

# The Economic Effects of Capital Gains Taxation

# Thomas L. Hungerford

Specialist in Public Finance

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# Summary

One provision of the 1913 individual income tax that generated a great deal of confusion was the taxation of income from the sale of property (i.e., capital gains income). This initial confusion has led to almost 100 years of legislative debates over capital gains. Beginning in 1922 capital gains were first subject to lower tax rates than ordinary income. This preferential treatment has continued throughout most of the history of the income tax. Proposals dealing with the taxation of capital gains tax rates for certain classes of taxpayers to the elimination of the preferential tax treatment.

Overall, capital gains tax revenues have been a fairly small, but not trivial, source of government revenue. Since 1954, revenue from the capital gains tax as a share of total income tax revenue has averaged 5.2%. It reached a peak of 12.8% in 1986 and a low of 2.0% in 1957. Nonetheless, the 2007 capital gains tax revenue of \$123 billion was equal to 75% of the FY2007 budget deficit.

Some argue that reducing capital gains tax rates will increase tax revenues by dramatically increasing capital gains realizations. While the effect of changes in the capital gains tax rate continue to be debated and researched, the bulk of the evidence suggests that reducing the capital gains tax rate reduces tax revenues.

Higher income households are substantially more likely to own assets that can generate taxable gains than lower income households. Additionally, high income households own most of these assets, realize most of the capital gains, and pay most of the capital gains taxes at preferential rates.

Capital gains tax reductions are often proposed as a policy that will increase saving and investment, provide a short-term economic stimulus, and boost long-term economic growth. Capital gains tax rate reductions appear to decrease public saving and may have little or no effect on private saving. Consequently, many analysts note that capital gains tax reductions likely have a negative overall impact on national saving. Furthermore, capital gains tax rate reductions, they observe, are unlikely to have much effect on the long-term level of output or the path to the long-run level of output (i.e., economic growth). A tax reduction on capital gains would mostly benefit very high income taxpayers who are likely to save most of any tax reduction. A temporary capital gains tax reduction possibly could have a negative impact on short-term economic growth.

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One provision of the 1913 individual income tax that generated a great deal of confusion was the taxation of income from the sale of property (i.e., capital gains income). This initial confusion has led to almost 100 years of legislative debates over capital gains. For the first nine years of the individual income tax, capital gains received no preferential treatment and were taxed as ordinary income. Beginning in 1922, however, capital gains were first subject to lower tax rates than ordinary income. This preferential treatment has continued throughout most of the history of the income tax.

Proposals dealing with the taxation of capital gains have ranged from the outright elimination of capital gains taxation to the reduction of capital gains tax rates for certain classes of taxpayers to the elimination of the preferential tax treatment. For example, in the 2008 presidential campaign, President Obama proposed eliminating capital gains taxes affecting start-up businesses. Recently, Representative Cohen introduced H.R. 396, which would exempt the elderly from capital gains taxation on assets held for five or more years. Given the disparate policy proposals concerning the capital gains tax, an understanding of the tax and its economic effects is needed to evaluate the efficacy of the proposals.

# How Capital Gains Are Taxed

Proposals to deal with how capital gains are taxed depend on how capital gains are defined. Under the Haig-Simons approach, income is defined as consumption plus the change in wealth.<sup>1</sup> Wealth can increase because of active saving or because the value of assets has increased; capital gains are the increase in the value of capital assets. Under this income definition, real or inflationadjusted capital gains would be taxed each year as they accrue and real capital losses would be deducted. It has long been recognized, however, that taxing real capital gains as they accrue may be impractical especially for capital assets that are not actively traded.

Given the difficulties of taxing capital gains as they accrue, capital gains are taxed as they are realized (that is, when the capital asset is sold or exchanged). Capital assets are property, but there are exceptions such as business inventory, accounts receivable acquired in the ordinary course of business, copyrights, and literary compositions.<sup>2</sup> Capital gains are calculated by subtracting the asset's basis from the sales price. An asset's basis is the original purchase price adjusted for certain additions and deductions; it is not adjusted for inflation. If the basis is greater than the sales price then it is a capital loss.

Capital gains are taxed at various rates. For the 2008 tax year, short-term capital gains (gains on capital assets held for less than one year) are taxed as ordinary income. Long-term capital gains are taxed at a 0% tax rate for taxpayers in the two lowest tax brackets (the 10% and 15% tax brackets) and at 15% for other taxpayers. Capital gains and capital losses are treated asymmetrically. Capital losses are subtracted from capital gains before calculating tax liability. If capital losses exceed capital gains, then up to \$3,000 of capital losses can be deducted from

<sup>&</sup>lt;sup>1</sup> See Henry C. Simons, *Personal Income Taxation* (Chicago: University of Chicago Press, 1938).

<sup>&</sup>lt;sup>2</sup> Capital assets are defined in Section 1221 of the Internal Revenue Code and explained in IRS publication 544. IRS publication 544 (p. 19) simply states that "[a]lmost everything you own and use for personal purposes or investment is a capital asset."

ordinary income. Capital losses in excess of \$3,000 can be carried over and subtracted from income in future years.<sup>3</sup>

### **Capital Gains Tax Rates and Tax Revenues**

Both capital gains tax rates and tax revenues have constantly changed since the establishment of the income tax. Tax revenues depend on the tax rate and capital gains realizations. Capital gains realizations, in turn, depend on tax rates as well as other factors.

#### Tax Rates

Throughout most of the history of the income tax, the maximum capital gains tax rate has been lower than the maximum tax rate on ordinary income. **Figure 1** displays the capital gains and ordinary income tax rates for the past 50 years. With the exception of a three-year period (1988-1990), the capital gains tax rate was considerably below the tax rate for ordinary income. After 2010, the capital gains tax rate is scheduled to revert back to 20%. The 15% maximum capital gains tax rate between 2003 and 2010 is the lowest rate on long-term capital gains since the second world war.

<sup>&</sup>lt;sup>3</sup> See CRS Report RL31562, *An Analysis of the Tax Treatment of Capital Losses*, by Thomas L. Hungerford and Jane G. Gravelle.



Figure 1. Maximum Tax Rates on Capital Gains and Ordinary Income, 1954-2010

Source: Department of the Treasury

#### Tax Revenues

Overall, capital gains tax revenues have been a fairly small, but not trivial, source of government revenue. Since 1954, revenue from the capital gains tax as a share of total income tax revenue has averaged 5.2%. It reached a peak of 12.8% in 1986 and a low of 2.0% in 1957. Nonetheless, the 2007 capital gains tax revenue of \$123 billion was equal to 75% of the FY2007 budget deficit.

Capital gains tax revenue generally follows the same trend as capital gains realizations. **Figure 2** shows both as a percentage of gross domestic product (GDP) from 1954 to 2008 along with CBO projections to 2019. Realizations and revenues hit peaks in 1986, 2000, and 2007.



Figure 2. Capital Gains Realizations and Tax Revenue, 1954-2019 (As a percentage of GDP)

#### **Behavioral Responses to Capital Gains Tax Rate Changes**

The capital gains tax discourages capital gains realizations because capital gains are only taxed when realized. Consequently, taxpayers tend to hold on to appreciated assets they would otherwise sell. Furthermore, step-up in basis at death gives taxpayers an incentive to hold assets until death and pass them to their heirs. In these ways, the capital gains tax is said to produce a "lock-in" effect. This effect imposes efficiency losses because investors may be encouraged to hold suboptimal portfolios or forego investment opportunities with higher pre-tax returns. Changes in the capital gains tax rate can exacerbate or reduce lock-in effects, and thus affect realizations and tax revenues.

Changes in the capital gains tax rate tend to track capital gains realizations. **Figure 3** shows the maximum capital gains tax rate and capital gains realizations as a percentage of GDP. The major spikes in realizations correspond to changes in the tax rate. The simple correlation between the two time-series is -0.64, which suggests that realizations increase when the tax rate decreases. It is this relationship that has led some to argue that decreasing the capital gains tax rate will increase capital gains tax revenues.

**Source:** Department of the Treasury and CBO.



Figure 3. Capital Gains Tax Rates and Realizations, 1954-2007

Source: Department of the Treasury.

An early study by Martin Feldstein, Joel Slemrod, and Shlomo Yitzhaki examined capital gains realizations and concluded that "reducing the tax on capital gains would not only encourage a more active market in corporate stock but would also increase tax revenue."<sup>4</sup> Their estimated elasticity was about 3.8, suggesting that a 10% reduction in the tax rate would increase realizations by 38%. This estimate was criticized because it used data from only one year—1973.<sup>5</sup> This cross-sectional evidence was likely picking up a temporary timing response in realizations from the tax rate change rather than a behavioral response to a permanent change in the tax rate.<sup>6</sup>

Some analysts have argued that a large permanent response to capital gains tax rate changes is implausible. Alan Auerbach has suggested that there is nothing in the historical record of capital gains to justify a large elasticity.<sup>7</sup> Jane Gravelle points out that capital gains realizations cannot be

<sup>&</sup>lt;sup>4</sup> Martin Feldstein, Joel Slemrod, and Shlomo Yitzhaki, "The Effects of Taxation on the Selling of Corporate Stock and the Realizations of Capital Gains," *Quarterly Journal of Economics*, vol. 94, no. 4 (June 1980), p. 790.

<sup>&</sup>lt;sup>5</sup> The authors note the problem of using cross-sectional data: "An individual whose tax rate varies substantially from year to year will tend to sell more when his rate is low. To the extent that low rates in 1973 are only temporarily low, our estimates will overstate the sensitivity of selling to the tax rate. We have no way of knowing how important this is" (p. 785).

<sup>&</sup>lt;sup>6</sup> See Leonard E. Burman, *Labyrinth of Capital Gains Tax Policy: A Guide for the Perplexed* (Washington: Brookings Institution Press, 1999) and Jane G. Gravelle, *The Economic Effects of Taxing Capital Income* (Cambridge, MA: MIT Press, 1994) for discussions of this issue.

<sup>&</sup>lt;sup>7</sup> Alan J. Auerbach, "Capital Gains Taxation and Tax Reform," *National Tax Journal*, vol. 42, no. 3 (1989), pp. 391-401. Auerbach concludes that "a permanent revenue increase [from a capital gains tax rate reduction] is unlikely enough to be discarded as a reason for reducing the capital gains tax rate" (p. 391).

greater than accruals. Her simulation model suggests an upper limit for the permanent realization elasticity is 0.5.<sup>8</sup>

Empirical research has tried to separate the transitory response from the permanent response. Gerald Auten and Charles Clotfelter used panel data, a dataset containing observations on individuals over a period of years (1969 to 1973), to estimate the temporary and permanent effects of a capital gains tax cut.<sup>9</sup> They estimate a transitory elasticity that is generally greater than 1.0 (the simple average from all their specifications is 1.5) suggesting that a 10% reduction in the tax rate would lead to a 15% increase in short-run realizations (the timing response). The permanent or long-run elasticity they estimated was 0.5.

In subsequent research, Leonard Burman and William Randolph estimate a permanent elasticity that is closer to zero than to 0.5.<sup>10</sup> They, however, report a large transitory elasticity of 6.4. A large transitory elasticity and a low permanent elasticity are consistent with the pattern of capital gains realizations shown in **Figure 3**. Changes in the tax rate or anticipated changes have coincided with large increases in capital gains realizations, but realizations quickly fell back to previous levels. The spike in 1986 was due to the transitory response to the announced increase in the capital gains tax rate to take effect in 1987. The spikes in 2000 and 2007 were the transitory responses to capital gains tax rate reductions.

Over the years, a variety of studies have estimated different long-run or permanent realizations elasticities. The general trend has been to estimate elasticities closer to zero than to 1.0 as data and estimation methods improve, though there are exceptions. However, even an elasticity of 1.0 does not mean that reducing the capital gains tax rate is revenue neutral. Taxpayers may increase their capital gains realizations by shifting other income into capital gains. This may increase capital gains tax revenue, but will reduce tax revenues from other sources—overall, tax revenues fall. While the effect of changes in the capital gains tax rate continue to be debated and researched, the bulk of the evidence suggests that reducing the capital gains tax rate reduces tax revenues.

### **Distributional Issues**

Three questions can be asked about distributional issues related to capital gains: (1) who owns the assets that can generate capital gains? (2) who realizes capital gains? and (3) who pays capital gains taxes? Each question is examined. Two data sources are used for the analysis: the Federal Reserve Board's 2007 Survey of Consumer Finances (SCF) and the IRS's 2004 Statistics of Income Public Use File (SOI PUF). See the **Appendix** for a description of each data source.

<sup>&</sup>lt;sup>8</sup> See Jane G. Gravelle, "Limits to Capital Gains Feedback Effects," *Tax Notes*, vol. 51 (April 22, 1991), pp. 363-371.

<sup>&</sup>lt;sup>9</sup> Gerald E. Auten and Charles T. Clotfelter, "Permanent versus Transitory Tax Effects and the Realization of Capital Gains," *Quarterly Journal of Economics*, vol. 97, no. 4 (November 1982), pp. 613-632.

<sup>&</sup>lt;sup>10</sup> Leonard E. Burman and William C. Randolph, "Measuring Permanent Responses to Capital-Gains Tax Changes in Panel Data," *American Economic Review*, vol. 84, no. 4 (September 1994), pp. 794-809.

#### Assets and Accrued Capital Gains

Most assets owned by households would not be subject to capital gains taxes when sold. **Figure 4** reports the various assets that households owned in 2007. Over half of the total is accounted for by retirement accounts (e.g., 401(k)s and IRAs) and principal residences. Retirement accounts generally are not taxed until the funds are withdrawn at retirement. At that time, the withdrawals are taxed as ordinary income. Up to \$500,000 of the gain from the sale of a principal residence can be excluded from income taxes. Farm and business assets and other real estate (e.g., rental property, and vacation homes) account for 33% of household assets. The final 13% of household assets are financial assets (i.e., stocks, bonds, and mutual funds).





**Source:** CRS analysis of the 2007 SCF.

Higher income households are more likely to own assets that can generate taxable capital gains than lower income households. **Table 1** reports the proportion of households in each income category owning particular assets. For each type of asset, the proportion owning increases as income increases. For example, 7% of the poorest 20% of households own stocks or mutual funds compared to 72% of the richest 5% of households.

Income category	Stocks/mutual funds	Bonds	Farm, business, other real estate	Principal residence	Retirement accounts
Quintile I	6.9%	0.3%	10.0%	40.5%	11.2%
Quintile 2	.5	0.2	3.5	57. I	34.6
Quintile 3	20.5	1.1	24.2	72.5	56.9
Quintile 4	30.4	1.2	31.0	82.6	73.6
Quintile 5	52.2	5.4	51.7	90.7	87.1
Top 10%	59.9	9.3	64.6	92.6	89.8
Тор 5%	71.9	3.7	75.7	93.8	91.4

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Source: CRS analysis of the 2007 SCF.

Most of the assets are owned by higher income households. Well over half of the assets that can generate taxable capital gains are owned by the richest 5% of households (see **Table 2**). Principal residences are more broadly distributed in the income distribution than other assets, but most of the gains from the sale of homes is excluded from federal taxation.

Income category	Stocks/mutual funds	Bonds	Farm, business, other real estate	Principal residence	Retirement Accounts
Quintile I	1.0%	0.7%	3.1%	4.9%	0.4%
Quintile 2	1.5	0.2	3.0	9.1	2.4
Quintile 3	4.2	2.0	5.1	15.0	7.0
Quintile 4	10.2	3.8	9.5	22.0	20.4
Quintile 5	83.0	93.3	79.2	49. l	69.8
Тор 10%	75.9	89.5	71.3	33.1	51.3
Тор 5%	66.4	85.5	60.8	22.3	37.4

Table 2. Distribution of Assets by Income, 2007

**Source:** CRS analysis of the 2007 SCF.

The distribution of capital accruals tends to follow the same pattern as the distribution of asset ownership. **Table 3** reports the distribution of accrued capital gains for selected assets.<sup>11</sup> Capital gains accruals for stocks, mutual funds, and businesses are highly skewed toward the upper income levels. About 90% of capital gains accruals go to households in the richest income quintile and 70% go to the richest 5% of households. Capital gains accruals on principal residences, however, are less skewed—only 47% go to households in the richest income quintile.

<sup>&</sup>lt;sup>11</sup> The 2007 SCF doesn't allow capital gains accruals for other assets to be calculated.

Income category	Stocks/mutual funds	Businesses	Other real estate	Principal residences
Quintile I	0.7%	1.8%	3.3%	5.5%
Quintile 2	0.6	2.0	4. l	9.9
Quintile 3	1.5	2.8	8.2	16.0
Quintile 4	7.0	5.6	l 4.0	21.2
Quintile 5	90.2	87.8	70.4	47.4
Тор 10%	85.4	80.6	60.0	31.6
Тор 5%	75.7	69.2	49.4	20.9

Table	3. Accrued	Capital	Gains b	v Income.	2007
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Source: CRS analysis of the 2007 SCF.

#### **Capital Gains Realizations and Taxes**

The distribution of realized capital gains can be examined by one of two methods. First, the focus can be on how capital gains are distributed among all households. This allows for an examination of how income from capital gains is distributed throughout the entire income distributed among the focus can be narrowed to examine how realized capital gains are distributed among taxpayers—the group that reports income from capital gains. Many lower income individuals and families, such as those with income primarily from public assistance or Social Security, do not file tax returns and would be excluded from the analysis. Both methods are employed.

Income from realized capital gains, while always concentrated at the top of the income distribution, has become more concentrated over the past 25 years. **Figure 5** displays the distribution of realized capital gains among all households (whether or not they filed tax returns) since 1979. In 1979, households in the bottom 95% of the income distribution received about 20% of total capital gains income (the dark grey and white bars). The richest 0.1% of households (about 81,000 households) received 36% of total capital gains income. By 2005, the bottom 95% received only 10% of total capital gains income while the richest 0.1% (about 114,000 households) received 50%.



Figure 5. Distribution of Realized Capital Gains by Income, 1979-2005

Source: CBO, Historical Effective Tax Rates, 1979-2005: Supplement, December 2008.

Income from realized capital gains is only slightly more broadly distributed among taxpayers. **Table 4** reports the distribution of long-term capital gains and all capital gains in 2004. Long-term capital gains are taxed at preferential rates while short-term capital gains are not. About 18% of total long-term capital gains were received by taxpayers in the bottom 80% of the income distribution. Taxpayers in the top 20% received about 82% of total long-term capital gains and taxpayers in the richest 5% received 68% of total capital gains in 2004.

Income category	Long-term capital gains	All capital gains	Taxes paid on capital gains
Quintile I	2.7%	2.8%	1.4%
Quintile 2	3.3	3.5	2.1
Quintile 3	5.2	5.4	3.7
Quintile 4	6.9	7.0	6.1
Quintile 5	81.9	81.3	86.7
Top 10%	74.6	74.2	79.2
Тор 5%	68.2	67.5	71.7

Table 4. Capital Gains Income and Capital Gains Taxes, 200	Table 4. Ca	pital Gains	Income and	Capital	Gains Taxes	, 2004
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Source: 2004 IRS SOI PUF.

The final column of **Table 4** reports the distribution of capital gains taxes (on both short-term and long-term capital gains). Overall, the distributional pattern is similar to the capital gains income distribution, but slightly more skewed toward the higher income levels. The primary reason is that lower income taxpayers faced a 5% long-term capital gains tax rate in 2004 while higher income taxpayers faced a 15% tax rate.

### **Economic Issues**

Capital gains tax reductions are often proposed as a policy that will increase saving and investment, provide a short-term economic stimulus, and boost long-term economic growth. Each of these arguments is examined.

#### Saving and Investment

National saving is made up of saving by the government (public saving) and by households and firms (private saving). Public saving is equal to the government's deficit or surplus—it is negative for a deficit and positive for a surplus. Reducing capital gains tax rates will likely reduce public saving because it reduces tax revenues without affecting outlays; this increases a budget deficit or decreases a budget surplus.<sup>12</sup>

Households save by investing in their own business or investing in stocks, bonds, and other financial instruments. Changing capital gains tax rates changes the after-tax rate of return on investments (for example, reducing the tax rate increases the after-tax return). The change in the rate of return has two offsetting effects on saving. Increasing the rate of return can increase households' willingness to save (the substitution effect). But at the same time, the increased return allows households to save less to maintain their desired or target wealth level (the income effect). Consequently, the effect of capital gains taxes on private saving is likely to be small.

The traditional economic theory of saving, the life-cycle model, assumes that individuals make rational, far-sighted decisions. The preponderance of empirical evidence, however, does not support the life-cycle model.<sup>13</sup> Behavioral theories of saving emphasize the role of inertia, the lack of self-control, and the limit of human intellectual capabilities. To cope with the complexities involved in making saving decisions, individuals often use simple rules of thumb and develop target levels of wealth. Once their target level of wealth is obtained, many individuals suspend active saving.<sup>14</sup> Saving rates have fallen over the past 30 years while the capital gains tax rate has fallen from 28% in 1987 to 15% today (0% for taxpayers in the 10% and 15% tax brackets). This suggests that changing capital gains tax rates have had little effect on private saving.

Some have argued that preferential capital gains tax rates will boost high risk investments such as in venture capital. Most venture capital, however, is supplied by pension funds, college endowments, foundations, and insurance companies—sources not associated with the capital

<sup>&</sup>lt;sup>12</sup> See Jane G. Gravelle, "Can A Capital Gains Tax Cut Pay for Itself," *Tax Notes*, vol. 48 (July 9, 1990), pp. 209-219.

<sup>&</sup>lt;sup>13</sup> For a discussion and citations to the literature see CRS Report RL33482, *Saving Incentives: What May Work, What May Not*, by Thomas L. Hungerford.

<sup>&</sup>lt;sup>14</sup> F. Thomas Juster, Joseph P. Lupton, James P. Smith, and Frank Stafford, "The Decline in Household Saving and the Wealth Effect," *Review of Economics and Statistics*, vol. 87, no. 4 (November 2005), pp. 20-27.

gains tax. In 2003, only about 10% of investors in venture capital funds were individuals and families.  $^{\rm 15}$ 

Additionally, for risk adverse investors, the capital gains tax could act as an insurance for risky investments by reducing losses as well as gains—it decreases the variability of returns.<sup>16</sup> The \$3,000 loss limit may reduce the insurance value of the capital gains tax. But research has shown that almost three-quarters of taxpayers with capital losses were not subject to the loss limit because losses were less than \$3,000 or gains offset the losses.<sup>17</sup> Of those affected by the loss limit, two-thirds were able to deduct losses against gains or other income within two years. The capital gains tax, therefore, may have little effect on risk-taking and may even encourage it.

Capital gains tax rate reductions appear to decrease public saving and may have little or no effect on private saving. Consequently, capital gains tax reductions likely have a negative overall impact on national saving.

#### **Economic Growth**

Some have argued that reducing capital gains tax rates would increase short-run and long-run economic growth.<sup>18</sup> The long-run level of output depends on the amount of saving and investment. Saving and investment increase the amount of capital in the economy and hence, aggregate supply (i.e., the amount of goods and services available in the economy). Many economists note that capital gains tax reductions appear to have little or even a negative effect on saving and investment (see above). Consequently, capital gains tax rate reductions are unlikely to have much effect on the long-term level of output or the path to the long-run level of output (i.e., economic growth).

Furthermore, it is argued that a temporary or permanent capital gains tax reduction is an effective economic stimulus measure. An effective short-term economic stimulus, however, will have to increase aggregate demand, which requires additional spending. A tax reduction on capital gains would mostly benefit very high income taxpayers who are likely to save most of any tax reduction.<sup>19</sup> Economists note that a temporary capital gains tax reduction possibly could have a negative impact on short-term economic growth. A temporary tax cut could induce investors to sell stock (i.e., realize capital gains by reducing the lock-in effect), but provides no incentive to invest since investors know they will face higher tax rates in the future. To the extent that the resulting sell-off depresses stock prices, consumer confidence, already low during recessions, could be further undermined thus reducing consumer spending.

<sup>&</sup>lt;sup>15</sup> National Venture Capital Association, *Venture Impact*, 4<sup>th</sup> Edition, 2007, available at http://www.nvca.org/pdf/ NVCA\_VentureCapital07-2<sup>nd</sup>.pdf.

<sup>&</sup>lt;sup>16</sup> See Burman, Labyrinth of Capital Gains Tax Policy.

<sup>&</sup>lt;sup>17</sup> Alan J. Auerbach, Leonard E. Burman, and Jonathan M. Siegel, "Capital Gains Taxation and Tax Avoidance: New Evidence from Panel Data," in *Does Atlas Shrug*? ed. Joel B. Slemrod (Cambridge, MA: Harvard University Press, 2000), pp. 355-388.

<sup>&</sup>lt;sup>18</sup> See, for example, Karen A. Campbell and Guinevere Nell, *Sustainable Economic Stimulus: Repeal Capital Gains and Dividend Taxes*, The Heritage Foundation, Web Memo no. 2263, February 3, 2009.

<sup>&</sup>lt;sup>19</sup> See Jonathan McCarthy, "Imperfect Insurance and Differing Propensities to Consume Across Households," *Journal of Monetary Economics*, vol. 36, no. 2 (November 1995), pp. 301-327 for evidence that the wealthy have higher marginal propensities to save than low wealth households.

A permanent capital gains tax cut will likely have two offsetting effects on stock prices. There is the demand-side capitalization effect—investors would be willing to pay a higher price for assets on which they would pay lower capital gains taxes in the future (in essence shifting out the demand curve). But there is also the supply-side lock-in effect in which investors would be willing to sell at a lower price because they have to pay lower capital gains taxes (in essence shifting out the supply curve). The ultimate effect on stock returns depends on the relative magnitude of these two effects, but it would likely be small in either direction.

# **Appendix. Data Sources**

Two data sources are used in the analysis. The first is the 2007 Survey of Consumer Finances (SCF), which is prepared by the Federal Reserve Board. The SCF includes detailed information on household demographics, income, and wealth. In the analysis, households are ranked in the income distribution and assigned to income categories (quintiles) by their equivalence-adjusted household income, which is household income divided by the square root of family size. Each income quintile contains 20% of the households; in addition, the richest 10% (decile) and richest 5% (ventile) are included in the analysis. This adjustment controls for economies of scale within the household. Household income consists of income from all sources including public assistance, but excludes capital gains. All households are represented in the SCF sample regardless of whether or not they paid taxes.

Some analysts argue that capital gains income can temporarily make a low or moderate income household appear rich. To the extent that this is true, most capital gains income will appear to be received solely by the rich. Consequently, capital gains income is excluded from household income when assigning households to income categories. Most individuals and families, however, are in the same income category regardless of capital gains income—92% remain in the same quintile and 77% remain in the same ventile.

The second data source is the IRS's 2004 Statistics of Income Public Use File (SOI PUF). The SOI PUF contains information from the tax returns of a representative sample of taxpayers. Individuals and families that do not file a tax return are not included in this data source. These individuals and families are not required to file a tax return because of low income or receive primarily nontaxable income (e.g., public assistance). Taxpayers are assigned to income categories based on equivalence-adjusted total income; total income excludes capital gains income.

#### **Author Contact Information**

Thomas L. Hungerford Specialist in Public Finance thungerford@crs.loc.gov, 7-6422