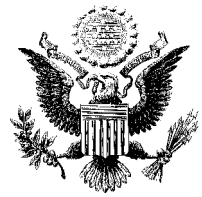
ECONOMIC BENEFITS OF PERSONAL INCOME TAX RATE REDUCTIONS



Chairman Jim Saxton (R-NJ)

Joint Economic Committee
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Executive Summary

With large and growing federal budget surpluses, and with the federal tax burden at a peacetime high, a broad spectrum of policymakers are supporting substantial income tax rate cuts. Tax rate cuts would not only provide tax relief to every income taxpayer, they would also spur economic growth by reducing the distortions created by income taxes. This report provides background on marginal tax rate levels, describes the economic costs created by high marginal rates, and summarizes tax rate trends in other industrial countries. The report finds:

- The combination of statutory income tax rates, income tax phase-out provisions, state income taxes, and payroll taxes can create excessive marginal rates for families at all income levels.
- Over 20 million small businesses that pay tax under the personal income tax system would also benefit from rate reductions. Recent research finds a strong link between marginal tax rates and small business hiring and investment behavior.
- High marginal tax rates distort work and savings decisions, and promote unproductive tax avoidance and evasion activities. These tax distortions create "deadweight losses" which lower the nation's standard of living. Each $1 of marginal tax rate cuts would save the private economy at least $1.25 as deadweight losses fall and economic efficiency increases.
- The harmful effects of high marginal tax rates have persuaded dozens of countries to reduce rates in recent years. The average top personal income tax rate in the G-7 major economies has fallen 18 percentage points since 1980. In an increasingly competitive world, lowering our marginal rates would reduce the burden of our tax system and help sustain our economic leadership.

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I. Introduction

With large and growing federal budget surpluses, and with the overall federal tax burden at a peacetime high, a broad spectrum of policymakers support substantial income tax cuts in 2001. President Bush has proposed a phased-in reduction of statutory personal income tax rates from 15, 28, 31, 36, and 39.6 percent to 10, 15, 25, and 33 percent.[1] The plan would boost after-tax income for tens of millions of families, and benefit millions of small business owners who pay tax under the personal income tax system.

In addition to providing broad-based tax relief, marginal rate cuts would spur economic growth by reducing tax system distortions. A marginal tax rate is the rate paid on an incremental amount of wages, savings, or small business income. The level of marginal rates is a crucial feature of tax systems because they affect market price signals that allocate the flow of resources in the economy. As marginal tax rates rise, more decisions get based on tax rather than efficiency considerations, resulting in rising "deadweight losses" to the economy.

This paper provides background on personal tax rates, discusses the economic importance of marginal rates, and provides a brief survey of international tax rate trends.

II. Background on Marginal Tax Rates

Federal personal income tax rates were significantly lowered and the rate structure simplified during the 1980s. Before the Economic Recovery Tax Act of 1981 (ERTA), taxpayers faced a steeply progressive tax structure with 15 rates ranging from 14 to 70 percent. ERTA reduced tax rates across the board by over 20 percent with new rates ranging from 11 to 50 percent. The landmark Tax Reform Act of 1986 (TRA86) achieved a further reduction and flattening of the tax rate structure with the installation of a simple two-rate schedule of 15 and 28 percent.[2]

The enactment of ERTA and TRA86 was the result of widespread recognition that marginal tax rates should be lowered so that the production or "supply-side" of the economy could operate more efficiently. Lower rates were designed to increase after-tax returns to productive work and investment activities, and to reduce the unproductive proliferation of tax shelters, which tends to occur under high tax rates. Prior to the 1980s, major reductions in individual marginal tax rates occurred in the 1920s and 1960s.[3]

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[1] For plan details, see Joint Committee on Taxation (2001).

[2] Some taxpayers faced a 33-percent marginal rate after TRA86 due to the effect of a phase-out of the benefit of the bottom tax rate bracket for higher-income taxpayers.

[3] For a discussion of these earlier tax rate cuts, see Joint Economic Committee (1982).

Unfortunately, the low tax rate structure achieved under TRA86 was partly undone by tax increases in 1990 and 1993, which added three new statutory tax rates of 31, 36, and 39.6 percent. Other tax changes during the 1990s pushed effective marginal rates even higher, including the phase-out of personal exemptions, the partial phase-out of itemized deductions, and the repeal of the Medicare payroll tax income ceiling.[4]

Another factor that has been steadily -- and stealthily -- increasing marginal tax rates is "real bracket creep." Since most of the tax code is indexed for inflation but not for real economic growth, increasing shares of income are moved into higher brackets each year, with some individuals pushed into a higher top rate bracket. One estimate found that about a quarter of President Bush's $1.6 trillion tax cut plan would be offset by real bracket creep during the next decade.[5] Using different assumptions, another estimate found that about 80 percent of the Bush tax cut would be offset be real bracket creep.[6]

When federal statutory income tax rates are combined with income tax phase-out provisions, payroll taxes, and state income taxes, many taxpayers face quite high marginal tax rates. The following are some of the major provisions that affect a taxpayer's overall effective marginal tax rate:

- ***Federal statutory income tax rates***. The current income tax rates of 15, 28, 31, 36, and 39.6 percent have been in place since 1993. Rates would be lowered under the Bush plan to 10, 15, 25, and 33 percent over a five-year phase-in period.

- ***State income taxes***. Personal income taxes are imposed in 43 states and the District of Columbia; the top marginal state rate averaged 6.7 percent in 2001.[7]

- ***Federal payroll taxes***. The federal payroll tax consists of the 12.4 percent Social Security tax on earned income up to $80,400 (for 2001) and the 2.9 percent Medicare payroll tax on all earned income. As a result, a moderate-income worker in the 15-percent income tax bracket faces a combined income and payroll tax marginal rate of about 28 percent (calculated as 30.3 / 1.0765 to adjust income for the hidden 7.65 percent “employer” half of the payroll tax).

- ***Federal income tax phase-outs***. At least 22 federal income tax benefits are reduced as a taxpayer's income rises. These "phase-outs" of deductions, exemptions, and credits increase marginal tax rates for taxpayers within each provision's phase-out range. Some examples, and the corresponding increase in marginal rate, include the child tax credit (5 percentage points), itemized

[4] An "effective" marginal tax rate is the increase in tax liability as a share of a taxpayer's incremental income taking into account all provisions of the tax code, not just the statutory rates.
[5] Martin Sullivan, "Estate Tax Reform, Not Repeal, Would Fix Bush Plan," *Tax Notes*, February 26, 2001. See also Joint Committee on Taxation (2001) for a discussion of real bracket creep.
[6] Kevin Hassett, "A Tax Phantom is Stalking You," American Enterprise Institute, October 2000.
[7] Author's calculation based on data from the Federation of Tax Administrators. This average includes only the 43 states and D.C. that impose personal income taxes.

deductions (about 1 percentage point), and personal exemptions (about 1 to 3 percentage points).[8]

- ***EITC***. The phase-out of the earned income tax credit (EITC) creates a high marginal tax rate for many moderate-income wage earners.[9] The EITC phase-out, which occurs between about $13,000 and $32,000 for workers with children, partly offsets any wage increase with a reduction in EITC benefits, thus effectively creating a higher marginal tax rate. For example, a married couple with two children earning $28,000 who receive a $1,000 raise would pay $153 of added payroll taxes, $150 of added income taxes, and have EITC benefits reduced $210 (based on a phase-out rate of 21 percent). As a result, the family faces a 48-percent marginal tax rate.[10] State income taxes may push the rate even higher.

III. Economic Effects of Marginal Tax Rates

A. A Dollar of Taxes Costs More Than a Dollar

Federal personal income tax revenues total over $1 trillion per year, an amount that cannot be easily and costlessly extracted from the economy. In fact, each tax dollar taken from an individual or business ends up costing the private economy much more than a dollar. Additional burdens stem from compliance and administration costs and deadweight losses.

Compliance and administration costs are the government, business, and individual costs of time and resources needed to make the tax system work.[11] For the government, costs are incurred for tax design and legislation, record-keeping, mailing, computer systems, assessment, audits, enforcement, and related activities of the IRS and other federal agencies. For families and businesses, it includes the time costs and out-of-pocket costs of learning tax rules, record-keeping, tax preparation, tax advice, filing, responding to audits, legal defense, and other activities.

Hundreds of thousands of skilled accountants, lawyers, and computer specialists are required in government and the private sector to keep the system running. They face a growing challenge because the federal tax code and related rules have exploded to over 46,000 pages from just 20,000 in the mid-1970s.[12] The Office of Management and Budget estimates that individuals and businesses spend over 6 billion hours (3 million

[8] Exact marginal rate effects can depend upon filing status and tax bracket. See *Phase-Outs Are Bad Tax Policy*, Institute for Research on the Economics of Taxation (IRET), January 16, 1998. See also Joint Committee on Taxation (2001).
[9] For further information, see Edwards (2000a).
[10] The effective marginal tax rate on the family is 47.7 percent because half of the payroll tax 7.65 percent is deducted before the "gross" seen by the worker ($513 / $1,076.5 = 47.7%).
[11] For a discussion of tax compliance costs and tax complexity, see Edwards (2000b).
[12] As measured by the CCH *Standard Federal Tax Reporter*. See Edwards (2000b).

person-years) record-keeping and filling out tax forms each year.[13] More than half of tax filers now pay tax preparation firms to help with the compliance burden.

Estimates of the total costs of income tax compliance and administration range from about 10 to 20 percent of income tax revenues.[14] Therefore, total annual compliance costs of the federal personal income tax system are between about $100 to $200 billion. These costs are pure losses to the nation's economy since they represent wasted resources that could be otherwise be used to produce beneficial goods and services.

A reduction in marginal tax rates would, perhaps modestly, reduce the compliance and administrative costs of the income tax system. High rates encourage taxpayers to maximize tax avoidance and evasion activities. Such activities include creating complex financial and business structures, taking compensation in more complicated tax-favored pay schemes, and lobbying policymakers to carve out special preferences in the tax code. As taxpayers try to shield their income from high rates, government must respond with more detailed tax regulations, increased information reporting requirements, and greater enforcement activities. Income tax rate cuts have the potential to reduce such unproductive activities and save time and resources of both the government and private sector.

Deadweight losses, or "excess burdens," stem from disincentive effects created by taxes that alter individual and business behavior. A simple example will illustrate this economic burden. Suppose a college student buys a car that she can just barely afford. Then suppose the government decides to levy a new excise tax on gasoline. The student decides that the higher car operation costs would bust her budget and she sells her car. As a result, the student ends up not paying any gasoline taxes, but the tax has clearly made her worse off since she has had to settle for a less efficient or less pleasant mode of transportation. The student's free market choice has been distorted thus imposing a deadweight loss on her and lowering her standard of living.[15]

Compared to this example of an excise tax on a single commodity, income taxes can have far more profound impacts because they affect important economic choices by nearly every family and small business in the country. The personal income tax is a hybrid tax on labor and capital with the result that high tax rates distort both labor costs and the cost of capital. Since labor and capital are the basic two inputs to production, cost distortions caused by income taxation can have substantial negative economic effects.

Income taxes often have high marginal rates, which increase their damage. In fact, deadweight losses increase more than proportionally to increases in tax rates.

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[13] Office of Management and Budget, *Information Collection Budget of the U.S. Government*, FY 1999.
[14] Edwards (2000b).
[15] Also termed a reduction in her "consumer surplus," which combined with reductions in "producer surplus" equals the total deadweight loss created by a tax. Note that deadweight losses don't include tax payments themselves since these losses to taxpayers are matched by gains to the government.

Studies have found that deadweight losses increase by at least 25 cents for each additional dollar raised by higher income tax rates, as discussed in Section IV.A.

Changes in deadweight losses and economic growth are related. A tax change that reduces deadweight losses generally increases economic growth, although the magnitudes of the two effects may differ. Deadweight losses measure reductions in individuals' overall welfare or utility. Economic output, as measured by GDP, is not as broad a concept since it excludes some elements of individual utility, such as enjoyment of leisure time. But generally, tax rate cuts reduce economic distortions leading to both reduced deadweight losses and increased economic output.[16]

Cross-country statistical studies have generally found that higher taxes are associated with lower economic growth.[17] One recent study looked at the effects of marginal tax rates, in particular, and found a strong link between lower rates and faster economic growth across OECD countries.[18] Note that seemingly small changes in annual growth rates can lead to significant changes in output and income over the long-term. For example, a tax reform that increased the economic growth rate by half a percentage point would raise average incomes by over 10 percent in just 20 years.

B. Six Effects of Marginal Tax Rate Changes

This section looks more closely at how marginal income tax rates change taxpayer behavior and affect economic efficiency. In general, lower tax rates reduce deadweight losses and increase economic growth by shifting people and resources into more productive activities, and away from less productive tax-favored activities.[19] These effects are described in the following six points:

1. Labor Supply. A reduction in marginal income tax rates would increase the rewards to additional labor earnings. In response, workers may increase overtime hours or moonlighting, increase work intensity, add to their human capital to boost earnings, or be more likely to enter the labor force or delay retirement. Some groups, including married women, have been found to be quite responsive to changes in after-tax wages.

Workers respond to tax rate cuts by substituting more labor for less leisure since labor becomes relatively more attractive (the "substitution effect"). But tax cuts also create an incentive to reduce labor because a higher after-tax income increases the

[16] For previous Joint Economic Committee studies on these issues, see: *Tax Reduction and the Economy*, July 1999; *Some Underlying Principles of Tax Policy*, September 1998; and *Revenue Maximizing Taxation is Not Optimal*, Lawrence Lindsey for the JEC, July 1997.

[17] See OECD (1997) for a summary of the research; also, *Taxation and Economic Growth*, NBER Working Paper 5826, Eric Engen and Jonathan Skinner, November, 1996; and "The Scope of Government and the Welfare State," Randall Holcolme, Robert Lawson, and James Gwartney, *Cato Journal*, Fall 1998.

[18] Fabio Padovano and Emma Galli, "Tax Rates and Economic Growth in the OECD Countries," *Economic Inquiry*, January 2001.

[19] A lump-sum tax on each taxpayer is considered to be the least distortionary tax because it would not affect prices and therefore decision making at the margin.

demand for leisure (the "income effect").[20] Empirical research has found that labor supply substitution effects usually outweigh income effects.[21] As a result, overall labor supply can generally be expected to modestly rise in response to marginal tax rate cuts.[22]

An interesting conclusion from economic theory is that it is only the substitution effect that comes into play in determining deadweight losses, not the overall change in a taxpayer's behavior.[23] As a consequence, substantial deadweight losses may be occurring in situations where substitution effects are offset by income effects and behavior is little changed.

Higher-income taxpayers generally have the largest responses to tax changes and face the highest tax rates.[24] As a result, they experience the largest deadweight loss burdens from the income tax. Society in general also loses when higher-income taxpayers react to high tax rates because those with high incomes often have unique talents. For example, if high taxes cause highly skilled surgeons to take fewer patients, the welfare of many potential patients will suffer.

2. Saving. Personal saving provides individuals with financial security and allows the leveling out of consumption over a lifetime. The nation's savings are put to use by businesses to increase their capital stock and generate long-term economic growth. It is widely recognized that the income tax system is biased against saving and towards current consumption because the returns to saving often face high tax rates whereas current consumption does not. This basic problem with income taxes has contributed to much of the interest in fundamental tax reform in recent years. Income tax rate reductions can partly alleviate this distortionary bias in the tax code.

Lower marginal tax rates would increase the attractiveness of saving relative to current consumption (the "substitution effect"). But lower taxes may also create an incentive to save less because future saving goals could be more easily reached (the "income effect"). While empirical research on tax rates and saving has led to a wide range of results, the substitution effect probably outweighs the income effect for most taxpayers, with the result that marginal tax rate cuts will promote some additional saving.[25] And as is true for labor supply, tax cuts on savings will reduce deadweight losses even if substitution effects are offset by income effects and taxpayer behavior is little changed.

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[20] For a graphical presentation of the income and substitution effects, see Tax Foundation (1999).
[21] For a summary of studies on responses to changes in after-tax wages, see OECD (1997), p. 59.
[22] The Congressional Budget Office (1997), p. 29 concludes that workers are "modestly responsive to revenue-neutral changes in after-tax wages. For the workforce as a whole, a 10-percent rise in after-tax wage rates could increase the labor supply between 2 percent and 4 percent." See also JCT (1997).
[23] For a discussion, see Rosen (1992) pp. 313, 314.
[24] Lowering the top rates in a progressive tax structure creates a strong labor supply response since the substitution effect may be large compared to the income effect.
[25] In a 1997 report on taxation and growth, the OECD (1997) pp. 8, 17, 52 concluded that it is "generally presumed that the substitution effects dominate [the income effects] over the longer term," so that reducing taxes on savings would have a modestly positive effect. See also JCT (1997).

Congress has recognized the disincentive effects of income taxes on personal saving and created a number of tax-favored savings vehicles, such as IRAs and 401(k) plans. While beneficial, these vehicles are not universal in coverage, have dollar cut-offs to limit their usage, and are specific to certain purposes, such as retirement saving. Also, penalties for early withdrawal limit their incentive effects. Families need to save for a whole range of purposes, many of which are not specified in tax law. Therefore, in addition to liberalizing IRAs and 401(k)s, it also makes sense to reduce taxes on returns to all types of personal savings by lowering marginal income tax rates generally.

3. Entrepreneurial Activity and Small Business Growth. The income tax system has a wide-ranging impact on how businesses are structured and operated.[26] Taxes affect such decisions as purchasing capital equipment, hiring workers, and designing compensation plans. Marginal tax rate cuts would reduce the influence of taxation on business decisions allowing firms to allocate resources with greater efficiency.

Tax rate cuts would potentially benefit the more than 20 million small businesses that are subject to tax under the personal income tax system. This includes 19.4 million non-farm sole proprietorships, 2.1 million farms, 1.9 million partnerships, and 2.6 million S corporations.[27]

Much of the benefits of reducing top marginal tax rates would go to small business owners who represent a large and growing share of tax returns in the top rate brackets. IRS data for 1998 shows that of tax filers with adjusted gross income above $200,000, 27 percent reported sole proprietor income and 49 percent reported partnership or S corporation income.[28] By comparison, 14 percent of all tax filers reported sole proprietor income and 5 percent of all filers reported partnership or S corporation income. Similarly, Federal Reserve data shows that 40 percent of the income of the wealthiest one percent of families comes from self-employment or entrepreneurship, compared to 14 percent for the general population.[29] Therefore, cutting the top income tax rates affects large amounts of small business activity, as opposed to being simply a tax cut for salaried executives or those living off of passive investment income.

Personal income tax rates have a direct effect on small business profits, hiring, investment, and growth. Recent research by Robert Carroll, Douglas Holtz-Eakin, Mark Rider, and Harvey Rosen measured the impact of marginal tax rate cuts under TRA86 on

[26] The capital gains tax, not discussed in this paper, is also important when considering small business tax policy, particularly with regards to fast-growth, high-tech firms. See Edwards (1999).

[27] *Statistics of Income Bulletin*, IRS, Winter 2000-2001, 1998 figures. The figure of 19.4 million proprietorships compares to 17.4 million tax returns with proprietor income since some returns have income from more than one firm. The Small Business Administration ("Small Business FAQ," December 2000) estimates that there are about 25 million small businesses in the U.S. (see also NFIB's *Small Business Policy Guide*, 2000).

[28] *Statistics of Income Bulletin*, IRS, Fall 2000. See also *Taxing Small Business and Innovation*, JEC, May 1996; and see James Alm and Sally Wallace, "Are the Rich Different?" in Slemrod (2000).

[29] Edward Wolff, "Who Are the Rich?" in Slemrod (2000). Data is for 1992. Similarly, research on U.S. millionaires has found that about 80 percent are self-made. See Edwards (2000c), p.4.

sole proprietor revenue growth.[30] They found that tax rate reductions had a "significant influence" on firm growth rates and concluded that a tax cut that raised taxpayers' after-tax share on marginal income (i.e. one minus the tax rate) by 10 percent would cause them to increase business revenues by 8.4 percent. This suggests that a decrease in the top marginal tax rate from 40 to 33 percent, as proposed by President Bush, would result in revenues for small businesses in the top tax bracket increasing by about 10 percent.

Another paper by Carroll, Holtz-Eakin, Rider, and Rosen examined changes in sole proprietor capital investment before and after TRA86.[31] Lower tax rates both increase the return to marginal capital investments and increase the cash-flow available to finance investments.[32] The authors found that "changes in marginal tax rates have a substantial impact on entrepreneurs' investment spending." For example, they found that a five-percentage point change in marginal tax rates would cause a 10-percent change in capital investment expenditures. A third paper by the same authors examined the effect of personal income tax rates on sole proprietor hiring decisions.[33] They found that a tax cut that boosts after-tax income by 10 percent would raise a small business's likelihood of hiring by 12 percent.

In summary, reductions in marginal income tax rates can be expected to have an expansionary impact on America's small business sector. This is important because small businesses fill a unique role in the economic growth process.[34] While many small businesses stay small, some will grow to become leaders in whole new industries. New firms often challenge existing firms with untried ideas and thereby generate greater competition and efficiency. Evidence suggests that small firms perform a disproportionately large share of radical innovations in the economy, such as Apple's introduction of the personal computer in the 1970s, which caught existing large computer firms by surprise.[35] Economist Joseph Schumpeter called this beneficial process "creative destruction" whereby new firms and products continually replace the old. Tax reductions that support growth in small firms can further this dynamic market growth process.

4. Production and Consumption Efficiency. The income tax code is riddled with incentives and disincentives affecting different industries, investments, and consumption goods. As a result, taxes alter the relative prices of different economic activities thus redirecting resources to less efficient uses. For example, the income tax exclusion on state and local government bond interest alters the allocation of investment funds in the economy.

High marginal income tax rates increase the value of such tax preferences, thus magnifying their economic impact. Marginal tax rate cuts would create greater neutrality between different activities and allow resources to flow towards growth-maximizing

[30] Carroll et al. (2000b).
[31] Carroll et al. (2000a).
[32] Cash-flow is important because external finance may not always be available to entrepreneurs, or may be more costly than internal funds.
[33] Carroll et al. (1999).
[34] For a discussion of the unique economic role of entrepreneurs, see Edwards (2000c).
[35] Edwards (2000c), p. 19.

areas. Simulations of major tax reforms generally show that greater tax neutrality would create a significant spur to economic growth.

As a political dynamic, high tax rates tend to generate a proliferation of special tax preferences. This occurs as policymakers and interest groups logically seek legislative fixes to the damage caused by high tax rates to their favored activities. Unfortunately, the proliferation of special provisions in the tax code causes higher compliance costs and greater inequities between taxpayers. Marginal tax rate cuts will move the tax system towards more equal treatment between different economic activities and different taxpayers.

5. Tax Avoidance. Tax avoidance refers to a wide range of activities designed to legally reduce tax liabilities. As tax rates rise, individuals and businesses restructure their operations, maximize their tax deductions, adjust employee compensation packages, modify investment portfolios, change the timing of receipts and payments, and conduct various other transactions to minimize taxes. They are aided by a large industry of expert accountants and lawyers whose job is to continually develop new techniques and products for tax planning.

Some widely noted examples of tax avoidance include: shifting portfolios from taxable securities to tax-exempt bonds, converting ordinary income to capital gains income when ordinary rates are high (e.g. converting wages to incentive stock options), substituting tax-favored fringe benefits and workplace amenities for wages, shifting business income between the corporate and personal tax bases as relative tax rates change, and converting non-mortgage interest into mortgage interest after TRA86 (which changed the interest deductibility rules).[36]

Different tax avoidance activities may affect economic efficiency to differing degrees. On the one hand, the concoction of complex financial instruments to minimize taxes may cost plenty in accountant's fees, but not alter real production very much. On the other hand, for example, the substitution of tax-favored health insurance premiums for wages has had a large impact on the structure of the U.S. health-care industry. "Tax avoidance" in this latter sense overlaps with the activities discussed in point 4, above.

As tax rates rise, taxpayers have greater incentives to invest more in tax minimization activities. Higher-income taxpayers usually have greater scope to rearrange their affairs in response to changes in tax rates.[37] As a result, a reduction in the top marginal tax rates would bring about the largest reduction in unproductive avoidance activities. One goal of tax rate reductions under TRA86 was to reduce the tax sheltering activities of high-income taxpayers. Today's fairly high tax rates again offer substantial scope to reduce these unproductive activities with rate reductions.

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[36] Dean Maki, *Portfolio Shuffling and Tax Reform*, Federal Reserve Board, 1996, found substantial reshuffling of consumer debt into mortgage debt after TRA86, with the result that the government received only about half of the revenue from the tax change that they were expecting.

[37] For a discussion of tax avoidance techniques of the wealthy, see Douglas Shackleford, "The Tax Environment Facing the Wealthy," in Slemrod (2000).

6. Tax Evasion. Tax evasion is tax avoidance by illegal means. Like legal tax avoidance, tax evasion rises as tax rates rise, as confirmed by numerous empirical studies.[38] Like tax avoidance, tax evasion creates deadweight economic losses. These occur as resources are shifted from more productive uses to less productive uses that are easier to hide from the government.

In addition, tax evasion adds to government administration costs for audits, information gathering, and enforcement activities. The complexity of tax law combined with high tax rates have created a continuing cat-and-mouse game between taxpayers and the Treasury. A recent issue of *Forbes* described how the invention and promotion of complex tax shelters is alive and well.[39] Accountants and lawyers steadily develop new trust, partnership, insurance company, and offshore structures to allow individuals and businesses to hide income and reduce taxes. The IRS estimates that illegal offshore shelters cost $70 billion in lost annual tax revenue.[40]

But it is often not clear what is legal tax avoidance, and what is illegal tax evasion because of the inconsistencies and ambiguities in the income tax code. It sometimes takes years of reworked regulations or court fights to clarify such gray areas. High marginal tax rates exacerbate the problem by giving taxpayers the incentive to breach the legal limit. This forces the Treasury to write even more complex regulations, demand more information from taxpayers, and spend resources on enforcement.

The magnitude of tax evasion has been roughly estimated by the IRS. It found that taxes not paid on legal individual income, called the "tax gap," was about $95 billion in 1992.[41] Individual taxpayers pay only about 83 percent of what they owe, enforcement brings in another 4 percent, and the rest is uncollected. The tax gap is caused, for example, by taxpayers overstating deductions, understating income, or simply not filing returns. In summary, tax evasion is large and as a result offers substantial scope for tax rate cuts to increase reported taxable income and boost federal tax receipts.

C. Tax Rates and the Tax Base

The last section described some of the taxpayer responses to changes in marginal income tax rates. The overall effect of changes to taxpayer behavior is captured in changes to the tax base. Tax rate reductions increase reported taxable income. But by how much?

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[38] Gale and Holtzblatt (2000), p.8 provides some cites on this literature.
[39] *Forbes*, "Are You a Chump?," March 5, 2001.
[40] *Forbes*, "Are You a Chump?," March 5, 2001.
[41] General Accounting Office, *T-GCD-97-35*, 1997. *Forbes* states that the tax gap is now about $200b. These figures do not include taxes lost to the government from illegal income sources.

A number of empirical studies have looked at the responsiveness, or elasticity, of taxable income with respect to changes in after-tax income on a marginal dollar.[42] Lawrence Lindsey, formerly at Harvard and currently Director of the National Economic Council, examined the early-1980s income tax cuts in a 1987 paper and found high taxpayer responses.[43] His elasticity estimates were greater than 1.0, indicating that a 10-percent increase in the after-tax marginal income share would result in at least a 10-percent increase in taxable income. Harvard Professor Martin Feldstein found similarly large responses to marginal tax rate reductions under TRA86,[44] as did a 1994 study by the Treasury's Gerald Auten and Robert Carroll.[45]

Recent studies have produced somewhat lower elasticity estimates. A 1999 study by Auten and Carroll found an elasticity of taxable income with respect to after-tax share of 0.57.[46] A study last year by Jonathan Gruber and Emmanuel Saez found an average elasticity of 0.4, which they think is about the mid-point of recent study results.[47] Therefore, a tax cut creating a 10-percent increase in the after-tax share on marginal income will result in a 4-percent increase in taxable income. Gruber and Saez found substantially larger elasticities at higher incomes, indicating that the largest efficiency gains come from cutting the top tax rates.[48]

The time dimension of taxpayers' elasticity or responsiveness is important. In the short-term leading up to, or after, a tax change, taxpayers can change the timing of transactions and adjust their investment portfolios. In the longer term, many other adjustments take place as individuals and businesses learn new tax rules, adjust working patterns and compensation packages, restructure finances, or start using new tax minimization strategies designed by tax professionals. As a result, larger responses to tax changes are expected in the longer term, and taxpayers may take years to fully adjust.

Another dimension of tax-induced behavior effects is the magnitude of economic impact that particular changes have. Some behavior responses, such as one-time adjustments to transaction timing, are transitory and may not have substantial economic effects. But other taxpayer responses have large and lasting impacts on economic growth. For example, tax rate changes that affect entrepreneurial investment decisions clearly have important long-term effects on the economy.

Economists have debated which particular taxpayer responses have been dominant after past marginal tax rate changes. However, Martin Feldstein has argued that it is the total change in taxable income that determines the magnitude of changes to

[42] For example, if the top marginal tax rate dropped from 40 to 33 percent, the after-tax share received on a marginal dollar would rise from 60 to 67 percent, a 12 percent increase.
[43] Lindsey (1987). His elasticity estimates ranged from 1.05 to 2.75, with a central estimate of 1.6 to 1.8.
[44] Feldstein (1995a) found elasticities ranging from 1.0 to about 3.0, with a central estimate of 2.1.
[45] Auten and Carroll (1994) found an elasticity of 1.33.
[46] Auten and Carroll (1999), pp. 681-93.
[47] Gruber and Saez (2000). Carroll (1998) also found an average elasticity of 0.4.
[48] In fact, "optimal tax" theory suggests that the most efficient tax system would feature declining marginal tax rates as incomes rise. See, for example, discussion in Gruber and Saez (2000).

deadweight losses, regardless of the underlying causes of the change.[49] And it is the total change in taxable income that determines the revenue feedback effects of tax changes. These two dynamic responses to tax changes are discussed in the next section.

IV. Accounting For the Dynamic Effects of Tax Changes

> *The man of system ... seems to imagine that he can arrange the different members of a great society with as much ease as the hand arranges the different pieces upon a chess-board. He does not consider that the pieces upon the chess-board have no other principle of motion besides that which the hand impresses upon them; but that, in the great chess-board of human society, every single piece has a principle of motion of its own, altogether different from that which the legislature might chuse to impress upon it.*[50]
>
> Adam Smith

Smith would certainly agree that taxpayers have a "principle of motion" of their own. Tax changes cause them to reshuffle their work, saving, investment, avoidance, and evasion activities. These adjustments create the deadweight losses generated by the tax system, and they create feedback effects on federal revenues thus making budget projections more difficult. The magnitude of these dynamic effects is discussed in the following two sections.

A. How Big Are Deadweight Losses?

The cost to the private sector of an additional dollar of tax revenue is not just a dollar. It is more because higher taxes generate larger deadweight losses, which are caused by people and resources being reallocated away from their most efficient uses.[51] As a consequence, marginal tax rate cuts generate gains for the private economy of more than the dollar value of the cuts.

Economic research indicates that deadweight losses represent at least 25 percent of each additional dollar of federal income tax revenue.[52] This means that if income tax rates were increased in an effort to raise revenue by $10 billion, taxpayers would be $12.5 billion worse off because an additional $2.5 billion of economic distortions would

[49] In particular, Feldstein (1995b) thinks that it is the overall change in compensated taxable income that determines the magnitude of deadweight losses.
[50] Adam Smith, *The Theory of Moral Sentiments*, Section VI.II.42, 1759.
[51] For a further discussion of the theory behind deadweight losses, see Rosen (1992) or Hines (1998).
[52] See Browning (1987), Ballard et al. (1985), Stuart (1984), and Vedder and Gallaway (1999). In its February 2001 *Budget Options* report, the Congressional Budget Office notes that "typical estimates of the economic cost of a dollar of tax revenue range from 20 cents to 60 cents over and above the revenue raised."

be created. Conversely, tax rate reductions will benefit taxpayers by about 25 percent more than their actual tax bill is reduced.

The Office of Management and Budget (OMB) incorporates a 25 percent deadweight loss measure into federal cost-benefit analyses.[53] OMB rules require that each additional dollar of tax revenue count as a cost of $1.25 because taxes "create an excess burden which is a net loss to society." Therefore, for new government spending projects to make economic sense, they must generate benefits at least 25 percent greater than their explicit financing costs.

Two main factors affect the magnitude of deadweight losses created by taxes. First, the larger the behavior changes caused by taxes, the larger the deadweight losses. Or more specifically, the larger the behavioral substitution effects, the larger the deadweight losses.[54] As a result, taxes may cause substantial deadweight losses even where little behavior change is observed if substantial substitution effects are being offset by income effects.

The second factor affecting the size of deadweight losses is the marginal tax rate. Deadweight losses rise more than proportionally to increases in tax rates. For income taxes, deadweight losses rise approximately by the square of the increased tax wedge between pre- and post-tax income.[55] For example, a doubling of the tax wedge causes deadweight losses to quadruple. (For excise taxes, deadweight losses rise approximately with the square of the marginal rate). As a consequence, a flatter tax rate structure is substantially more efficient than a progressive tax structure that has rising marginal rates.

Since deadweight losses rise more than proportionally to tax rate increases, modest rate reductions can increase the efficiency of the tax system significantly. For example, the Bush plan's cut in the top income tax rate from 39.6 percent to 33 percent would reduce deadweight losses for taxpayers in this rate bracket by about 35 percent.[56] Cutting the 28 percent rate to 25 percent would reduce deadweight losses by about 22 percent for taxpayers in this bracket.

Deadweight losses are usually considered with regard to changes in tax rates, but estimates have also been made of the total deadweight losses created by taxes. Marginal changes in deadweight losses are larger, measured as a percentage of marginal revenue, than total deadweight losses measured as a percentage of total tax revenue. This is because losses rise more than proportionally to tax rates. As an example, Dale Jorgenson and Kun-Young Yun of Harvard University calculated both the marginal and total deadweight losses of U.S. taxation in a 1991 study.[57] They concluded that deadweight

[53] Office of Management and Budget, *Circular No. A-94*, October 29, 1992. pp. 6, 11.
[54] Put another way, the larger are "compensated" elasticities, the larger are deadweight losses.
[55] See Rosen (1992), p. 316. See also *The Economics Effects of Taxing Capital Income*, Jane Gravelle, 1994, p. 30.
[56] Based on the formula: deadweight loss = $(.5)*(t^2)*(1/(1-t))*(E)*$(taxable income) where t is the marginal tax rate, and E (set at 0.4) is the elasticity of taxable income with respect to the after-tax share.
[57] Jorgenson and Yun (1991).

losses represented about 18 percent of total U.S. tax revenue, but were 39 percent of marginal tax revenue.[58]

Marginal tax rate reductions under President Bush's plan would reduce the deadweight losses created by the income tax. The magnitude of savings was recently estimated by Harvard professors Martin Feldstein and Daniel Feenberg.[59] They found that the plan would reduce deadweight losses of the income tax by about 38 percent of the value of the $1.6 trillion tax reduction, or about $600 billion over ten years. This means that taxpayers would save $1.38 for each dollar of officially-scored tax cuts.

B. How Big are Dynamic Revenue Effects?

In the months and years following tax changes, taxpayers respond in numerous ways to alter their reported taxable income. These changes tend to offset some of the otherwise expected changes in government revenue. The size of such dynamic revenue effects has been the subject of continued debate. As with deadweight losses, the magnitude of revenue feedbacks are larger the larger are taxpayer behavioral responses.

Table 1 provides two simple examples of the effect of taxpayer behavior on federal revenues following a marginal tax rate change. Both examples use the mid-range elasticity estimate of Gruber and Saez of 0.4 (see Section III.C). The examples show that relatively small changes in taxable income can create substantial revenue effects, particularly at higher income levels. Note that the figures relate only to changes in revenue within the marginal rate bracket.

The family in the left-hand column sees their share of marginal income rise 4.2 percent as their tax rate drops from 28 to 25 percent. A static revenue estimate would show the federal budget losing $894. However, the family responds by increasing their taxable income by 1.7 percent, which is enough to reduce the government's revenue loss to $582, indicating a 35-percent dynamic revenue offset.

The family in the right-hand column sees their share of marginal income rise 4.7 percent as their tax rate drops from 36 to 33 percent. A static revenue estimate would show the federal budget losing $1,005. However, the family increases their taxable income by 1.9 percent, which is enough to more than offset the static loss, and the federal budget gains $232 from this family in their marginal tax bracket.

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[58] Feldstein (1995b) figured that the overall deadweight loss of the personal income tax was about 32 percent of revenues in 1994, but that deadweight losses at the margin were about 78 percent of static changes in revenues. Edgar Browning (1987) calculated the marginal and total deadweight losses of U.S. labor taxes in the 1980s and found that total deadweight losses were about 16 percent of revenue, but deadweight losses at the margin were about 32 to 47 percent of revenue.

[59] Martin Feldstein, "The 28% Solution," *Wall Street Journal*, February 16, 2001. See also Feldstein's February 13, 2001 testimony in front of the House Ways and Means Committee.

While these figures are only illustrative, full simulations of past and proposed tax rate reductions do show substantial revenue feedbacks. In their analysis of the Bush tax plan, Feldstein and Feenberg predict that it would produce a dynamic feedback effect of at least 25 percent ($400 billion) of the official revenue change of $1.6 trillion.[60] Other estimates also suggest that revenue feedbacks from marginal rate cuts are substantial.[61]

Table 1: Revenue Change Under a Marginal Tax Rate Cut
Sample Joint Filers

Assumptions	28% to 25%	36% to 33%
Taxable income	$75,000	$200,000
Income in marginal rate bracket	$29,800	$33,500
Old after-tax marginal income share	72.0%	64.0%
New after-tax marginal income share	75.0%	67.0%
Change	4.2%	4.7%
Assumed elasticity	0.40	0.40

Results	28% to 25%	36% to 33%
Static revenue change	**-$894**	**-$1,005**
Dynamic revenue change:		
New taxable income	$76,250	$203,750
Change	1.7%	1.9%
Tax increase due to larger taxable income	$313	$1,237
Net dynamic tax revenue change	**-$582**	**$232**

Source: JEC. Figures show revenue change only within the marginal bracket.

Given the potential for substantial dynamic feedbacks from tax changes, there has been an ongoing debate regarding official revenue estimates made by the Congressional Joint Committee on Taxation and the Treasury's Office of Tax Analysis. These official scorekeepers currently only include some limited microeconomic responses in revenue estimates, such as some taxpayer avoidance behavior, but do not include any responses that would alter macroeconomic variables such as GDP.[62]

There is a concern that by excluding full feedback effects in official revenue estimates, federal policy gets biased towards tax rate increases and against tax rate cuts.[63] However, some hurdles stand in the way of routine dynamic revenue analyses. In particular, there is no consensus regarding the best economic model or taxpayer elasticity values to be incorporated in estimates. In addition, complex dynamic analyses may not

[60] Martin Feldstein, "The 28% Solution," *Wall Street Journal*, February 16, 2001. See also Feldstein's February 13, 2001 House Ways and Means Committee testimony.
[61] For example, a study by the Heritage Foundation (2001) estimates that the Bush tax plan would produce revenue feedbacks totaling 47 percent of the 10-year static revenue loss. In a study of the 1981 tax cut, Lindsey (1987) estimated that revenue feedbacks offset up to 25 percent of static losses. A study by Carroll (1998) on the effect of the 1993 marginal tax rate increase found that dynamic feedbacks effects reduced the static revenue gain by between 13 and 39 percent.
[62] For a discussion, see Gravelle (1994) and Joint Committee on Taxation (1997).
[63] Also, note that since much of the revenue feedback effect comes from high-income taxpayers, marginal tax rate cuts have a more progressive distributional impact than indicated by static revenue scoring.

be available for the quick turnaround times needed by policymakers in the midst of tax debates. Nonetheless, current standing rules of the House of Representatives allow the chairman of Committee on Ways and Means to request dynamic analyses of major tax bills.[64] This option has been infrequently used so there is not yet a track record of dynamic scoring to assess.

Once a track record of dynamic tax analyses is compiled, the process could be fine-tuned, and dynamic analyses could be routinely reported as addenda for major tax bills, as a complement to the traditional estimates. This would allow policymakers to consider both the official "static" figures, as well as allow them to consider the broader economic impact of tax changes as reflected in the dynamic estimates.

V. International Trends

Recognition of the harmful effects of high marginal tax rates has led dozens of countries to reduce personal and corporate rates in recent decades. Table 2 shows changes in the top personal income tax rate for the G-7 industrial economies and for 30 other important economies.[65] The average top tax rate for the G-7 countries fell 18 percentage points since 1980. The average top tax rate for the 30 other economies shown fell 22 percentage points during the same period. Similarly, OECD figures show that the average top personal income tax rate for OECD member countries fell 17 percentage points between 1975 and 1995.[66]

Marginal tax rate cuts are sound domestic policy, but increasing global economic integration is making moderate tax rate levels a competitive necessity. Low taxes help home-country firms compete against foreign-based firms, and they aid countries in attracting foreign investment. Attraction of foreign investment is a top goal for most countries today, even though many used to erect barriers to keep it out.

While corporate taxes play a key role in international tax competitiveness, personal income taxes have risen in importance as international labor mobility has increased. Leading-edge industries locate where they have access to highly-skilled people. Countries with high personal income tax rates encourage a "brain drain" of their most talented workers in high-tech, finance, health care, and other industries. In recent years, high-tax Canada and France have seen steady brain drains to the United States and Britain, respectively, as their best young engineers and scientists have sought greater opportunity and higher after-tax wages.[67] *Business Week* profiled one French company's trouble with high personal tax rates:

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[64] *Rules of the House of Representatives*, 107th Congress, Rule XIII (3)(h)(2).

[65] Sourced from *Economic Freedom of the World* by James Gwartney and Robert Lawson. Figures include both the national government's top rate and the lowest state or provincial top rate. The table excludes the smallest countries in Gwartney and Lawson, and countries for which full data was not available.

[66] OECD figures for central government tax rates only. OECD (1997).

[67] In the past, Britain experienced a serious outward brain drain, but now with relatively low tax rates it has attracted workers from high-tax Continental European countries. Jack Anderson in *Forbes* ("A Misery Index," February 21, 2000) notes that half a million French citizens now live in England.

Table 2: Change in Top Statutory Personal Tax Rates, 1980-1999

(Includes national and state/provincial income taxes)

	1980	1985	1990	1995	1999	1980-1999
Major Countries (G-7):						
United States	70	50	28	40	40	-30
Japan	75	70	65	65	65	-10
Germany	56	56	56	57	56	0
France	60	65	53	51	54	-6
Italy	72	81	66	67	50	-22
United Kingdom	83	60	40	40	40	-43
Canada	60	50	44	44	44	-16
Average G-7	**68**	**62**	**50**	**52**	**50**	**-18**
30 Other Countries:						
Argentina	45	62	35	30	35	-10
Australia	62	60	49	47	47	-15
Austria	62	62	50	50	50	-12
Belgium	76	76	55	58	58	-18
Brazil	55	60	25	35	28	-28
Chile	58	56	50	45	45	-13
Colombia	56	49	30	30	35	-21
Denmark	66	73	68	64	59	-7
Egypt	80	65	65	50	42	-38
Greece	60	63	50	45	45	-15
Hong Kong	15	25	25	20	17	2
India	60	62	53	40	30	-30
Indonesia	50	35	35	30	30	-20
Ireland	60	65	58	48	46	-14
Israel	66	60	51	50	50	-16
Malaysia	60	45	45	32	30	-30
Mexico	55	55	40	35	40	-15
Netherlands	72	72	72	60	60	-12
New Zealand	62	66	33	33	33	-29
Nigeria	70	55	55	35	25	-45
Peru	65	65	45	30	30	-35
Philippines	70	60	35	35	33	-37
South Africa	60	50	45	43	45	-15
South Korea	89	65	60	48	44	-45
Spain	66	66	56	56	48	-18
Sweden	87	80	72	58	56	-31
Taiwan	60	60	50	40	40	-20
Thailand	60	65	55	37	37	-23
Turkey	75	63	50	55	40	-35
Venezuela	45	45	45	34	34	-11
Average - 30 other countries	**62**	**60**	**49**	**42**	**40**	**-22**

Note: figures include the lowest subnational tax rate for those countries such as United States and Canada that have a range of state/provincial rates.

Source: Adapted from James Gwartney and Robert Lawson, *Economic Freedom of the World, 2001*

> When Strasbourg-based Transgene needed to create a subsidiary to test a new kind of gene therapy, it shunned the vine-trellised region of Alsace-Lorraine as a site for the new business ... Transgene instead set up in Massachusetts. One reason: punishing French taxes, which can gobble up more than 60 percent of the gross earnings of highly-paid workers. 'We are facing more and more difficulties attracting people to France,' says Bernard Gilly, Transgene's CEO. [68]

The United States has been successful at attracting capital and skilled labor from abroad, but it can't rest on its laurels. It needs to continuously improve its tax system because other countries are becoming more competitive all the time.[69] For example, while young Irish people for generations came here seeking opportunity, the Ireland of today has a very competitive tax system, a booming technology sector, and is keeping its best young minds at home.

Many of our largest trading partners have been recently cutting marginal tax rates. Germany is cutting its top personal rate from 56 percent to 44 percent by 2005. France is planning to reduce its top personal tax rate of 54 percent. Canada has just reduced each rate in its federal income tax structure by 1 to 4 percentage points. The Netherlands recently enacted personal tax cuts to lower its tax structure from rates of 37-60 percent to rates of 33-52 percent.[70] And Mexico's President Fox has just unveiled a plan to reduce that country's top personal income tax rate from 40 to 32 percent.[71]

Corporate tax rates are falling as well. A new survey finds that the average top corporate income tax rate in OECD countries fell from 37.5 percent in 1996 to 33 percent today.[72] This is on top of the 10 percentage point decline in the average corporate income tax rate in OECD countries between the mid-1980s and mid-1990s.[73]

VI. Conclusions

President Bush has proposed that income tax rates be reduced so that taxpayers retain a share of future budget surpluses. With federal tax revenues as a percentage of GDP at a peacetime high, it does appear that additional resources would be more productively used in the private sector than in an expanded public sector.

This paper has described how reductions in marginal tax rates would enhance economic efficiency by reducing "government waste." Government waste usually refers to unneeded spending projects. But tax-induced deadweight losses and compliance costs

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[68] *Business Week*, "The Only Question is How Much to Slash," March 6, 2000.
[69] A recent Arthur Anderson (Europe) study rated the United Kingdom the best place for business and more "entrepreneur friendly" than second-place United States, including its corporate tax policies. "Britain's Best for Business," *Sun*, Jan. 24, 2001, based on *Not Just Peanuts*, Arthur Andersen and GrowthPlus, 2000
[70] Arthur Andersen and GrowthPlus, *Not Just Peanuts*, 2000.
[71] *Washington Post*, "Mexico's Fox Seeks Tax System Overhaul," April 3, 2001.
[72] *The Economist*, "Company Taxes," February 24, 2001.
[73] OECD (1997).

are also "waste" since they simply represent the costs of extracting cash from taxpayers, and not the creation of any new economic value.

Former Supreme Court Chief Justice Marshall famously noted, "the power to tax involves the power to destroy."[74] This is true of high marginal rates, which prevent otherwise beneficial market transactions from taking place by distorting prices. Lowering marginal tax rates will allow markets to allocate resources more efficiently and generate a higher standard of living for all Americans.

The United States was a world leader in tax reform in the 1980s. A reduction in marginal tax rates would move us back towards the simple two-rate tax structure enacted in 1986. Today, other industrial countries are moving ahead with the adoption of more competitive tax rates. The U.S. could again lead by enacting lower marginal rates as the first step towards creating a more efficient tax system for the 21st century.

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[74] Quoted in National Commission on Economic Growth and Tax Reform, *Unleashing America's Potential*, January 1996. p. 8.

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