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A TALE OF THREE TAXPAYERS

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ABSTRACT

How have federal personal income tax obligations evolved over the past 60 years? A common perception is that the federal income tax burden on the poor has increased while the tax burden on the rich has declined. This study focuses on three archetypical households. The first consists of two children and a single mother earning 125 percent of the current poverty line. The second consists of two children and a married couple whose income is close to the current median household income. The third consists of two children and a married couple whose income is just below that of the top 1 percent of current earners. All three households maintain constant inflation-adjusted income over time. The changes in relative and absolute federal tax liabilities measured in 1953, 1973, 1993, and 2013 are informative and somewhat surprising—and cannot be summarized in any simple slogan. In absolute dollars the rich and poor seem to have fared best, while in relative terms the poor have benefitted disproportionately.

JEL codes: A1, H2, I3

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Which of the following claims do you believe? Changes in the federal income tax over the past 60 years have benefited the rich at the expense of the poor and the middle class. Changes in the federal income tax over the past 60 years have benefited the poor at the expense of the rich and the middle class. Changes in the federal income tax over the past 60 years have benefited the rich and the poor at the expense of the middle class. The abovementioned claims contradict each other, yet each is likely believed by significant portions of the population. So which is true? This essay proposes a simple method to sort this out and concludes that, in a way, they all are.

The nonpartisan Congressional Budget Office projects that the federal individual income tax will collect about $8.3 trillion in tax revenue or 8.8 percent of GDP over the fiscal years 2014–2018. The individual income tax is the largest revenue source for the federal government.[1] The federal income tax finances federal expenditures. It also directs resources to particular uses through so-called tax expenditures in the code. Tax deductibility of charitable contributions, for example, is designed to increase giving to charitable institutions by taxpayers. Moreover, the progressive nature of the federal income tax impacts posttax income distribution. If a household with an annual income of $1 million pays a higher percentage of its income to the federal government than the $10,000-a-year household pays, the posttax income ratio between the two households falls. Whether by design or political happenstance, it is clear the federal income tax code has impacts beyond its immediate fiscal implication for federal spending.

Over the past six decades, the marginal tax rates assessed on top income earners have declined dramatically. As recently as 1963, the highest rate was 91 percent; since 1987, the top rate has varied between 28 percent and the current 39.6 percent. It should also be noted that these reductions in top marginal tax rates were accompanied by significant tax reductions in rates assessed on lower income brackets. In

1. See "Individual Income Tax Receipts and the Individual Tax Base—February 2013 Baseline," Congressional Budget Office, 2013, http://www.cbo.gov/publication/43901. The weighted average for the entire five-year time frame is 8.8 percent. The Congressional Budget Office's projection is based on an assumption of economic growth, which tends to elevate the revenue percentage over time.

1953, for example, the marginal tax rate associated with the lowest tax bracket was 22.2 percent, whereas in 2013 it stood at 10 percent. An examination of the "Federal Income Tax Rates History" available at Tax Foundation's website shows that since 1950 tax rates have generally been cut across all brackets and that brackets have been consolidated in the major tax reforms of the '60s, the '80s, and the first decade of the 21st century.[2] Table 1 shows how the top rate, bottom rate, and number of brackets for joint returns have evolved over 20-year intervals since 1953. These developments, along with indexation of tax brackets to inflation in the early 1980s, imply that the comparative burden of taxation cannot be encapsulated in a single statistic such as the highest marginal tax rate. This study focuses exclusively on income taxes for a consistent examination of how the burden of this tax has changed over time. Payroll and excise taxes disproportionately affect lower- and middle-income families, but these taxes are not factored into the following analysis.

TABLE 1. TOP MARGINAL TAX RATES, LOWEST MARGINAL TAX RATE, REAL AND INFLATION-ADJUSTED INCOME THRESHOLDS FOR BRACKETS, AND NUMBER OF BRACKETS—1953, 1973, 1993, AND 2013

Year		Top marginal rate	Lowest marginal rate	Number of brackets
1953	Rate	92%	22.2%	26
	Income threshold in nominal dollars	$300,000	$2,000	
	Income threshold in 2013 dollars	$2,610,997	$17,406	
1973	Rate	70%	14%	25
	Income threshold in nominal dollars	$200,000	$1,000	
	Income threshold in 2013 dollars	$1,046,751	$5,265	
1993	Rate	39.6%	15%	5
	Income threshold in nominal dollars	$250,000	$36,900	
	Income threshold in 2013 dollars	$402,039	$59,341	
2013	Rate	39.6%	10%	7
	Income threshold in nominal dollars and 2013 dollars	$450,000	$17,850	

Source: Tax Foundation, Bureau of Labor Statistics, consumer price index calculator; and author's calculations.

2. See "Federal Income Tax Rates History," Tax Foundation, 2014, http://taxfoundation.org/article/us-federal-individual-income-tax-rates-history-1913-2013-nominal-and-inflation-adjusted-brackets. Adjustment in 2013 dollars based on author's calculations from the Bureau of Labor Statistics consumer price index website at http://data.bls.gov/cgi-bin/cpicalc.pl?cost1=1000&year1=2011&year2=2013.

Much of the popular rhetoric about taxation implies that there has been a systematic shifting of the tax burden from the wealthy to the middle and lower classes over the past 60 years. The wealthy in this scenario have obtained the lion's share of benefits from tax cuts. Cries to increase taxes on the "top 1 percent" are a recent reflection of this view. A 2011 article captures the flavor of this populist strain: "the effective tax burdens on the wealthy are lower now than at almost any time in the past fifty years, thanks to past rate cuts and a proliferation of tax exemptions which . . . shower most of their benefits on the affluent."[3]

There are many ways to parse tax data and changes in tax codes. The IRS reports annual summary data of the number of tax returns by various income categories. It also reports the total dollar amount of income and federal income taxes paid in each category. For example, it is a straightforward exercise to calculate the average income of taxpayers earning between $50,000 and $70,000 and the average federal tax liability of the households. One way of considering the issue of how comparative federal income tax liabilities have evolved over the past 60 years is to delve in detail into that data.[4]

This essay takes a different approach. It will not offer a host of summary charts on tax burdens, nor will it provide a nuanced calculation of progressivity measures. Rather, it will examine the taxes paid by three hypothetical but archetypical American households. Each household's income, deduction status, and tax liability are estimated for 2013. Each household's pretax earnings and tax deductions are then held constant in inflation-adjusted terms for 1953, 1973, and 1993. What impact did the federal income tax have on their command over goods and services in each year? How has the evolution of the tax code affected each household's disposable income? The first archetypical household consists of two children and a single mother earning just enough to keep the family above the poverty line; the second consists of two children and a married couple earning close to the median household income;[5] the last consists of two children and a married couple earning just below the threshold of the top 1 percent of all earners.[6]

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3. See Paul Glastris, "Playing Chicken with History," *Washington Monthly*, July/August 2011, http://www.washingtonmonthly.com/magazine/julyaugust_2011/editors_note/playing_chicken_with_history030506.php.

4. For example, the IRS routinely calculates what percentage of federal income tax revenues are collected from the top 1 percent, 5 percent, 10 percent, and 50 percent of all households. These data can be found at http://www.irs.gov/file_source/pub/irs-soi/09in03etr.xls. Other approaches may calculate pretax and posttax Gini coefficients for income and compare how they have changed over time.

5. Note that because real income has risen over the six-decade time frame, the income calculated for the households in earlier decades tends to upgrade their relative income status in the income distribution. When the median-income household of 2013's income is adjusted into 1953 dollars using the standard consumer price index, its income is well above the median household income of 1953.

6. Why these three archetypes? Three households allow for tractable comparisons. Much media attention is placed on middle-income households, lower-income single-parent households, and aspiring well-off households. Of course, other households could be considered. However, the three chosen households

DIFFERENT FEDERAL TAX STORY—1953, 1973, 1993, AND 2013

Over the period from 1946 to 2018, tax data and projections indicate that the federal individual income tax raised an amount of revenue on average equal to 8 percent of GDP. The percentage has ranged from a low of 5.7 percent in 1949 to a high of 10.2 percent in 2000. The percentage for three-quarters of the years falls between 7.2 percent and 8.8 percent.[7]

Splitting the time frame between periods is revealing. For the two decades of the '50s and '60s, the income tax as a percentage of GDP averaged 7.6 percent. It subsequently increased to 8.2 percent in both 20-year periods of the '70s and '80s and the '90s and the decade following 2000. The absence of variation from decade to decade is striking, especially given the general trend toward lower marginal tax rates for all classes.

The year-in-year-out variation, however, is as much a by-product of general economic conditions as the specific marginal tax rates and brackets. After major tax cuts were enacted, tax revenues as a percentage of GDP tended to decline. However, during periods of robust economic growth, household incomes tended to increase and those rising incomes became subject to higher marginal tax rates. This increases the average tax of the tax code. Just the opposite occurs when the economy declines. It is as if policy and economic events gravitate toward the federal income tax revenue equal to one-twelfth of GDP. So how have the typical earners fared over time?

LOW-INCOME SINGLE MOTHER WITH TWO CHILDREN

The first household consists of a single mother and her two children. The mother's income is 125 percent of the 2013 poverty line.[8] Her children are eligible for a break on school lunches and a number of other benefits not part of this calculation.[9]

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are of widespread interest. Also, absent from this discussion are payroll or social security taxes. However, many of the qualitative results of the analysis are not appreciably affected by their inclusion. But at a more fundamental level, the increasing importance of social security taxes and their evolution over time is a story that deserves treatment in its own right. Suffice it to say that as both the social security tax rate and the amount of income subject to social security taxes have risen over time, the tax has become more important and less regressive.

7. The data used in this paragraph are available in table format to accompany this paper; see "Receipts by Source as Percentages of Gross Domestic Product, 1934–2017" at http://mercatus.org/publication/tale-three-taxpayers. Data on Federal Income Tax Revenue and GDP are from "Tax Facts: Historical Source of Revenue as Share of GDP," Urban Institute and Brookings Institution, 2014, http://www.taxpolicycenter.org/taxfacts/displayafact.cfm?Docid=205. Data are supplemented by the author's calculations.

8. Poverty-line data are taken from the US Department of Health and Human Services' "2013 Poverty Guidelines" at http://aspe.hhs.gov/poverty/13poverty.cfm.

9. The low-income household is eligible for a number of federal, state, and local benefit programs such as food stamps and access to low-cost housing that are *not* included in this calculation. For a detailed analysis of these benefits, see Michael Tanner and Charles Hughes, "The Work versus Welfare Trade-Off: An Analysis of the Total Welfare Benefits by State" (Washington, DC: Cato Institute, 2013), http://www.cato.org/publications/white-paper/work-versus-welfare-trade.

Her 2013 gross adjusted income is $24,412. Using the federal consumer price index from June of each of the reference years makes her equivalent nominal income in the previous years

1953	$2,718
1973	$5,604
1993	$15,139
2013	$24,412

In each year, she files as a single earner. She receives three exemptions, the standard deduction, and all available tax credits.[10]

Her final tax liability in nominal terms and as a percentage of her earned income is as follows:

1953	$144	3%
1973	$299	5.3%
1993	*($444)*	−2.9%
2013	*($4,594)*	−18.8%

A low-income single parent's federal tax liability has never been large. Part of the design of the federal tax system has always been to assess a relatively low tax liability on low-income earners. This liability was essentially unchanged between 1953 and 1973 at just above 5 percent of this hypothetical mother's earnings. What is striking is that the low-income single mother became a beneficiary of the income tax in 1993, when she not only paid no federal income tax but also got refundable tax credits of $444, about 3 percent of her income. This benefit expanded over the next 20 years as her refundable tax credit rose to over $4,500, almost 19 percent of her income. If the low-income single mother were paying in 2013 what she was paying in 1953 as a percentage of her income, her tax liability would be $1,294, an amount that would reduce her disposable income by $5,888.

The claim to negative taxes is primarily a result of two tax policies: the child tax credit (CTC) and the earned income tax credit (EITC); the single-parent household qualifies for $2,000 in child tax credits, which are also refundable. These credits began in 1997 under the Clinton administration and were expanded after 2000 under both the Bush and the Obama administrations.

Originally established in 1975 under the Ford administration, the EITC has been expanded by various administrations with bipartisan support. The EITC currently supplements low-income household earnings by matching every dollar earned with a 40-cent refundable tax credit up to $13,430 for a single parent with two children.

10. The sources for these and all subsequent calculations are listed in the data appendix.

No additional credits are awarded for additional income up to $17,350. For every dollar earned beyond $17,530, the earner loses 21.06 cents in tax credits.

This makes the EITC, like most government benefits designed to help the working poor, a means-tested program. It implies that if low-income earners take risks or bear costs in attempting to increase their income, success will be "punished" by the loss of government benefits. The EITC alone imposes a 21.06 percent marginal tax rate on earnings above $17,530.[11]

MIDDLE-INCOME COUPLE WITH TWO CHILDREN

The second hypothetical household, consisting of a married couple and two children, has close to the median household income for 2013 with a gross adjusted income of $50,000. Using the federal consumer price index from June of each of the reference years, the equivalent income in the previous years is listed below. Note that these figures are not the median household income of the years listed. I calculate that the median income in 1953 was only $3,700, reflecting the fact that median incomes have risen in real terms over the past 60 years:

1953	$5,567[12]
1973	$11,477
1993	$31,006
2013	$50,000

In each year, the couple files a joint return. They receive four exemptions and take the standard deduction and all available tax credits.

The final tax liability in nominal terms and as a percentage of their earned income are as follows:

1953	$579.10	4%
1973	$1,224	10.7%
1993	$2,686	8.7%
2013	$1,352	2.7%

The middle-income couple's federal tax liability rose slightly between 1953 and 1973, from 10.4 percent of their earnings to 10.7 percent. The tax liability declined to 8.7 percent of income by 1993 and shrank to 2.7 percent by 2013. If the couple

11. "Taxation and the Family: What Is the Earned Income Tax Credit?," Tax Policy Institute (Urban Institute and Brookings Institution joint venture), last modified February 12, 2014, http://www.taxpolicycenter.org/briefing-book/key-elements/family/eitc.cfm.

12. Taxpayers who earned the medium income in each year would see less of a decline in their tax liability as a percentage of their income because their 1953 tax liability would have been less.

were paying in 2013 what they paid in 1953 as a percentage of their income, the tax liability would be $5,200, reducing disposable income by $3,848. The 2013 federal tax liability is 25 percent of what it would be had the 1953 code never been modified.

The tax relief received is a result of not only the general decline in marginal tax rates but also the child tax credit that saves the household $2,000. Interestingly, the household's income is just above the 2013 threshold of $48,378 for qualifying for the earned income tax credit.

UPPER-INCOME COUPLE WITH TWO CHILDREN

The third hypothetical household also consists of two children and a married couple, but their earnings put this household close to the top 1 percent of all households filing returns. The couple's 2013 gross adjusted income is $350,000.[13] Using the federal consumer price index from June of each of the reference years shows the equivalent income in the previous years as listed below:

1953	$38,972
1973	$80,341
1993	$217,041
2013	$350,000

The couple files a joint return and receives four exemptions. They also itemize deductions, which are 16.7 percent of earnings. This figure is based on 2010 data on average deductions for earners in the earnings range. The final tax liability in nominal terms and as a percentage of the couple's earned income is as follows:

1953	$10,611	27.2%[14]
1973	$16,269	20.2%
1993	$47,255	21.8%
2013	$67,412	19.3%

Between 1953 and 1973, the upper-income household's federal tax liability fell from 27.2 percent of the couple's earnings to 20.2 percent. The tax liability actually increased to 21.8 percent of their income by 1993 but declined to a low of 19.3 percent by 2013. If they paid in 2013 what they were paying in 1953 as a percentage

13. It is assumed that the household income is ordinary labor income and not capital gains or other forms of income subject to preferential treatment.

14. The 1953 income of $10,621 would have placed the taxpayer in the top one-fourth of 1 percent of earners in that year. A household that earned just enough to qualify for the top 1 percent would have seen less of a decline in its tax liability as a percentage of income over the past 60 years because its 1953 tax liability would have been less.

of income, their tax liability would be $95,200, reducing their disposable income by $27,788. Their federal tax liability is 29 percent less in 2013 than it would be had the 1953 code never been modified.

Note that the upper-income household receives neither the earned income tax credit nor the child tax credit. The decline in its tax liability is exclusively attributable to reductions in marginal tax rates. Interestingly, most of the gain came from the lowering of marginal tax rates and rebracketing that occurred before the Reagan tax cuts.

WHO GOT THE BIGGEST TAX BREAK?

The tax arithmetic presented indicates that all three taxpayers pay less in taxes in 2013 than they would have in previous years. If the tax code had been unchanged since 1953, the disposable posttax income of all three would be *thousands* of dollars less. But who got the largest tax cut? Here is where the parsing and spinning of data often happens. Imagine the following three headlines:

"Rich household's tax breaks greater than income of earner near poverty line"

"Tax cuts give low-income worker benefits three times those of middle and high earners"

"Middle-income worker's tax breaks small compared to those of rich and poor"

The first headline is consistent with a view that the 60 years of revising the tax code has helped the rich. The second indicates that the poor have received most of the benefit of tax cuts. The third indicates that the middle class has been unfairly shut out of the tax-cutting bounty. Although the headlines seem contradictory, all three are supported by the data.

The upper-income household's 2013 tax savings compared to the 1953 code are $27,788, which is more than the single-mother's earnings of $24,412—the first headline is statistically factual.

The lower-income household's disposable income in 2013 is 24 percent more than it would be had the 1953 code been in place. Comparable percentages for the middle-income household and upper-income household are 7.7 percent and 7.9 percent, respectively—the second headline is statistically factual.[15]

15. The low-income, single-parent household's $5,888 in tax savings as a percentage of $24,412 in earnings are 24 percent, the middle-income household's $3,848 in tax savings as a percentage of $50,000 in earnings are 7.7 percent; the upper-income household's $27,788 in tax savings as a percentage of $350,000 in earnings are 7.9 percent.

The middle-income household's tax savings in dollar terms are only $3,848, while those of the upper-income household are $27,788 and those of the lower-income household, which earns less than half of what the middle-income household earns, are $5,888. Moreover, the middle-income household's tax savings as a percentage of income are the lowest of the three—the third headline is statistically factual.

HOW DOES EVERYONE GET A TAX BREAK?

If all three of the taxpayers are paying less today than in the past, then how is it possible for federal income tax revenue to be a relatively constant proportion of GDP? The answer lies in per capita GDP growth. Measured in 2009 constant dollars, per capita GDP was $16,037 in 1953. By the same measure, it was $49,283 in 2012. This is more than a threefold increase. The average annual percentage increase in real per capita GDP during that time was just over 1.9 percent. Although per capita GDP and household income are not identical measures, they clearly correlate. In essence, income has risen, driving more earners into higher tax brackets.

Put another way, the exercise presented here implies that all three households had stagnant real income. Yet, on average, real income rose for most households. There are, in effect, more upper-income households today than in 1953—meaning that even as such households and, indeed, all households surrender a lower percentage of their income to the federal government, what the federal income tax collects remains a relatively constant portion of GDP.

It is interesting to speculate whether the economic growth that spawned the increase in earnings, and especially earnings in the upper-income household, would have occurred had marginal tax rates remained at their 1953 level. In 1953, the rich household faced a marginal tax rate of 67 percent. In 2013, that rate was 33 percent. It is certainly plausible that this halving of the marginal tax rate at the top end of the brackets facilitated at least in part the economic growth that allowed for cuts in marginal tax rates at lower brackets and provisions that are designed to benefit lower- and middle-income workers.

The analysis suggests a kind of dynamic inevitability of income tax cuts in a growing economy. As the economy expands, taxpayer income rises, and under a progressive tax system, more households are subject to higher marginal tax rates. This tends to increase the federal income tax take as a percentage of GDP. This likely increases both the political demand and the fiscal ability to offer tax cuts—and explains their bipartisan appeal.

CONCLUSION

So what is the conclusion? The federal income tax imposes less of a burden on all three archetypical households today than it did 60 years ago. Which household got the "biggest" cut? The answer depends on what measure is used. Because the rich

household earned more and pays more in taxes, it is hardly surprising that its tax cut is large compared to those of less affluent households when measured in dollars. Yet as a percentage of earned income, the biggest gainers from tax changes have been the lower-income households. Middle-income households have also obtained significant tax relief.

APPENDIX: TAX-INCOME DATA SOURCES AND USES

The selection of the three households' income seems arbitrary—and it is. The 2013 poverty line provides a metric for the working-mother, low-income household. Setting this single parent's income at 125 percent of the poverty line has no particular justification except that it puts her slightly above the poverty line.

The middle-income, two-parent family is designed to be the median-income household. There are understandably no data on household median income for 2013 yet. The most recent data from the US Census Bureau indicate that median household income has declined. In 2009, it was $49,777 in current dollars. Rather than modeling or forecasting projected median income for 2013, the $50,000 figure was chosen.

The income of the $350,000 household is obviously seven times that of the middle-income household. The $350,000 income level is also at the median of the $200,000–$500,000 adjusted gross income (AGI) category, for which the IRS reports detailed tax data.[16]

In 2010, those with adjusted gross income above $500,000 accounted for the top 0.6 percent of all income returns filed. This implies that the threshold for being in the top 1 percent was somewhere in the $200,000–$500,000 category. The $350,000 AGI is likely just below the top 1 percent. The 2010 data indicate that for the $200,000–$500,000 AGI range, itemized deductions for married-filing-jointly returns equaled 16.67 percent of these couples' total income. This was used to calculate the deductions the upper-income household took in each year.

The actual calculation of tax liability is straightforward. Data for the exemptions and standard deductions in nominal dollars for each year were downloaded from the IRS, *Forbes Magazine*, and the Tax Policy Center.[17]

Tax tables were found at the Tax Foundation.[18] Data for the EITC are from "The Earned Income Tax Credit" by V. Joseph Hotz and John Karl Scholz for the National Bureau of Economic Research and "Taxation and the Family" from the

16. "SOI Tax Stats—Individual Statistical Tables by Size of Adjusted Gross Income," IRS, last modified May 14, 2014, http://www.irs.gov/uac/SOI-Tax-Stats---Individual-Statistical-Tables-by-Size-of-Adjusted-Gross-Income.

17. Robert A. Wilson for the IRS, "Personal Exemptions and Individual Income Tax Rates, 1913–2002," data release, accessed May 19, 2014, http://www.irs.gov/pub/irs-soi/02inpetr.pdf; Kelly Phillips Erb, "IRS Announces 2013 Tax Rates, Standard Deduction Amounts and More," *Forbes*, January 15, 2013, http://www.forbes.com/sites/kellyphillipserb/2013/01/15/irs-announces-2013-tax-rates-standard-deduction-amounts-and-more/; "Historical Standard Deduction," Tax Policy Institute (Urban Institute and Brookings Institution joint venture), May 12, 2014, http://www.taxpolicycenter.org/taxfacts/displayafact.cfm?Docid=171.

18. "Federal Individual Income Tax Rates History," Tax Foundation, accessed May 19, 2014, http://taxfoundation.org/sites/taxfoundation.org/files/docs/fed_individual_rate_history_nominal_adjusted-2013_0523.pdf.

Tax Policy Center.[19] The CTC was calculated using the IRS 2012 forms—because the credit is a fixed dollar amount, it will not change in 2013.[20]

The AGIs for the three households were subject to sensitivity analysis. The single-parent, low-income household's AGI was varied in 12.5 percent increments from 50 percent of the poverty line to 200 percent of the poverty line; the middle-income household's AGI was varied in $2,500 increments from $40,000 to $60,000; and the upper-income household's AGI was varied in $50,000 increments from $250,000 to $500,000. Although the actual tax liabilities vary, the qualitative conclusions are largely unaffected. This spreadsheet is available to any interested reader by emailing the author at cbohanon@bsu.edu.

19. V. Joseph Hotz and John Karl Scholz, "The Earned Income Tax Credit," in *Means-Tested Transfer Programs in the United States*, ed. Robert A. Moffitt for the National Bureau of Economic Research (Chicago: University of Chicago Press, 2003), http://www.nber.org/chapters/c10256.pdf; "Taxation and the Family: What Is the Earned Income Tax Credit?," Tax Policy Institute (Urban Institute and Brookings Institution joint venture), last modified February 12, 2014, http://www.taxpolicycenter.org/briefing-book/key-elements/family/eitc.cfm.

20. See http://www.irs.gov/pub/irs-pdf/p972.pdf and http://www.irs.gov/pub/irs-pdf/f1040s8.pdf.