

Waves and Cliffs: Marginal Earnings Incentives in the Affordable Care Act

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Abstract. This paper examines the marginal earnings incentives that are implicit in the subsidy schedule of the Affordable Care Act for taxpayers who purchase health insurance through the exchanges. Using tax return data from 2011 and 2012 matched to premiums available on health insurance exchanges, we estimate that around 2.6 million taxpayers will face average implicit tax rates in excess of 10%, and that these rates tend to be higher for married and older taxpayers. We also estimate that around 85,000 taxpayers who were likely to have purchased insurance in an exchange had income between 390% and 410% of the Federal Poverty Line (FPL), and over 30% of these will face a cliff in excess of \$3000, though close to 40% of these will face a cliff smaller than \$100.

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1. Introduction

In 2010, the Affordable Care Act (ACA) was signed into law, which made several changes to the health insurance market. These included the establishment of state health insurance marketplaces, hereafter referred to as “exchanges,” through which individuals may purchase health insurance policies; modified community rating regulations, which prevent insurance companies from charging different premiums based on health status; guaranteed issue regulations, which prevent insurers from excluding anyone because of pre-existing conditions; and subsidies for low and moderate income taxpayers to purchase health insurance. In this paper, we examine the marginal earnings incentives that are implicit in the subsidy schedule of the Affordable Care Act for taxpayers who purchase health insurance through the exchanges.

Under the ACA, a subsidy is available for purchase of insurance on an exchange in the form of a tax credit for families with income up to 400% of the Federal Poverty guideline (FPL).¹ This subsidy is calculated by comparing the price of the second-lowest silver plan to the maximum a family is expected to pay for health insurance. If the former is greater than the latter, taxpayers with Modified Adjusted Gross Income (MAGI) below 400% of the Federal Poverty Line² (FPL) receive a subsidy for the difference. Because the maximum that a family is expected to pay is an increasing function of income, however, additional earnings can lead to a lower subsidy amount, resulting in an implicit tax on those earnings.

Policymakers and academics have long been concerned about earnings incentives implicit in tax policy. A substantial literature, most recently surveyed in Keane (2011) has examined the

¹ Except in limited circumstances, families must have income of at least 100% of FPL.

² For tax credits in the 2014 policy year, the 2013 FPL amounts apply. In the 48 contiguous states, the FPL is \$11,490 for a single person household, with an increase of \$4020 for each additional person in the household. Amounts for Alaska and Hawaii are somewhat larger. See <http://aspe.hhs.gov/poverty/13poverty.cfm>

labor supply impacts of marginal income tax rates, and has generally found small elasticities for men (though with some exceptions) and larger elasticities for women, though some recent studies have found married women's labor supply behavior to be similar to married men's in recent years.³ Another thread of the literature has examined policies that impact low income individuals. These studies have generally found that the Earned Income Tax Credit induces single mothers to work, but has little impact on hours of work.⁴ Still another branch of the literature has widened the focus beyond labor supply behavior to look at the extent to which income generating activities are affected by taxation. A survey of that literature in Saez, Slemrod, and Giertz (2012) finds that the elasticity of income to the net of tax share likely falls somewhere between 0.12-0.4, with higher elasticities for higher income individuals.

Several recent papers have started to look at the impacts of the ACA on labor market behavior. Akosa Antwi, Moriya, and Simon (2013) look specifically at a provision of the ACA that requires health insurance policies to cover dependent children up to the age of 26. Though the main focus of the paper is on the health insurance coverage effects of this provision, they do find that young adults reduced their labor supply on the intensive (though not extensive) margin. Further, Bailey and Chorniy (2014) and Bailey (2013) use differences in differences, comparing those above 26 to those below before and after policy implementation, and find a positive impact on self-employment among young adults, but no effect on job lock. However, Heim, Lurie, and Simon (2014) use tax data and a triple difference strategy, additionally comparing those whose parents are likely to have health insurance to those whose parents do not, and find no substantial impact on labor market outcomes on dependents under the age of 26.

³ See, for example, Blau and Kahn (2007) and Heim (2007).

⁴ See Eissa and Hoynes (2006).

Researchers have only recently, however, started looking in depth at the earnings incentives implicit in the ACA. The most notable of these efforts is Mulligan (2013), who attempts to model the impact of all of the ACA's provisions on marginal tax rates using data from the 2011 Current Population Survey, and finds ACA increases marginal tax rates by average of 5 percentage points.

In contrast to Mulligan (2013), the topic of this paper is more targeted. In it, we focus specifically on those who are likely to purchase health insurance in the exchanges, and examine the extent to which their subsidy amounts decrease if they earn additional income. This more targeted approach has a benefit, however, in that we are able to examine in more detail how these implicit tax rates vary by income level, family type, age, and area of the country.

We first tabulate how premium subsidies decline with income, and note that the associated implicit marginal tax rates increase from 2% for taxpayers with incomes up to 133% of FPL to between 10-20% over the 133% to 300% of FPL range. We also note the possibility of a cliff caused by the subsidy schedule as a taxpayer's earnings exceeds 400% of FPL, as well as cliffs at 200% and 300% FPL due to discontinuities in the reconciliation schedule.

We then use tax return data from 2011 and 2012, matched to premiums available on health insurance exchanges, to examine the extent to which taxpayers may face these marginal rates and cliffs. We estimate that around 2.6 million taxpayers will face average implicit tax rates in excess of 10% before reconciliation is taken into account due to their income falling in the 133-300% FPL range. Taking reconciliation into account generally lowers average implicit tax rates, though it introduces spikes in average implicit rates to around 20% for those with income near 200% FPL and 300% FPL. Further we find that average implicit tax rates tend to be higher for married taxpayers and for taxpayers 45 and over.

We estimate that around 85,000 taxpayers who were likely to have purchased insurance in an exchange had income between 390% and 410% of FPL. Close to 40% of these will face a cliff smaller than \$100, though over 30% will face a cliff in excess of \$3000. Further, for about 30% of taxpayers with incomes between 390% and 410% of FPL will the cliff exceed 5% of annual income, and more than half would have higher net-of-subsidy income if their income dropped below 400% FPL.

The paper proceeds as follows. Section 2 describes in detail the premium subsidies in the ACA, and Section 3 describes the data. Section 4 tabulates implicit premium subsidy marginal tax rates, while Section 5 tabulates the sizes of cliffs at 400% FPL. Section 6 concludes.

2. Premium Subsidies in the Affordable Care Act

The ACA provides for subsidies, which come in the form of a premium tax credit (PTC) to income⁵ eligible individuals that do not have access to affordable health insurance from employment or government sources and who purchase health insurance through the exchange. Taxpayers may claim the credit after the end of the year when they file their tax returns. Alternatively, taxpayers may request an advanced PTC (APTC) when they enroll in qualified health insurance purchased through the exchange. The APTC is calculated in a similar manner to the PTC except that the APTC is determined by projected income for the year of coverage as

⁵ The income for the purpose of calculating the PTC and APTC (modified AGI or MAGI) is defined as the Adjusted Gross Income (AGI) on the individual income tax return plus non-taxable social security income plus tax exempt interest plus foreign excluded income.

reported by the applicant and verified by the exchange⁶ whereas the PTC is determined by actual income received during the year of coverage. During the tax filing season following the coverage year, taxpayers must calculate the PTC for which they were eligible based on their actual income in the coverage year. If the APTC paid to the insurer on their behalf exceeds the PTC based on actual income, the taxpayer's tax liability will increase by the excess amount subject to a cap, while if the APTC is smaller than the PTC based on actual income, the taxpayer can claim the difference on their return. This process is known as reconciliation.

The ACA defines the required contribution percentage of family income that a family is expected to pay for a qualified plan. The required contribution percentage is a function of the family income relative to FPL. The required contribution percentages for 2014 are as follows:

<u>Family Income</u>	<u>Required Contribution</u>
Up to 133% FPL	2% of income
133% FPL to 150% FPL	Increases linearly from 3% to 4% of family income
150% FPL to 200% FPL	Increases linearly from 4% to 6.3% of family income
200% FPL to 250% FPL	Increases linearly from 6.3% to 8.05% of family income
250% FPL to 300% FPL	Increases linearly from 8.05% to 9.5% of family income
300% FPL to 400% FPL	9.5% of family income

The credit is calculated as the excess of the benchmark premium plan in the rating area over the required contribution.⁷ Taxpayers with family income at 400% FPL or more are not eligible for the credit. Figure 1a shows the required contribution percentages of income for four types of families (a single individual, a single parent with two children, a married couple, and a married

⁶ The verification is done in many cases by checking previous tax returns. We will assume that the projected income is based on the income as reported in the year of the enrollment. In our case we use the 2011 as the projected income for 2012.

⁷ The cannot exceed the total premium for the family's chosen plan. Hence, if the family enrolled in a cheaper plan than the benchmark plan, the credit would be capped at the plan premiums. We assume throughout the paper that families enroll in the benchmark plans (second lower silver).

couple with two children), while Figure 1b shows the dollar amounts corresponding to the required contribution percentages for the four types of families.

Knowing the premium for the benchmark premium plan in a family's rating area and the required contribution, we can graph the amount of a Premium Tax Credit for which a family would be eligible. In Figure 2 we graph this subsidy for two types of families and at two different ages. Figures 2.A.i and 2.A.ii show subsidy amounts (as a function of income) for 30 and 60 year old individuals who live in rating area with premiums at the 10th, 50th, and 90th percentile of premiums.⁸ There are a few things to note about these figures. First, because premiums are age-rated in most state exchanges, the subsidy a 30 year old would get for a given amount of income is lower than that for a 60 year old. Further, the subsidy the 30 year old single would get, even when living in the 90th percentile premium rating area, phases out to zero at an income amount below 400% of FPL. In contrast, for the 60 year old, at 400% of FPL (or around \$46,000 dollars) the subsidy discontinuously drops to zero. This subsidy "cliff" is around \$1,000 for the 60 year old living in the area with the 10th percentile premium, is \$2,000 for the individual in the median premium area, and is \$4,750 for the individual in the 90th percentile premium area.

Figure 2B shows the same subsidy schedule for a married couple with two children, where the adults are both either 30 years old or 60 years old. For these families, we can see that the subsidy scheduled is higher than for the singles because the premiums are larger. The families with 30 year old adults that live in the 10th or the median premium area still do not face a cliff at 400% of FPL (\$94,201) while a family that lives in the 90th percentile of premium faces about a \$3,000 cliff. In contrast, all of the families with 60 year old adults face a cliff at 400% of FPL

⁸ The sources of data for premiums are described in Section 3.

that ranges from around \$5,000 for a family living in the 10th percentile of premiums to around \$13,500 for a family living at the 90th percentile.

One final thing to note about Figure 2 is that the subsidy schedule is concave between the 133-300% of FPL implying that the rate of the phase-out of the subsidy changes between different ranges of income due to the changing affordability maximum percentage that is specified at the 133, 150, 200, 250,300 and 400 percent of poverty lines. Because the rate of the subsidy declines with income, for every dollar of additional income the additional premium the taxpayer needs to pay is not just the share of maximum payment at the previous income but also the difference in the share between the new income and the old income multiplied by the full amount of their income.

To put it more formally, suppose P is the total premium the tax unit needs to pay, S is the share of income the family needs to pay, and Y is family income. P can be written as

$$(1) P = S(Y)*Y$$

Given this, the amount of the premium tax credit is

$$(2) PTC = \max\{\text{Reference Premium} - P, 0\} = \max\{\text{Reference Premium} - S(Y)*Y, 0\}$$

Hence the change in the PTC with respect to a change in family income (i.e. the premium subsidy implicit tax rate) is given by

$$(3) \frac{\partial PTC}{\partial Y} = \begin{cases} -S - \frac{\partial S}{\partial Y} Y & \text{if } \text{Reference Premium} > P \\ 0 & \text{otherwise} \end{cases}$$

Figure 3A shows the premium subsidy implicit marginal tax rate (assuming income is projected correctly) for similar family and age compositions as in Figure 2. To simplify this figure, we assume that the premiums faced by the taxpayers are high enough that the subsidy does not go to zero until 400% of FPL. As can be seen in the figure, the marginal tax rates show a “wave” pattern, in which they increase between the FPL points at which the ACA defines

specific maximum affordability rates. For example, the implicit tax rate increases between 133-150% FPL, declines at the 150% FPL, increases between 150-200% FPL, decreases at 200% FPL, and so on. Between 300-400% FPL the marginal tax rate of PTC is fixed at 9.5% because the share of the affordability maximum is fixed at that rate. Note that the implicit marginal tax rate can get as high as 17% in some ranges.

Relaxing two of our assumptions (namely, that premiums are high enough not to make the PTC zero, and that income is projected correctly) will affect how Figure 3A looks. First, if PTC at a specific income level is zero then in Figure 3 the marginal tax rate at that level drops to zero (and stays thereafter). Second, as described earlier, the ACA provides for a reconciliation process in cases in which projected income is too high (low) and therefore the APTC is too low (high). In cases in which the taxpayer got too little APTC (that is, where projected income exceeded actual income) the taxpayer will receive with their tax filing an additional credit equal to the difference between the PTC based on the taxpayer's actual income minus the APTC when they file their tax return. However, in cases in which the taxpayer received an APTC that exceeds the PTC based on their actual income, the taxpayer's tax liability will be increased by the difference,⁹ subject to a cap that is based on filing status and actual (not projected) income. The maximum amount is \$300 for single filers with income up to 200% of FPL, \$750 for single filers with income between 200-300% of FPL, and \$1250 for single filers with income between 300-400% of FPL. There is no maximum for single filers with income in excess of 400% FPL. The maximum amounts for non-single filers are doubled.

Given this reconciliation process, one can think of Figure 3 as a long run marginal tax rate and the tax rate after reconciliation as a short term rate. The marginal tax rate after

⁹ These extra payments are considered a tax for all purposes, and so can be used in claiming non-refundable tax credits.

reconciliation is the same as pre reconciliation if the caps do not bind, but they become zero if the caps bind.

Finally, in Figure 3B we graph stylized total marginal tax rate including the PTC, Earn Income Tax Credit, the child tax credit and the employee portion of the payroll taxes (with similar assumptions as in Figure 3A). Those marginal tax rates can approach 60%.

3. Data

To examine the extent to which the implicit premium subsidy marginal tax rates describe above apply to the population of taxpayers, we draw a sample of taxpayers from data maintained by the Internal Revenue Service's (IRS) Compliance Data Warehouse (CDW). The CDW is a repository for many of the various data sources collected by the IRS, including Federal individual tax returns and corresponding information returns.

We start forming our sample by drawing a 1% random sample of tax returns from the universe of tax returns filed in 2011 and 2012. From Form 1040, we pull filing status, various components of total income (including income from wages/salaries and self-employment), the number of children that are claimed as dependents, state, and zip code. We also pull the age of the primary filer for all taxpayers, and the age of the secondary filer for married couples filing jointly, using matched social security records. We then cut the sample to include only taxpayers where at least one taxpayer (primary or secondary) is age 18-64.

To focus on individuals who are likely to be representative of those who purchased health insurance through an exchange in 2014, we exclude any taxpayers for whom a premium for employer-sponsored insurance was listed on either the primary or secondary filer's W2 form.

Our final aim was to cut the sample so that its characteristics matched publicly available tabulations performed by the U.S. Department of Health and Human Services (2014) that 8 million people received coverage from an exchange, and that 85% of those received a subsidy based on their income reported from 2013, a year prior. To do so, from the returns that remained after the prior steps, we identified returns who had the same primary filers in both 2012 and 2011, a year prior. We then drew a stratified random sample of 50,000 returns (given a weight of 100 for each return, this represents 5 million returns), which roughly represent 8 million individuals. The stratification was based on whether the individual would have been eligible for a subsidy based on their year prior income, so that 85% of the resulting sample is predicted to be eligible for a subsidy.

Data on premiums from federal exchanges come from the Office of the Assistant Secretary for Planning and Evaluation (ASPE), which is part of the US Department of Health and Human Services (HHS). For non-federal exchange states, we collect data on premiums through a third party source, ValuePenguin.com.¹⁰ ValuePenguin.com collects information on a number of consumer topics including but not limited to health insurance premiums and serves as a tool for disseminating that data in a centralized manner.

The federal and state exchange premiums are merged to the tax data by zip code, though certain zip codes may span multiple rating areas. We then calculate full family exchange premiums based on the taxpayers' marital status, number of children, and age of each family member.

As noted above, under the ACA, families with MAGI of up to 400% of FPL are eligible for a subsidy for purchase of insurance on the exchange in the form of an Advance Premium Tax

¹⁰ ValuePenguin.com also tabulates premium amounts for the federal exchange states. To verify the quality of the ValuePenguin.com data, we cross-checked the federal exchange premiums against those available from HHS, and found that they matched.

Credit. To calculate the Advance Premium Tax Credit, we make some simplifying assumptions. We use the taxpayer's 2011 income, index it to 2013 levels, and calculate Modified Adjusted Gross Income (MAGI) relative to HHS Federal poverty guidelines from January 2013 to determine the maximum premium payment that an exchange would calculate during enrollment. The APTC subsidy is calculated by comparing the price of the second-lowest silver plan to this maximum premium payment. If the former is greater than the latter, taxpayers below 400% of FPL receive an APTC equal to the difference, while those above 400% of FPL must pay the full premium¹¹.

Next, using the information reported on the 2012 return (indexing the 2012 income to 2014 levels using half year CPIs) we repeat this process to calculate the taxpayer's Premium Tax Credit (PTC). Again, the subsidy is calculated as the difference between the second lowest silver plan and the maximum the taxpayer is expected to pay. We finally impose the reconciliation rules described above to estimate the PTC after reconciliation.¹²

For these calculations, we assume that taxpayers are enrolled for the entire year starting January 1, 2014, and calculate full-year implicit marginal rates and cliffs.¹³ We also assume that taxpayers do not contact the exchanges during the year to report changes in circumstances.¹⁴

Finally, for self-employed health insurance purchasers, we don't take into account any interaction between the premium tax credit and the self-employed health insurance deduction.

¹¹ For simplicity we assume that taxpayers purchase policies that at least as expensive as the second lower silver plans; if the taxpayer purchased a less expensive plan, the subsidy cannot exceed the plan's premium amount. Note, however, that taxpayers with MAGI up to 250% are only eligible for cost-sharing subsidies if they purchase a silver plan. We also assume that taxpayer take the full amount of APTC for which the exchange calculates they are eligible; in practice, taxpayers can take lower amounts.

¹² For these calculations, we assume that taxpayers are enrolled for the entire year starting January 1 (which likely did not hold for many exchange customers in 2014). We also assume that taxpayers do not contact the exchanges during the year to report changes in circumstances.

¹³ In 2014, this did not hold for many exchange customers, as the open enrollment period extended until March 31, 2014. For those who purchased health insurance after January 1, the implicit marginal tax rates and cliffs found here would be pro-rated down by the share of the year during which the individual was not covered.

¹⁴ Taxpayers who report income changes mid-year would face marginal tax rates that are bounded by the without and after reconciliation rates.

Table 1 presents sample statistics. Of the 50,000 taxpayers in the sample, about 60 percent of the sample younger than 45, and slightly less than half the sample is single. Around 20 percent of the sample consists of single parents, with another 20 percent married couple parents, with the balance comprising married couples without children.

4. Taxpayers Subject to Implicit Marginal Tax Rates from Premium Schedule and Reconciliation

We first tabulate the average implicit marginal tax rates that result from the premium schedule among the taxpayers in our sample.

Figure 4 presents average premium subsidy implicit tax rates when taxpayers are grouped by their income as a multiple of FPL.¹⁵ The lighter line presents these rates before reconciliation is taken into account. Consistent with the pattern in Figure 3A, the average implicit tax rate starts below 10% for those with income from 100-133% FPL and increases to between 10-15% for those with incomes up to 300% FPL. Looking back at Table 1, 51.9% of the sample had income between 133-300% FPL, implying that these average implicit tax rates above 10% will apply to almost 2.6 million taxpayers. The average implicit tax rate then falls to just below 7% among taxpayers with incomes from 300% to close to 400% FPL. Note, however, that the average rate over this range remains below that in Figure 3A, because some taxpayers with these levels of income will not receive a subsidy due to the reference plan being less than their expected contribution, and hence their implicit rate is zero. Finally, around 400% FPL, the spike

¹⁵ Premium subsidy implicit tax rates are calculated by increasing wages by \$100 and calculating the change in subsidy that results. Hence, the implicit marginal rate = $S(I)-S(MAGI+100)/100$.

in the implicit rate is apparent, as the subsidy is reduced to zero when income reaches 400% FPL.

The darker line presents these tabulations after reconciliation is taken into account. Comparing the two lines, two patterns are apparent. First, for many income levels, reconciliation serves to dampen the marginal tax rate, since if a taxpayer's income increased compared to what they expected at the beginning of the year, they are limited in the amount of the subsidy that they are required to pay back. Second, the exception to this dampening occurs at cut-points in the reconciliation schedule that are located at 200% FPL and 300% FPL. At these points, the maximum that the individual is required to pay back jumps discontinuously, and so an increase in income to above this level can lead to a discontinuous decrease in the taxpayer's net subsidy amount after reconciliation.

To examine whether the average premium subsidy implicit tax rates vary with demographic characteristics, Figure 5 presents similar tabulations when the sample is split by family type, while Figure 6 presents these tabulations when the sample is split by age.

In Figure 5A, which presents average rates before reconciliation, the average rates are similar for all groups when income is below 250% FPL. Above this point, married couples and married parents tend to have implicit tax rates that are between 3-4 percentage points higher than the averages for singles and single parents, likely due to higher premiums for these groups making it more likely that they would still be receiving a positive subsidy at those income levels. When reconciliation is accounted for in Figure 5B, on the other hand, singles and single parents tend to have higher average implicit rates around 200% FPL. This is likely due to a higher density of singles in this range leading to more singles facing a discontinuous decrease in subsidies as their income rises above the reconciliation schedule cut-point.

Figure 6, which disaggregates the sample into four age groups (under 30, 30-44, 45-54, and 55 and over), shows that average implicit tax rates tend to be higher for older individuals, since older individuals tend to face higher premium prices in the exchanges, and so are more likely to still have a positive subsidy (and hence positive implicit tax rate) at any given multiple of FPL. In Figure 6A, when reconciliation is not taken into account, average implicit tax rates are similar for all groups up to about 200% FPL, and then diverge. Above 200% FPL, compared to the youngest age group, average implicit rates are 3-6 percentage points higher for those 30-44, 6-8 percentage points higher for those 45-54, and 7-8 percentage points higher for those 55 and over. Similar patterns are found in Figure 5B, when reconciliation is taken into account, with the exception that the spike in average implicit tax rates around 200% FPL is larger for the younger groups, likely due to a larger density of individuals around that income level.

To examine the extent to which average implicit tax rates differ across the country, Figure 7 presents these rates, by state, both without and after reconciliation. Across these figures, it is apparent that the average implicit tax rate without reconciliation tends to be higher than after reconciliation. In addition, a few states appear to have higher implicit rates for both measures, including Maine, Vermont, West Virginia, Mississippi, and North and South Dakota, due either to health insurance costs being higher than average (so that more taxpayers have positive subsidies due to higher costs) or more taxpayers having incomes that fall between 150% and 200% FPL (where implicit marginal tax rates are highest).

As is noted above, the average implicit marginal tax rate is driven by a combination of factors, including the fraction of individuals who do not receive a premium subsidy (either because their income is in excess of 400% FPL, or because the reference plan is below the expected contribution for their income level) and the distribution of marginal tax rates among

those who receive premium subsidy (which is driven by the income distribution of this group). To disentangle these two factors, we next examine the extent to which the size of the implicit marginal tax rates resulting from the premium subsidy schedule varies across taxpayers.

Figure 8 presents the distribution of premium subsidy implicit tax rates by family type, both without and after reconciliation. Without reconciliation, among married couples, just under 40% of taxpayers receive no subsidy, while under 25% of taxpayers receive no subsidy among each of the other family types. Among those who receive a subsidy, the modal implicit tax rate for single parents is less than 7.5%, while it is 7.5-10% among married couples, and 12.5-15% among singles and married couple parents, though there is substantial variation within these groups. After reconciliation, larger shares of each subsample receive no subsidy, but the distribution of implicit tax rates among those who receive a subsidy is similar to the without reconciliation distribution.

Finally, Figure 9 presents the distribution of these rates by age. Without reconciliation, the share with no subsidy tends to increase with age. Among those with a subsidy, the modal implicit tax rates for those under 30 and 30-44 is less than 7.5%, while the modal rate for those 45-54 and 55 and older is 15-17.5%. There is again, however, considerable variability within these groups. After reconciliation, the share with no subsidy increases substantially among the younger two and the oldest cohorts, though it is relatively unchanged for those 45-54. Among those with a subsidy, however, the distribution of rates is again similar to the without reconciliation distribution.

5. Taxpayers Subject to Cliffs

We next turn to the earnings incentives associated with the subsidy cliff at 400% FPL, above which any positive premium subsidies are reduced to zero. For these tabulations, we cut the sample to include only those who had income within the 350-450% FPL range, and present separate tabulations for those with income between 350-390% FPL, 390-400% FPL, 400-410% FPL, and 410-450% FPL. Looking back at Table 1, 4.7% of the sample has income between 350-390% FPL, 0.9% have income between 390-400% FPL, 0.8% have income between 400-410% FPL, and 2.7% have income between 410-450% FPL. These figures imply that around 85,000 taxpayers¹⁶ have income in the 390-410% FPL range around the cliff.

Panel A of Figure 10 presents the distribution of the size of this cliff (that is, the amount of subsidy that will be eliminated if income exceeded 400% FPL) for each of the income groups. Across these groups, the distribution of cliff sizes is quite similar. Around 40% of the sample faces a cliff smaller than \$100, suggesting that for a large segment of the sample, the cliff would be unlikely to induce any earnings response. However, non-trivial shares of the sample do face sizable cliffs, with around 6% facing a cliff between \$1500-2000, 9% facing a cliff between \$2000-3000, 12% facing a cliff between \$3000-5000, 13% facing a cliff between \$5000-8000, and 6% facing a cliff in excess of \$8000.

To put the sizes of these cliffs in better perspective, in Panel B of Figure 10 we present the distribution of these cliff sizes normalized by the taxpayer's income. Again, the sizes of the cliffs are similar across income groups. Around 46% face a cliff smaller than 1% of income. However, around 17% of the sample faces a cliff that is between 5-10% of income, and around 11% face a cliff that is in excess of 10% of income.

In Panel C, we compare the size of the cliff to the distance between a taxpayer's income and the cliff to examine the extent to which the taxpayer would benefit by lowering or keeping

¹⁶ This is calculated by $(0.9+0.8)*50,000$ observations * 100 taxpayers/observation.

their income below the cliff. For example, suppose that a taxpayer's income is \$100 above the 400% FPL cliff, and that this cliff is \$2000. In this case, if the taxpayer lowered their income by \$100, they would gain a subsidy twenty times that amount. Generally, any ratio of cliff size to distance of cliff in excess of 100% suggests that the taxpayer would be better off, on net, lowering or keeping their income below the cliff than earning more than the cliff amount. The tabulations in this figure suggest that, among those between 390-400% FPL and those between 400-410% FPL, over half of the sample have a cliff size that exceeds their distance from the cliff. In addition, almost 20% of those with income between 350-390% of FPL or between 410-450% FPL face cliffs larger than their distance from the cliff.

6. Conclusion

This paper examined the extent to which the subsidy and reconciliation schedules in the Affordable Care Act generate implicit marginal tax rates and income cliffs. Using tax return data from 2011 and 2012 matched to premiums available on health insurance exchanges we estimate that around 2.6 million taxpayers will face average implicit tax rates in excess of 10% before reconciliation is taken into account due to their income falling in the 133-300% FPL range. Taking reconciliation into account generally lowers average implicit tax rates, though it introduces spikes in average implicit rates to around 20% for those with income near 200% FPL and 300% FPL. Further we find that average implicit tax rates tend to be higher for married taxpayers and for taxpayers 45 and over.

We also estimate that around 85,000 taxpayers who were likely to have purchased insurance in an exchange had MAGI between 390% and 410% of FPL. Close to 40% of these

will face a cliff smaller than \$100, though over 30% will face a cliff in excess of \$3000. Further, for about 30% of taxpayers with incomes between 390% and 410% of FPL will the cliff exceed 5% of annual income, and more than half would have higher net-of-subsidy income if their income dropped below 400% FPL.

It is important to note that these implicit marginal tax rates and the cliff at 400% of FPL are a consequence of the targeting of health insurance subsidies toward low- and moderate-income families. If the subsidies were less targeted by phasing the subsidy out more slowly, there would be a smaller increase in the implicit marginal tax rate, but the costs of the subsidies would be substantially larger overall, partly because more employers would eliminate coverage. Hence, policymakers face a tradeoff between more targeted subsidies with higher implicit marginal rates and less targeted subsidies with higher cost and a larger disruption to the current health insurance markets.

Two caveats apply to these results. First, these tabulations were performed while trying to match the number of individuals who purchased policies the first year. If increasing numbers of taxpayers purchase insurance from the exchanges in future years, the numbers of taxpayers to whom these increased marginal rates will apply will be higher. Second, these results are for 2014 premium levels. If premiums increase at a greater rate than incomes in the future, the average marginal rates will be higher than those found here, as a greater share of taxpayers at any income level will have positive subsidies and hence positive implicit rates.

Some simple back of the envelope calculations can be performed to predict the impact of these additional marginal taxes on earnings. For example, an increase in marginal rates of 10 percentage points would translate to a 11.8% decrease in the net of tax share for someone in the 15% income tax bracket. If one assumes an elasticity of taxable income to the net of tax share of

0.25, this would imply that such an individual would reduce earnings by 2.9%. Further, for those taxpayers who are near the cliff and for whom net income drops if they earn more than 400% FPL, it seems likely that they would take actions to reduce their income (or keep their income below) the 400% of FPL level. However, these earnings incentives may not be particularly salient, and work by Chetty, Looney and Kroft (2009) suggests that taxpayers response to salient taxes is much higher than to taxes that are implicit. If this is the case, then the earnings responses may be much less than these simple calculations imply. On the other hand, since the subsidies are a function of MAGI, which can be changed through some actions after the end of the tax year,¹⁷ the response may be higher.

Of course, whether these effects actually occur is an empirical issue, and is left to future work when data becomes available.

¹⁷ For example, a taxpayer can make an IRA contribution up to April 15, and such a contribution would reduce MAGI.

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Tables

Table 1. Characteristics of Sample

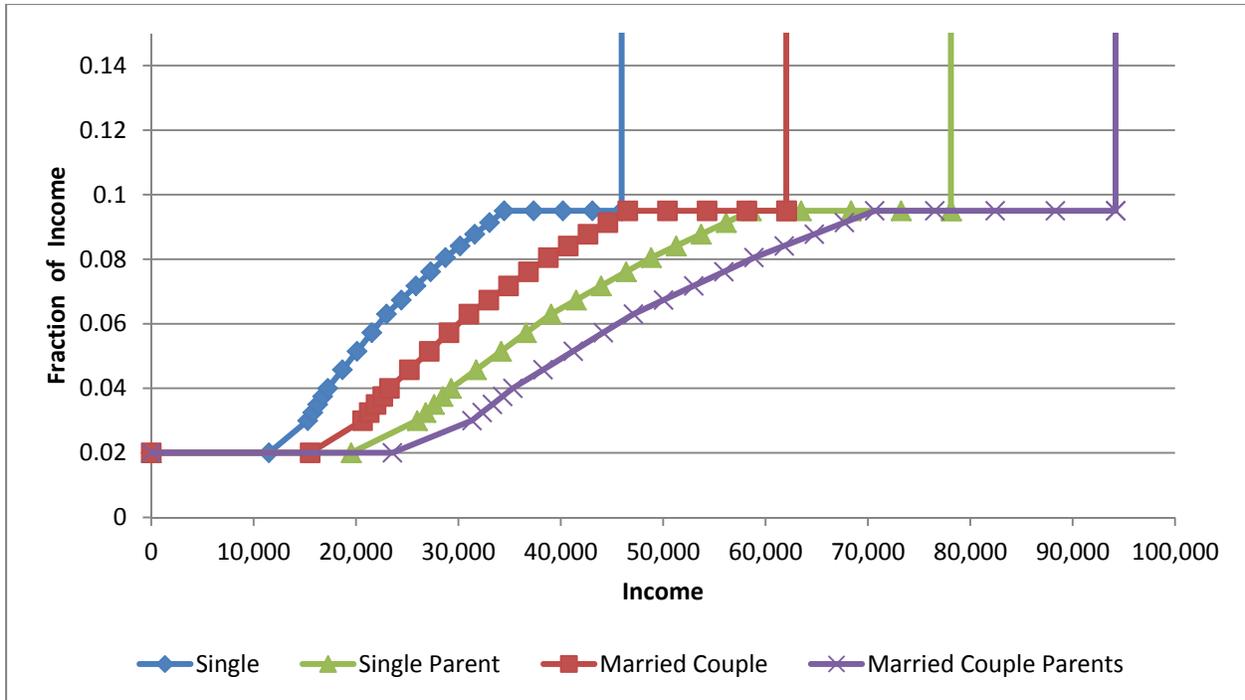
Age	
Under 30	0.277
30-44	0.307
45-54	0.213
55 and older	0.203
Family Type	
Singles	0.471
Single Parents	0.191
Married Couples	0.121
Married Couple Parents	0.218
Income/FPL	
< 133%	0.183
133-150%	0.081
150-200%	0.191
200-250%	0.142
250-300%	0.105
300-350%	0.078
350-390%	0.047
390-400%	0.009
400-410%	0.008
410-450%	0.027
> 450%	0.128
N	50,000

Notes: Data from Compliance Data Warehouse of U.S. Individual Tax Returns, 2012.

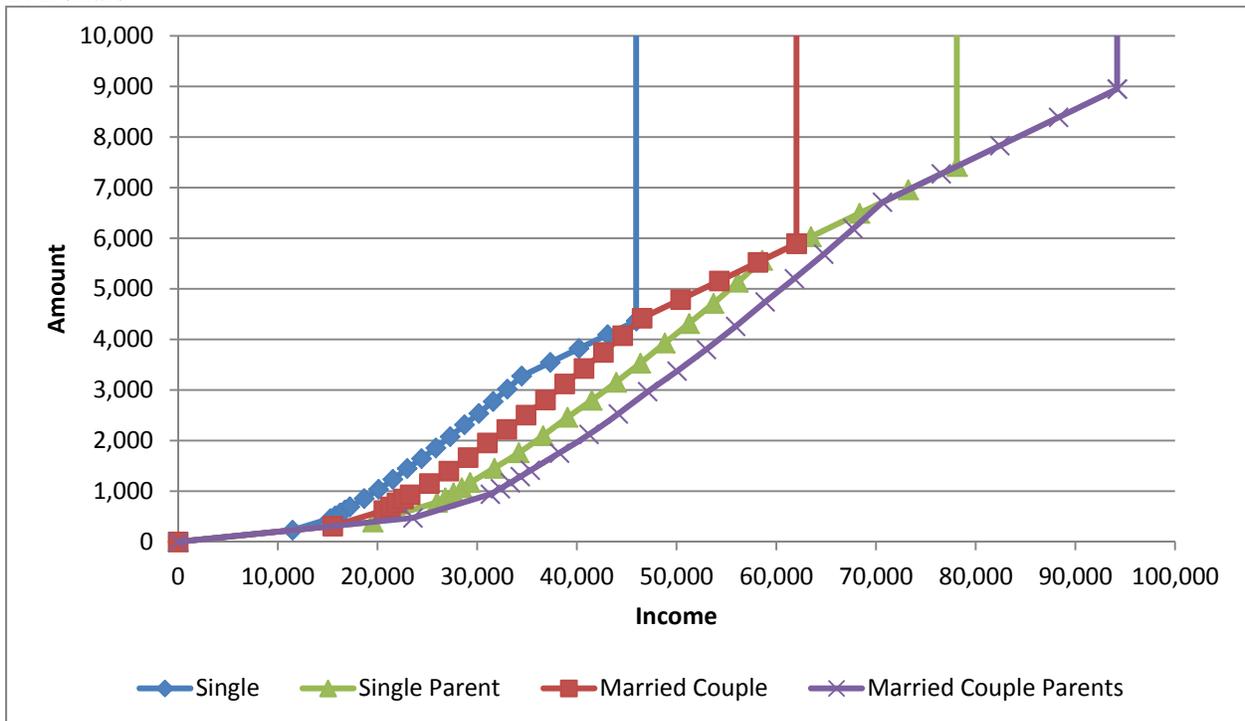
Figures

Figure 1. Affordability Maximum as Fraction of Income by Family Type

A. Fraction of Income



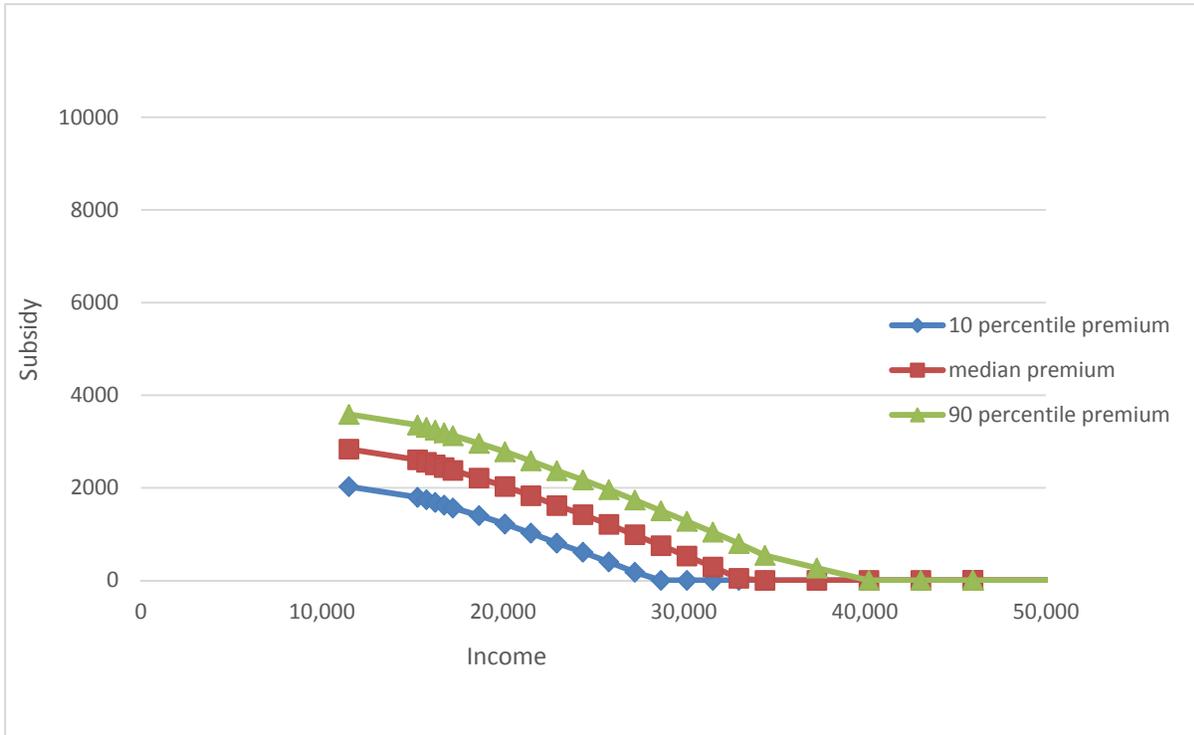
B. Dollars



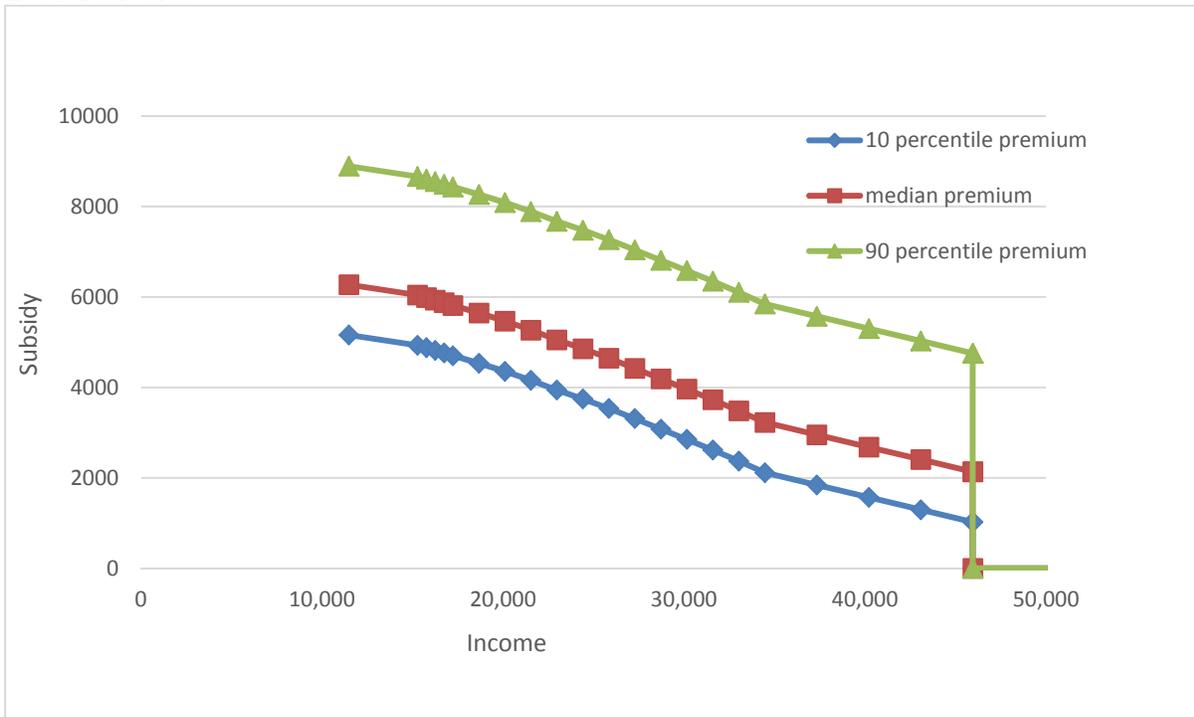
Notes: Single Parent and Married Couple Parents are assumed to have two minor children.

Figure 2. Subsidy Amount as a Function of Income by Family Type

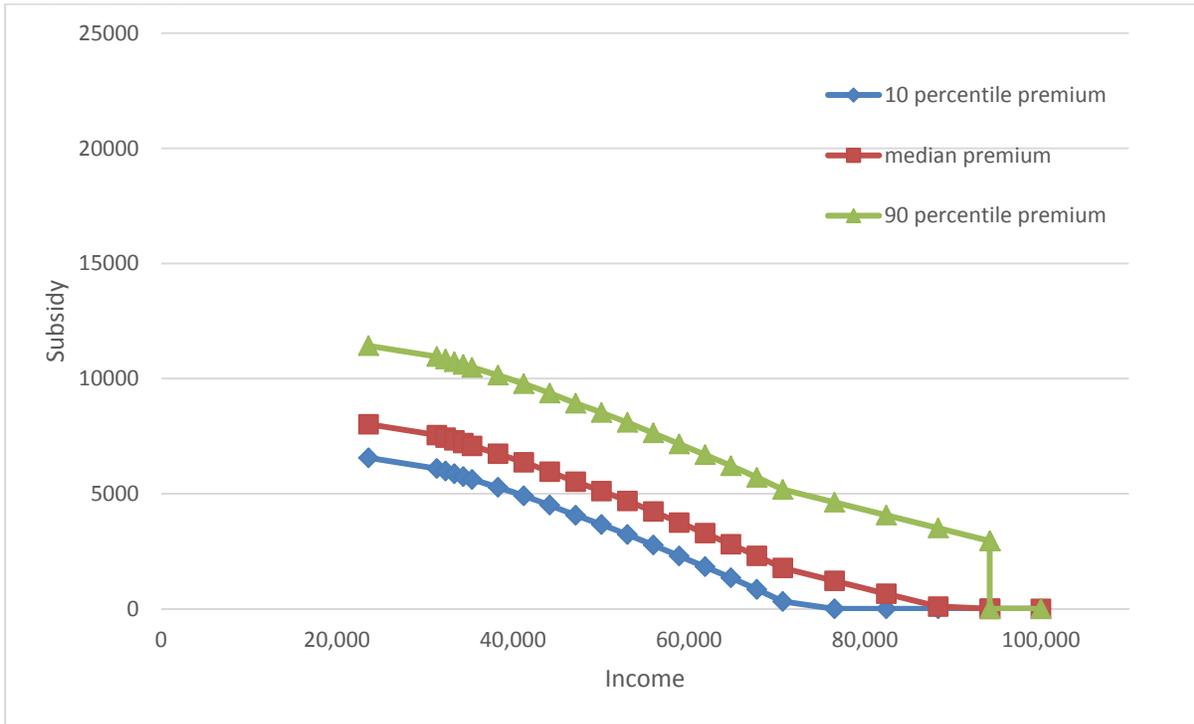
A. Singles
i. 30 Year Olds



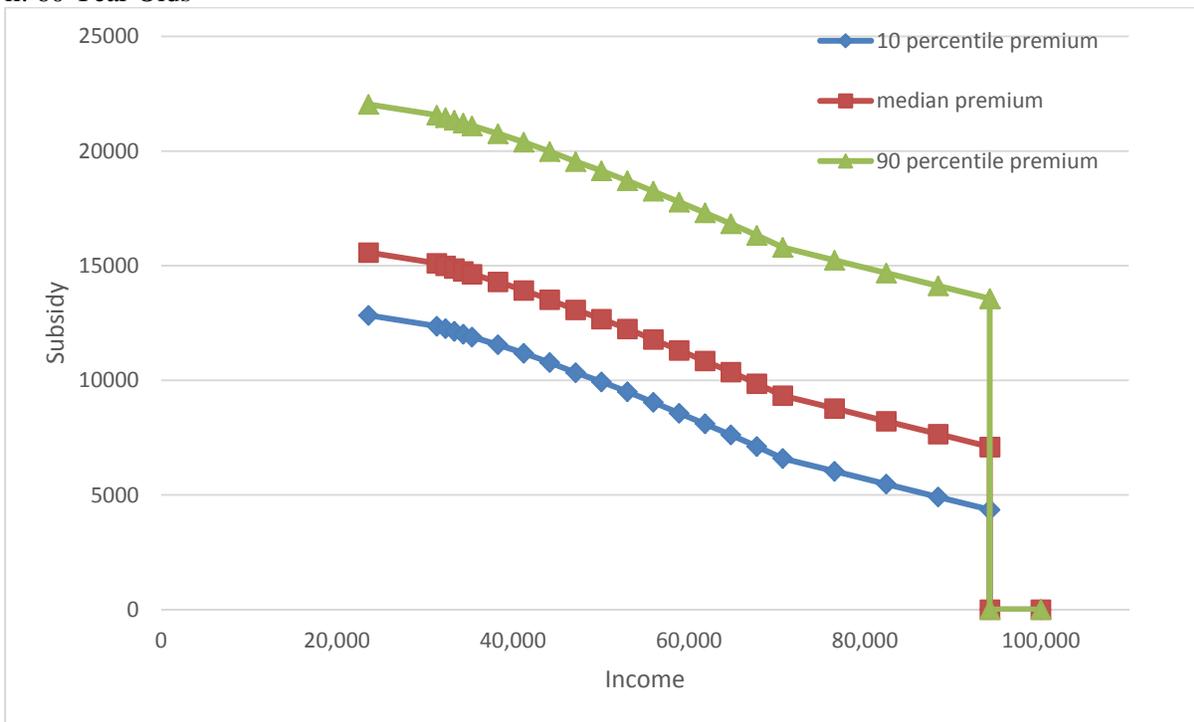
ii. 60 Year Olds



B. Married Couple Parents with Two Children
i. 30 Year Olds



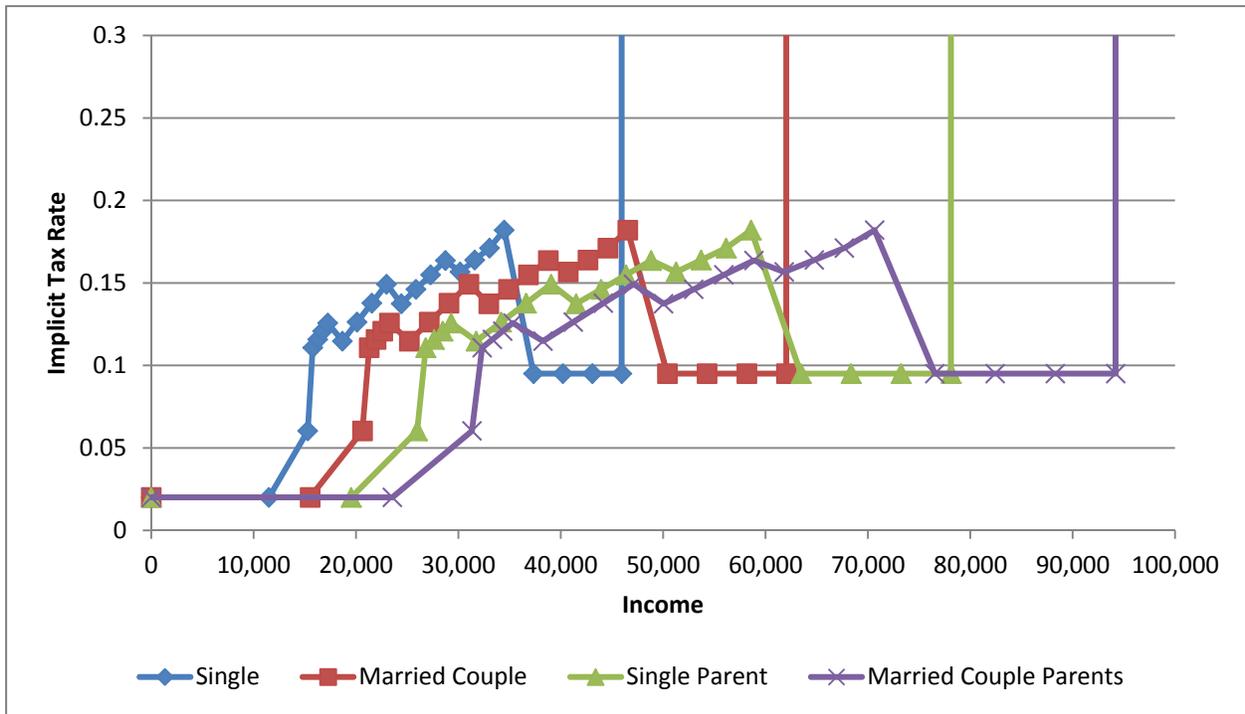
ii. 60 Year Olds



Note: Graphs present subsidies given that an individual (or married couple with children) resides in the rating area with a second lowest silver plan that is at the Xth percentile. Percentiles were calculated by creating an (unweighted) ranking of second-lowest silver plans by age and family type, and determining the premiums at each of the percentiles.

Figure 3. Implicit Tax Rate from Reduction in Subsidy Over Range of Incomes with Positive Subsidies

A. Premium Subsidy Implicit Tax Rate



B. Stylized Combined Premium Subsidy Implicit, Ordinary Income, Payroll, and EITC Tax Rates

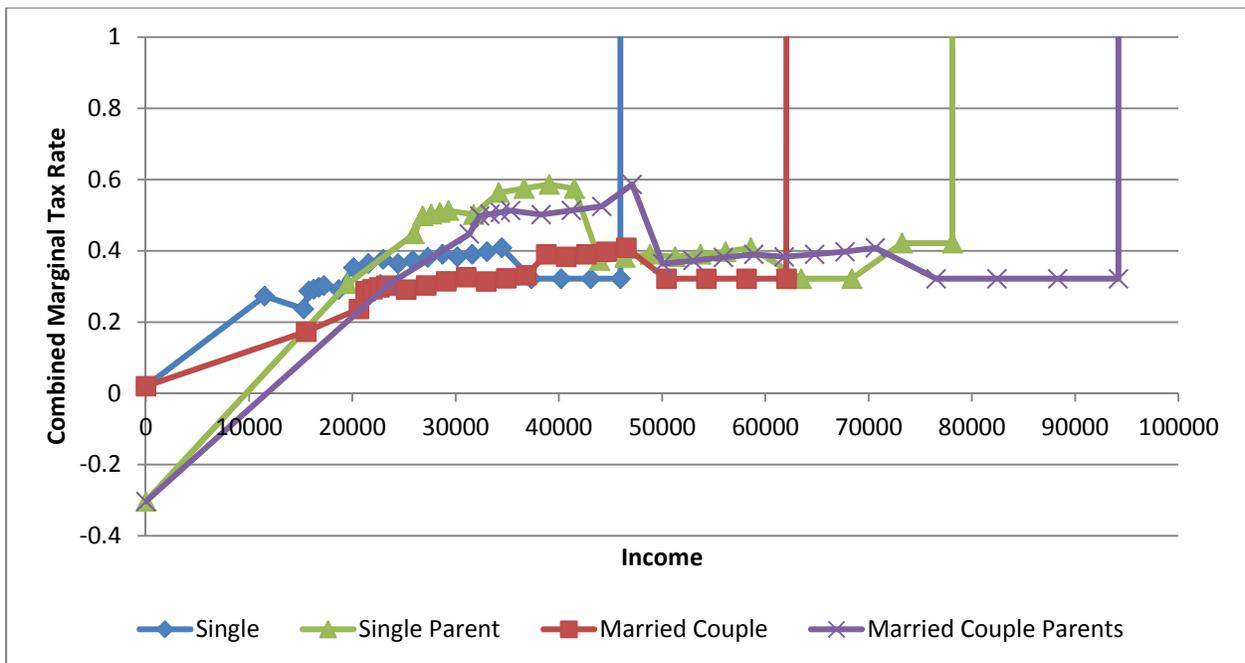


Figure 4. Average Premium Subsidy Implicit Tax Rates by Multiple of FPL

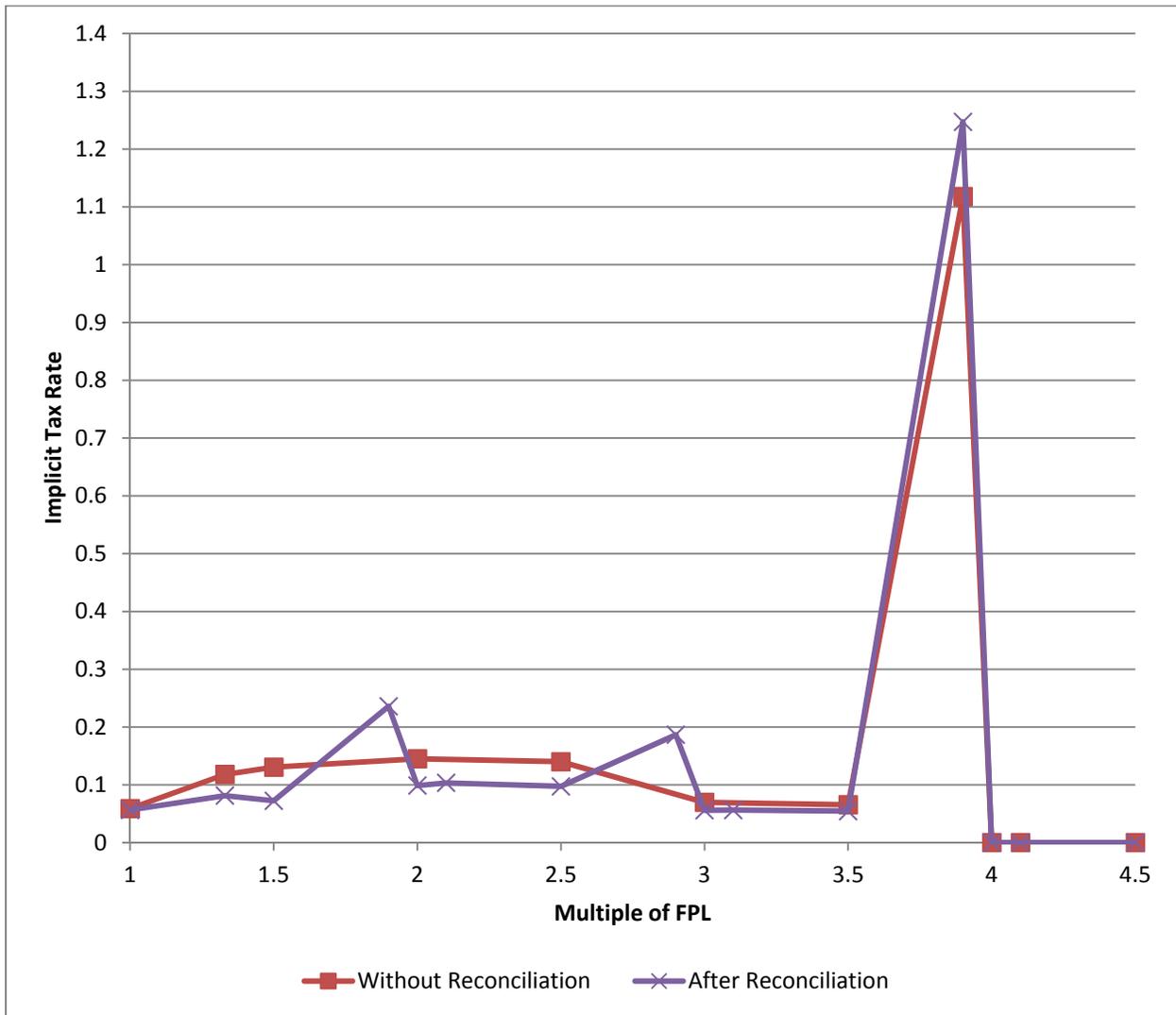
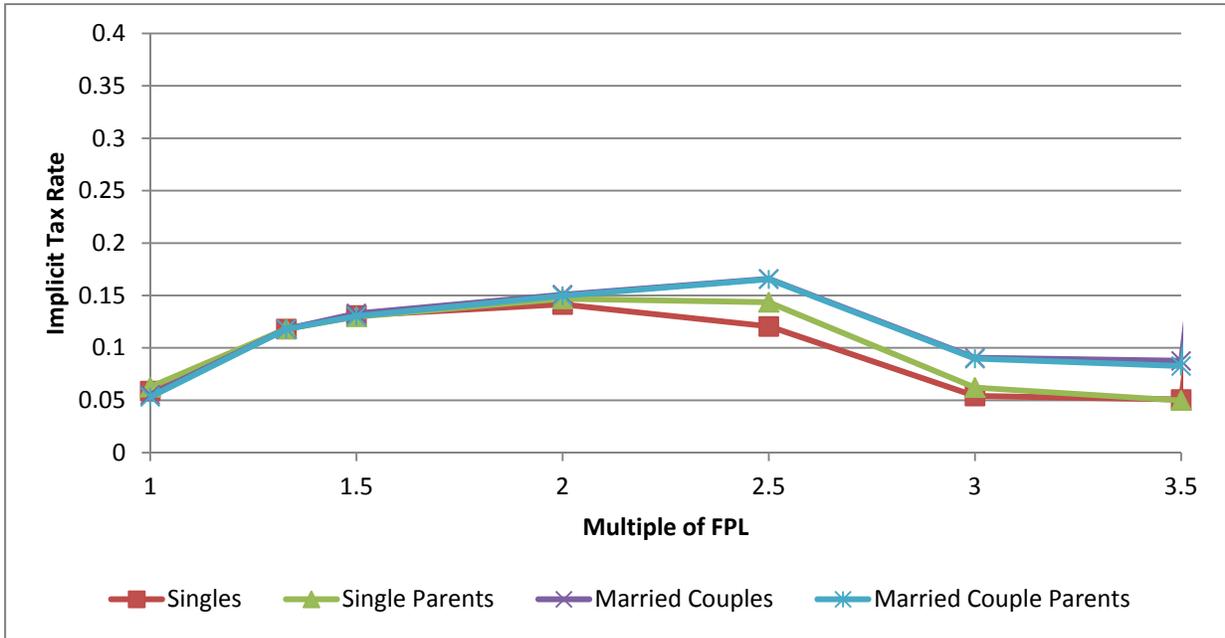


Figure 5. Average Premium Subsidy Implicit Tax Rates by Multiples of FPL and Family Types

A. Without Reconciliation



B. After Reconciliation

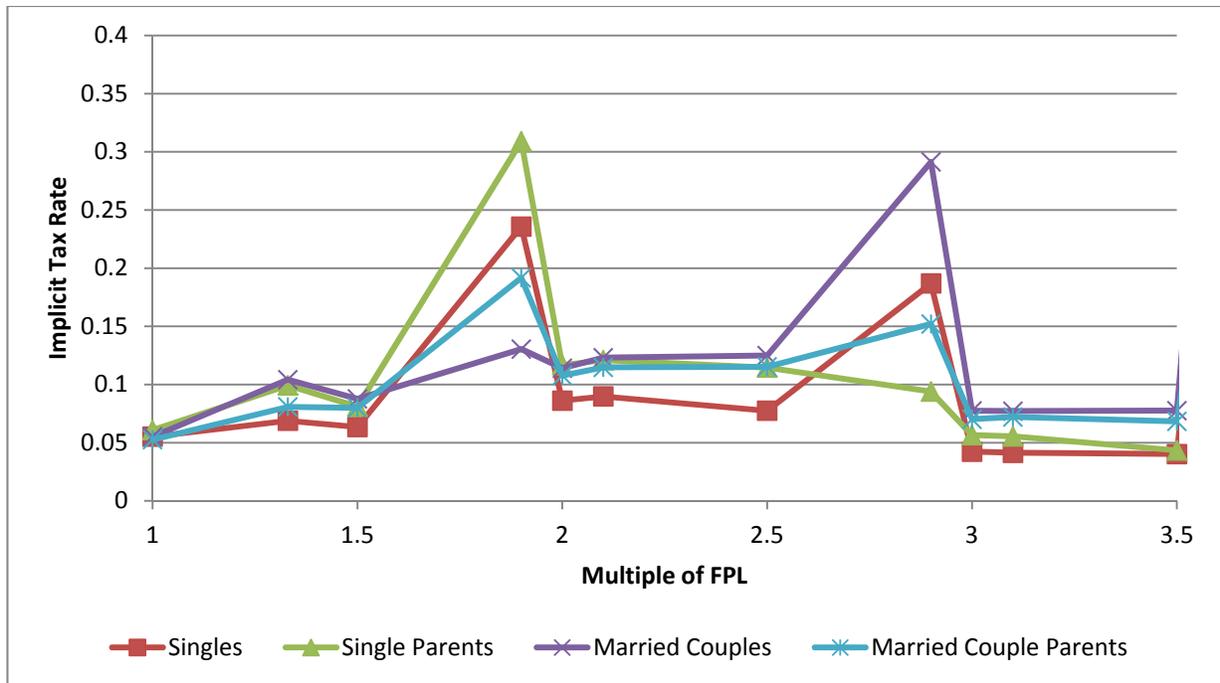
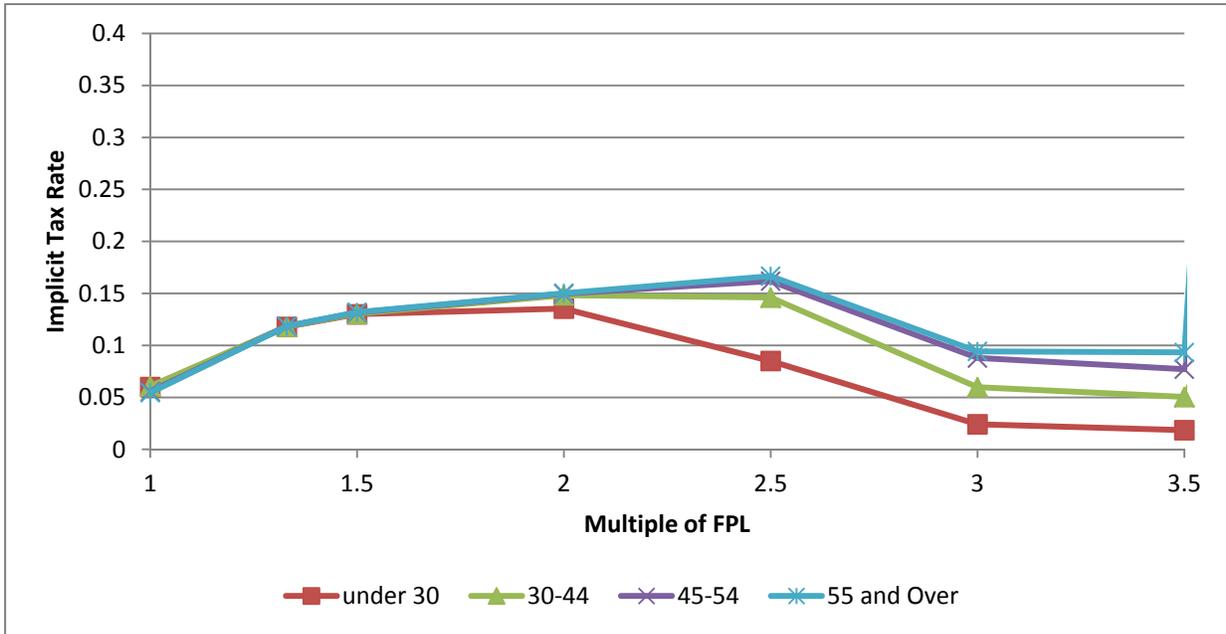


Figure 6. Average Premium Subsidy Implicit Tax Rates by Multiples of FPL and Age of Primary Filer

A. Without Reconciliation



B. After Reconciliation

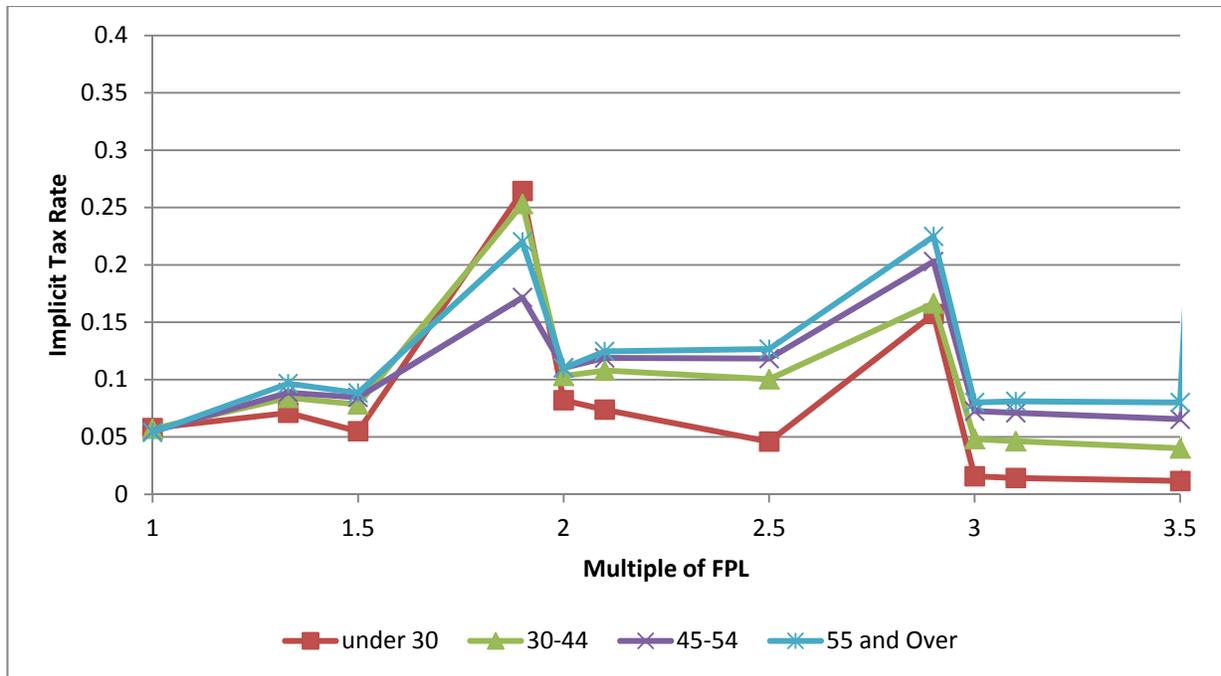
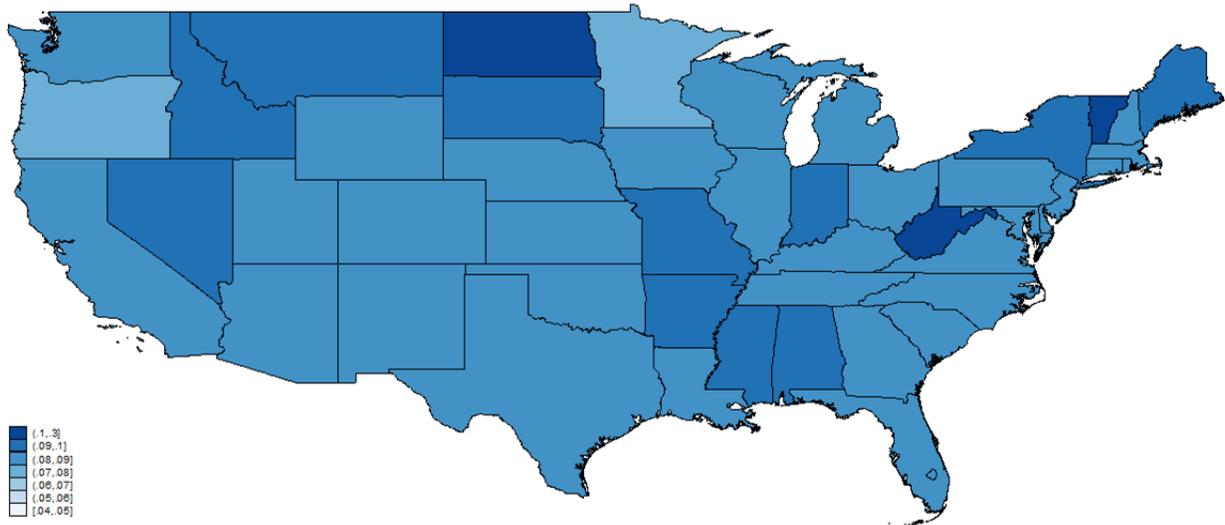
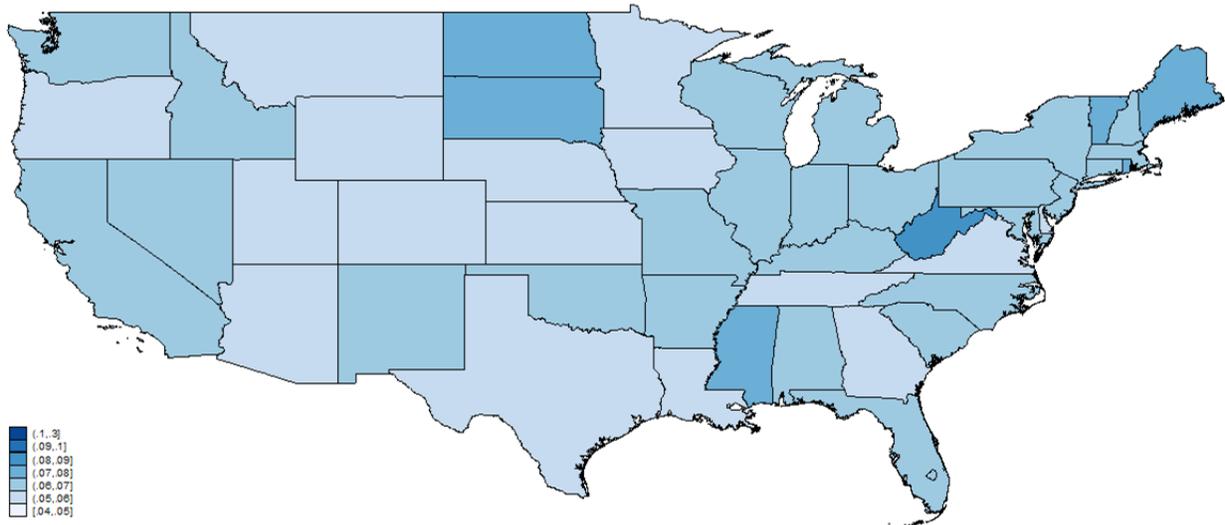


Figure 7. Average Premium Subsidy Implicit Tax Rates, by State

A. Without Reconciliation



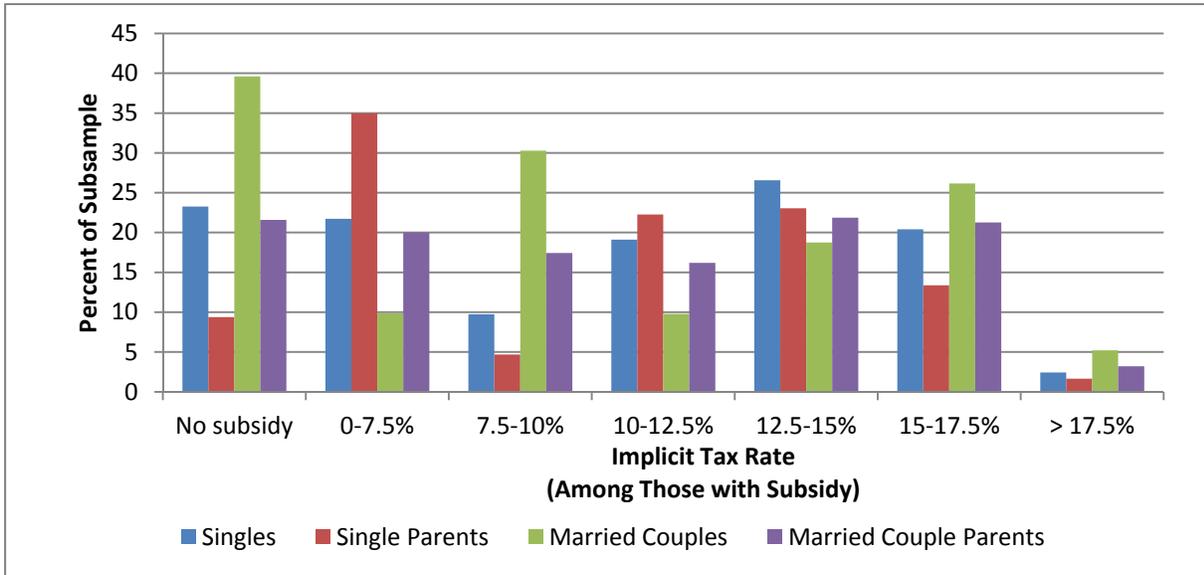
B. After Reconciliation



Note: For these figures, individual implicit tax rates were capped at 1.

Figure 8. Distribution of Premium Subsidy Implicit Tax Rates, by Family Type

A. Without Reconciliation



B. After Reconciliation

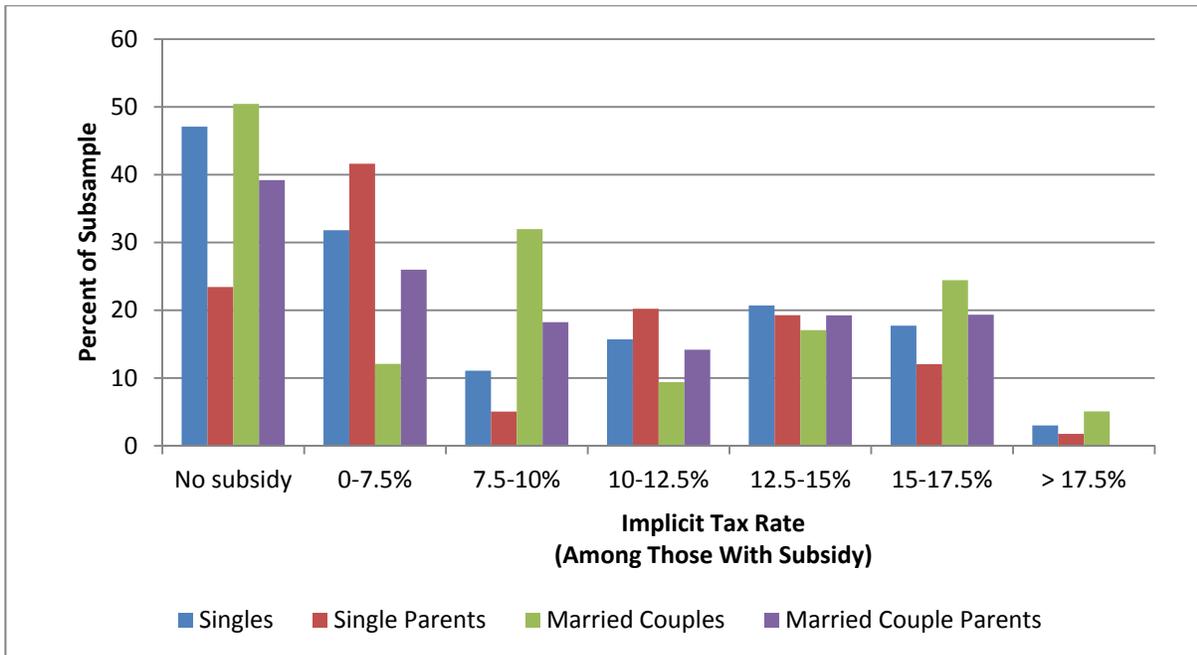
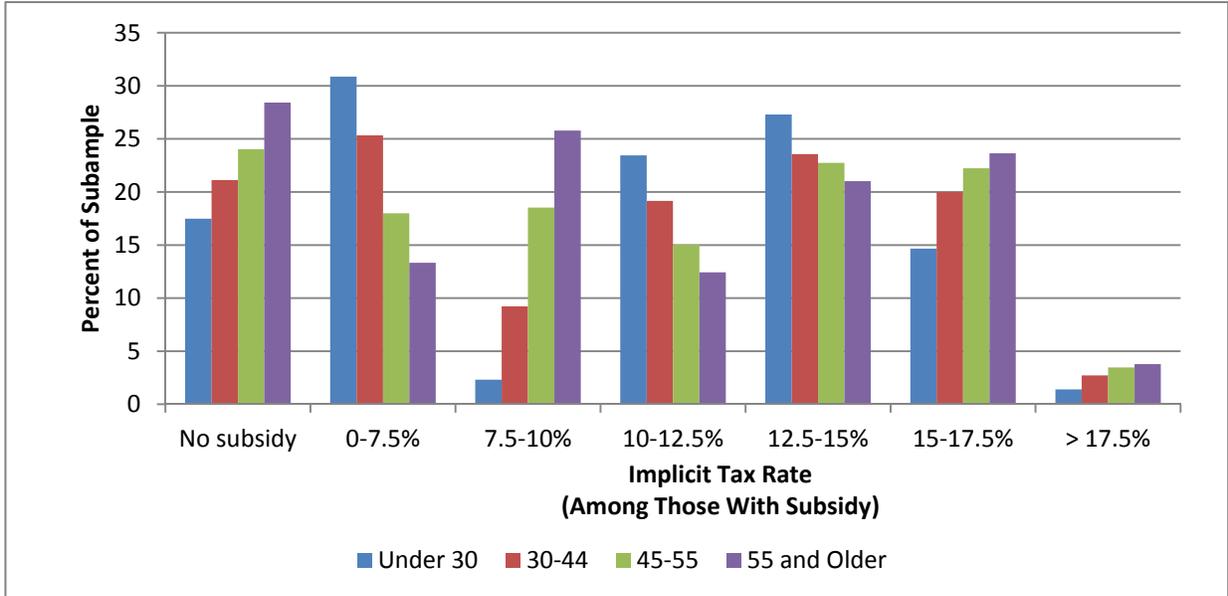


Figure 9. Distribution of Premium Subsidy Implicit Tax Rates, by Age of Primary Filer

A. Without Reconciliation



B. After Reconciliation

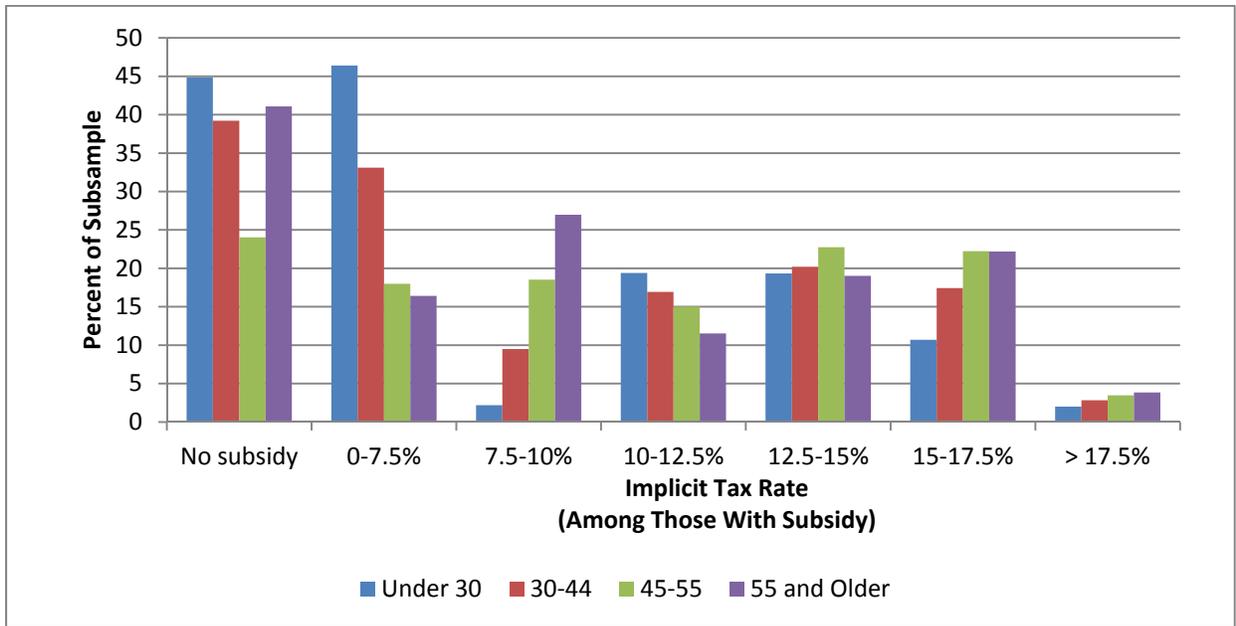
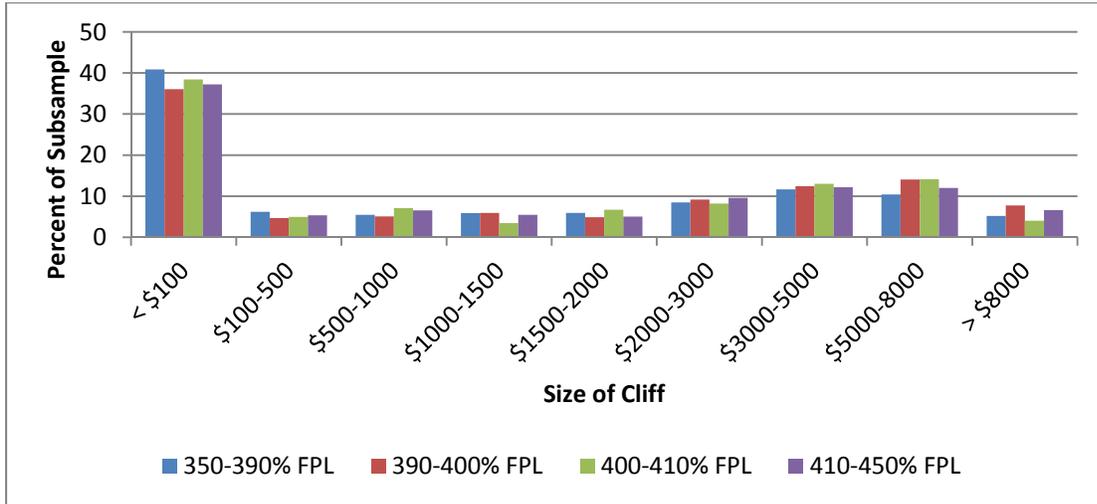
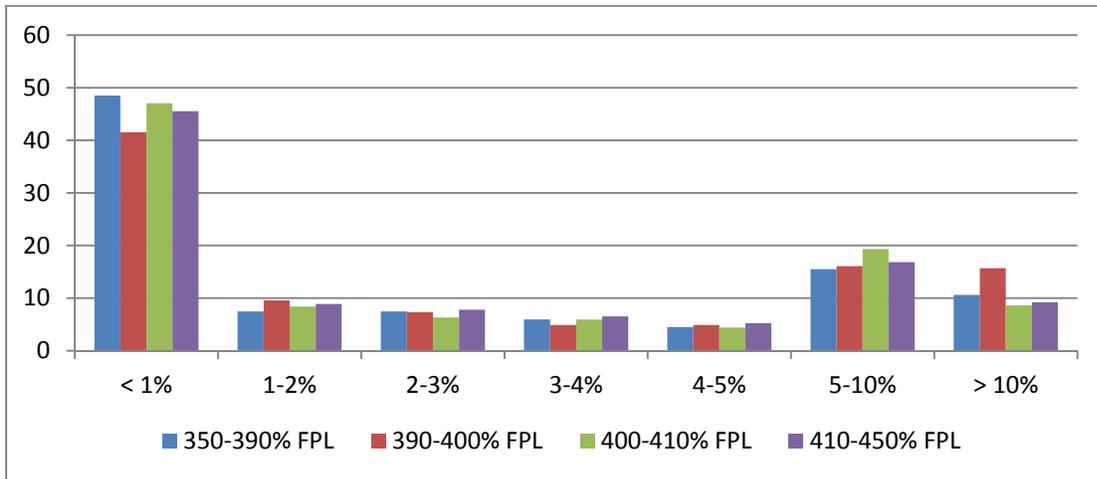


Figure 10. Distribution of Cliff Size Among Taxpayers Close to Cliff

A. Dollars



B. Fraction of Income



C. Fraction of Distance to Cliff

