Changes in the Distribution of Income Among Tax Filers Between 1996 and 2006: The Role of Labor Income, Capital Income, and Tax Policy

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Summary

Social scientists and philosophers have been concerned with issues surrounding the distribution of income or income inequality for over 200 years—the economist and philosopher Adam Smith discussed these issues as early as 1776. Academic writers have been writing on income inequality measurement issues for at least a century. Policy makers have also long been interested in income inequality issues; for example, the issue came up in Senate debate in 1898. Bills have been introduced in the 112th Congress that address the issue of income inequality by affecting the income of workers and taxpayers in different parts of the income distribution. In the second session of the 112th, Congress will likely debate the scheduled expiration (at the end of 2012) of the 2001 and 2003 Bush tax cuts, which could affect income inequality. This report examines changes in income inequality among tax filers between 1996 and 2006. In particular, the role of changes in wages, capital income, and tax policy is investigated.

Inflation-adjusted average after-tax income grew by 25% between 1996 and 2006 (the last year for which individual income tax data is publicly available). This average increase, however, obscures a great deal of variation. The poorest 20% of tax filers experienced a 6% reduction in income while the top 0.1% of tax filers saw their income almost double. Tax filers in the middle of the income distribution experienced about a 10% increase in income. Also during this period, the proportion of income from capital increased for the top 0.1% from 64% to 70%.

Income inequality, as measured by the Gini coefficient, increased between 1996 and 2006; this is true for both before-tax and after-tax income. Before-tax income inequality increased from 0.532 to 0.582 between 1996 and 2006—a 9% increase. After-tax income inequality increased by 11% between 1996 and 2006. Total taxes (the individual income tax, the payroll tax, and the corporate income tax) reduced income inequality in both 1996 and 2006. In 1996, taxes reduced income inequality by 5%. In 2006, however, taxes reduced income inequality by less than 4%. Taxes were more progressive and had a greater equalizing effect in 1996 than in 2006.

Three potential causes of the increase in after-tax income inequality between 1996 and 2006 are changes in labor income (wages and salaries), changes in capital income (capital gains, dividends, and business income), and changes in taxes. To evaluate these potential reasons for increasing income inequality, a technique to decompose income inequality by income source is used. While earnings inequality increased between 1996 and 2006, this was not the major source of increasing income inequality over this period. Capital gains and dividends were a larger share of total income in 2006 than in 1996 (especially for high-income taxpayers) and were more unequally distributed in 2006 than in 1996. Changes in capital gains and dividends were the largest contributor to the increase in the overall income inequality. Taxes were less progressive in 2006 than in 1996, and consequently, tax policy also contributed to the increase in income inequality between 1996 and 2006. But overall income inequality would likely have increased even in the absence of tax policy changes.

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ocial scientists and philosophers have been concerned with issues surrounding the distribution of income or income inequality for over 200 years—for example, the economist and philosopher Adam Smith discussed these issues as early as 1776.[1] Academic writers have been writing on income inequality measurement issues for at least a century.[2] Policy makers have also long been interested in income inequality issues.[3] Three bills have been introduced in the 112th Congress that address the issue of income inequality by affecting the income of workers and taxpayers in different parts of the income distribution.[4] Additionally, the Administration has stated that one of its principles for tax reform was to observe the "Buffett rule"—"no household making over $1 million annually should pay a smaller share of its income in taxes than middle-class families pay."[5] In the second session of the 112th, Congress will likely debate the scheduled expiration (at the end of 2012) of the 2001 and 2003 Bush tax cuts, which could affect income inequality.

Arguments are offered for and against reducing income inequality. The classic argument against rising income inequality is the rich get richer and the poor get poorer. This shift can increase poverty, reduce well-being, and reduce social cohesion. Consequently, some researchers and policy experts argue that reducing income inequality may reduce various social ills. Additionally, researchers are concerned about the consequences of rising income inequality. Research has demonstrated that large income and class disparities adversely affect health and economic well-being.[6]

In contrast, other experts argue that rising inequality is nothing to worry about and point out that average real income has been rising, so while the rich are getting richer, the poor are not necessarily getting poorer. In addition, researchers and policy analysts argue that some income inequality is necessary to encourage innovation and entrepreneurship—the possibility of large rewards and high income are incentives to bear the risks. Furthermore, policy analysts have argued that income or social mobility (i.e., movement within the income distribution) reduces income inequality and increases well-being.[7] Research has shown, however, that income mobility is not very great and the degree of income mobility has either remained unchanged or decreased since the1970s.[8]

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[1] Adam Smith, *The Wealth of Nations*, Cannan ed. (New York: The Modern Library, 1937).

[2] For example, the Gini coefficient , which has long played a central role in the measurement of income inequality, was developed in 1909 by the Italian statistician and sociologist Corrado Gini.

[3] For example, distributional issues of wealth and income were part of Senate debate over the War Revenue Act of June 10, 1898. See Senator Richard Pettigrew, Senate debate, *Congressional Record*, June 10, 1898, pp. 5743-5744. More recently, there have been at least 17 hearings or testimony devoted to aspects of income inequality in the last three Congresses (based on a search of CQ.com).

[4] The bills are the Living American Wage (LAW) Act of 2011 (H.R. 283), the Jobs Creation Act (S. 1960), and the Income Equity Act of 2011 (H.R. 382).

[5] Office of Management and Budget, *Living Within Our Means and Investing in the Future*, Washington, DC, September 2011.

[6] Michael Marmot, *The Status Syndrome: How Social Standing Affects Our Health and Longevity* (New York: Henry Holt and Co., 2004); Richard G. Wilkinson, *Unhealthy Societies: The Afflictions of Inequality* (New York: Routledge, 1996); Robert Frank, *Falling Behind: How Rising Inequality Hurts the Middle-Class* (Berkeley, CA: University of California Press, 2007); and Gopal K. Singh and Mohammad Siahpush, "Widening Socioeconomic Inequalities in US Life Expectancy, 1980-2000," *International Journal of Epidemiology*, vol. 35 (May 2006), pp. 969-979.

[7] See, for example, Milton Friedman, *Capitalism and Freedom* (Chicago: University of Chicago Press, 1962), p. 171.

[8] Thomas L. Hungerford, "How Income Mobility Affects Income Inequality: US Evidence in the 1980s and the 1990s," *Journal of Income Distribution*, vol. 20, no. 1 (March 2011), pp. 83-103; and Katharine Bradbury, *Trends in U.S.* (continued...)

Income inequality has been increasing in the United States over the past 35 years.[9] Several factors have been identified as possibly contributing to increasing income inequality. Some researchers have suggested the decline in unionization and a falling real minimum wage as the primary causes.[10] Others have argued that rising returns to education and skill-biased technological change are the important factors explaining rising inequality.[11] Still others argue that "winner-take-all" markets—markets where the rewards are few but large with more and more people competing for these rewards—have spread.[12] In an elaboration of this argument, some have argued that "public officials have rewritten the rules of American politics and the American economy in ways that have benefited the few at the expense of the many."[13] Tax policy, especially the Tax Reform Act of 1986, has also been identified as a possible cause for rising income inequality.[14] Many analysts agree that the likely explanation for rising income inequality is due to skill-biased technological changes combined with a change in institutions and norms of which a falling minimum wage and declining unionization are a part.[15] Research suggests that changes in tax policy do not have much impact on the longer-term trend or rate of change in inequality, but can have a one-time affect on the level of income inequality.[16]

This report examines changes in income inequality among tax filers between 1996 and 2006.[17] In particular, the role of changes in wages, capital income, and tax policy, especially the 2001 and

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(...continued)
Family Income Mobility, 1969-2006, Federal Reserve Bank of Boston, Working Paper No. 11-10, Boston, MA, October 20, 2011.

[9] See CRS Report RL34155, *Income Inequality and the U.S. Tax System*, by Thomas L. Hungerford and CRS Report RL34434, *Income Inequality, Income Mobility, and Economic Policy: U.S. Trends in the 1980s and 1990s*, by Thomas L. Hungerford.

[10] See David S. Lee, "Wage Inequality in the United States During the 1980s: Rising Dispersion or Falling Minimum Wage?," *Quarterly Journal of Economics*, vol. 114, no. 3 (August 1999), pp. 977-1023; and John DiNardo, Nicole M. Fortin, and Thomas Lemieux, "Labor Market Institutions and the Distribution of Wages, 1973-1992: A Semiparametric Approach," *Econometrica*, vol. 64, no. 5 (September 1996), pp. 1001-1044.

[11] See John Bound and George Johnson, "Changes in the Structure of Wages in the 1980s: An Evaluation of Alternative Explanations," *American Economic Review*, vol. 82, no. 3 (January 1992), pp. 371-392; David H. Autor, Lawrence F. Katz, and Melissa S. Kearney, "The Polarization of the U.S. Labor Market," *American Economic Review*, papers and proceedings, vol. 96, no. 2 (May 2006), pp. 189-194; and Thomas Lemieux, "Postsecondary Education and Increasing Wage Inequality," *American Economic Review*, papers and proceedings, vol. 96, no. 2 (May 2006), pp. 195-199.

[12] Robert H. Frank and Philip J. Cook, *The Winner-Take-All Society* (New York: The Free Press, 1995).

[13] Jacob S. Hacker and Paul Pierson, *Winner-Take-All Politics* (New York: Simon and Schuster, Inc., 2010).

[14] See Daniel R. Feenberg and James M. Poterba, "Income Inequality and the Incomes of Very High-Income Taxpayers: Evidence from Tax Returns," in James M. Poterba, ed., *Tax Policy and the Economy*, vol. 7 (Cambridge, MA: MIT Press, 1993); and Roger H. Gordon and Joel B. Slemrod, "Are "Real" Responses to Taxes Simply Income Shifting Between Corporate and Personal Tax Bases?" in Joel B. Slemrod, ed., *Does Atlas Shrug? The Economic Consequences of Taxing the Rich* (New York and Cambridge, MA: Russell Sage Foundation and Harvard University Press), pp. 240-280.

[15] See, for example, Frank Levy and Peter Temin, *Inequality and Institutions in 20ᵗʰ Century America*, National Bureau of Economic Research, Working Paper no. 13106, May 2007; and Autor, Katz, and Kearney.

[16] See Joel Slemrod and Jon M. Bakija, "Growing Inequality and Decreased Tax Progressivity," in Kevin A. Hassett and R. Glenn Hubbard, *Inequality and Tax Policy* (Washington, DC: AEI Press, 2001), pp. 192-226; Levy and Temin; Thomas Piketty and Emmanuel Saez, "Income Inequality in the United States, 1913-1998," *Quarterly Journal of Economics*, vol. 118, no. 1 (February 2003), pp. 1-39; and Edward M. Gramlich, Richard Kasten, and Frank Sammartino, "Growing Inequality in the 1980s: The Role of Federal Taxes and Cash Transfers," in Sheldon Danziger and Peter Gottschalk, eds., *Uneven Tides: Rising Inequality in America* (New York: Russell Sage Foundation, 1993), pp. 225-249.

[17] The 2006 tax year is the most recent year for which tax data is publicly available.

2003 tax cuts, is investigated. During this period, there were changes in the sources of income that differed by income category and there were changes in tax policy. The years 1996 and 2006 are examined for several reasons. First, both years were at approximately similar points of the business-cycle with moderate inflation (about 3%), a modest unemployment rate (about 5%), and moderate economic growth (3.7% in 1996 and 2.7% in 2006). Second, 2006 was the year before the August 2007 liquidity crunch and the onset of the severe 2007-2009 recession.[18] Third, there were major tax policy changes between these two years. Fourth, both 1996 and 2006 were three years after the enactment of tax legislation that affected tax rates and are unlikely to be affected by short-run behavioral responses to these changes.[19]

Changes in Income and Taxes

The economy grew between 1996 and 2006 with real (inflation-adjusted) gross domestic product (GDP) increasing by 38%.[20] Per capital real GDP (real GDP divided by the U.S. population) increased by 24% between 1996 and 2006 and average inflation-adjusted after-tax income of U.S. tax filers also increased by about 25%. Average real income before taxes increased by 20% while the average tax payment increased by 6% (see **Figure 1**).[21] These average growth rates, however, do not reflect how tax filers in different parts of the income distribution fared between 1996 and 2006.

Tax filers in different parts of the income distribution fared differently between 1996 and 2006. **Figure 1** displays the percentage changes in inflation-adjusted income (before- and after-tax) and taxes for tax filers in different income categories.[22] The poorest tax filers (bottom 20%) saw average after-tax income fall by 6% between 1996 and 2006, while those in the richest quintile (top 20%) saw their average after-tax income rise by 38% over the same period. This rise in income is significantly smaller than the rise in income at the top of the income distribution. The richest 1% of tax filers experienced a 74% increase in after-tax income and the richest 0.1% (one tax filer in a thousand) saw their after-tax income almost double (an increase of 96%).

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[18] During the 2007-2009 recession, income from capital fell since profit margins fell; consequently, labor's share of national income increased. However, by 2011, profit margins were back to their prerecession levels and labor's share of national income was below its 2006 level.

[19] Tax rates were increased for high-income taxpayers in 1993 by the Omnibus Budget Reconciliation Act of 1993 (P.L. 103-66) and tax rates were reduced by the Economic Growth and Tax Relief Reconciliation Act of 2001 (P.L. 107-16) and the Jobs and Growth Tax Relief Reconciliation Act of 2003 (P.L. 108-27).

[20] www.bea.gov

[21] The data used for this analysis is described in the Appendix.

[22] A tax filer's income category is determined by equivalence-adjusted after-tax income (after-tax income divided by the square root of family size). Tax filers are ranked by income from lowest to highest and divided into five income categories or quintiles, each containing 20% of the tax filers. Quintile 1 contain the 20% poorest tax filers and quintile 5 contain the richest 20%.

Figure 1. Percentage Change in Inflation-Adjusted Income and Taxes by Income Category, 1996 to 2006
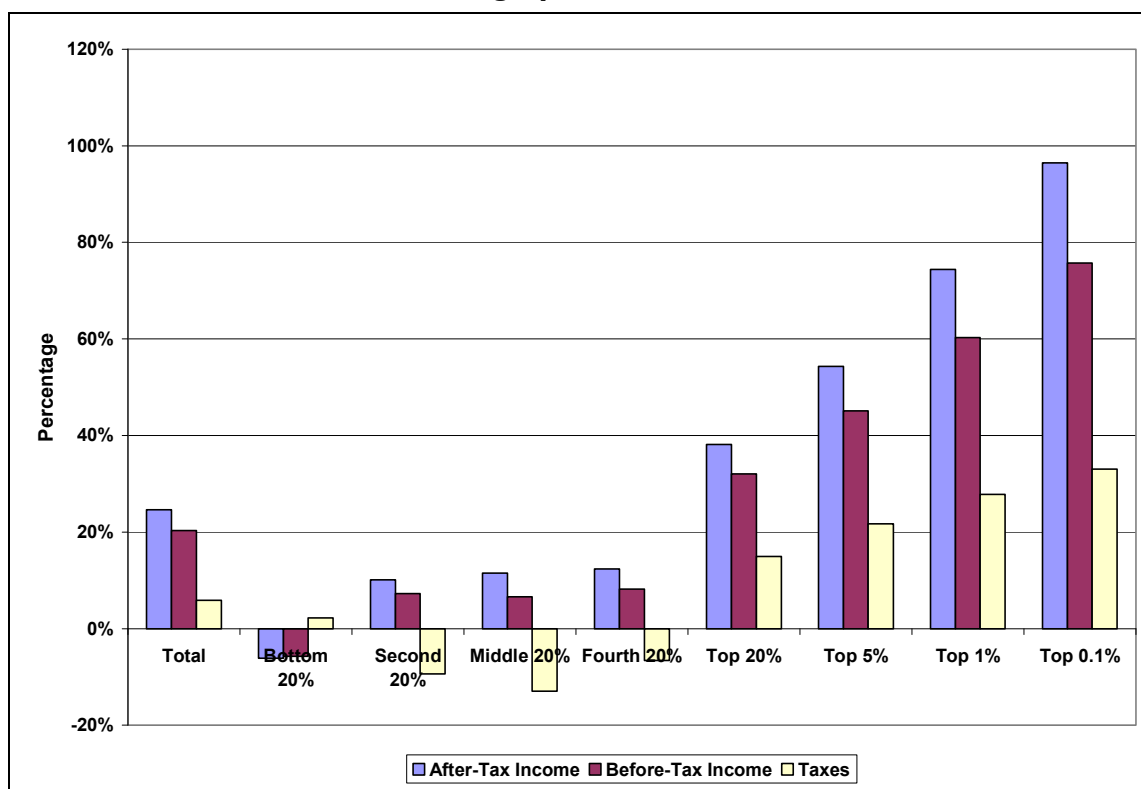
Taxes fell for most tax filers in the middle of the income distribution (i.e., the second, middle, and fourth quintiles). Taxes slightly increased for tax filers in quintile 1 by about 2%; the tax increase is due solely to a rise in payroll taxes paid. Total taxes paid by the richest 20% increased by about 15%—less than half the increase in income. The richest 0.1% of tax filers paid 33% more in taxes in 2006 than in 1996—their taxes rose one-third as fast as their income.

Not only was there significant variation in income increases between 1996 and 2006, there were also large differences in the composition of income among the income categories as well as significant changes in the composition. **Table 1** reports the share of income (before taxes) received by tax filers from a variety of income sources in 1996 and 2006.[23] For tax filers with income below the 80th percentile (i.e., the bottom 80%), the major source of income is from wages and salaries, which accounted for 82% of total income in both 1996 and 2006. The share from capital income (that is, capital gains, dividends, and business income) was very small in 1996 (about 4%) and fell to less than 3% in 2006. The share from retirement income (from pensions and IRAs) and other income (such as Social Security, unemployment compensation, and interest income) increased slightly between 1996 and 2006.

The situation at the top of the income distribution is very different. For the top 20%, wages and salaries make up a smaller share of total income (60% in 1996) and this share fell by 10

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[23] The data used for the analysis is described in **Appendix A**.

percentage points between 1996 and 2006 to 50%. The share from capital income increased over this period, especially from capital gains and dividends. The situation is even more different for the top 0.1% of tax filers—wages and salaries account for about 20% of total income, with the share falling from 23% in 1996 to less than 19% by 2006. In both years, about half of the total income of the top 0.1% comes from capital gains and dividends; the share from capital gains and dividends increased by 6 percentage points between 1996 and 2006.

Table 1. Sources of Income By Income Category, 1996 and 2006

		Wages and Salaries	Dividends and Capital Gains	Business Income	Retirement Income	Other Income
Bottom 80%	1996	82.0	1.4	2.6	6.9	7.1
	2006	82.0	0.7	1.8	7.2	8.3
Top 20%	1996	60.2	13.4	10.2	8.5	7.8
	2006	50.4	18.8	12.0	11.8	7.1
Top 5%	1996	46.9	21.1	15.1	8.7	8.2
	2006	36.3	28.1	16.9	11.8	7.0
Top 1%	1996	34.4	30.8	17.7	8.2	8.9
	2006	26.0	38.2	19.0	9.6	7.1
Top 0.1%	1996	23.0	45.8	17.9	4.2	9.1
	2006	18.6	51.9	17.9	4.0	7.6

Source: CRS analysis of 1996 and 2006 IRS SOI Public Use Files.

Notes: Rows may not sum to 100% due to rounding.

The pattern of income growth displayed in **Figure 1** suggests that income inequality increased between 1996 and 2006 as the income of tax filers at the top of the income distribution pulled away from those at the bottom. Furthermore, with changes in the composition of income, especially among high-income tax filers, different income sources will likely have different contributions to increasing income inequality. The role of tax policy changes is suggested by comparing the percentage change in taxes paid to the percentage change in income for each income category. If tax policy had not changed between 1996 and 2006, then taxes paid would have increased by about the same percentage as before-tax income. The percentage changes in taxes paid were generally much less than the percentage changes in before-tax income especially for higher-income tax filers. This suggests that part of the pattern in the growth of after-tax income is due to changes in tax policy.

Taxes as an Income Equalizer

The federal individual income tax is a graduated tax with progressively higher tax rates for each successive tax bracket (ranging from 10% to 35% in 2006).[24] But, because of various tax preferences and the lower rates on long-term capital gains and qualified dividends, the tax rates

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[24] The statutory tax rates ranged from 15% to 39.6% in 1996.

published in the tax tables may be a poor guide to the actual tax burden faced by tax filers in each income category.[25] Nonetheless, on average, the individual income tax is progressive with the average tax rate increasing as income rises, and can be expected to reduce income inequality.[26]

The payroll tax that funds Social Security and Medicare has a constant 15.3% tax rate on wages and salaries (12.4% for Social Security and 2.9% for Medicare).[27] Half of the tax rate is paid by the employee and the other half by the employer; the self-employed are responsible for the entire amount. The tax rate for Social Security applies only to covered earnings below the maximum taxable limit ($62,700 in 1996 and $94,200 for 2006). The payroll tax is slightly progressive throughout the bottom 80% of the income distribution, but is regressive above that—individuals in the top 20% of the income distribution pay a lower share of their income in payroll taxes than the bottom 80%.[28]

Individual taxpayers are not directly subject to the U.S. corporate income tax, but may indirectly bear the burden of the corporate income tax. One justification offered for lower tax rates on capital gains and dividends is this income can be taxed twice—once under the corporate income tax and again under the individual income tax.[29] It is likely that most or all of the burden of the corporate income tax falls on capital.

Table 2 reports the share of income (before- and after-tax) received and taxes paid by tax filers in various income categories in 1996 and 2006. Tax filers in the bottom four income quintiles received a smaller share of before-tax and after-tax income in 2006 than in 1996. For example, the middle quintile (middle 20%) received 13.7% of all before-tax income in 1996 (and 14.2% of all after-tax income) but received 12.1% in 2006 (and 12.7% of after-tax income). In contrast, the top 20% of tax filers received 54% of all before-tax income in 1996 and 59.3% in 2006.[30] The share of before-tax income received by the top 0.1% of tax filers increased from 6.6% in 1996 to almost 10% by 2006.

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[25] CRS Report RL34622, *Tax Expenditures and the Federal Budget*, by Thomas L. Hungerford.

[26] CRS Report RL32693, *Distribution of the Tax Burden Across Individuals: An Overview*, by Jane G. Gravelle.

[27] A temporary one-year reduction in the Social Security payroll tax (by 2 percentage points) was enacted for 2011 by the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (P.L. 111-312). The reduction was extended for 2 months on December 23, 2011.

[28] CRS Report RL33943, *Increasing the Social Security Payroll Tax Base: Options and Effects on Tax Burdens*, by Thomas L. Hungerford.

[29] Several recent studies estimate that most or all of the burden of the corporate income falls on labor through reduced wages. These studies, however, have been shown to suffer from various methodological deficiencies. See CRS Report RL34229, *Corporate Tax Reform: Issues for Congress*, by Jane G. Gravelle and Thomas L. Hungerford; and Jennifer C. Gravelle, *Corporate Tax Incidence: A Review of Empirical Estimates and Analysis*, CBO working paper 2011-01, June 2011, for reviews of these studies and an analysis of their deficiencies.

[30] The share of after-tax income received by the top quintile similarly increased from 51.6% in 1996 to 57.2% in 2006.

Table 2. Share of Income Received and Taxes Paid by Tax Filers in Various Income Categories, 1996 and 2006

	1996			2006		
	Before-Tax Income	**After-Tax Income**	**Total Taxes**	**Before-Tax Income**	**After-Tax Income**	**Total Taxes**
Bottom 20%	3.0	3.6	0.7	2.3	2.7	0.6
Second 20%	8.3	9.1	5.3	7.4	8.1	4.5
Middle 20%	13.7	14.2	12.0	12.1	12.7	9.9
Fourth 20%	21.1	21.4	20.0	18.9	19.3	17.6
Top 20%	54.0	51.6	62.0	59.3	57.2	67.3
Top 5%	29.0	27.1	35.6	35.0	33.5	40.9
Top 1%	15.4	13.9	20.2	20.5	19.5	24.4
Top 0.1%	6.6	5.8	9.4	9.7	9.1	11.8
Gini Coefficient	0.532	0.503		0.582	0.560	

Source: CRS analysis of 1996 and 2006 IRS SOI Public Use Files.

The share of total taxes paid by tax filers in the bottom four quintiles decreased between 1996 and 2006. For example, the share paid by the middle quintile (middle 20%) fell from 12% in 1996 to about 10% in 2006. The share paid by the richest 20% increased between 1996 and 2006 from 62% to 67%; the share paid by the richest 0.1% increased over this period from 9% to 12%. Both the share of income received by the top 20% and the share of taxes paid by them increased between 1996 and 2006.

The last row of **Table 2** reports the Gini coefficient for before-tax and after-tax income in 1996 and 2006.[31] Income inequality as measured by the Gini coefficient increased between 1996 and 2006; this is true for both before-tax and after-tax income. The before-tax income Gini coefficient increased from 0.532 to 0.582 between 1996 and 2006—a 9% increase. The Gini coefficient for after-tax income increased by 11% between 1996 and 2006.

Total taxes (the individual income tax, the payroll tax, and the corporate income tax) reduced income inequality in both 1996 and 2006. In 1996, the Gini coefficient of before-tax income was 0.532 and taxes reduced it to 0.503—a 5% reduction. In 2006, however, taxes reduced the Gini coefficient by less than 4% (from 0.582 to 0.560). Taxes appear to have had a slightly greater equalizing effect in 1996 than in 2006.

This conclusion is further supported by information displayed in **Table 3**, which reports the average tax rate (total tax paid divided by total income) of tax filers in each income category. Between 1996 and 2006, the overall average tax rate (which includes all taxes) fell from 23% to 20%. The average tax rate fell for all income categories except for those in the bottom quintile

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[31] The Gini coefficient is a measure of income inequality that varies between 0 and 1. A Gini coefficient value of 0 indicates that income is evenly distributed throughout the income distribution (i.e., everyone has the same income) while a value of 1 indicates perfect income inequality (i.e., one person has all the income).

(bottom 20%). The primary reason for the slight increase for the bottom quintile was an increase in the average payroll tax rate. Between 1996 and 2006, the tax system became flatter in that the difference between the lowest and highest average tax rates decreased. The average tax rate for tax filers in the top 0.1% fell by about 25% (from almost 33% to under 25%). The last row of **Table 3** reports the Suits index, which is a measure of the progressivity of the tax system.[32] The Suits index for all taxes fell from 0.135 in 1996 to 0.125 in 2006. In other words, while the tax system remained progressive, it was less progressive in 2006 than in 1996.

Table 3. Average Tax Rates, 1996 and 2006

	1996	2006
Total	23.03	20.26
Bottom 20%	5.24	5.68
Second 20%	14.80	12.50
Middle 20%	20.20	16.51
Fourth 20%	21.87	18.88
Top 20%	26.43	23.00
Top 5%	28.23	23.68
Top 1%	30.30	24.16
Top 0.1%	32.72	24.77
Suits Index	0.135	0.125

Source: CRS analysis of 1996 and 2006 IRS SOI Public Use Files.

Changes in Income Inequality

Income inequality increased between 1996 and 2006. **Figure 2** presents a graphical representation of the increase in income inequality. The figure displays the Lorenz curves of after-tax income in 1996 and 2006. The Lorenz curve is way of characterizing an income distribution and shows the percentage of income accruing to a particular proportion of the population who have been ranked by income from smallest to largest. For example, if the Lorenz curve were the straight line shown in the figure, then10% of income (a 0.1 income share) accrues to the poorest 10% of the population (a 0.1 population share), 20% of income accrues to the poorest 20%, and so on. This would be a case of perfect income equality (with a Gini coefficient of 0). The further the Lorenz curve is below the diagonal line, the more unequally income is distributed (i.e., less income is received by those in the lower parts of the income distribution in relation to their share of the population and more income is received by the rich than their share of the population). If two Lorenz curves do not intersect, then it can be said that one income distribution is unambiguously more equal than another.[33] The 2006 Lorenz curve is further from the diagonal line than the 1996

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[32] The Suits index is a measure of tax progressivity that varies between −1 (completely regressive) and +1 (completely progressive). A tax is progressive if the average tax rate increases with income. See Daniel B. Suits, "Measurement of Tax Progressivity," *American Economic Review*, vol. 67, no. 4 (September 1977), pp. 747-752.

[33] In this case, all common measures of income inequality that respect certain desirable properties (including the Gini coefficient) will indicate that income inequality is higher in one distribution than in the other. See Stephen P. Jenkins and Philippe Van Kerm, "The Measurement of Economic Inequality," in *Oxford Handbook on Economic Inequality*, (continued...)

Lorenz curve. Furthermore, the two Lorenz curves do not intersect, consequently, after-tax income was more unequally distributed in 2006 than in 1996.

Figure 2. Lorenz Curves of After-Tax Income, 1996 and 2006
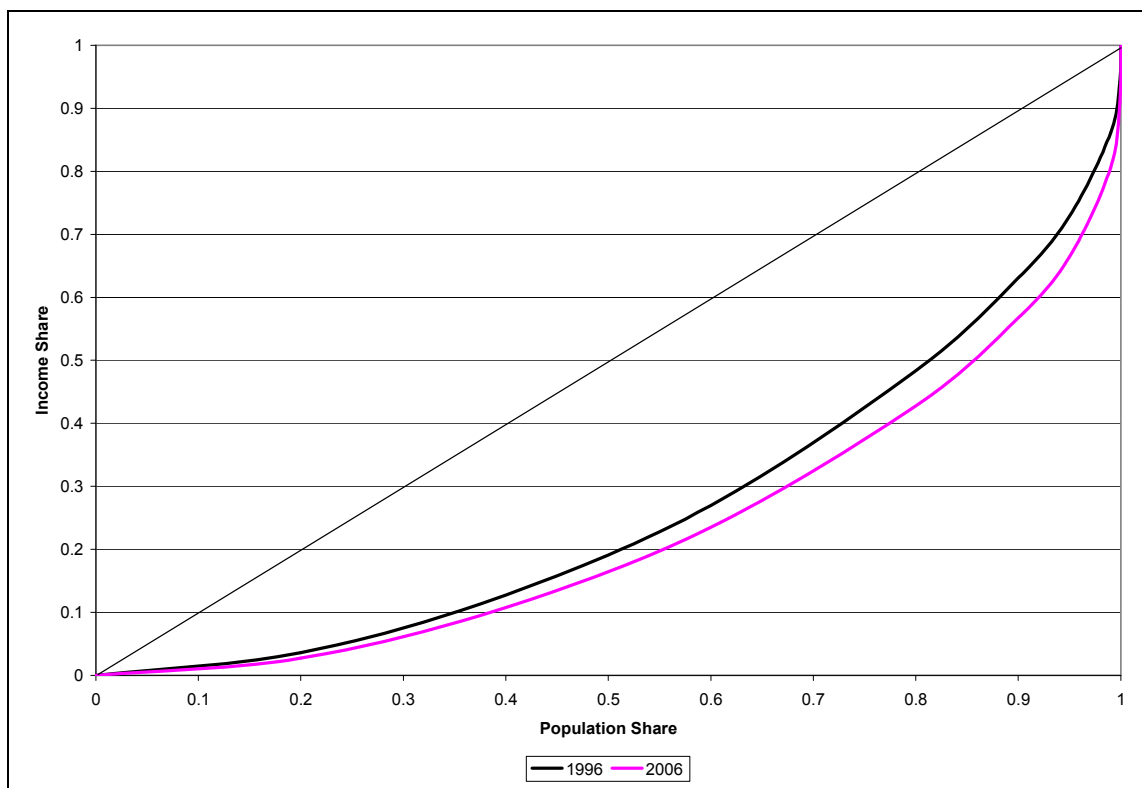
Potential Causes of Increased Income Inequality

Three potential causes of the increase in after-tax income inequality between 1996 and 2006 are examined in the analysis. The three are changes in labor income (wages and salaries), changes in capital income (capital gains, dividends, and business income), and changes in taxes. These are not the only potential reasons for changes in income inequality, but all are commonly cited as reasons by many observers.[34] Furthermore, these three reasons are not mutually exclusive—a change in labor or capital income could also affect the amount of taxes paid, which affects observed inequality.

(...continued)

ed. Wierma Salverda, Brian Nolan, and Timothy M. Smeeding (Oxford: Oxford University Press, 2009), pp. 40-70.

[34] Congressional Budget Office, *Trends in the Distribution of Household Income Between 1979 and 2007*, October 2011.

Changes in Labor Income

Earnings inequality has been increasing since at least the late-1960s.[35] Part of this has been attributed to increased salaries paid to CEOs, managers, financial professionals, and athletes, which is estimated to account for 70% of the increase in the share of income going to the richest Americans.[36] Such changes in the earnings distribution have been described by some as a move toward a winner-take-all reward structure.[37] This explanation would primarily affect those at the top of the income distribution. Skill-biased technological change could also affect earnings in the upper part of the earnings distribution. Other explanations for rising earnings inequality would affect different parts of the income distribution. A declining real minimum wage could affect lower income tax filers (the inflation-adjusted minimum wage fell from $6.57 per hour in 1996 to $5.57 per hour in 2006) and declining unionization could affect tax filers in the middle of the earnings distribution. Increasing earnings inequality has been identified as the main suspect behind rising income inequality, since a large share of total income is from earnings.

Changes in Capital Income

Capital income has generally been concentrated among higher-income tax filers. Capital income can be capital gains, dividends, and business income from partnerships and S corporations. The number of partnerships and S corporations has steadily increased between 1996 and 2006. The number of partnerships increased by 1.2 million over this period and the number of S corporations increased by 1.6 million.[38] Income from these types of businesses is reported on individual tax filer's tax returns and is not subject to the corporate income tax. An increasing share of income for high-income tax filers comes from capital income, which could be part of the explanation for the rising income of this group of tax filers and rising income inequality.

Changes in Tax Policy

The major tax change between 1996 and 2006 was enactment of the 2001 and 2003 Bush tax cuts, which reduced taxes especially for higher-income tax filers. These tax cuts involved reduced tax rates, the introduction of the 10% tax bracket (which reduced taxes for all taxpayers), reduced the tax rates on long-term capital gains and qualified dividends, and other changes.[39] In 1996, long-term capital gains were taxed at 28% (15% for lower-income taxpayers) and all dividends were taxed as ordinary income. By 2006, long-term capital gains and qualified dividends were taxed at 15% (5% for lower-income taxpayers). Tax policy changes that affect progressivity will affect after-tax income inequality.[40]

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[35] Wojciech Kopczuk, Emmanuel Saez, and Jae Song, "Earnings Inequality and Mobility in the United States: Evidence from Social Security Data Since 1937," *Quarterly Journal of Economics*, vol. 125, no. 1 (February 2010), pp. 91-128.

[36] Jon Bakija, Adam Cole, and Bradley T. Heim, *Jobs and Income Growth of Top Earners and the Causes of Changing Income Inequality: Evidence from U.S. Tax Return Data*, Williams College, Working Paper, November 2010.

[37] Robert H. Frank and Philip J. Cook, *The Winner-Take-All Society* (New York: The Free Press, 1995).

[38] Internal Revenue Services, Statistics of Income, available at www.irs.gov.

[39] For more details, see CRS Report R42020, *The 2001 and 2003 Bush Tax Cuts and Deficit Reduction*, by Thomas L. Hungerford.

[40] Thomas L. Hungerford, "The Redistributive Effect of Selected Federal Transfer and Tax Provisions," *Public Finance Review*, vol. 38, no. 4 (July 2010), pp. 450-472; and Kinam Kim and Peter J. Lambert, "Redistributive Effect of U.S. Taxes and Public Transfers, 1994-2004," *Public Finance Review*, vol. 37, no. 1 (January 2009), pp. 3-26.

The Evidence

To evaluate these potential reasons for increasing income inequality, a well-known technique to decompose the Gini coefficient by income source is used.[41] The technique to decompose the Gini coefficient allows for an examination of how a change in a particular source of income will affect income inequality as measured by the Gini coefficient. The results of the decomposition for 1996 and 2006 are reported in **Table 4**.

The results displayed in **Table 4** report the contribution to income inequality (the Gini coefficient) from eight income sources (taxes are considered as a negative income source). After-tax income inequality increased between 1996 and 2006 as reflected in the increase of the Gini coefficient from 0.503 in 1996 to 0.560 in 2006—an increase of 0.057 (see the last row of the table). In the panels for 1996 and 2006, four numbers are reported for each income source. The first number is the income source's share in total income, which sums to 100% over all income sources.[42] The second number is the income source's contribution to the overall Gini coefficient; the sum of this number over all the income sources is equal to the Gini coefficient. The third number reported in each panel is the income source's percentage contribution to the overall Gini coefficient, which sums to 100% over all the income sources. Lastly, the percentage change in the overall Gini coefficient due to a 1% across-the-board increase in the income source is shown. For example, if wages and salaries of all tax filers had been 1% larger in 1996, then the overall Gini coefficient would have been 0.09% lower (see the fourth column in the panel for 1996).

The first row of **Table 4** reports the results for wages and salaries. Between 1996 and 2006, wages and salaries as a share of total after-tax income fell from 91% to about 80%, though this is still the largest income source. Wages and salaries also make the largest contribution to the Gini coefficient, but this contribution has declined between 1996 and 2006 (from 82% in 1996 to 66% in 2006).[43] A 1% across-the-board increase in 1996 wage and salaries would have reduced the Gini coefficient by 0.09%, but a similar 1% increase in 2006 would have reduced the overall Gini coefficient by 0.14%—an across-the-board increase in wages and salaries would have had a greater equalizing effect in 2006 than in 1996 (i.e., reducing the Gini coefficient). These results suggest that while earnings inequality increased between 1996 and 2006, this was not the major source of increasing income inequality over this period.

Capital income is income from capital gains, dividends, and income reported in the 1040 form schedules C (business income), E (primarily partnerships and S corporations), and F (farm income). The results are reported on the third and fourth rows of **Table 4**. Business income includes the income reported on the three schedules of the 1040 form. Capital gains, dividends, and business income were all a larger share of total income in 2006 than in 1996. Furthermore, capital income, especially capital gains and dividends, made a larger contribution to the overall Gini coefficient in 2006 than in 1996. Changes in capital gains and dividends was the largest contributor to the increase in the overall Gini coefficient. The disequalizing effect of capital gains

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[41] The technique is developed and described in Robert I. Lerman and Shlomo Yitzhaki, "Income Inequality Effects by Income Source: A New Approach and Applications to the United States," *Review of Economics and Statistics*, vol. 67, no. 1 (1985), pp. 151-156. See **Appendix B** for more details of the decomposition.

[42] Since taxes are negative for most tax filers, they account for a negative share of total after-tax income.

[43] Although the contribution of wages and salaries to the overall Gini decreased between 1996 and 2006, earnings inequality increased between these two years.

and dividends increased between 1996 and 2006 (from 0.08% to 0.10%) while the disequalizing effect of business income remained essentially unchanged.

Taxes reduce after-tax income and can be thought of as negative income, which is why taxes account for a negative share of total income (see the next to last row of **Table 4**). The share of taxes in income was less negative in 2006 than in 1996 (−25% in 2006 compared to −30% in 1996); that is, taxes were less important in after-tax income in 2006 than in 1996. One likely reason for this was the enactment of the 2001 and 2003 tax cuts. Another likely reason is the increase in income from capital gains and dividends, which are largely received by higher-income tax filers, that were taxed at a lower rate in 2006 than in 1996 (the lower rates were enacted in the 2003 tax cut). Taxes has a greater effect on reducing the overall Gini coefficient in 1996 than in 2006—the percentage contribution of taxes to the Gini coefficient changed from −37% to −30% between 1996 and 2006. The equalizing effect of taxes (from a 1% proportionate increase in taxes) was greater in 1996 than in 2006.

Changes in interest income, social insurance income (Social Security and unemployment compensation), and other income had a negligible effect on the increase in income inequality between 1996 and 2006. Changes in retirement income, however, did contribute to the increase in the Gini coefficient. Between 1996 and 2006, retirement income became a larger share of total income (10% in 1996 and 12.4% in 2006) and became more disequalizing.

Table 4. Contribution to Income Inequality of Income Sources, 1996 and 2006

Income Source	1996				2006			
	Share of Total Income	Contribution to Gini	Percentage Contribution to Gini	Percentage Change in Gini from 1% Increase in Income Source	Share of Total Income	Contribution to Gini	Percentage Contribution to Gini	Percentage Change in Gini from 1% Increase in Income Source
Wages and Salaries	91.1	0.412	81.9	−0.092	79.3	0.368	65.8	−0.135
Interest Income	5.4	0.033	6.6	0.012	4.0	0.029	5.2	0.012
Dividends and Capital Gains	10.3	0.092	18.3	0.080	14.3	0.138	24.7	0.104
Business Income	8.7	0.077	15.4	0.067	9.8	0.092	16.3	0.065
Social Insurance Income	3.8	0.016	3.1	−0.008	5.0	0.016	2.8	−0.023
Retirement Income	10.1	0.056	11.2	0.012	12.4	0.081	14.5	0.021
Other Income	0.5	0.002	0.5	0.000	0.6	0.004	0.7	0.001
Taxes	−29.9	−0.186	−37.0	−0.071	−25.4	−0.168	−30.0	−0.046
Total	100.0	0.503	100.0	0.000	100.0	0.560	100.0	0.000

Source: CRS analysis of 1996 and 2006 IRS SOI Public Use Files.

Concluding Remarks

Inflation-adjusted after-tax income grew by 25% between 1996 and 2006 for tax filers. This income growth, however, was not equally shared throughout the income distribution. Inflation-adjusted income actually fell for those in the bottom income quintile (the poorest 20% of tax filers) and almost doubled for the richest 0.1% of tax filers. Consequently, income inequality increased between 1996 and 2006. This was true for both before-tax and after-tax income.

The U.S. system is progressive in that the average tax rate increases as income increases, which tends to decrease inequality of after-tax income. In the decade between 1996 and 2006, however, there was a relatively large decrease in average tax rates for tax filers at the top of the income distribution. Consequently, the tax system in 2006 was less progressive than in 1996.

It has been argued that changes in wages and salaries, capital income, and taxes were the major contributors to the increase in income inequality. Earnings inequality has been increasing over the past three decades, and the share of income from capital has increased for high-income tax filers. Furthermore, the 2001 and 2003 Bush tax cuts, while reducing taxes for almost all tax filers, reduced taxes for high-income tax filers to a greater extent than for lower-income tax filers.

Changes in income from capital gains and dividends were the single largest contributor to rising income inequality between 1996 and 2006. Changes in tax policy also made a significant contribution to the increase in income inequality, but even in the absence of tax policy changes income inequality would likely have increased. Although earning inequality increased between 1996 and 2006, changes in wages and salaries appear to have had little effect on the increase in overall income inequality.

Appendix A. Data

The sources of data are the 1996 and 2006 Internal Revenue Service (IRS) Statistics of Income (SOI) Public Use Files. The Public Use Files are nationally representative samples of tax returns for the 1996 and 2006 tax years. To protect the identity of individual tax filers while preserving the character of the data, the IRS made changes to the data. Consequently, while reliable aggregate information can be obtained, individual tax filer records in the data may or may not contain information from just one tax return. The unit of analysis is the tax return for a tax filer (which may be a married couple), and IRS-provided sample weights are used throughout the analysis. The 1996 analysis sample contains information for 105,232 tax filers (representing 107.1 million tax filers). The 2006 analysis sample contains 135,817 tax filers (representing 124.0 million tax filers). The numbers of sample observations in each income category are reported in **Table A-1**.

Table A-1. Number of Sample Observations by Income Category

Income Category	1996	2006
Bottom 20%	12,337	15,073
Second 20%	9,241	11,299
Middle 20%	9,892	12,507
Fourth 20%	11,164	13,488
Top 20%	62,596	83,450
Top 5%	50,443	65,138
Top 1%	37,043	43,391
Top 0.1%	19,591	11,707

Source: CRS analysis of 1996 and 2006 IRS SOI Public Use Files.

U.S. taxes from all sources should be included in an analysis of the effective tax burden and this analysis considers the individual income tax, the corporate income tax, and the payroll tax.[44] But three issues need to be addressed regarding the burden of the corporate income tax.[45] The first issue is the question of who actually bears the burden of the corporate income tax. Several recent studies estimate that most or all of the burden of the corporate income falls on labor through reduced wages. These studies, however, have been shown to suffer from various methodological deficiencies.[46] The evidence suggests that most or all of the burden of the corporate income tax falls on owners of capital.[47] In the analysis, it is assumed that 100% of the corporate income tax

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[44] See CBO, *Average Federal Tax Rates in 2007*, June 2010.

[45] In addressing these issues, various assumptions need to be made regarding the burden of the corporate income tax. In cases where different decisions regarding assumptions could be made, the one that would "bias" against finding a Buffett rule result was chosen.

[46] See CRS Report RL34229, *Corporate Tax Reform: Issues for Congress*, by Jane G. Gravelle and Thomas L. Hungerford; and Jennifer C. Gravelle, *Corporate Tax Incidence: A Review of Empirical Estimates and Analysis*, CBO working paper 2011-01, June 2011, for reviews of these studies and an analysis of their deficiencies.

[47] Ibid.

falls on capital income (dividends and capital gains), which mostly affects high-income taxpayers (almost 60% of all capital gains and dividends are received by taxpayers with income over $1 million).

Second, not all of this income is taxed at the corporate level. The Internal Revenue Service (IRS) reports that a substantial proportion of capital gains and losses (short-term and long-term) reported by taxpayers are passthrough gains or losses (that is, the income is not reported on any corporate tax form and passes directly to individual taxpayers to report on their individual income tax form), gains or losses from the sale of government bonds, and other assets never taxed at the corporate level.[48] For example, hedge funds are generally organized as partnerships. Under current tax law, a partnership does not pay income taxes; instead gains and losses flow through to the partners who include it on their income tax returns.

The income from the partnership is often taxed as capital gains or qualified dividends at reduced tax rates (i.e., 15%). Essentially, if the partnership earns long-term capital gains or qualified dividends, the income flows through to the partners as long-term capital gains or qualified dividends and is taxed accordingly—the income is not recharacterized (e.g., from capital gains to ordinary income) as it passes through from the partnership to the individual partners. Some partners receive partnership interests in exchange for contributions of capital (that is, investments) and are referred to as limited partners; some partners receive partnership interests in exchange for services (carried interests) and these are general partners who actively manage the partnership.[49] Most of this income is taxed at the reduced long-term capital gains rate and is not taxed at the corporate level.[50] It is estimated that 53.6% (1996) and 37.4% (2006) of net capital gains are taxed at the U.S. corporate level as well as the individual level (such as corporate stock, mutual funds, and capital gains distributions).[51] It is also assumed that all dividends are taxed at both the corporate and individual levels.

The third issue concerns the corporate tax rate. The statutory corporate tax rate in 2010 was 39.2%, which includes federal and state corporate taxes. However, several studies estimate the effective corporate tax rate is between 22.2% and 27.1%.[52] After subtracting out the state corporate tax rate from the highest estimate, it is assumed that the effective corporate tax rate is 24.2%.

Taxes attributed to tax filers that is not directly paid by them (that is, the employer's contribution of the payroll tax and corporate taxes) is also imputed to the tax filer as income. Total income includes income from all sources reported on the 1040 form including tax-exempt interest and

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[48] Janette Wilson and Pearson Liddell, "Sales of Capital Assets Reported on Individual Tax Returns, 2007," *Statistics of Income Bulletin*, Winter 2010, pp. 75-104.

[49] See CRS Report RS22689, *Taxation of Hedge Fund and Private Equity Managers*, by Mark Jickling and Donald J. Marples; and CRS Report RS22717, *Taxation of Private Equity and Hedge Fund Partnerships: Characterization of Carried Interest*, by Donald J. Marples.

[50] About 45% of net capital gains are from passthrough net gains or a transaction involving partnership, S corporation, and estate or trust interests. It is unknown how much of this was from the sale of corporate equities.

[51] The results are virtually unchanged if it is assumed that 100% of net capital gains are taxed at both the corporate and individual levels.

[52] CRS Report R41743, *International Corporate Tax Rate Comparisons and Policy Implications*, by Jane G. Gravelle.

Social Security benefits that are excluded from adjusted gross income as well as the imputed taxes. Income is adjusted for inflation (converted to 2010 constant dollars) using the CPI-U-RS.[53]

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[53] The CPI-U-RS provides historical estimates of the consumer price index using the current method rather than the methods in place in a particular year. See www.bls.gov/cpi/cpirsdc.htm.

Appendix B. Method

The decomposition of the Gini coefficient by income source applied the method developed by Robert Lerman and Shlomo Yitzhaki.[54] The contribution of each income source (k=1 ... K) to the overall Gini coefficient depends on (1) how important the income source is to total income (S_k), (2) how the income source is distributed (G_k), and (3) how the income source is correlated with total income (R_k). The overall Gini coeffienct (G) can be written as:

$$G = \sum S_k \times G_k \times R_k$$

If S_k, G_k, or R_k are close to zero, then the particular income source does not make a significant contribution to income inequality. Furthermore, how an income source's contribution to inequality changes over time depends on how the three components change over time. For example, although inequality of wages and salaries increased between 1996 and 2006, the contribution of wages and salaries to overall inequality decreased because wages and salaries were a smaller share of total income in 2006 than in 1996 (that is, S_k decreased between 1996 and 2006 from 91.1% to 79.3%).

The estimates of the decomposition are reported in **Table B-1**. In the panel for each year, the three components for each income source are displayed as well as the income source's contribution to the overall Gini coefficient (which is also reported in **Table 4**). S_k multiplied by 100 is the share of total income reported in **Table 4**.

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[54] Robert I. Lerman and Shlomo Yitzhaki, "Income Inequality Effects by Income Source: A New Approach and Applications to the United States," *Review of Economics and Statistics*, vol. 67, no. 1 (1985), pp. 151-156.

Table B-1. Decomposition of the Gini Coefficient, 1996 and 2006

Income Source	1996				2006			
	S_k	G_k	R_k	$S_k \times G_k \times R_k$	S_k	G_k	R_k	$S_k \times G_k \times R_k$
Wages and Salaries	0.911	0.562	0.804	0.412	0.793	0.587	0.791	0.368
Interest Income	0.054	0.923	0.668	0.033	0.040	0.949	0.770	0.029
Dividends and Capital Gains	0.103	1.067	0.838	0.092	0.143	1.075	0.901	0.138
Business Income	0.087	1.459	0.608	0.077	0.098	1.450	0.642	0.092
Social Insurance Income	0.038	0.908	0.445	0.016	0.050	0.867	0.356	0.016
Retirement Income	0.101	0.917	0.612	0.056	0.124	0.915	0.715	0.081
Other Income	0.005	0.892	0.592	0.002	0.006	1.353	0.505	0.004
Taxes	-0.299	-0.664	-0.937	-0.186	-0.254	-0.712	-0.929	-0.168

Source: CRS analysis of 1996 and 2006 IRS SOI Public Use Files.

Notes: Estimated using Stata package written by Philippe Van Kerm, *sgini—Generalized Gini and Concentration coefficients (with factor decomposition) in Stata*, v1.1, CEPS/INSTEAD, February 2010.

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