

Income Tax Statistics for Sample Families, 2003

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We are often asked about how much income tax a family would pay in a given situation. Table 1 shows total taxes that would be owed as well as the average tax rate for single individuals and families at different income levels.¹ Table 2 shows the statutory income tax rate (the tax bracket) and the effective marginal tax rate for the same families. The tables assume a very simplified scenario: The tax filers are nonelderly, not blind, and all children are potentially eligible for dependency exemptions, the earned income tax credit, and the child credit (subject to income limits); the filer claims no other credits; income is comprised of earnings, capital gains, and dividends, where the fraction of income in capital gains and dividends reflects the average for each income group; itemized deductions equal 19 percent of income and the taxpayer itemizes if itemized deductions exceed the standard deduction; the filer has no other deductions or income. (See notes to tables for detailed list of assumptions.)

Table 1 shows that income tax liability can be negative for many families with children because of the refundable earned income tax credit and the child tax credit. So-called "refundable tax credits" are paid out as refunds even if the tax filer has no income tax liability. Both of these credits are designed to reward work and assist families with children. Up to a point, families can get larger credits the more they earn. (There is also a small refundable earned income tax

credit for single people, but it applies to lower income levels than are shown in the table.)

At higher income levels, income tax liability trends upward because tax rates are progressive with income. Average tax liability is always significantly lower than the top statutory tax bracket of 35 percent — even for taxpayers with \$1 million of income. Their average tax rate is about 24 percent. For low- and moderate-income families, having children reduces average tax rates because of dependent exemptions, child tax credits (for all but the lowest-income families), and, for low-income families, the earned income tax credit. At incomes above \$110,000 (\$75,000 for heads of household and singles), the child tax credit starts to phase out; it is phased out entirely at an income of \$129,001 for a family with one child, \$149,001 for a family with two children, and so on. In addition, personal exemptions are phased out for high-income families, and are not available at all for families subject to the alternative minimum tax. As a result, high-income families can owe the same tax with six children as they would with none.

Average, Marginal, and Statutory Tax Rates

Table 2 shows the effective marginal and statutory tax rates for the same families. In the U.S. federal income tax system, the effective marginal tax rates and the average tax rates vary significantly from the statutory income tax rates. Approximately one in three tax-filing units (32 percent)² have an effective marginal tax rate different from their statutory tax rate. These differences are important since they influence the incentives to work, save, and to comply with the tax system.

High-income families can owe the same tax with six children as they would with none.

The *statutory* tax rate is the highest income tax rate that applies to taxable income before income tax credits. The *effective marginal* tax rate is the additional tax liability incurred if an individual's income were to increase by a dollar. Note that the marginal rates vary depending on the kind of income. For this analysis, all marginal tax rates are in terms of labor income (wages or income from self employment). Due to the phase-in and phaseout of tax credits and other provisions of the tax system, the effective marginal tax rate may differ from the statutory tax rate. For 2003, statutory rates of

¹This analysis draws on the definitions of sample households in Adam Carasso, "How the 2001 and 2003 Tax Cuts Affect Hypothetical Families in Tax Year 2003," The Tax Policy Center (<http://www.taxpolicycenter.org>), October 30, 2003.

²See Leonard Burman and Mohammed Adeel Saleem, "Hidden Taxes and Subsidies," *Tax Notes*, Sept. 15, 2003, p. 1437.

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Table 1: Income Tax Liability of Sample Families by Type of Filer for Tax Year 2003 (Post-JGTRRA)										
AGI	Single	Head of Household				Married Filing Joint				
# of kids	0	1	2	3	6	0	1	2	3	6
# of filers	38.1 mil	7.7 mil	4.2 mil	0.9 mil	0.01 mil	23.4 mil	9.6 mil	10.8 mil	4.0 mil	0.07 mil
Tax Liability (in Dollars)										
\$10,000	125	(2,546)	(4,000)	(4,000)	(4,000)	(170)	(2,546)	(4,000)	(4,000)	(4,000)
\$15,000	730	(2,793)	(4,386)	(4,386)	(4,386)	0	(2,953)	(4,597)	(4,597)	(4,597)
\$25,000	2,224	(460)	(2,945)	(3,280)	(3,280)	940	(1,270)	(3,491)	(3,491)	(3,491)
\$35,000	3,437	1,785	327	(1,130)	(2,677)	2,210	752	(670)	(1,975)	(2,677)
\$50,000	6,042	3,537	2,080	622	(3,749)	4,337	2,880	1,422	(34)	(3,838)
\$75,000	10,990	8,112	6,350	4,587	480	7,263	5,806	4,348	2,891	(1,481)
\$100,000	16,072	14,030	12,518	10,755	7,433	11,955	10,193	8,430	6,668	1,415
\$125,000	21,477	18,887	18,125	17,227	14,227	16,812	15,800	14,037	12,275	7,862
\$150,000	26,922	24,484	24,484	24,484	22,234	21,646	20,884	20,121	18,359	14,543
\$200,000	38,229	38,102	38,102	38,102	38,102	32,235	31,381	31,049	31,049	29,549
\$500,000	115,434	113,279	113,279	113,279	113,279	113,279	113,279	113,279	113,279	113,279
\$1,000,000	243,076	240,298	240,298	240,298	240,298	236,951	236,951	236,951	236,951	236,951
Average Tax Rates (in Percent)										
\$10,000	1.3	(25.5)	(40.0)	(40.0)	(40.0)	(1.7)	(25.5)	(40.0)	(40.0)	(40.0)
\$15,000	4.9	(18.6)	(29.2)	(29.2)	(29.2)	0.0	(19.7)	(30.7)	(30.7)	(30.7)
\$25,000	8.9	(1.8)	(11.8)	(13.1)	(13.1)	3.8	(5.1)	(14.0)	(14.0)	(14.0)
\$35,000	9.8	5.1	0.9	(3.2)	(7.7)	6.3	2.2	(1.9)	(5.6)	(7.7)
\$50,000	12.1	7.1	4.2	1.2	(7.5)	8.7	5.8	2.8	(0.1)	(7.7)
\$75,000	14.7	10.8	8.5	6.1	0.6	9.7	7.7	5.8	3.9	(2.0)
\$100,000	16.1	14.0	12.5	10.8	7.4	12.0	10.2	8.4	6.7	1.4
\$125,000	17.2	15.1	14.5	13.8	11.4	13.5	12.6	11.2	9.8	6.3
\$150,000	18.0	16.3	16.3	16.3	14.8	14.4	13.9	13.4	12.2	9.7
\$200,000	19.1	19.1	19.1	19.1	19.1	16.1	15.7	15.5	15.5	14.8
\$500,000	23.1	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7	22.7
\$1,000,000	24.3	24.0	24.0	24.0	24.0	23.7	23.7	23.7	23.7	23.7

See notes at end of Table 2.

0, 10, 15, 25, 28, 33, and 35 percent apply at steadily higher income levels. However, because of the interaction of other features of the tax law, the effective marginal tax rate of a tax filer with a statutory rate of zero percent, for example, might be 11 percent or -40 percent depending on income, family composition, and other factors.

The average tax rate is the total tax liability expressed as a percentage of the total income. Because tax rates rise with income, the average tax rate is less than the statutory tax rate. It is easy to understand why this is the case. The average tax rate differs from the statutory tax rate because only a portion of income is taxed at the statutory tax rate; the rest is taxed at lower rates. Another reason that the average tax rate differs from the statutory tax rate is that various credits can reduce tax liability still further. Thus average tax liability is typically far less than the statutory tax rate.

The effective marginal rates for high-income households are usually higher than their statutory rates because they lie in the phaseout regions of tax credits, itemized deductions, and personal exemptions. On the other hand, low-income households, especially those with children, face subsidies because they are in the phase-in region of tax credits.

Phase-ins of tax credits cause the effective marginal tax rates to be lower than the statutory rate. The earned income tax credit is one of the main reasons why the effective marginal tax rate differs from the statutory tax rate for low-income filers. In 2003, the phase-in rate for filers with two or more children was 40 percent up to \$10,500 in income. In other words, a filer with two or more children will be refunded 40 cents for every additional dollar earned until income reaches \$10,500.

(Text continued on p. 416.)

Table 2: Statutory Tax Rates and Marginal Tax Rates by Type Of Filer in Tax Year 2003 (Post-JGTRRA), in Percent										
AGI	Single	Head of Household				Married Filing Joint				
# of kids	0	1	2	3	6	0	1	2	3	6
# of filers	38.1 mil	7.7 mil	4.2 mil	0.9 mil	0.01 mil	23.4 mil	9.6 mil	10.8 mil	4.0 mil	0.07 mil
Statutory Tax Rates (ordinary income tax)										
\$10,000	10	0	0	0	0	0	0	0	0	0
\$15,000	15	10	0	0	0	0	0	0	0	0
\$25,000	15	15	10	10	0	10	10	10	10	0
\$35,000	15	15	15	15	10	15	15	10	10	10
\$50,000	25	15	15	15	15	15	15	15	15	15
\$75,000	25	25	25	25	25	15	15	15	15	15
\$100,000	28	25	25	25	25	25	25	25	25	15
\$125,000	28	25	25	25	25	25	25	25	25	25
\$150,000	28	28	28	28	28	28	25	25	25	25
\$200,000	33	28	28	28	28	28	28	28	28	28
\$500,000	35	35	35	35	35	35	35	35	35	35
\$1,000,000	35	35	35	35	35	35	35	35	35	35
Effective Marginal Tax Rates										
\$10,000	17.6	0.0	(40.0)	(40.0)	(40.0)	7.7	0.0	(40.0)	(40.0)	(40.0)
\$15,000	15.0	6.0	11.1	11.1	11.1	0.0	6.0	11.1	11.1	11.1
\$25,000	15.0	31.0	31.1	11.1	11.1	10.0	26.0	11.1	11.1	11.1
\$35,000	15.0	15.0	15.0	15.0	0.0	15.0	15.0	10.0	10.0	0.0
\$50,000	25.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	(10.0)
\$75,000	25.0	31.7	31.7	31.7	42.7	15.0	15.0	15.0	15.0	15.0
\$100,000	28.0	25.0	30.0	30.0	31.0	25.0	25.0	25.0	25.0	21.5
\$125,000	28.0	25.0	25.0	31.0	31.0	25.0	30.0	30.0	30.0	31.0
\$150,000	28.8	32.5	32.5	32.5	37.5	25.7	25.7	25.7	30.8	31.0
\$200,000	34.0	32.5	32.5	32.5	32.5	28.8	28.8	32.5	32.5	37.5
\$500,000	36.1	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
\$1,000,000	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1

Notes: All figures are preliminary. "JGTRRA" is the Jobs and Growth Tax Relief Reconciliation Act of 2003. Tax calculations account for both the regular and alternative minimum tax. Households on the AMT are indicated in boldface. Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0503-1).

Assumptions:

- (1) All children qualify for the dependency exemption (\$3,050 in 2003), the earned income tax credit, and the child tax credit.
- (2) Households do not claim any other tax credits (such as the child and dependent care tax credit, adoption credit, or education tax credits).
- (3) Itemized deductions are assumed to be 19 percent of adjusted gross income (AGI), which was the average ratio for itemizers in 2000 (those filers with itemized deductions below the standard deduction are assumed to take the standard deduction, except in a few instances where itemizing would result in a lower tax liability). The standard deduction is \$4,750 for singles, \$7,000 for head of households, and \$9,500 for married returns.
- (4) For purposes of calculating the AMT, tax preference items such as state and local taxes and miscellaneous deductions are assumed to be 40 percent of total itemized deductions.
- (5) The fraction of AGI composed by capital gains and applicable dividends at each AGI level comes from the Urban-Brookings Tax Policy Center Microsimulation Model. (AGI under \$50,000 is assumed to be earned income only.) These fractions are as follows (the first percentage is for capital gains and the second is for dividends): \$50,000: 1.5 percent and 0.7 percent; \$75,000: 2.1 percent and 0.8 percent; \$100,000: 2.6 percent and 0.9 percent; \$125,000: 3.3 percent and 1.1 percent; \$150,000: 4.3 percent and 1.4 percent; \$200,000: 6.1 percent and 1.7 percent; \$500,000: 9.4 percent and 1.8 percent; \$1,000,000: 13.0 percent and 2.2 percent. Note that while the 2003 capital gains tax cut only applies to assets sold after May 6, 2003, for simplicity, the figures above assume all sales in 2003 qualify.

Table 3: Derivation of Effective Marginal Tax Rates* Where They Differ From Statutory Rates		
Category	Rate	Reason
\$10,000 to \$25,000	17.6%	10% (statutory) + 7.65% EITC phaseout (no children)
	(40%)	0% (statutory) - 40% EITC phase-in (2 children)
	7.7%	0% (statutory) + 7.65% EITC phaseout (no children)
	6.0%	0% (statutory) + 15.98% EITC phaseout (1 child) - 10% refundable child credit phase-in
	11.1%	0% (statutory) + 21.06% EITC phaseout (2 children) - 10% refundable child credit phase-in
	31%	15% (statutory) + 15.98% EITC phaseout (1 child)
	31.1%	10% (statutory) + 21.06% EITC phaseout (2 children)
	26%	10% (statutory) + 15.98% EITC phaseout (1 child)
\$35,000 to \$75,000	0%	10% (statutory) - 10% non-refundable child credit
	(10%)	15% (statutory) - 15% nonrefundable child credit - 10% refundable child credit phase-in
	31.7%	25% (statutory) + 6.7% (=50/750) child credit phase-out**
	42.7%	26% (AMT) + 6.7% (=50/750) child credit phase-out** + increase in tax rate of capital gains from 5% to 15%
\$100,000 to \$1,000,000	30%	25% (statutory) + 5% (=50/1,000) child credit phaseout
	31%	26% (AMT) + 5% (=50/1,000) child credit phaseout
	21.5%	Marginal increase in income (\$1,000) partially taxed at 15% and partially taxed at 25%
	28.8%	28% (statutory) + 0.84% (=0.03*28%) phaseout of itemized deductions
	32.5%	26% (AMT) + 6.5% (0.25*26%) phaseout of AMT exemptions
	37.5%	26% (AMT) + 6.5% (0.25*26%) phaseout of AMT exemptions + 5% (=50/1000) child credit phaseout
	25.7%	25% (statutory) + 0.75% (=0.03*25%) phaseout of itemized deductions
	30.8%	25% (statutory) + 0.75% (=0.03*25%) phaseout of itemized deductions + 5% (=50/1000) child credit phaseout
	28%	28% (AMT)
	34%	33% (statutory) + 0.99% (=0.03*33%) phaseout of itemized deductions
	36.1%	35% (statutory) + 1.05% (=0.03*35%) phaseout of itemized deductions

* Marginal tax rates are calculated by increasing income by a small amount and calculating the increment in tax liabilities after credits per dollar of additional income. The marginal increase in income is the maximum of \$100 and the minimum of one percent of AGI and \$1,000. The effective marginal tax rates might not add up exactly because of rounding or because the formulae for them are not exactly continuous.

** The child credit phases out at a rate of \$50 per \$1,000. The marginal effective rate can be larger than 5 percent for a small income change if it pushes the taxpayer over one of the discrete phaseout steps. For example, a couple earning \$111,950 would lose \$50 in tax credits if their income increased by \$51, for an effective marginal tax rate of almost 100 percent. Our formula for the marginal change in income (see note*) attempts to smooth out these kinks, but anomalies can still occur, as in the 6.7% tax attributable to the child credit phaseout for heads of household with \$75,000 of income.

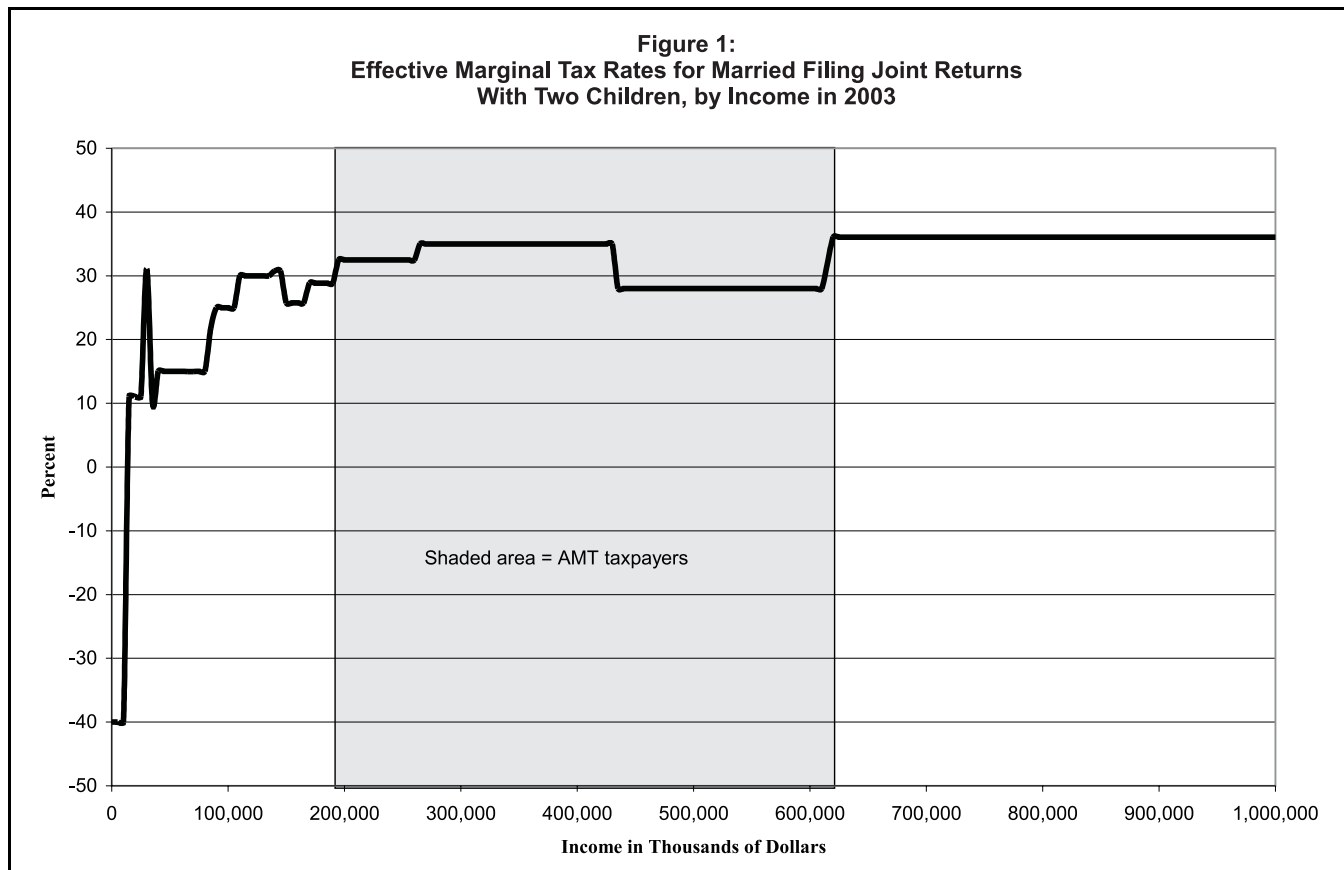
This subsidy reduces the effective marginal tax rate by 40 percentage points.

Phaseouts of tax credits, itemized deductions, and personal exemptions increase the marginal tax rate of a tax return filer. The phaseout of the earned income tax credit for married filers with two or more children is 21.06 percent for income levels above \$14,730 (\$13,730 for heads of household and single filers). Thus, for every dollar they earn, in addition to the tax liability on that dollar, their earned income tax credit will decrease by 21.06 percent. Their effective marginal tax rate is increased by 21.06 percentage points.

Often, these hidden taxes and subsidies interact, making the marginal tax rate an amalgam of different effects. The nearly endless array of possible marginal tax rates is an indicator of the complexity of our tax system. Table 3 shows the components of each of the effective marginal tax rates in Table 2.

Discussion

Tables 1-3 show the statutory rates, the effective marginal tax rates, average tax rates, and the total tax liability for hypothetical families under current law. Each table provides information for head of household



and joint filers with various numbers of children and single filers.

As can be seen in the tables, many low-income families receive hidden subsidies from the earned income tax credit and the child tax credit. For example, households with \$10,000 of income and two or more children face a negative tax liability, a negative average tax, and a negative effective marginal tax rate despite the fact that their statutory rate is zero percent. If the same families earned \$15,000, their effective marginal tax rate jumps from -40 percent to 11.06 percent although they face a negative tax liability and average tax rate. The -40 percent marginal rate corresponds to the phase-in of the EITC. At the higher income level, the EITC starts to phase out at a 21.06 percent rate, but that tax is partially offset by the phase-in of the child credit at a 10 percent rate. (The child credit starts to phase in at \$10,500 of earnings.)

The nonrefundable portion of the child tax credit is the credit that can only be used to offset positive income tax owed by a household. This credit also explains some of the variation of the effective marginal tax rate from the statutory rate. The effect of the nonrefundable part of the child tax credit is most prominent for taxpayers who are married filing jointly with

\$35,000 in income and six children. Their statutory tax rate is 10 percent. However, when their earned income increases by a dollar, they are able to fully offset the increase in their tax liability by the additional non-refundable child tax credit that they can claim. This results in their effective marginal tax rate being zero percent.

A married couple with \$50,000 in AGI (with \$48,888 in wage income and the rest in taxable dividends and capital gains) and six children has an effective marginal tax rate of -10 percent. At this income all of the earned income tax credit has phased out. However, their non-refundable portion of the child tax credit is offsetting their tax liability, lowering their effective marginal rate from a 15 percent statutory rate to zero percent. In addition, this family is also claiming the refundable portion of the child tax credit, which phases in with income at a rate of 10 percent. In other words, for every additional dollar that they earn, they will get a subsidy of 10 cents from the child tax credit.

Effective marginal tax rates exceed statutory rates for most high-income families, because their income is in the phaseout region of personal exemptions or itemized deductions. For example, a single filer with an AGI of \$1 million has a 35 percent statutory rate.

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However, her effective marginal tax rate is 36.05 percent. This is because of the 3 percent phaseout rate of itemized deductions. A dollar of additional income raises taxable income by \$1.03, because three cents of deductions are lost. Since the individual is in the phaseout region of itemized deductions, the effective marginal rate is 36.05 percent = 1.03×35 percent.

Some high-income families have effective marginal tax rates lower than their statutory rates because of the alternative minimum tax. For example, in the table, families with \$500,000 of AGI face an alternative minimum tax rate of 28 percent instead of the regular tax rate of 35 percent.³ (However, it should be realized that families on the AMT still pay more in actual *tax* than they would under the regular tax system — the lower AMT tax rate gets assessed on a bigger portion of the taxpayer's income).

Finally, Figure 1 illustrates what the effective marginal tax schedule looks like for a married couple with two children.⁴ (Note that the income breaks in the figure are much finer than in the tables.) The figure bears little resemblance to the statutory tax schedule. Some low-income families face negative effective tax rates because of the phase-in of the EITC whereas others can face very high effective tax rates because of the credit's phaseout.⁵ The high effective tax rates among those with moderately high incomes are attributable to the AMT and the phaseout of the AMT exemption, which can push effective tax rates as high as 35 percent. People with very high incomes face a drop in their effective marginal tax rate because of the end of the AMT phaseout. Eventually, at very high incomes, they return to the regular income tax, with its top effective tax rate of 36.1 percent.

³Many families with moderate incomes face higher effective tax rates because of the AMT. Note that, in Table 2, families with incomes of \$200,000 or less on the AMT (indicated in boldface) have effective tax rates considerably higher than their statutory rates. Moreover, since the number of middle-income families on the AMT is expected to explode over time barring a change in law, the vast majority of AMT taxpayers will face higher marginal tax rates under the AMT than under the regular income tax by 2010. See Leonard E. Burman, William G. Gale, and Jeffrey Rohaly, "The AMT: Projections and Problems," *Tax Notes*, July 7, 2003, p. 105.

⁴Kevin Hassett and Diana Furchtgott-Roth made a similar observation about prior tax law. They called the pattern apparent in Figure 1 "The Skyline Tax" system. See Kevin A. Hassett and Diana Furchtgott-Roth, "The Skyline Tax," *The Weekly Standard*, Sept. 29, 1997, pp. 13-14.

⁵See Adam Carasso and C. Eugene Steuerle, "How Marriage Penalties Change Under the 2001 Tax Bill," The Tax Policy Center (<http://www.taxpolicycenter.org>), May 30, 2002, for a discussion.