed through a "reduced" wage example, but this complication does not impact the ultimate size and adverse impacts created by the tax wedge.

<sup>27</sup> See National Bureau of Economic Research, "Average Marginal State Income Tax Rates 1977 – 2003," Table 3, <http://www.nber.org/~taxsim/state-marginal/>. This figure includes an adjustment for the federal deductibility of income taxes. The 2003 figure is used as an estimate for 2004.

costs. The difficulty firms have experienced passing costs along to the consumer speaks to the intense pricing pressures firms face. Given these pressures, it is likely that the boon to corporate costs will be passed along to consumers in the form of lower prices. For this reason, we assume that all corporations pass the payroll tax savings to consumers, putting downward pressure on before sales-tax prices.<sup>28</sup>

**Figure 2: Tax-induced Gap Between Salaries Paid and Salaries Received for Every \$100 of Before-Tax Salary**



The tax costs imposed on employees will directly raise workers' after-tax income dollar for dollar with the repeal of federal income and payroll taxes. This equates to an increase in average earnings of 20.5 percent (the estimated combined impact of the federal income tax and employee portion of the payroll tax). To the extent that state income taxes are lowered in tandem, after-tax earnings will rise further – by 24.7 percent on average. As developed above, increases in work effort depend on the marginal tax rate as well. Due to the progressive nature of the current income tax system, this rate is currently higher than the average at 24.4 percent in income taxes plus the 7.65 percent in payroll taxes for a total impact of 32.1 percent. The impacts on labor supply are estimated to occur in line with the empirical income and substitution elasticities. An important element of this impact is the effect from the lowered taxes on the incentives for increased entrepreneurial ventures. As much of the income from these ventures is taxed via the personal income tax, the large decrease in the marginal tax on this income will provide an important boost to entrepreneurial ventures and the innovation and employment growth with which they are associated.

<sup>28</sup> To the extent prices are not reduced, the benefits will accrue to either the workers or owners of the firm showing a rise in income proportionate to the foregone price decline.

### *The Capital Market Tax Wedge*

Of course, salaries and wages comprise only a portion of the current income tax. Current tax law also imposes a 15.0 percent tax on all capital gains and dividend income people earn (or for taxpayers in the 10 and 15 percent income tax bracket the dividend income tax rate is 5 percent).<sup>29</sup> These rates are currently set to sunset December 31, 2008, although whether or not the sunsetting will occur is anyone's guess. Further complicating the analysis, not all investment income is taxable as well as the nature of the investment and the length of its ownership factor in to the tax rate calculation. For the analysis here, we use the 15.0 percent figure as the appropriate marginal and average tax rate for both capital gains and dividend income. We also allocate 50 percent of total investment income to tax-exempt investors or on tax-deferred investments (i.e., held in pensions and endowments), investors that would consequently not benefit from the elimination of these taxes.<sup>30</sup>

Corporations are also responsible for paying taxes on their income. According to the Congressional Research Service, "Corporate taxable income is subject to a set of graduated rates: 15%, 25%, 34%, and 35%, with the lower rates applying to firms with lower taxable incomes. Since smaller firms tend to have smaller profits, small firms benefit more often from the 15% and 25% rates. And since the bulk of corporate income is earned by large firms, most corporate income is subject to either the 34% or 35% rate."<sup>31</sup> However, due to exclusions and other activities, corporate taxes at the federal and state level have been 25.1 percent of taxable income.<sup>32</sup> In order to account for these activities, we use the 25.1 percent rate as the combined average corporate tax rate, adjusted for corporations with no tax payments. Dividends and capital gains are also paid out of corporate earnings, of course. In other words, the current system taxes the exact same corporate earnings twice, once when the company earns the revenues and once when the shareholder receives the revenue – the well documented problem of double taxing corporate income.

Consequently, it is the combined impact from these taxes on capital allocation and capital formation that is relevant from a macroeconomic impact perspective. Removing the corporate income tax impacts the relative costs and returns of capital and labor. Removing the dividend tax and the capital gains tax will increase investors' after-tax retention rate. Focusing on this rate, we can illustrate the change in the average tax rate, and consequently market returns, before and after the FairTax is implemented.

---

<sup>29</sup> The 15 percent rate on dividends is also conditioned on meeting certain criteria. If not met, the tax rate on dividends reverts back to the taxpayer's tax rate on personal income that can be as high as 35 percent.

<sup>30</sup> See Coors, Andrew C., Laffer, Arthur B., and Miles, Marc A., (2002) "Dividends: Stop the Discrimination," Laffer Associates, December 16.

<sup>31</sup> Brumbaugh, David L., Esenwien, Gregg A., and Gravelle, Jane G., (2005) "Overview of the Federal Tax System," March 10 (RL32808).

<sup>32</sup> Table 1-12: "National Income by Type of Income" provides numbers on Profits before Tax and Taxes on Corporate Income. According to the BEA, "Profits before tax (1-12) is the income of organizations treated as corporations in the NIPA's except that it reflects the inventory-accounting and depreciation accounting practices used for Federal income tax returns. It consists of profits tax liability, dividends, and undistributed corporate profits." (See A Guide to the NIPA's, [www.bea.gov](http://www.bea.gov)). "Taxes on Corporate Income" is defined as: "the sum of Federal, State, and local government income taxes on all income subject to taxes; this income includes capital gains and other income excluded from profits before tax. The taxes are measured on an accrual basis, net of applicable tax credits."

In order to proceed we make the following assumptions:<sup>33</sup>

- i.) Asset holders receive cash flows either as dividend payments or proceeds from the sale of the asset.
- ii.) Some 68 percent of companies pay dividends.
- iii.) Dividend paying companies have a 52 percent payout ratio (i.e., dividends divided by after-tax reported earnings).
- iv.) Every dollar of retained earnings will increase a company's net worth (capital gains) by exactly one dollar.
- v.) 50 percent of the entities do not pay taxes on dividends when they are received, such as pension funds, endowments, and charities.<sup>34</sup>

Figure 3 follows corporate earnings through the income stream. Before any dividends or retained earnings (in this case capital gains) can be allocated, the corporation must pay corporate income taxes – currently estimated to be 25.1 percent that is paid by 90 percent of the companies. This implies the company must earn \$129.18 in order to provide investors with \$100.00 for distribution to shareholders. Currently, 35.36 percent (68% x 52%) of after-tax profits is paid out in dividends, or \$35.36 of every \$100.00 of after-tax corporate profits. Therefore, of every \$100.00 of after-tax corporate profits, \$64.64 is in the form of retained earnings, implying a capital gain. The current maximum capital gains rate is 20.71 percent, which is the 15.0 percent federal rate plus a 5.71 percent effective state tax rate. Half of all investors are tax exempt and half must pay this 20.71 percent tax, thus the total taxes on those capital gains will be \$6.69 ( $\$64.64 \times 50\% \times 20.71\% = \$6.69$ ). The after-tax return in the form of capital gains for \$100 of after-tax corporate profits will be \$57.95, which is the difference between the initial \$64.64 and the \$6.69 tax.

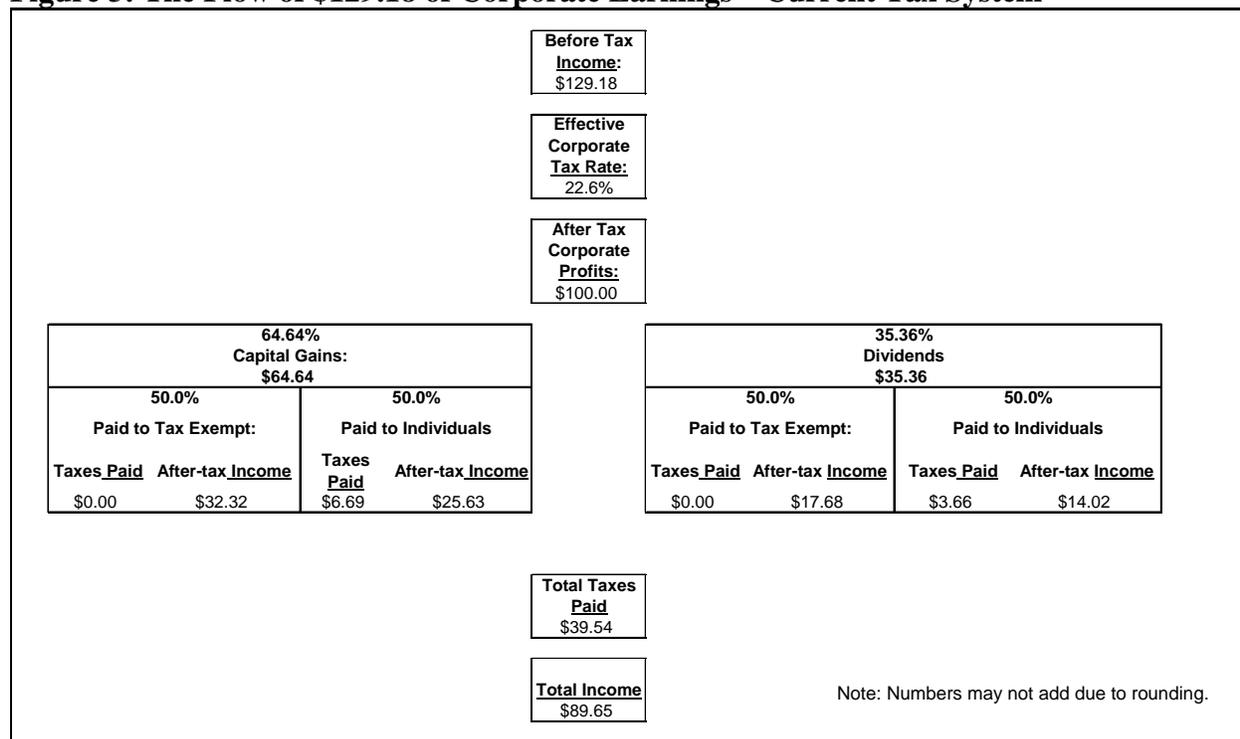
Out of \$100 of after-tax corporate profits, \$35.36 is paid as dividends and is subject to the 20.71 percent dividend tax rate: 15.0 percent federal dividends tax rate and 5.71 percent effective state tax rate. Since half of all dividends are paid to taxable entities and half to tax-exempt entities, the current tax burden is \$3.66 ( $\$35.36 \times 50\% \times 20.71\% = \$3.66$ ). In the end, investors reap only \$89.65 of every \$129.18 in before-tax corporate profits. Not only is this a large tax bite in and of itself, the bite would be larger if not for the complex loopholes and other exemptions that misdirect resources and create inefficiencies in the capital markets.

---

<sup>33</sup> See Coors, Andrew C., Laffer, Arthur B., and Miles, Marc A., (2002) "Dividends: Stop the Discrimination," Laffer Associates, December 16.

<sup>34</sup> The actual percentage varies from year to year. The 50 percent figure is an approximation consistent with the values seen on average over time; Coors, Andrew C., Laffer, Arthur B., and Miles, Marc A., (2002) "Dividends: Stop the Discrimination," Laffer Associates, December 16.

**Figure 3: The Flow of \$129.18 of Corporate Earnings – Current Tax System**



Under the FairTax proposal, all federal corporate income, dividend income, and capital gains taxes would be eliminated. Before we can assess the impact of the FairTax on the equity markets and returns to capital holders, the “tax savings” from the elimination of the corporate income tax must be allocated. We assume that the states follow the federal lead and also remove their taxes on capital income.<sup>35</sup> Starting with this assumption, the impact from the FairTax proposal can be divided into two stages. First, the \$29.18 in corporate taxes would be eliminated.<sup>36</sup> This reduction in corporate taxes raises the after-tax return. The higher after-tax return induces more investment (to take advantage of the now higher returns), limited by the available pool of savings. Over time, the excess return is slowly competed back down to its previous rate. The general economy benefits through the incentives to invest and the resulting beneficial impacts on capital accumulation, economic growth, and output.

Investors benefit from the elimination of taxes on dividends and capital gains. Prior to the implementation of the FairTax, dividend and capital gains taxes reduced the value of the \$100.00 in after-tax corporate profits by a further \$10.36, netting investors \$89.65. In terms of incentives, the net return goes from \$89.65 per \$100.00 to \$100.00 per \$100.00, an 11.55 percent increase in the after-tax return on the market as a whole. Thus, the minimum gain we would see

<sup>35</sup> We make this assumption because most states rely upon the federal income tax calculations as a basis for calculating the state income tax. Consequently, we believe the most likely scenario is that states will follow the federal lead and eliminate their taxes on corporate income, capital gains, and dividends in tandem – especially given the intense competitive pressures states face to attract business and residents.

<sup>36</sup> Economists generally agree that although corporations pay taxes, they do not bear the brunt of these taxes. Instead, all taxes are passed through either to consumers, workers, or the owners of the firm (e.g., shareholders).

in the market with this proposal is 11.55 percent, and this number ignores all of the dynamic effects. In a dynamic world, of course, this 11.55 percent number will do nothing but increase.

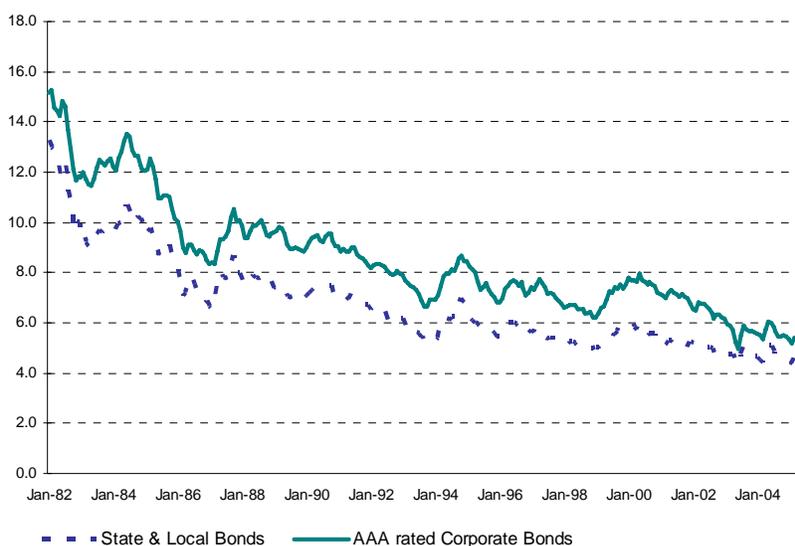
### *Effects on Interest Rates, Investment, and Saving*

The impact of the FairTax on the return to capital is intimately linked to the proposal's impact on the amount of saving, investment, and overall interest rates. Currently interest income is taxed at normal income tax rates, while interest expenses are tax deductible. For an income-based tax system, this is as it should be. Otherwise the government would double tax interest in the same manner that corporate income is currently double taxed. The tax on interest income creates another tax wedge, however. Borrowers pay a certain percentage interest rate (call it  $x\%$ ). Meanwhile, lenders receive an after-tax rate (call it  $x\% - t\%$ ; where  $t > 0$ ). Because lenders receive a lower rate than borrowers pay, fewer loans are made and inefficiencies arise. Compounding these problems, lenders do not face this tax wedge at the state and federal level when lending to municipalities – such income is tax free. Using the current rate gaps between tax-free and taxable interest along with estimated tax rates provides some insight into the impact on interest rates following the implementation of the FairTax.

Defining interest rates is by definition an imprecise endeavor. Interest rates vary due to differing risk profiles, views about risk, length of time the loans are extended, as well as numerous other criteria. Figure 4 examines the interest rates on two types of investments to adjust for this issue – Moody's AAA rated corporate bonds and Moody's A1 rated State and Local General Obligation bonds.<sup>37</sup> Although not perfectly similar, both the risk profile and time frames on these bonds are similar. Although varying over time, the differences in these rates tend to fluctuate around 20 - 30 percent. Not coincidentally, this gap is also representative of the effective marginal income tax owed on taxable interest earnings. Consequently, it should be expected that once the tax wedge is removed from this market, interest rates on corporate bonds, government bonds, mortgages, etc. should fall. The extent of the decline will vary as risk profiles and other issues that differentiate these markets will still exist. The decline will create significant positive impacts throughout the economy as the return to lending will remain the same but the cost to investing will decrease by the amount of this tax wedge. Investment will increase in tandem raising the amount of entrepreneurial ventures, new capital equipment, and new research and development activities throughout the country. Lower interest rates will also raise the value of stocks, further impacting the impact on the equity markets. Higher economic growth will subsequently follow.

---

<sup>37</sup> Data is from the Board of Governors of the Federal Reserve System, <http://www.federalreserve.gov/>.

**Figure 4: Interest Rates on State and Local Bonds versus Corporate Bonds**

Two important trends are discernible from Figure 4. First, the chart illustrates the significant reduction in interest rates that has occurred since the early 1980s. This is noteworthy because the declining interest rates have played an important role in the tremendous economic expansion (with only two minor recessions) that has occurred over this period. The second trend is how the interest rates between these similarly rated bonds move in parallel. The major difference between these alternative investments is their aforementioned tax treatment. Consequently, it can be expected that if the FairTax were implemented, taxable interest rates would fall by the implicit tax costs and would approximate rates on similarly rated municipal bonds. This interest rate reduction has a particularly significant impact, especially for the housing market.

### Previous Consumption-based Tax Research

Having reviewed the content and revenue-raising potential of the FairTax proposal, as well as the destructive incentives in the current tax code that the FairTax would replace, we now turn our attention to measuring the economic impact of the FairTax. As the issue of tax reform has been waxing and waning over the past decade, the research examining this issue has followed a similar pattern. The Joint Committee on Taxation (JCT) 1997 Tax Modeling Project and 1997 Tax Symposium has played a pivotal role for many of these analyses.<sup>38</sup> In response to Congressional requests to incorporate dynamic analyses into JCT revenue forecasts, the JCT held a series of meetings to examine the methodologies and feasibility of incorporating a dynamic macroeconomic model into the revenue estimating procedures for alternative tax reforms – including consumption-based taxes. These meetings culminated in a symposium where the participating academics each presented the results of their individual models. All of the models

<sup>38</sup> Joint Committee on Taxation, “The Joint Committee on Taxation 1997 Tax Modeling Project and 1997 Tax Symposium,” November 20, 1997. The symposium included several types of economic growth models. These included Inter-temporal General Equilibrium Models by Diane Lim Rogers; Alan J. Auerbach, Laurence J. Kotlikoff, Kent Smetters, and Jan Walliser; Eric Engen and William Gale; and Dale W. Jorgenson and Peter J. Wilcoxon. Neoclassical Growth and Disequilibrium Models were presented by Joel L. Prakken, Gary and Aldona Robbins; Roger E. Brinner; Jane G. Gravelle; and John G. Wilkins.

projected that a switch to a consumption tax will ultimately lead to higher economic growth. Higher economic growth:

*“...arises because all of the models are based on a set of commonly held assumptions about economic behavior...These properties include the following basic assumptions:*

- *reducing the cost of capital through less taxation of capital provides an incentive for additional investment;*
- *reducing the marginal tax rate on labor provides an incentive for increased labor effort;*
- *increasing the returns to labor through capital deepening can provide an incentive for more labor; and,*
- *reducing distortions in investment decisions by eliminating differential taxation of different types of capital promot[ing] a more efficient allocation of resources.”<sup>39</sup>*

Koenig and Huffman (1998) echo these findings as do Engen, Gravelle, and Smetters (1997).<sup>40</sup> Although the Koenig and Huffman model is designed to illustrate direction of change, not magnitude, they find that output, consumption, wages, stock prices, and the total capital stock will rise in the long run due to the adoption of a consumption-based tax. Engen, Gravelle, and Smetters use two different types of models (reduced form growth models and inter-temporal general equilibrium models) to examine the impact of transition to a consumption-based tax system. Again, in all of the models the tax reform has a positive impact on output, savings, consumption, and the growth in the capital stock in the long run. Further studies by Dale Jorgenson (1995), Alan Auerbach (1996), Michael Boskin (1995), and Laurence Kotlikoff (1993) have all shown positive impacts on economic growth if the current tax code is replaced by a single-rate tax on consumption ranging from a total increase in economic output of 5.7 to 17 percent.<sup>41</sup> In a 1984 study, Arthur Laffer found that replacing the current income tax system with a flat tax would likely increase economic growth by between 8 and 15 percent in the long run.<sup>42</sup>

This agreement in the long run does not hold in the short run, however. Both Koenig and Huffman, and the symposium papers by Joel L. Prakken, Roger E. Brinner, and John G. Wilkins, all found that transforming our current tax system into a consumption-based tax system involves

<sup>39</sup> Ibid. Bullets added for easier reading.

<sup>40</sup> Koenig, Evan F. and Huffman, Gregory W., (1998) “The Dynamic Impact of Fundamental Tax Reform Part 1: The Basic Model,” *Federal Reserve Bank of Dallas Economic Review* (First Quarter); and Engen, Eric, Gravelle, Jane, and Smetters, Kent (1997) “Dynamic Tax Models: Why They Do the Things They Do,” *National Tax Journal*, Vol. 50, No. 3, pp. 657 – 82.

<sup>41</sup> The above referenced studies include: Jorgenson, Dale, “The Economic Impact of Fundamental Tax Reform,” *Testimony before the Committee on Ways and Means, U.S. House of Representatives*, June 6, 1995; Auerbach, Alan, “Tax Reform, Capital Allocation, Efficiency and Growth,” Unpublished Draft, December 21, 1995; Boskin, Michael, “A Framework for the Tax Reform Debate,” *Testimony before the Committee on Ways and Means, U.S. House of Representatives*, June 6, 1995; and Kotlikoff, Laurence J., “The Economic Impact of Replacing Federal Income Taxes With a Sales Tax,” *Cato Institute Policy Analysis No. 193*, April 15, 1993 and “Replacing the U.S. Federal Tax System with a Retail Sales Tax – Macroeconomic and Distributional Impacts,” Report to Americans For Fair Taxation, December, 1996.

<sup>42</sup> Laffer, Arthur, “The Complete Flat Tax,” (1984) A.B. Laffer Associates.

a short-run cost in terms of consumption and output. Engen, Gravelle, and Smetters found that under certain models this result could hold. On the other side, symposium papers by Diane Lim Rogers; Alan J. Auerbach, Laurence J. Kotlikoff, Kent Smetters, and Jan Walliser; Eric Engen and William Gale; Dale W. Jorgenson and Peter J. Wilcoxon; Joel L. Prakken, Gary and Aldona Robbins; and Jane G. Gravelle found a positive impact and in some instances a significantly positive impact from a transformation to a consumption-based tax in the short run.

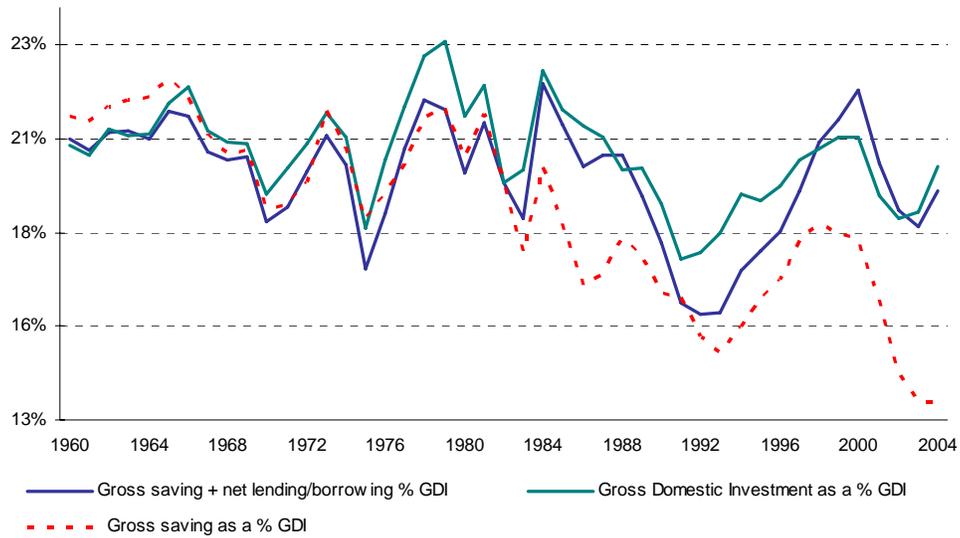
Part of the reason several of the studies find a negative impact is due to the assumptions inherent in those models that preordain a negative impact to occur. One common theme among many of these models is an incomplete accounting (or no accounting) for international capital flows and their impacts on overall national investment. However, as we illustrate below, international capital flows are an important source of savings that more closely track the investment opportunities available in the U.S. than domestic savings alone.

Figures 5 and 6 (on the following page) illustrate that both gross and net domestic savings (national savings as commonly measured) have been declining significantly as of late, although much of this decline is due to the recent increases in government deficits at the federal level and significant reductions in government surpluses at the state level. Although individual savings has declined as of late as well, savings through businesses has increased, offsetting part of the decline. More importantly, the total funds available for private investment (Gross Domestic Saving + net lending/borrowing from abroad) has stayed constant around 18 percent of Income throughout the 1990s and has increased to nearly 19 percent in 2004 due to inflows of capital from abroad.

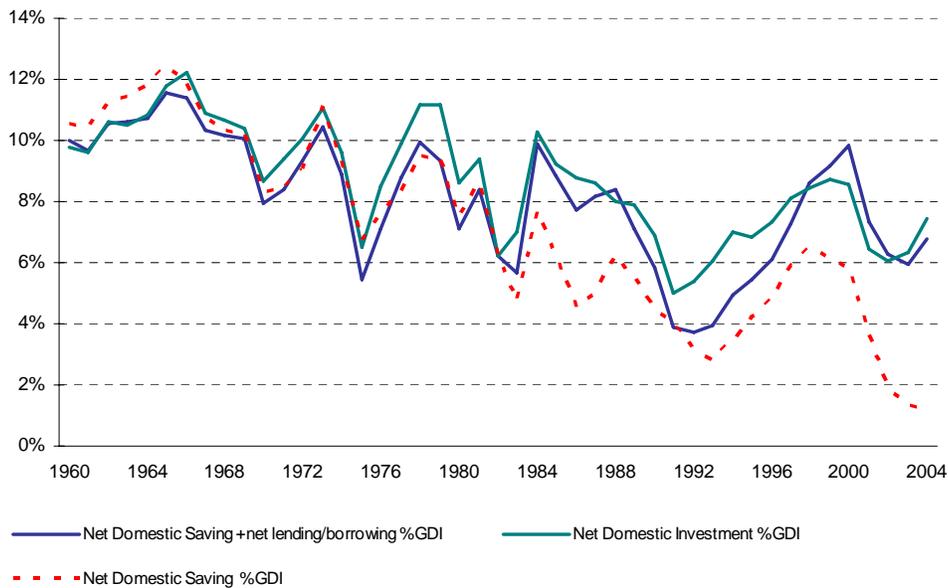
Adjusting for depreciation, savings (including net inflows from abroad) as a percentage of Gross Domestic Income has been rising in step with net domestic investment, both averaging 8.1 percent and 8.7 percent, respectively. The discrepancy between domestic savings and the funds available for investment in the domestic economy becomes apparent beginning in the 1980s. Since this time period, international funds have been an important and consistent part of the total available savings pool and have more closely responded to changes in domestic investment opportunities than domestic savings alone.

This illustrates that investment opportunities are not constrained solely by the supply of domestic funds. Capital inflows and outflows adjust to the changing relative investment returns across countries and regions. To the extent that opportunities for returns in the U.S. will change due to the implementation of the FairTax, the incentive for people to invest resources in the U.S. economy will change as well. For this reason, models that ignore international capital flows assume away an important source of revenues that will increase investment in the United States following the implementation of the FairTax.

**Figure 5: Gross National Saving, International Saving, and Gross Domestic Investment as a Percentage of Gross Domestic Income**



**Figure 6: Net National Saving, International Saving, and Net Domestic Investment as a Percentage of Gross Domestic Income**



Since many of the models that find a negative short-run impact assume away the international sector, the results do not fully reflect the important macroeconomic drivers for the U.S. As a consequence, below we build a neoclassical model scaled to the U.S. economy including allocations for international capital flows. This model illustrates that the FairTax will have a significant and positive impact on U.S. economic growth both in the short and long term.

There is a more important flaw with respect to savings that we also account for in our model below. The measure of savings typically used is not the relevant measure. Savings looms so important in policy debates because savings is society's only way of accumulating capital. Capital is not only the *sine qua non* of current output but new capital embodies all the fancy technology of the latest inventions, discoveries, and developments. Sooner or later an economy will have to come to a grinding halt if it is deprived of new capital and the capital stock cannot increase. Productivity will stagnate as well without the technology found only in new capital. Therefore, the faster capital increases and the more capital there is the faster the economy will grow and the more able society will be to solve its economic problems without creating austerity.

But, as so often is the case, what is measured isn't what we think it is. The "savings" that the government measures has almost nothing to do with the type of national savings we need for economic growth. What government measures as savings is that portion of income that people don't consume, literally income minus consumption. What we wish to measure is the increase in wealth. The two concepts of savings are like apples and oranges in the old saw. They just can't be added together.

To see the difference between the two types of savings imagine a person who earns \$100,000 in a year and consumes exactly \$100,000 as well. But also imagine this person started the year with a portfolio worth \$500,000 and through astute asset management (or just plain luck if you prefer) ends the year with a portfolio worth \$2,500,000. How much did this person save?

Using the government's concept of savings the person in this example saved nothing—his income exactly equaled his consumption. If the person's wealth went up by \$2,000,000 he in fact saved \$2,000,000 for all practical purposes. With the added \$2,000,000 the person could buy buildings, machines, technology or what-have-you just as easily as if he had not consumed \$2,000,000 worth of income and still had it left to invest. Savings is the increase in wealth, pure and simple.

Likewise, a person who earns \$100,000, consumes \$50,000 and then loses \$50,000 by buying a dog or an investment has no more capacity to acquire capital than if he had consumed \$100,000 and had had no savings at all. For the purpose of analyzing growth the relevant concept of savings has to be the increase in wealth, not the absence of consumption. And yet, virtually every discussion of the current U.S. economy uses the wrong concept of savings and comes to the wrong conclusion. The numbers in Figures 5 and 6 don't make any sense and should never be used to evaluate potential economic performance. Bad models yield worse results the harder they're worked.

In the late 1960s and 1970s, individuals and companies invested in tax shelters, inflation hedges, and regulatory skirts, and squandered our nation's capital stock. And yet, according to the government's numbers, savings was high. By contrast, in the 1980s under President Reagan, we finally put our nation's capital stock to productive use as a direct consequence of tax rate reductions, deregulation, and inflation control. As a consequence, the market's valuation of the country's capital stock after adjusting for inflation increased as never before. For example, the stock market, as measured by the Dow Jones Industrial Average, rose by 184 percent from 1982 to 1989 and the Standard and Poor's index of 500 stocks rose by 170 percent over the same

period. Housing prices and real estate values soared as well. And yet, none of these increases in the country's wealth shows up in the above chart on the government's measure of savings.

In the words of a recent article in *The Wall Street Journal*, "When the government calculates the personal savings rate, it doesn't count the wealth accrued in homes or in the stock market, a point that economists often raise as a flaw that overstates the profligacy of American consumers."<sup>43</sup>

But once we view savings properly, the picture changes dramatically. In Figure 7, changes in the total market value of household net wealth for the U.S. relative to personal disposable income are charted over the period of 1965 through first quarter 2005. The picture is quite different than the picture portrayed using the government's measure of savings.

**Figure 7: Wealth Savings as a Percentage of Disposable Income**



After President Kennedy's tax cuts in the mid 1960s, savings as measured by increases in wealth was very high. But in the years following Kennedy's "go-go '60s" the savings rate as measured by the increase in America's wealth fell. President Johnson's 1967 tax surcharge and his counterproductive Great Society spending programs wrought havoc on U.S. savings and our country's future capacity to produce. President Nixon with his doubling of the capital gains tax rate, devaluation of the U.S. dollar, 10 percent import surcharge, and wage and price controls drove the average true savings rate below zero.

The Ford Administration with its Whip Inflation Now (WIN) 5 percent tax surcharge didn't improve matters much. Savings stayed very low. In 1978, however, with California's Proposition 13 and the Steiger-Hansen capital gains tax rate reduction, savings started to rise, and rise sharply. But it really wasn't until the Reagan-Volcker policies of the 1980s took full effect that savings rose to its earlier highs. The Reagan era had the longest sustained increase in savings of the prior seven administrations. Reagan's era was an era of truly great wealth accumulation and

<sup>43</sup> "Negative Saving: In July, Spending Outpaced Earning," *The Wall Street Journal*, September 2, 2004, pg. A2.

output growth. Net job growth was 18,000,000 and the poor, the disadvantaged, and minorities all improved their respective lots in life.

Once President Bush raised taxes in 1990 and President Clinton raised taxes further in 1993 savings fell again. Fortunately, monetary policy during the 1990s has been excellent and has kept savings from falling to the lows of the mid-1970s. The latter part of the Clinton 1990s saw huge increases in savings. Clinton had become more Reagan than Reagan.

Clinton signed into law NAFTA (North American Free Trade Agreement), much to the consternation of some of his fellow Democrats and Union supporters. Clinton also signed welfare reform, reappointed Alan Greenspan twice, cut government spending as a share of GDP by over three percentage points, left the country with surpluses, and signed the biggest capital gains tax cut in our nation's history. It's no wonder that savings as measured as the increase in wealth rose.

For our purposes here, the conclusion is straightforward. Basing the growth model on a more relevant definition of savings will provide a better understanding of the FairTax proposal's ultimate economic impact. As a result, we leverage this more appropriate definition of savings in the model developed below.

### **Evaluating the FairTax Proposal: A Macroeconomic Simulation**

All macroeconomic models involve trade-offs. A caveat for any model, including our own, is an understanding of the model's assumptions, many of which we have laid out above. These assumptions, and the theoretical foundations that precede the assumptions, play a critical role in determining the validity of any economic analysis. For instance, many macroeconomic models employed to evaluate the impact of tax reform fail to account for international trade and capital flows when addressing the impact from tax reform.<sup>44</sup> Due to the rising importance of international trade and capital flows, we believe this to be an important consideration to include, and believe that models that do not account for these impacts are discounting an important consideration. As such, we present an overview of the theoretical and empirical foundations that underlie our model in Appendix A, for those readers who are interested in such details. The results of the model show that the FairTax will have a significant and positive impact on the economy. These are presented by variable of interest for an estimated 10-year period.

*GDP growth:* The baseline scenario normalizes the 2004 GDP to 1.00 and assumes that the economy will grow at its long-run potential growth rate set to 3.0 percent. This rate approximates the current economic growth potential for the U.S. economy.<sup>45</sup>

---

<sup>44</sup> See for instance Altig, David, Auerbach, Alan J., Kotlikoff, Laurence J., Smetters, Kent A., and Walliser, Jan, "Simulating Fundamental Tax Reform in the United States," (2001) *American Economic Review*, Vol. 91 (3), pp. 574-595.

<sup>45</sup> Based on data from the BEA, the average growth rate in the U.S. economy since 1970 has been around the 3.0 percent benchmark. Jorgenson, Dale W., (2001) "Accounting for Growth in the Information Age," *Working Paper* estimated that economic growth over the past several decades has varied around this 3.0 percent level ranging from 2.43 percent in the 1989 - 95 period to 3.99 percent in the 1948 - 73 period. Recent estimates illustrate that growth may have accelerated, slightly exceeding the 3.0 percent rate. For conservative purposes, we use the 3.0 percent rate.

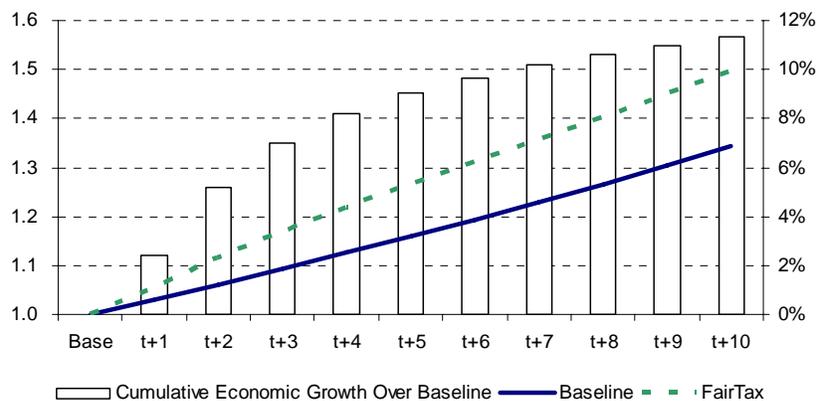
The FairTax induces an immediate increase in labor supply, followed by significant growth in the capital stock. These impacts raise current economic growth, but do not change the long-run potential growth rate of the economy. Consistent with the neoclassical growth models, economic output increases in response to the higher labor and capital which, after spiking growth to 5.5 and 5.8 percent in the initial years following implementation, begin to approach the steady-state growth rate of 3.0 percent by year ten. By year ten, total economic output is 11.3 percent above what it would have been without implementation of the FairTax proposal.

To the extent that higher productivity growth is linked to higher capital accumulation (a likely scenario), the growth effects will be even greater. For instance, if the larger accumulation of capital induces a one-quarter percent increase in productivity growth, total economic output in year ten would be 19.4 percent greater than the baseline scenario as opposed to 11.3 percent.

In addition, the GAO has cited estimates that efficiency costs associated with our current tax system are 2 percent to 5 percent of GDP. To the extent the FairTax reduces these efficiency costs, a likely supposition, economic growth can be further enhanced by up to 16.3 percent above the baseline scenario. Combining these two impacts, the FairTax increases economic growth by up to 24.4 percent greater than the baseline scenario by year ten.

Source of Growth	GDP improvement over baseline in 10th year
Economic growth due to neutral tax base and lower rates	11.3%
Lower compliance costs	2-5%
Productivity Gains from Improved Efficiency	8.1%
<b>Total (up to)</b>	<b>24.4%</b>

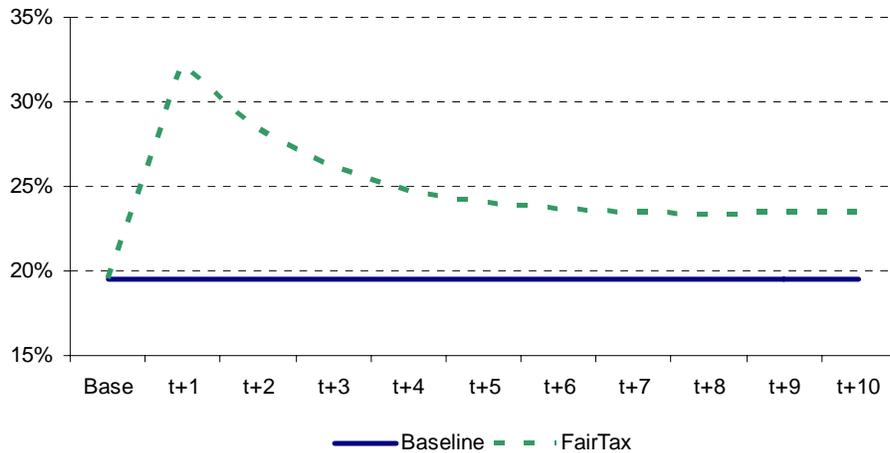
**Figure 8: GDP Growth, FairTax Compared to Baseline**



*Domestic Investment:* Initial domestic investment is scaled to the 2004 GDP level based on the proportion of GDP devoted to domestic investment in 2004. The FairTax has an immediate and significant impact on investment, raising it 33.0 percent above the baseline level in the first year following implementation. By the tenth year following implementation, total investment is estimated to be over 41 percent higher than the baseline scenario. Investment net of depreciation

in the tenth year following implementation of the FairTax is 12.4 percent of GDP, which is still above the baseline level of 9.0 percent of GDP.

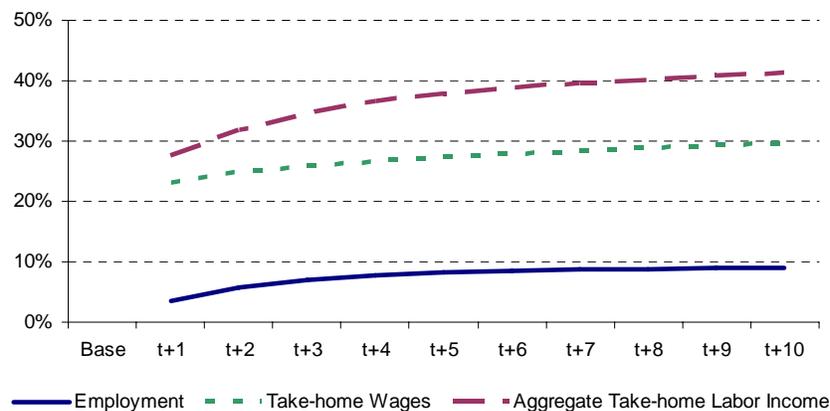
**Figure 9: Gross Investment Percentage of Output, FairTax Compared to Baseline**



*Employment, Labor Income, and Disposable Personal Income:* The higher take-home wage provides an immediate incentive for people to work more following the implementation of the FairTax proposal. During the first year after implementation, this will lead to total employment growth of 3.5 percent in excess of the baseline scenario, which continues to grow through year ten such that total employment is 9.0 percent above what it would have been under the baseline scenario.

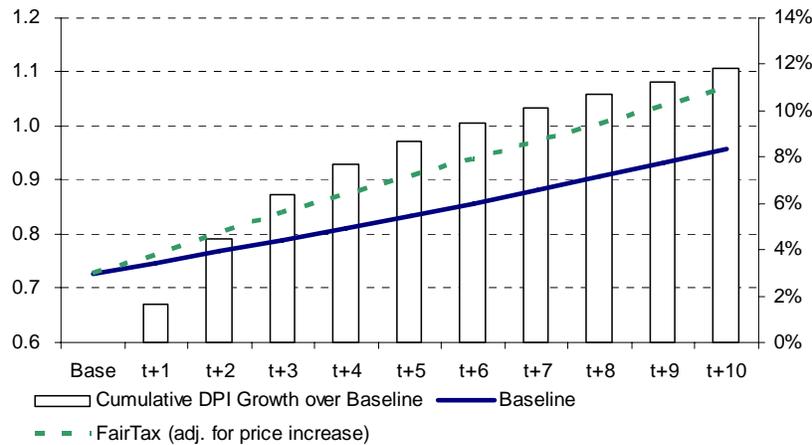
The impact on total labor income is even more pronounced, increasing due to both an increase in after-tax wages and the increase in the number of people working. Total labor income will rise 27.4 percent in the first year following the implementation of the FairTax. By year ten, labor income will be over 41 percent higher than what it would have been under the baseline scenario.

**Figure 10: Cumulative Growth in Employment, Take-home Wages, and Aggregate Take-home Labor Income Due to FairTax Proposal Compared to Baseline**



Rising incomes from capital and labor raise total disposable personal income (DPI), even after adjusting for the one-time increase in the price level that would accompany the implementation of the FairTax. Compared to the baseline scenario, DPI is 1.7 percent higher in the first year following implementation of the FairTax. The difference in DPI continues to grow compared to the baseline such that by year ten, DPI is 11.8 percent above the baseline scenario.

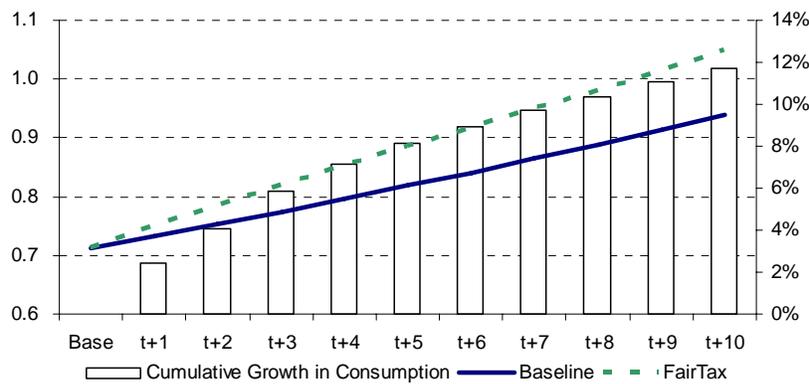
**Figure 11: DPI, FairTax Adjusted for Price Level Impacts Compared to Baseline**



*Consumption:* We estimate that following the implementation of the FairTax, consumption will grow in excess of the baseline growth path by 2.4 percent in the first year alone. The increase in consumption arises even though total savings (and investment) in the U.S. economy increases due to the growth in wealth and international capital flows. Wealth increases due to: (1) accelerated economic growth; (2) the direct impact the FairTax will have on equity values; and, (3) the direct impact the FairTax will have on home values.<sup>46</sup> Over time, the stronger economy continues to support growing consumption such that by year 10, total consumption exceeds the baseline scenario by 11.7 percent.

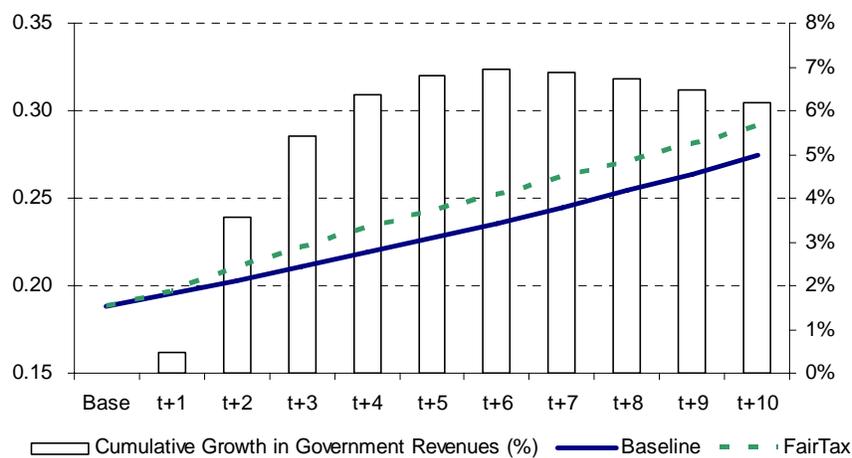
<sup>46</sup> The impact on the housing and equity markets is discussed more fully below. In addition to income, people will also increase their consumption in response to increases in their wealth. The model utilizes separate wealth elasticities for the change in equity values (0.056) and housing values (0.084) based on Case, Karl E., Quigley, John M., and Shiller, Robert J., (2004) “Comparing Wealth Effects: The Stock Market versus the Housing Market,” May 2004, *Working Paper*.

**Figure 12: Consumption, FairTax Compared to Baseline**



*Government Revenues:* Government revenues, after accounting for Social Security expenditures, also benefit from the growing economy. In the first year following implementation of the FairTax, total government revenues are estimated to be 0.5 percent above baseline revenues. Revenue growth under the FairTax exceeds the baseline scenario during the first six years following implementation. However, beginning in year seven revenue growth under the baseline scenario begins to grow faster due to the more progressive nature of our current tax system, which increases tax revenues at a faster rate than economic growth. This leads to total revenues under the FairTax to be only 6.2 percent above the baseline scenario by year ten, compared to 6.9 percent above the baseline scenario in year six.

**Figure 13: Government Revenues, FairTax Compared to Baseline**



*Impacts on the price level, equities markets, and housing:* The FairTax proposal is not inflationary, because it does not have a sustained impact on the price level – the definition of inflation. It will have a significant one-time impact on the price level, however; rising 24.8 percent following implementation of the FairTax, based on the assumption that the employer portion of the payroll tax benefits consumers through lower prices.

As demonstrated above, the repeal of the capital gains and dividends taxes will increase the values of the equities markets by a bare minimum 11.35 percent. This impact is a direct result of the increased capital retention rate of 11.35 percent for investors following implementation of the

FairTax. The value of the housing market will also increase, rising a one-time 2.2 percent compared to the current median price of \$208,500. The increased value in the housing market is due to the lower interest rates increasing overall housing affordability after accounting for the loss of the mortgage interest deduction. Based on the current spreads between the similarly risked tax-free versus taxable bonds, interest rates should decline by approximately 90 basis points.

Summing up the impacts, the FairTax would likely have a real and significant impact on the economic welfare of the country. The proposal would have significant and positive impacts on economic growth, income, wages, and capital formation, bettering our standard of living in the process.

### **A Budget Perspective**

There is one last benefit the FairTax could provide that is often overlooked. Steeply progressive tax systems create bad budget incentives while single-rate taxes, such as the FairTax, can provide significant budgetary benefits. These benefits arise from creating a more stable revenue stream that is more predictable and less costly to collect. Additionally, since the FairTax is based on consumption, and consumption expenditures are more stable than income earned, the stability from the FairTax revenue stream is further enhanced. The adverse incentives created from California's progressive tax system stand as an important case study that illustrates this phenomenon.

Because the California tax structure is progressive, the state has long periods of feast followed by periods of crushing famine. When the overall economy is good, California has seemingly endless surpluses. Beginning in January 1999, California's state budget was in surplus by some \$12 billion out of a total revenue base of \$59 billion. Revenues from realized capital gains and exercised stock options, following along with the rise in the stock market, soared in the late 1990s/early 2000s, and at their peak in FY2001 (ending June 30, 2001) these two sources alone accounted for 24 percent of California's total general fund revenues.

In contrast, when times turn sour, progressive tax codes combine with an economic slowdown for a surefire recipe for fiscal crisis. Even without mirrors and handkerchiefs, revenues vanish. Over the two-year period from FY2001 through FY2003, adjusted state tax revenues per capita fell by 19.4 percent following seven straight years of increases. This drop represented more than \$13 billion in tax revenues, demonstrating just how volatile and unpredictable California's revenue stream can be from year to year.

In addition to California's huge revenue swings, another byproduct of difficult economic times is that claims on government soar. California's unemployment rate rose from 4.9 percent to 6.8 percent between FY2001 and the end of FY2003. In step, California's surplus went from \$12 billion to a \$38 billion projected deficit practically overnight. This magnitude of fiscal reversal happened on an expenditure level of \$76 billion. If the California legislature were to reduce spending to match revenues, it would have to cut expenditures by 55 percent across the board!

It is this famine/feast syndrome that is characteristic of economies with progressive income taxes. Progressive income taxes also lead to a higher overall share of output going to

government than the electorate would prefer. Tax cuts are never as popular with politicians in good times as are tax increases in bad times. Volatile revenues – the alter ego of progressive taxes – inextricably lead to big government by increasing spending during prosperity and ratcheting up tax rates during slow times. Big government is a byproduct of a progressive tax code. For instance, total government spending increased from \$75.3 billion to \$104.9 billion from the FY1999 budget through the FY2003 budget, an increase of 39.3 percent (29.8 percent on a per capita basis). Although a possibility, typically the funds necessary to smooth over spending cycles that tend to last 10 or 12 years is rarely made – politically it is very difficult to put a year and a half's worth of revenues into a special rainy day fund for when you have the four or five year period of bad times.

Because California has such a highly progressive tax structure, the most successful and productive of the state's residents and businesses are the ones who are taxed the most on the margin. And they are the ones who make the decision whether to locate in California or, if they are already there, whether or not to stay.

With this in mind, juxtapose California's high tax rates with the fact that there are nine states in the U.S. without a state personal income tax at all – including the biggies of Florida and Texas, in addition to California's neighbors, Nevada and Washington – and you can see why California once again is facing the very serious prospect of a brain drain. Primarily due to huge tax increases in California during 1990 and 1991 and more tax-friendly climates in neighboring states, Census Bureau data show that California went from importing a net of 207,000 people from other states in 1990 to losing 435,000 people in 1994 alone. The consequences of these population inflows and outflows and their potential effects on state revenues should not be ignored. Considering that the wealthiest 3.1 percent of California's population pays 61.7 percent of the state's personal income taxes – by far the state's most important source of revenue – California can ill afford to tax the wealthy to the point where they choose to leave the state. These wealthy residents, many of whom are baby boomers approaching retirement age, are mobile and could decide to become ex-Californians in a heartbeat.

This same logic applies to the state's businesses as well. One of the major costs of a business is the tax bill it has to pay. If you raise taxes on businesses, especially during bad economic times, the cost of doing business rises *pari passu*. These businesses then raise their heads and look around, and it won't take long for them to realize that most states have a more business-friendly environment than does California. In fact, there is nary a state with as high a corporate income tax rate within 2,500 miles of California.

Better budgeting and taxes have also lead to better economic performance. We examined the economic performance between 1994 and 2004 of the nine states that do not impose a personal income tax on their residents versus the nine states that impose the highest marginal personal income tax rates in the nation. Relative to the nine states with the highest taxes on personal income, the nine states without personal income taxes experienced:

- Faster growth of gross state output (79.7 percent versus 62.5 percent);
- Greater personal income growth (77.2 percent versus 60.2 percent);
- Higher personal income per capita growth (50.9 percent versus 48.7 percent);

- A much greater increase in total population (17.8 percent versus 6.4 percent), including a net inflow of residents from other states (4.1 percent of total population) versus a net outflow of residents (2.2 percent of total population);
- Much more rapid job creation (22.9 percent vs. 12.8 percent); and
- A lower unemployment rate (5.1 percent vs. 5.2 percent), despite the huge inflow of migrants.

Although larger than any individual state, the U.S. is not immune from any of the ills from a progressive income tax, nor its resulting impact on economic performance. The U.S.'s progressive tax structure creates the same adverse impacts on government revenues, spending, and the overall economy as the California tax structure. The FairTax is a solution to this problem. As such, the FairTax will benefit the economy through better budget management and more efficient government expenditures. Although not typically part of macroeconomic models, such benefits are real and should not be overlooked.

**Table 7: Lower Taxes, Higher Growth: Personal Income Tax (PIT) Rates vs. 10-Year Economic Performance**

(current rate vs. performance between 1994 and 2004, unless otherwise noted)

	<b>Top PIT Rate*</b>	<b>Gross State Product Growth</b>	<b>Personal Income Growth</b>	<b>Personal Income Per Capita Growth</b>	<b>Population Growth</b>	<b>Net Domestic In-Migration as a % of Population</b>	<b>Non-Farm Payroll Employment Growth</b>	<b>Unemployment Rate, 2004</b>
Alaska	0.00%	57.5%	49.4%	37.5%	8.6%	-4.9%	17.0%	7.5%
Florida	0.00%	81.1%	77.4%	45.2%	22.2%	8.2%	29.3%	4.8%
Nevada	0.00%	118.0%	118.8%	40.5%	55.7%	21.1%	56.2%	4.3%
New Hampshire	0.00%	79.6%	78.5%	56.9%	13.7%	6.2%	19.9%	3.8%
South Dakota	0.00%	70.2%	67.8%	59.1%	5.5%	-1.7%	15.4%	3.5%
Tennessee	0.00%	65.7%	67.3%	48.3%	12.8%	4.6%	11.5%	5.4%
Texas	0.00%	86.0%	81.4%	49.7%	21.1%	2.3%	22.3%	6.1%
Washington	0.00%	73.1%	77.6%	53.9%	15.4%	3.4%	17.1%	6.2%
Wyoming	0.00%	85.7%	76.5%	67.4%	5.5%	-2.0%	17.7%	3.9%
<b>9 States With No PIT**</b>	<b>0.00%</b>	<b>79.7%</b>	<b>77.2%</b>	<b>50.9%</b>	<b>17.8%</b>	<b>4.1%</b>	<b>22.9%</b>	<b>5.1%</b>
<b>9 States With Highest Marginal PIT Rate**</b>	<b>9.67%</b>	<b>62.5%</b>	<b>60.2%</b>	<b>48.7%</b>	<b>7.8%</b>	<b>-2.2%</b>	<b>12.8%</b>	<b>5.2%</b>
Hawaii	8.25%	39.7%	38.0%	29.8%	6.3%	-7.4%	8.7%	3.3%
Maine	8.50%	60.2%	67.1%	57.7%	6.0%	3.2%	15.4%	4.6%
New Jersey	8.97%	60.8%	62.8%	50.0%	8.5%	-4.0%	12.7%	4.8%
Ohio	9.19%	47.1%	48.2%	44.3%	2.7%	-2.5%	6.6%	6.1%
Vermont	9.50%	64.3%	72.4%	62.0%	6.4%	1.3%	14.9%	3.7%
Rhode Island	9.90%	74.7%	62.4%	52.7%	6.4%	-1.8%	12.5%	5.1%
Oregon	10.25%	73.7%	63.9%	42.3%	15.2%	5.0%	17.0%	7.4%
California	10.30%	80.7%	72.1%	50.9%	14.0%	-4.0%	19.6%	6.2%
New York	12.15%	61.2%	54.4%	48.3%	4.2%	-10.0%	7.9%	5.8%
<u>The Others</u>								
Illinois	3.00%	52.9%	53.0%	43.3%	6.7%	-5.3%	6.3%	6.1%
Louisiana	3.90%	60.3%	55.6%	49.8%	3.9%	-3.8%	11.4%	5.8%
Indiana	4.10%	57.3%	56.1%	45.0%	7.7%	0.1%	8.0%	5.2%
Alabama	4.25%	56.5%	58.9%	49.4%	6.3%	0.8%	8.1%	5.4%
Colorado	4.63%	91.7%	93.7%	56.8%	23.6%	6.0%	24.1%	5.4%
Connecticut	5.00%	68.0%	61.5%	52.9%	5.7%	-3.5%	7.0%	4.6%
Mississippi	5.00%	51.3%	63.4%	51.3%	8.0%	0.5%	6.5%	6.8%
Arizona	5.04%	102.2%	100.3%	48.0%	35.3%	12.0%	40.3%	4.6%
Massachusetts	5.30%	72.3%	67.3%	58.9%	5.3%	-3.8%	9.5%	4.8%
North Dakota	5.54%	65.4%	62.5%	65.2%	-1.6%	-7.0%	14.4%	3.5%
Virginia	5.75%	81.6%	72.2%	52.2%	13.1%	1.9%	19.4%	3.6%
Utah	5.78%	88.2%	84.6%	51.5%	21.9%	-1.4%	28.3%	5.1%
Iowa	5.84%	65.2%	56.0%	50.5%	3.6%	-2.0%	10.3%	5.0%
Georgia	6.00%	79.4%	79.0%	45.1%	23.4%	6.9%	19.1%	4.8%
New Mexico	6.00%	48.5%	68.1%	48.6%	13.1%	-0.7%	20.3%	5.6%
Michigan	6.25%	41.3%	48.4%	40.8%	5.4%	-2.1%	6.0%	7.4%
Kansas	6.45%	61.3%	55.6%	46.8%	6.0%	-2.4%	13.5%	5.3%
West Virginia	6.50%	41.8%	50.0%	50.5%	-0.3%	-0.7%	9.3%	5.0%
Oklahoma	6.65%	62.7%	64.2%	52.9%	7.4%	0.1%	14.9%	4.6%
Wisconsin	6.75%	61.9%	61.2%	50.2%	7.3%	0.8%	12.6%	4.7%
Nebraska	6.84%	56.2%	61.0%	51.0%	6.6%	-1.8%	15.9%	3.8%
Arkansas	7.00%	58.4%	63.6%	48.3%	10.4%	2.6%	12.0%	5.6%
Missouri	7.00%	54.4%	58.7%	46.8%	8.1%	1.5%	9.0%	5.8%
South Carolina	7.00%	62.6%	67.6%	48.0%	13.3%	4.6%	13.4%	6.9%
Montana	7.15%	60.1%	61.8%	50.4%	7.6%	2.6%	21.0%	4.4%
Delaware	7.20%	91.1%	76.4%	52.4%	15.7%	5.1%	19.2%	4.1%
Pennsylvania	7.40%	56.5%	51.7%	48.8%	2.0%	-2.0%	8.6%	5.6%
Idaho	7.80%	80.1%	76.2%	44.9%	21.7%	7.2%	27.3%	4.5%
Maryland	7.80%	69.4%	69.7%	53.4%	10.7%	-0.4%	17.2%	4.2%
Minnesota	7.85%	76.6%	72.6%	56.0%	10.6%	0.9%	15.6%	4.5%
Kentucky	8.20%	51.2%	63.8%	52.0%	7.7%	1.7%	12.4%	4.7%
North Carolina	8.25%	78.2%	70.4%	43.4%	18.8%	6.4%	14.0%	5.3%

\*Highest marginal state and local personal income tax rate imposed as of 1/1/05 using the tax rate of each state's largest city as a proxy for the local tax. The effect of the deductibility of federal taxes from state tax liability is included where applicable. New Hampshire and Tennessee tax dividend and interest income only. While Hawaii and North Carolina both impose the same top rate, Hawaii is included in the "nine highest" category due to a much lower top bracket.

\*\*Equal-weighted averages.

## **Conclusion**

Our current tax system is most aptly described as an inefficient hybrid income/consumption-based tax system. It is also rife with problems: the current tax system is overly complex, costly to administer, creates adverse incentives, and it is plagued with loopholes and random exemptions. Additionally, many of the taxes currently imposed are hidden, obfuscating the system's true tax burden from taxpayers. As a consequence, the current tax system sacrifices potential U.S. economic growth. The FairTax offers a simple, revenue-neutral alternative to the current tax system. As currently proposed, the FairTax is a pure consumption tax that is not hidden in the price of the product, but visible for all to see.

This proposal also addresses many of the problems inherent in the current tax system. Foremost among these, the FairTax eliminates the current disincentives to save and invest (including the double taxation of corporate income), increases the reward to work, removes many of the tax-induced distortions in the labor and capital markets, and creates a less complex tax system that is easier for taxpayers to comprehend.

By imposing a visible tax that eliminates many of the adverse incentives enshrined in our current tax system, the FairTax creates many economic benefits including:

- Higher total economic output
- More savings
- Higher take-home pay for workers
- Faster employment growth
- Greater rewards to investing that directly lead to more capital formation
- Lower mortgage rates and, consequently, beneficial impacts for the housing market, and
- A more efficient and stable tax revenue system.

For all of these reasons, the FairTax has a great deal to offer as a proposed tax replacement system and is a marked improvement over our current tax regime.

## Appendix A

In order to evaluate the impact of the FairTax, we begin with the creation of a baseline short-term and long-term economic outlook for ten years based on the current tax structure. Once the baseline framework is established, the tax policy aspects of the economic model are modified to reflect the FairTax proposal. We employ a neoclassical general equilibrium model of the economy to evaluate these impacts. The model evaluates the production of output with particular attention to the impact that the marginal and average tax rates have on returns and investment decisions. In addition, the household sector is evaluated giving specific attention to the varying marginal and average income tax rates people currently face. Both the household and business sectors establish the amount of domestic savings and domestic consumption in the economy. The domestic savings is augmented by savings from abroad, both of which respond to changes in the after-tax return to capital. Furthermore, households provide labor services to the production process, which varies depending upon the purchasing power of the after-tax wage received. We assume standard responses to changes in after-tax wages and savings behavior (what economists term elasticities) and discuss this issue more fully below.

GDP is modeled by a Cobb-Douglas production function as represented in equation (1):

$$(1) \quad Y = K^a A L^{(1-a)},$$

In equation (1) K represents the amount of capital devoted to the production; L is the total number of hours employed in production and A is the technology function; as per standard practice A is estimated as a residual. The parameters (a) and (1-a) represent the factor shares for capital and labor, which take on the standard values of  $a = 0.3$  and  $(1-a) = 0.7$ .<sup>47</sup>

Taking the natural log of (1) and then differentiating the equation with respect to time provides a representation of growth in total output as a function of the growth in technology, capital, and labor:

$$(2) \quad \% \Delta Y = \% \Delta A + \% \Delta K + \% \Delta L$$

Where,  $\% \Delta$  represents the percentage change in the variable of interest. For the baseline scenario,  $\% \Delta L$  is set to its long-run average growth rate between 1960 and 2004. Measuring the labor input is relatively straightforward – the sum of all hours worked by the labor force, which the BLS measures on a regular basis. Since 1960, hours worked has risen an average 1.0 percent per year. Consequently, for our baseline assessment, we model the labor supply to grow at this rate for the next ten years.

---

<sup>47</sup> Precise values tend to vary depending upon the specific model. The coefficients in our model are based on CBO's estimated values of 0.3 and 0.7; see Congressional Budget Office (2001) "CBO's Method for Estimating Potential Output: An Update," The Congress of the United States: Congressional Budget Office, August 2001.

Assuming that the economy is at its steady state equilibrium level, we set the  $\% \Delta K$  at a level to maintain a constant relationship between capital per worker and output per worker. Subsequently, growth in the economy arises from growth in  $\% \Delta A$  or the technology/productivity factor, which we set at 2 percent per year. This simplified representation has been shown to accurately portray the essential workings of the current U.S. economy.<sup>48</sup>

Firms are assumed to maximize their profits, which requires the firm to pay capital and labor the value of their marginal products:  $w = MPL$  and  $c = MPK$ ; where  $w$  is the market wage rate,  $MPL$  is the marginal product of labor,  $c$  is the cost of capital, and  $MPK$  is the marginal product of capital. The current income tax system complicates these basic relationships by creating a wedge between the costs to the firm and the income received by the factors of production. The primary economic benefits to switching to the FairTax arise through the removal of these complications.

For wages, this complication is represented by the gap between  $w$  versus  $w'$  detailed in equation (3):

$$(3) \quad w' = w * [1 - \tau_i - (0.5 * (\tau_{OASDI} + \tau_{HI}))]$$

Where,  $w'$  is the wages actually received by the worker,  $\tau_i$  is the marginal income tax rate,  $\tau_{OASDI}$  is the marginal tax rate from Social Security taxes, and  $\tau_{HI}$  is the marginal tax rate from Medicare taxes. Note that the incidence of these taxes is imposed directly on worker's incomes. As a consequence, although the firm is paying the workers their  $MPL$ , the workers receive less than their marginal product in income. There is a further complication, however. Under the current payroll tax system, the firm pays one-half of the payroll tax.<sup>49</sup> Consequently, the cost to the firm is not  $w$  but  $w * (0.5 * (\tau_{OASDI} + \tau_{HI}))$ . Consequently, in deciding how much labor to utilize, it is this greater value that is of relevance to the firm.

Taxes on capital are a bit more complex as the current tax system taxes capital income several times. The firm will equate the  $MPK$  to the cost of capital minus depreciation as detailed in equation (4):

$$(4) \quad r' = r - \delta$$

Where,  $\delta$  is the rate of capital depreciation. In a similar manner to labor, profits face a tax wedge, but the tax is imposed on after-tax profits. The tax on profits does not directly alter the cost of capital relative to labor, and subsequently does not impact the relative levels of capital and labor. We denote the corporate profits tax as  $\tau_p$ . In addition, the corporation must pay

---

<sup>48</sup> The original studies that illustrate that the U.S. economy can be represented by a Cobb-Douglas production function include: Cobb, C.W. and Douglas, P.H., (1928) "A Theory of Production," *American Economic Review*, March, 139 - 65; Douglas, P.H., (1948) "Are There Laws of Production," *American Economic Review*, March, 1 - 41. For a modern confirmation of the relevance of the Cobb-Douglas construct for policy analysis see Sullivan, Martin, (2004) "Practical Aspects of Dynamic Revenue Estimation," *A Report of The Heritage Center for Data Analysis*, June 14.

<sup>49</sup> There is a great deal of debate regarding whether the true burden on the payroll tax lies completely on the worker through lower wages. Even if this is the case, and wages are lower by the exact percentage of the payroll tax, the cost to the firm cited above is still inflated by the same percentage, maintaining the validity of the argument.

production taxes and one-half of the Social Security and Medicare taxes  $\tau_{OASDI} + \tau_{HI}$  as mentioned earlier. Since this tax is proportional to the amount of labor that the firm hires, this tax does alter the relative costs of capital and labor. The after-tax profits of the firm are subsequently detailed in equation (5):

$$(5) \quad \pi = [(1 - \tau_p) * (Y - (w * ((1 + (0.5 * (\tau_{OASDI} + \tau_{HI})))) * A L) - (r' * K))].$$

Substituting equation (1) into (5) yields:

$$(6) \quad \pi = [(1 - \tau_p) * (A K^a L^{(1-a)} - (w * ((1 + (0.5 * (\tau_{OASDI} + \tau_{HI})))) * A L) - (r' * K))].$$

If we denote  $(0.5 * (\tau_{OASDI} + \tau_{HI}))$  as  $\tau_s$ , then the first-order conditions of a profit-maximizing firm imply:

$$(7) \quad [K / A L] = [(w + \tau_s) / r'] * [a / (1-a)].$$

Consequently, firms set the ratio of capital to labor in proportion to the after-tax costs in wages to the firm to the cost of capital (including depreciation costs), taking into account the relative factor shares of capital to labor.

Corporate profits can either be retained by the firm for future investment or paid out to the shareholders as dividends. Under either scenario, if the asset is not held in a tax-exempt savings vehicle, then a future tax liability on the part of the owner is created – either immediately in the case of a dividend or in the future in the case of a productive investment that leads to a capital gain liability once the owner realizes that gain. The tax system is not neutral in this case as the immediate tax liability at rates that could be higher than the liability in the future discourages the payments of dividends in favor of activities that lead to capital gains.<sup>50</sup> In either case, the income earned is currently taxed at current income tax rates  $\tau_i$ . Equation (8) accounts for the individual income taxes paid on this income, which have already been taxed in Equation (7):

$$(8) \quad DI' = [(1 - \tau_d) * DI]$$

Where,  $DI'$  is the after-tax dividend income,  $DI$  is the before-tax dividend income, and  $\tau_d$  is the weighted average individual income tax rate on dividends. Equation (7) also illustrates that the FairTax will lower the cost of labor compared to capital for firms, encouraging firms to employ more labor.

Workers' labor supply function is described by equation (9);

$$(9) \quad L^s = (1+n)^t * b1 * (W * (1 - \tau_i))^{Es} * (W * (1 - \tau_{ai}))^{Ei}$$

Where,  $b1$  is a constant,  $Es$  is the substitution elasticity,  $Ei$  is the income elasticity, and  $\tau_{ai}$  is the average tax rate on income. Equation (10) states that the labor supply is dependent upon a

<sup>50</sup> This bias has been cited as part of the environment leading to the corporate scandals of the late 1990s; see Coors, Andrew C., Laffer, Arthur B., and Miles, Marc A., (2002) "Dividends: Stop the Discrimination," Laffer Associates, December 16, for example.

constant, which grows at a constant rate over time, which we have assumed to be 1.0 percent per year. Labor supply is also dependent on the after-tax wage responding to both the income and substitution effects. As stated earlier, the substitution effect is expected to have a positive effect on labor supply where the income effect is expected to have a negative effect. Because the substitution effect is examining the cost of leisure, it is the marginal tax rate that matters – the cost to taking the next hour of leisure. The income effect, on the other hand, quantifies the incentive to work less due to a higher income. A higher income reflects not the marginal tax paid but the average taxes paid. Consequently, it is the average tax rate that matters, which is reflected by  $\tau_{ai}$ .

Empirical studies of the labor supply elasticity have a wide range of estimates, which we discussed above.<sup>51</sup> Based on a review of this literature, we utilize a substitution elasticity of 0.4 and an income elasticity of -0.2.<sup>52</sup>

Three areas of our economy remain to be specified: the investment function, savings function, and international economy. As shown in Figures 1 and 2, Gross and Net Domestic Investment in the U.S. economy can diverge from Gross and Net Savings, with the difference between these amounts being savings supplied from foreign sources. Our rationale for dividing out the savings and investment functions is that they represent two different (but intimately related) activities. Savings refers to the act of foregoing consumption today for consumption opportunities (presumably greater consumption opportunities) tomorrow. Investment, in the economic sense, refers to the opportunities (or perceived opportunities) to utilize savings today in order to create something of greater value in the future.

Both investment opportunities and the desire to save are interrelated. However, the ability to engage in an investment opportunity is not solely constrained by domestic savings. Should the opportunities to invest resources and expand future production exceed the net funds availability from domestic savings, there is an incentive for savings from overseas to fund these investment opportunities. As a consequence, our model examines the uses (investment) and sources (domestic and foreign savings) separately.

The amount of investment is limited by the supply of investment funds – savings. We model the domestic savings opportunity around the empirical literature on savings elasticities. The literature on savings elasticities varies wildly. To be conservative, we use a value of 0.40 in our analysis.<sup>53</sup> The specific savings function is detailed in equation (10):

$$(10) \quad s = b_2 * [r*(1 - \tau_r)]^{E_r}$$

<sup>51</sup> See Engen, Eric, Gravelle, Jane, and Smetters, Kent, (September 1997) “Dynamic Tax Models: Why They Do the Things They Do,” *National Tax Journal*, Vol. 50, No. 3; Gravelle, Jane, Joint Committee on Taxation, “The Joint Committee on Taxation 1997 Tax Modeling Project and 1997 Tax Symposium,” November 20, 1997.

<sup>52</sup> These estimates are from Congressional Budget Office, (1996) “Labor Supply and Taxes,” *Congressional Budget Office Memorandum*, January 1996.

<sup>53</sup> Joint Committee on Taxation, “The Joint Committee on Taxation 1997 Tax Modeling Project and 1997 Tax Symposium,” November 20, 1997. Specifically, see the papers on the Neoclassical Growth and Disequilibrium Models presented by Joel L. Prakken, Gary and Aldona Robbins; Roger E. Brinner; Jane G. Gravelle; and John G. Wilkins; and Engen, Eric, Gravelle, Jane, and Smetters, Kent, (1997) “Dynamic Tax Models: Why They Do the Things They Do,” *National Tax Journal*, Vol. 50, No. 3, pp. 657 - 82.

Where,  $\tau_r$  is the tax rate applied to savings, and  $E_r$  is the elasticity of savings. To finish off the model we incorporate an investment/capital accumulation function. Equation (11) details this relationship:

$$(11) \quad K_{t+1} = K_t - (\delta * K_t) + I_t$$

As we mentioned earlier, the baseline scenario assumes that the capital accumulation process grows at the level necessary to keep output per person constant. Consequently, for the baseline scenario  $I_t$  grows at the rate of population growth, depreciation, and growth in technology, thereby keeping capital per effective labor and output per effective labor constant. This coincides with the presumption that total savings available for domestic investment remains relatively stable. This increased supply of savings allows for a greater amount of sustained capital per worker at the new growth equilibrium and provides a bigger output impact from the tax reform.

This basic framework was calibrated to approximate the current economy as follows. First, output and wages were set equal to 1. The labor supply is consequently equal to 0.7. The capital supply was set in order to obtain a savings rate that was consistent with current values. Based on these values, the values for the constants and service price for capital were obtained. Interest rates were based on current values and spreads between top rated municipal and corporate bonds as well as the difference between the 10-year Treasury and 30-year mortgage.