The Distributional Implications of Itemized Medical Deductions

Gopi Shah Goda*
Ithai Lurie †¶
Priyanka Parikh‡
Chelsea Swete §¶

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Abstract

The itemized medical deduction (IMD) allows taxpayers to deduct out-of-pocket medical spending that exceeds a certain percentage of their income if they choose to itemize. Approximately $76 billion in out-of-pocket medical spending was deducted as an IMD in 2021, resulting in about $8.4 billion in federal foregone tax revenue. We use data from U.S. tax returns to examine how these tax savings are distributed across income and age, how the distributions differ from the mortgage interest deduction, and how the distributions changed with the 2017 Tax Cuts and Jobs Act. While eligible medical spending above the income threshold is higher for lower-income households, itemization rates and marginal tax rates increase with income, resulting in tax savings skewed towards higher-income taxpayers: 94 percent of the tax savings accrue to those in the top half of the income distribution. The tax savings are also highly concentrated at older ages, with 42 percent accruing to those over age 65. Using rich survey data on out-of-pocket medical spending, we illustrate how the distribution of tax savings varies across policy alternatives. We find that raising the income threshold or changing the structure of the tax subsidy to an "above-the-line" deduction that does not require itemization or budget-neutral non-refundable or refundable credits reduces the concentration of tax savings at higher incomes and increases the concentration of tax benefits at older ages.

*Stanford University and NBER. gopi@stanford.edu
†Office of Tax Analysis, U.S. Department of the Treasury. Ithai.Lurie@treasury.gov
‡Stanford University. psparikh@stanford.edu
§Office of Tax Analysis, U.S. Department of the Treasury. Chelsea.Swete@treasury.gov
¶This research was conducted while the author was an employee at the U.S. Department of the Treasury. The findings, interpretations, errors, and conclusions expressed in this paper are entirely those of the author and do not necessarily reflect the views or the official positions of the U.S. Department of the Treasury or the Office of Tax Analysis. Any taxpayer data used in this research was kept in a secured Treasury or IRS data repository, and all results have been reviewed to ensure that no confidential information is disclosed.

Introduction

Participants in the U.S. health care system incur out-of-pocket medical costs in the form of direct payments to providers, cost-sharing requirements and premiums. The tax code subsidizes certain out-of-pocket medical expenses for those who qualify. In particular, households are able to deduct eligible medical expenses from their income on their tax returns if they itemize their deductions. Currently, eligible expenses include those paid that year for medical and dental care for the taxpayer, their spouse, and their dependents that exceed 7.5 percent of adjusted gross income (AGI). These can include payments to doctors and hospitals, premiums for insurance policies, and many services and items that health insurance typically does not cover, such as the costs of home improvements made due to a disabling condition and transportation and lodging for medical purposes.

In the 2021 tax year, U.S. taxpayers claimed $75.9 billion in itemized medical deductions (IMDs) in aggregate, resulting in $8.35 billion in foregone federal tax revenue (IRS Statistics of Income Division, 2023; U.S. Department of the Treasury, 2022).[1] However, a series of changes in the tax code over the past several years have influenced the availability and generosity of this deduction. Most notably, the Tax Cuts and Jobs Act (TCJA) signed into law on December 22, 2017 increased the standard deduction and eliminated or restricted many itemized deductions starting in 2018, which reduced the share of tax returns claiming the IMD by more than half and increased the average amount claimed by more than two-thirds. In addition, the TCJA changed the income threshold for taxpayers under age 65 from 10 percent of AGI to 7.5 percent retroactively to 2017.[2] The foregone tax revenue is estimated to more than triple in nominal terms over the next decade if the individual tax provisions of the TCJA expire in December 2025 as scheduled (U.S. Department of the Treasury, 2023), and how tax policy evolves will influence who is eligible to claim IMDs going forward.

While taxpayers with higher incomes are more likely to itemize and face higher marginal

[1] This tax expenditure does not include foregone revenues at the state level.
[2] For taxpayers 65 and older, the threshold remained at 7.5 percent of AGI.

tax rates, any given level of medical spending is less likely to exceed 7.5 percent of their AGI, so baseline progressivity is unclear. In this analysis, we first use a sample of administrative tax returns to document the distribution of tax savings associated with the IMD across income and age prior to the TCJA, compare it to the distribution of the mortgage interest deduction (MID), and show how the TCJA changed these distributions. We find that while the IMD is more progressive than the MID, the IMD is still highly regressive: prior to the TCJA, the top half of the income distribution received 90 percent of the IMD tax value, and 98 percent of the MID tax value. The TCJA resulted in greater inequality in both the IMD and the MID: after the TCJA took effect, the top half of the income distribution received 94 of the IMD tax value and 99 percent of the MID tax value.

The IMD and MID tax values have very different distributions across age. While the IMD tax value is highly skewed towards older taxpayers, with both the share claiming the IMD and the amount claimed increasing with age, the MID benefits relatively younger taxpayers and the tax value declines at older ages as mortgage balances decline. Prior to the TCJA, taxpayers 65 and older received 66 percent of the IMD tax value but only 12 percent of the MID tax value. The concentration of tax savings among older taxpayers is because out-of-medical spending increases with age, and a greater share of medical expenses were eligible for taxpayers over age 65 both because taxpayers 65 and older were subject to a lower AGI threshold and because AGI is lower in retirement. After the TCJA took effect, the income threshold was equalized by age, resulting in the IMD tax value being more evenly distributed, with 42 percent accruing to taxpayers 65 and older. The TCJA did not significantly change the age distribution of the MID, with 10 percent of the MID tax value currently accruing to this age group.[3]

We also analyze how alternative policies might change the distribution of tax savings by income and age using rich survey data on out-of-pocket medical spending from the Health

[3]While the MID did not explicitly change with respect to age, the ceiling on home acquisition indebtedness did decline from $1M (or $500,000 for married couples filing separately) to $750,000 (or $375,000 for married couples filing separately). This likely impacted younger taxpayers more than older taxpayers since the lower limit applied to home purchases after December 15, 2017.

and Retirement Study (HRS), a nationally-representative survey of Americans 50 and over. One key factor that influences the distribution of tax value is the AGI threshold used to determine eligible medical spending: raising the threshold to a higher percentage of AGI reduces the amount of medical spending that higher-income taxpayers can subsidize. In addition, the distribution changes considerably depending on how the subsidy is structured. Removing the requirement to itemize deductions or converting the subsidy to a credit results in a more equal distribution of the IMD tax value across income, and tends to redistribute tax savings more towards older taxpayers. We show how these factors can be combined into alternative policies that are budget-neutral in aggregate but yield different distributions of tax value across income and age.

Our analysis contributes to the literature that analyzes the incidence of different tax policies. Despite a tax expenditure approximately one third as large as the mortgage interest deduction,[4] the literature analyzing the itemized medical deduction is limited and covers a period of time prior to recent policy changes, which significantly impacted the availability and generosity of the itemized medical deduction as described above.[5] By contrast, it is well-established that the tax expenditure associated with the MID is skewed to higher-income households because outstanding mortgages, homeownership rates, itemization rates, and marginal tax rates all increase with income (CBO, 2021; CRS, 2020). In addition, recent studies have analyzed how the distribution of tax savings from the mortgage interest deduction changed after the TCJA (Blouri, Büchler and Schöni, 2023; Dawkins, 2023) and how the TCJA impacted different aspects of the housing market (McClelland, Mucciolo and Sayed, 2022; Li and Yu, 2020; Davis, 2019; Hembre and Dantas, 2022).

[4]Foregone tax revenue from mortgage interest deductibility was estimated to be $34.4 billion in 2022 (U.S. Department of the Treasury, 2023).

[5]An early literature examined the medical expense deduction prior to its current form, which has been in place since 1986 (Jensen, 1952, 1954; Steuerle and Hoffman, 1979; Wilensky, 1982; Feenberg and Skinner, 1994). Serocki and Murphy (2009) examine the deduction's progressivity using data from 1977, 1991, and 2001, and Lurie and Minicozzi (2010) show distributional features using 1999-2005 data. Kuroki (2022) reports the correlation between HI coverage and the percent change in medical deduction at the state level.

Data

We use a combination of data sources to document the distribution of tax savings associated with the IMD under different policy scenarios. Our main data source is individual tax returns from a 1 percent sample of tax returns from 2015-16 and 2018-19. While these data allow us to observe IMD claiming and associated tax savings for a large sample of taxpayers with high accuracy, the censoring of medical spending at amounts above the AGI threshold and the lack of data on medical spending for non-itemizers make policy counterfactuals difficult. Therefore, to address these challenges, we supplement our analysis with data from the Health and Retirement Study (HRS).

Individual tax returns

We use a 1 percent sample of individual tax returns including IMD and MID claiming and associated tax savings from the Internal Revenue Service (IRS) population files, where pre-TCJA data come from 2015-2016, and post-TCJA data come from 2018-2019.[6] The age of the tax unit is assumed to be the age of the oldest taxpayer in the tax unit.

When generating income percentiles, we construct a measure of income that represents the total positive income that excludes losses, which represents total non-business income, positive business income amounts from Schedule C and positive farm income amounts from Schedule F. IMD claiming and amounts claimed are taken from Schedule A, while mortgage interest is taken from Form 1098.[7] In order to determine the tax value associated with the IMD and the MID, we simulate each tax unit's federal and state tax liability with and without the respective deduction using TAXSIM and calculate the difference (Feenberg and Coutts, 1993).

[6] We omit 2017 because it contains elements from both the pre- and post-TCJA period. Specifically, the AGI threshold was lowered from 10 percent to 7.5 percent for taxpayers under age 65, but the standard deduction had not yet increased.

[7] We topcode mortgage interest amounts above $100,000 (which represents the maximum deduction available for a mortgage at the pre-TCJA cap of $1,000,000 with a 10 percent mortgage interest rate), and IMD amounts above $500,000 (which represents fewer than 1 in 100,000 observations).

We note that our sample is at the tax return level and only includes tax filers. Since the tax filing population is higher income and younger than the full population, our quantification of the regressivity can be thought of as a lower bound, and will reflect more redistribution towards older taxpayers than would be present if we were able to include non-filers.

Health and Retirement Study

For our counterfactual analysis, we use the Health and Retirement Study (HRS), a biannual survey that is nationally representative of the population aged 50 and over.[8] While these data omit younger households, two-thirds of aggregate IMDs are deducted by tax units with primary taxpayers age 65 and over (IRS Statistics of Income Division, 2022).[9] We restrict attention to the 2016 wave, which contains survey responses from 2016 and 2017 regarding the 2015 and 2016 tax years. These tax years correspond to the pre-TCJA period, and would not reflect any changes in medical spending that occurred after the TCJA took effect. However, reliable data that corresponds to the post-TCJA period are not available because the 2018 wave is primarily reflective of the 2017 tax year – before most of the provisions of the TCJA took effect – and data collection in the 2020 wave was impacted by the Covid-19 pandemic.

The HRS generally designates one member of each household as the financial respondent, and we assume this individual is the primary taxpayer. If no financial respondent is designated, we assume the primary taxpayer is the oldest member in a household. Household filing status is assigned based on the marital status of the primary taxpayer (married filing jointly if the primary taxpayer is married, and single if the primary taxpayer is single). To approximate household AGI, we rely on the following measures of income: earnings, pen-

[8]The HRS is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan. The RAND HRS Longitudinal File (Bugliari et al., 2023*b*) and the RAND HRS Detailed Imputations File (Bugliari et al., 2023*a*) harmonizes the raw data from the HRS across waves, and provides consistent variable names and a wide variety of imputations. We use the 2020 (V1) versions of each of these datasets. These files were developed at RAND with funding from the National Institute on Aging and the Social Security Administration.

[9]Our analysis of the IRS data, described below, attributes over 72 percent of the tax value to ages 50 and over.

sions and annuities, Supplemental Security Income, taxable Social Security disability and retirement income, unemployment and workers compensation, other government transfers, household capital income, other income, and IRA withdrawals among the primary taxpayer and his/her spouse.[10] We calculate the share of non-taxable social security income for each household according to their income, marital status, and total social security benefits. When determining income percentiles, we construct a measure of income that incorporates earnings, household capital income, self-employment income, pensions/annuities, IRA distributions, total social security income, and other earnings.

The HRS includes detailed data on out-of-pocket medical spending that enables the construction of a proxy for each household's potential medical deduction and associated tax savings under different policy environments. Households report out-of-pocket medical spending incurred over the past two years (or the previous interview if the household was interviewed in the most recent wave) across the following categories: doctor's visits, dental services, hospital stays, nursing home care, outpatient surgery, prescription drugs, home health care, and other medical costs (e.g. transportation, physical therapy, and adult care centers). Using the number of months elapsed in each household's reporting time frame, we calculate monthly medical spending to estimate annual out-of-pocket costs per household during the tax year. In addition to out-of-pocket spending, we add spending on insurance premiums, which are also eligible for deduction. The HRS includes information on premium costs for long-term care and private health insurance, including employer-provided health insurance, Medicare supplemental insurance policies, Medicare HMOs, and Medicare Part D prescription drug benefits. Medicare Part B premiums are imputed based on each household's enrollment in Medicare/Medicaid, AGI, and marital status. If the primary taxpayer and/or spouse receives employer-provided coverage and is currently working, or have health insurance premiums that are likely to qualify for the deduction for health insurance among

[10]The HRS does not distinguish between Roth IRA and traditional IRA withdrawals, but it is likely that the majority of withdrawals constitute Traditional IRA withdrawals, which are a component of taxable income. Thus, we include IRA withdrawals in our calculation of household AGI.

the self-employed, we assume insurance premiums are paid on a pre-tax basis and exclude them from the household's deductible medical spending. The imputed medical deduction amount is equal to the household's total deductible medical spending less the income threshold, if positive.

Similar to the IRS data, we simulate each tax unit's federal and state tax liabilities with and without the imputed medical deduction using TAXSIM (detailed in Appendix A), and ascribe the difference as the tax value of the medical deduction.[11] TAXSIM uses the entered fields to determine whether the household should itemize or claim the standard deduction, and the difference in tax liabilities reflects this decision.

It is important to note that we do not observe other potential itemized deductions aside from a proxy for the MID and charitable contributions; thus, the tax savings we compute are likely underestimates as they do not account for other itemized deductions, such as state and local taxes, that might result in a household benefiting from itemizing their deductions.[12]

We also note that these calculations implicitly assume full take-up of eligible medical deductions, which may lead us to overestimate potential tax savings. While not all eligible medical spending is deducted, evidence suggests that take-up is increasing in income (Goda, 2024); thus, results assuming full take-up can be thought of as an upper bound of progressivity. Finally, unlike the IRS sample, the HRS sample is not limited to tax filers. Including non-filers is especially important when evaluating policy counterfactuals like a refundable credit, which could also benefit the non-filing population. We explore this and other sample differences between the IRS and HRS samples in Appendix C.

[11] Because we do not observe the state of each taxpayer in the public use version of the HRS, we calculate state tax liabilities as a state population-weighted average of tax liabilities in each state.

[12] The proxy for the MID is constructed by multiplying the household's reported outstanding mortgage principal by the 30-year fixed rate average annual mortgage rate in the year of interview, taken from FRED, Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org/series/MORTGAGE30US.

The Distribution of Itemized Medical Deductions by Income

We first show what share of taxpayers claimed the IMD, how much they claimed on average, and the associated tax savings by income decile prior to the TCJA and compare it to the MID in Table 1, Panel A. Approximately 6.5 percent of tax returns claimed the IMD overall and claimed $10,152 on average. These households paid $1,171 less in taxes, which was approximately 1.5 percent of their income. By contrast, approximately 23 percent of tax returns claimed the MID and claimed $8,570 on average, receiving $1,906 (or 1.4 percent of income) in tax savings, on average. While the average tax savings for the MID are higher than the IMD, the average share of income is lower because the savings disproportionately accrue to higher-income taxpayers. However, the tax savings relative to the deduction amount is higher for the MID than the IMD, suggesting that those who claim the MID face higher marginal tax rates than those who claim the IMD.

There is considerable variation across income decile. Less than 4 percent of tax units in the bottom two deciles claim the IMD, while between 8 and 10 percent of tax units in deciles 6 through 9 claim the IMD. The highest income decile claims the IMD at lower rates, similar to those in the third and fourth deciles. Conditional on claiming the IMD, the average amount claimed does not vary considerably for all but the highest income decile, who claim on average $17,093. However, the average tax savings among those claiming the IMD is highly skewed toward higher income deciles: despite deducting very similar amounts, the average tax savings among those who claim the IMD in the bottom income decile is only $1, while the average tax savings among those who claim the IMD in the eighth income decile is $1,437. For the top two deciles, the average tax savings among IMD claimers is even higher, at $2,017 for the ninth decile and $4,203 for the tenth decile. The higher tax savings among high income taxpayers results in a slightly increasing relationship between income decile and tax savings as a share of income. The skewness of tax savings towards higher-income

taxpayers who claim the IMD owes to the fact that households in higher income deciles face higher marginal tax rates.

Unlike the IMD, the share claiming the MID increases sharply with income at all deciles. While the IMD's restriction on medical expenses above an income threshold limits the ability of high-income deciles to deduct medical expenses, no such restriction exists for mortgage interest, and higher homeownership rates and the increased presence of other itemized deductions at higher income deciles combine to reveal higher rates of MID claiming as income increases. Conditional on claiming the MID, however, the patterns are very similar to those for IMDs, with relatively equal amounts claimed across income deciles and tax savings that are highly skewed towards higher income deciles.

After the TCJA took effect, the standard deduction increased from $6,500 to $12,000 for single taxpayers and $13,000 to $24,000 for married taxpayers, thus reducing the benefits of itemizing deductions for a significant share of taxpayers. Table 1, Panel B shows how these changes affected the claiming and tax savings distribution of both the IMD and the MID. Overall, only 2.9 percent of tax returns claimed the IMD in 2018-2019 after TCJA took effect, and the share claiming the MID declined to 8.9 percent. Conditional on claiming, the average IMD and MID claimed increased to $17,476 and $13,008, respectively. The tax savings conditional on claiming were similar to those accrued prior to the TCJA, with $1,113 in average IMD tax savings and $1,959 in average MID tax savings, representing around 1 percent of income on average. While the TCJA changed the extensive margin of claiming and the intensive margin of amount claimed considerably, these changes occurred across all income deciles. As a result, the qualitative patterns discussed above are similar after the TCJA.

We show the full cumulative distribution of the unconditional tax savings before and after the TCJA by income percentile in Figure 1 for both the IMD (Panel A) and the MID (Panel B), along with the 45 degree line, similar to a Lorenz curve for income inequality. We also report a Gini coefficient that represents the share of area between the Lorenz curve

and the 45 degree line. A Gini coefficient of zero indicates perfect equality across the income distribution, and ranges between [-1,1] with a Gini coefficient of 1 indicating that all of tax value accrues to the highest income percentile and a Gini coefficient of -1 indicating that all of the tax value accrues to the lowest income percentile.

The Gini coefficient for the IMD prior to the TCJA was 0.52, indicating a high degree of skewness towards higher-income percentiles. The top half of the income distribution accrued 90 percent of the tax value, and the top ten percent accrued 27 percent. This compares to an MID Gini coefficient of 0.76 before the TCJA took effect. The MID is even more highly skewed towards higher-income percentiles, with 98 and 59 percent of the tax value accruing to the top half and top ten percent of the income distribution prior to the TCJA, respectively. After the TCJA, both the IMD and MID became less progressive. The IMD Gini coefficient increased to 0.64, and the share of tax value accruing to the top half and the top ten percent of the income distribution changed to 94 and 41. The MID Gini coefficient increased from 0.76 to 0.81, increasing the tax value share to the top half and top ten percent of the income distribution to 99 and 69 percent, respectively.

The Distribution of Itemized Medical Deductions by Age

We next turn to the distribution of IMD claiming, IMDs claimed, and the associated tax value by age of the primary taxpayer. As above, we compare these distribution to that of the MID, and examine how they changed after the TCJA. Due to the concentration of IMDs among older taxpayers, we combine those under age 50 into one group, and then divide the remaining sample into 5-year age groups, with the highest age group consisting of those 85 and over.[13]

[13]Approximately 56 percent of tax units are in the below 50 age group, and this age group accounts for 27.7 percent of the tax value.

Table 2, Panel A displays the share claiming the IMD, the average IMD amount and tax value among those who claim, and the average tax value as a share of income by age group prior to the TCJA. As shown in the table, claiming the IMD increases sharply with age: less than 2 percent of tax units under age 50 claim the IMD, while over a quarter of tax units above age 75 do so. Conditional on claiming, the average amount claimed also increases with age. While average IMDs claimed by those under age 75 are less than $8,000, they increase to $9,506 for 75-79 year olds, $13,012 for 80-84 year olds, and $25,168 for those 85+. The tax value associated with the IMD among claimers is higher among those less than age 65 compared to those 65-74, but highest for those 75 and over. As a share of income, the average tax value among those who claim is between 1 and 2 percent for those under age 85, but rises to 3 percent of income for those age 85 and over.

Prior to TCJA, some of the patterns by age can be explained by the fact that tax units without a person age 65 and over were subject to a higher AGI threshold. In particular, only medical spending above 10 percent of AGI was eligible to be deducted for these younger tax units while those over 65 could deduct medical expenses that exceeded 7.5 percent of AGI. In addition, we see that the ratio of the tax value to the IMD amount is highest among those under age 65, likely due to the fact that these tax units face higher marginal tax rates and thus higher effective subsidy rates from the IMD.

The patterns by age differ considerably from analogous patterns for the MID. The share claiming the MID prior to the TCJA (shown in Panel A of Table 2) are highest among those age 50-59 at 36.1 percent, and decline monotonically with age to 6 percent among those age 85 and older. The average MID claimed similarly declines with age, from approximately $9,000 for those below age 55 to less than $6,000 among those age 85 or older. The tax savings associated with the MID are more significant for younger taxpayers, both in dollar terms and as a share of income, declining from an average tax savings of $2,133 (or 1.4 percent of income) among those age 50-54 to $969 (or 1 percent of income) among those age 85 and over.

How did the TCJA change these patterns? As shown in Panel B of Table 2, while the same basic patterns are present after the TCJA, with both higher shares of IMD claiming and higher IMDs claimed for older tax units, the lower rates of IMD claiming were less pronounced among those younger than age 65 due to the countervailing impact of the lower AGI threshold for these tax units, mentioned above. The average amount claimed and associated tax savings correspondingly increases for those younger than age 65. As a result, the associated tax savings as a share of income among those who claim the IMD increases for those younger than age 65 but declines for those above age 65, on average. By contrast, while the increase in the standard deduction in the TCJA reduced MID claiming overall, the TCJA did not substantially change the age distribution of the MID.

Figure 2 shows the cumulative distribution of the unconditional tax savings before and after the TCJA by age percentile rather than income percentile for both the IMD (Panel A) and the MID (Panel B), along with the 45 degree line. Age 50 is at the 58th percentile of the age distribution, while age 65 is represented by the 83rd percentile. Here, the 45 degree line represents perfect equality in the tax savings distribution by age, and a Gini coefficient that measures deviations from the 45 degree line indicates the degree to which the tax value differs by age, with a coefficient of 1 representing all of the tax value accruing to the highest age percentile and a coefficient of -1 indicating that all of the tax value accrues to the lowest age percentile.

The Gini coefficient for the IMD prior to the TCJA was 0.63, indicating a high degree of skewness towards higher age percentiles. The top half of the age distribution accrued 89 percent of the tax value, and the top ten percent accrued 51 percent. This compares to an MID Gini coefficient of 0.14 before the TCJA took effect. The MID is more skewed towards lower age percentiles, with 62 and 4 percent of the tax value accruing to the top half and top ten percent of the age distribution prior to the TCJA. After the TCJA, while the IMD still redistributes towards older taxpayers, it does so to a lesser extent. The IMD Gini coefficient reduced to 0.42, and the share of tax value accruing to the top half and the top ten percent

of the age distribution changed to 79 and 42, respectively. The MID Gini coefficient changed relatively little, from 0.14 to 0.13.

In Appendix B, we report the distribution of the IMD amounts by income and age instead of the tax values in Figure B.1. As is shown in the figure, the deduction amounts are not as highly skewed towards higher incomes but are more highly skewed to higher ages as compared to the tax value. This implies that a significant amount of the regressivity by income comes from the tax schedule, and that the tax schedule reduces the redistribution towards older taxpayers who pay lower marginal tax rates.

The Distribution of Itemized Medical Deductions under Counterfactual Policies

Using the HRS, we simulate the distribution of tax savings by AGI and age under the following counterfactual tax subsidies: a refundable credit, a non-refundable credit, and an above-the-line deduction that does not require itemization. We adjust the AGI threshold (in the case of the above-the-line deduction) and credit rates (in the case of refundable and non-refundable credits) to match aggregate tax expenditures for the IMD under the TCJA to develop counterfactuals that are budget-neutral on average. We arrive at the following budget-neutral alternatives to the current IMD: an above-the line deduction where medical spending above 30% of AGI can be deducted; a 3.4% non-refundable credit for medical spending above the 7.5% AGI threshold; and a 1.8% refundable credit for medical spending above the 7.5% AGI threshold. Tax savings under each scenario are derived from the difference in federal and state tax liabilities with and without the imputed medical deduction or credit, where non-refundable credits only reduce positive tax liabilities.[14]

[14]Since social security benefits are taxed at different levels according to income, applying the above-the-line deduction directly to AGI in TAXSIM potentially reduces each household's taxable social security benefits and exaggerates the impact of the deduction. To circumvent this issue, we ensure that taxable social security benefits remain consistent before and after applying the above-the-line deduction by shifting each household's taxable social security income to a TAXSIM input unaffected by changes to AGI (*interest*). We subsequently

Before we provide the combined effects of differing AGI thresholds and subsidy structures for each budget-neutral counterfactual, we first examine the influence of these factors on the distribution of tax savings in isolation. Figure 3, Panel A displays the distribution of medical spending above varying income thresholds by income percentile and age percentile, where the line marked by "0% AGI" simply represents the distribution of total out-of-pocket medical spending. Among households age 50 and over, medical spending is somewhat concentrated within higher income percentiles with a Gini coefficient of 0.149. However, increasing the threshold as a fixed percentage of AGI impacts higher-income households more and reduces the Gini coefficient. Specifically, raising the AGI threshold to 7.5% results in a Gini coefficient of -0.12, indicating that medical spending above 7.5% of AGI is skewed toward lower-income households with the bottom half of the income distribution accounting for 59.0% of spending. Increasing the AGI threshold to 30% further skews the distribution towards lower-income households, resulting in a Gini coefficient of -0.316 and the bottom half of the income distribution incurring 76.5% of total eligible medical spending.

Next, we hold the AGI threshold fixed and vary the type of tax subsidy to examine how changes in eligibility rules affect the distribution of tax savings by income in Panel B. Specifically, we look at the distribution of five policy alternatives: 1) an itemized deduction that includes medical spending above 7.5% of AGI as an itemized deduction with high standard deductions (corresponding to the current environment under TCJA); 2) an itemized deduction similar to the first alternative but with a lower standard deduction (corresponding to the Pre-TCJA environment, but with a uniform AGI threshold); 3) an above-the-line deduction that allows households to deduct medical spending above 7.5% of AGI regardless of itemization; 4) a non-refundable credit of 3.4% of medical spending above 7.5% of AGI; and 5) a refundable credit of 3.4% of medical spending above 7.5% of AGI.

These alternatives hold the income threshold as fixed but show how the distribution varies across different tax structures. However, these scenarios are not all budget-neutral: while the

apply the above-the-line deduction to TAXSIM's *non-property income* variable, which allows for negative values, resulting in a one-to-one change in household AGI in the construction of the above-the-line deduction.

credit rate for the fourth scenario was generated to have aggregate tax expenditures equal to the first scenario, the second, third and fifth scenarios result in aggregate tax expenditures that are 147%, 382% and 98% percent higher.[15]

The figure shows that the structure of the tax subsidy heavily influences the distribution of tax savings across the income distribution. Tax subsidies that are structured as itemized deductions are heavily skewed towards higher-income households, regardless of the level of the standard deduction, with Gini coefficients of 0.371 and 0.375 for the higher and lower standard deductions, respectively. Shifting to an above-the-line deduction that does not require one to itemize reduces the Gini coefficient to 0.286, but the tax savings are still skewed towards higher-income households due to the fact that marginal tax rates increase with income. This additional progressivity comes with a budgetary cost of 382% higher tax expenditures, as mentioned above.

A 3.4% non-refundable credit for medical spending above 7.5% of AGI significantly reduces the regressivity of the medical deduction by income without the associated increase in tax expenditures. Specifically, the Gini coefficient declines to 0.181 and the tax savings are more concentrated in the middle of the income distribution. Converting this non-refundable credit to a refundable credit (with 97% higher tax expenditures) shifts the distribution of tax savings to be progressive (Gini coefficient = -0.156), mimicking the distribution of deductible medical spending above the 7.5% AGI threshold as shown in Panel A.

In Figure 3, Panel C, we combine varying AGI thresholds and subsidy types to depict the distribution of tax savings across three budget-neutral counterfactual policies: an above-the-line deduction that allows for medical spending above 30% of AGI to be deducted regardless of itemization status, a 3.4% non-refundable credit for medical spending above 7.5% of AGI, and a 1.8% refundable credit for medical spending above 7.5% of AGI. We also compare these

[15]For the policy alternatives that are credits, we have an extra parameter to work with, namely the credit rate. In order to pin down that parameter, we choose it so that the non-refundable credit would be budget neutral with the current law policy. Then, when comparing the non-refundable credit to the refundable credit, we choose to keep the credit rate and income threshold fixed to isolate the difference between a refundable and non-refundable credit.

counterfactuals to the current policy environment under TCJA, depicted by the dashed line.

The distribution of tax savings across income varies considerably across these budget-neutral alternatives, and are all more progressive than the current policy. The most progressive alternative is the refundable credit, which gives rise to a Gini coefficient of -0.156 and under which the bottom half of the income distribution receives 62.3% of tax savings. The above-the-line deduction is slightly regressive on balance, with a Gini coefficient of 0.068 and 38.54 percent of the tax savings accruing to the bottom half of the income distribution. Here, the high AGI threshold required for budget-neutrality almost compensates for the increasing schedule of marginal tax rates by income. The most regressive of the alternatives is the non-refundable credit, with a Gini coefficient of 0.181, where the bottom half of the income distribution accumulates 31.3% of tax savings. This occurs because low income households with little or no tax liability become ineligible for tax benefits from the medical deduction when the credit is non-refundable.

Figure 4, Panel A displays the distribution of medical spending above varying income thresholds by age, among households age 50 and older represented in the HRS. Raising the AGI threshold tilts the distribution of deductible medical spending toward older households in the given age range. All medical spending is already somewhat skewed towards higher ages, with a Gini coefficient of 0.08, and 58.3 percent of medical spending accruing to those in the top half of the 50+ age distribution. Medical spending above 7.5% or 30% of AGI results in more skewness towards higher ages, with Gini coefficients of 0.205 and 0.277, respectively. This occurs because medical spending relative to income increases with age, both because medical spending increases with age and because AGI declines as individuals enter retirement.

Examining the distribution of tax benefits by age among households age 50 and older in Panel B reveals that all of the tax subsidy structures redistribute towards older households, who have high medical spending relative to income, but to varying extents. Itemized deductions are relatively age-neutral, with Gini coefficients of 0.045 and 0.056, depending on

the level of the standard deduction. For the above-the-line deduction and non-refundable credits, the share of savings that accrues to older households is higher than with the itemized deductions but more limited, as many older households have low AGIs and low tax liabilities. However, these limits do not apply in the case of a refundable credit, resulting in a larger concentration of tax savings among the oldest households and a Gini coefficient of 0.225. Under this credit, households age 65 and older accumulate approximately 70.0% of total tax savings accrued to those 50 and over.

Panel C shows how the budget-neutral alternatives impact the age distribution of tax savings. While the current policy environment is relatively age-neutral among households age 50 and older (Gini coefficient = 0.045), the budget-neutral alternatives all result in a higher concentration of tax savings among older households. The non-refundable credit results in more older households eligible for the tax subsidy who would not be eligible if itemization were required, with a Gini coefficient of 0.118. The above-the-line deduction redistributes further to older households due to the high AGI threshold required for budget-neutrality, with a Gini coefficient of 0.199. Finally, the refundable credit is most skewed toward older households with a Gini coefficient of 0.225, as it extends the tax benefit to older households with little or no tax liability but high medical spending.

Conclusion

Unlike other itemized deductions, the itemized medical deduction allows taxpayers to deduct medical spending above a threshold that increases with income. This feature impacts how the tax savings associated with the deduction accrues to households across the income and age distribution depending on how medical spending relates to income at the household level. Recent changes in tax policy due to the 2017 Tax Cuts and Jobs Act (TCJA) impacted both the share eligible to claim the deduction as well as the average amount claimed, but both the baseline distribution and how these changes affected people differentially by income is

not well understood.

Our study fills this gap by examining how claiming rates, deduction amounts, and tax savings associated with the itemized medical deduction varies across income and age, how it compares to the mortgage interest deduction, and how the TCJA changed these distributions. We find that the tax savings associated with the itemized medical deduction are concentrated among high-income taxpayers and at older ages. While the income distribution of tax savings is relatively similar to that generated by the mortgage interest deduction, the age patterns are quite different, as tax savings from the mortgage interest deduction are less common among older taxpayers.

This study helps inform policy discussions surrounding the itemized medical deduction as the TCJA provisions are set to expire. We illustrate different ways to structure tax subsidies for medical spending that have implications for the distribution of tax savings by both income and age. Key inputs into the distribution of tax savings are the income threshold that is used, whether the subsidy is a deduction or a credit, and whether the subsidy benefits those with little or no tax liability. When the income threshold is a higher percentage of AGI, more medical spending is eligible for deduction among lower-income households, resulting in higher levels of progressivity, all else equal. Credits result in more progressivity than deductions because tax savings for deductions are higher for higher-income households with higher marginal tax rates, and making a credit refundable increases progressivity further still by making households with little or no tax liability eligible for a subsidy.

We acknowledge that the redistributive effects of the itemized medical deduction are only one aspect of evaluating its consequences. Our future research agenda aims to better understand the economic tradeoffs associated with the itemized medical deduction, including the extent to which it helps households insure against health and economic shocks and whether it distorts other economic behaviors.

Tables and Figures

Table 1: Itemized Medical Deductions and Mortgage Interest Deduction by Income Decile

Panel A: Pre-TCJA (2015-2016)

	Itemized Medical Deduction				Mortgage Interest Deduction			
Income Decile	Share Claiming	Amount Claimed	Tax Value Claimed	Tax Value Share of Income	Share Claiming	Amount Claimed	Tax Value Claimed	Tax Value Share of Income
1	0.036	9934	1	0.000	0.024	7020	1	0.002
2	0.040	9494	64	0.004	0.027	6135	69	0.005
3	0.045	9296	216	0.011	0.036	6388	215	0.011
4	0.056	9266	404	0.015	0.058	6159	355	0.013
5	0.067	8904	572	0.016	0.102	6007	487	0.013
6	0.082	8926	780	0.016	0.177	6056	658	0.014
7	0.095	9359	1128	0.018	0.266	6454	953	0.015
8	0.099	9971	1437	0.017	0.377	7223	1160	0.014
9	0.086	10840	2017	0.017	0.546	8191	1667	0.014
10	0.049	17093	4203	0.019	0.688	11922	3763	0.015
Total	0.066	10152	1171	0.015	0.230	8570	1906	0.014

Panel B: Post-TCJA (2018-2019)

	Itemized Medical Deduction				Mortgage Interest Deduction			
Income Decile	Share Claiming	Amount Claimed	Tax Value Claimed	Tax Value Share of Income	Share Claiming	Amount Claimed	Tax Value Claimed	Tax Value Share of Income
1	0.008	17351	0	0.000	0.006	10485	0	0.000
2	0.011	18352	22	0.001	0.007	9542	34	0.002
3	0.015	16674	115	0.005	0.010	9115	142	0.007
4	0.018	16488	278	0.009	0.015	9514	270	0.009
5	0.025	16272	435	0.011	0.025	9244	405	0.010
6	0.035	15524	564	0.011	0.050	8873	546	0.011
7	0.044	16036	761	0.011	0.088	8997	821	0.012
8	0.048	16232	990	0.011	0.130	9876	1104	0.012
9	0.051	17446	1450	0.011	0.189	11763	1535	0.012
10	0.037	24022	3582	0.014	0.372	16857	3226	0.010
Total	0.029	17476	1113	0.010	0.089	13008	1959	0.011

Notes: Authors' calculations using 1 percent sample of individual tax records from Internal Revenue Service population files. Share claiming represents number of returns with deduction relative to total number of returns. Amount claimed represents average amount claimed among returns with deduction. Tax value claimed represents average reduction in tax liability among returns with deduction, relative to tax liability without the deduction. Tax value share of income represents tax value claimed as a proportion of total income.

Table 2: Itemized Medical Deductions and Mortgage Interest Deduction by Age

Panel A: Pre-TCJA (2015-2016)

	Itemized Medical Deduction				Mortgage Interest Deduction			
Age	Share Claiming	Amount Claimed	Tax Value Claimed	Tax Value Share of Income	Share Claiming	Amount Claimed	Tax Value Claimed	Tax Value Share of Income
0-49	0.020	7319	906	0.013	0.180	9089	2040	0.015
50-54	0.045	7426	973	0.013	0.361	9012	2133	0.014
55-59	0.058	7417	935	0.013	0.361	8349	1933	0.014
60-64	0.088	7714	924	0.013	0.339	7798	1738	0.013
65-69	0.157	7763	860	0.011	0.285	7899	1593	0.012
70-74	0.204	7732	895	0.011	0.247	7664	1473	0.012
75-79	0.237	9506	1091	0.013	0.181	7013	1271	0.011
80-84	0.256	13012	1455	0.018	0.123	6434	1060	0.010
85+	0.312	25168	2734	0.032	0.060	5965	969	0.010
Total	0.066	10152	1171	0.015	0.230	8570	1906	0.014

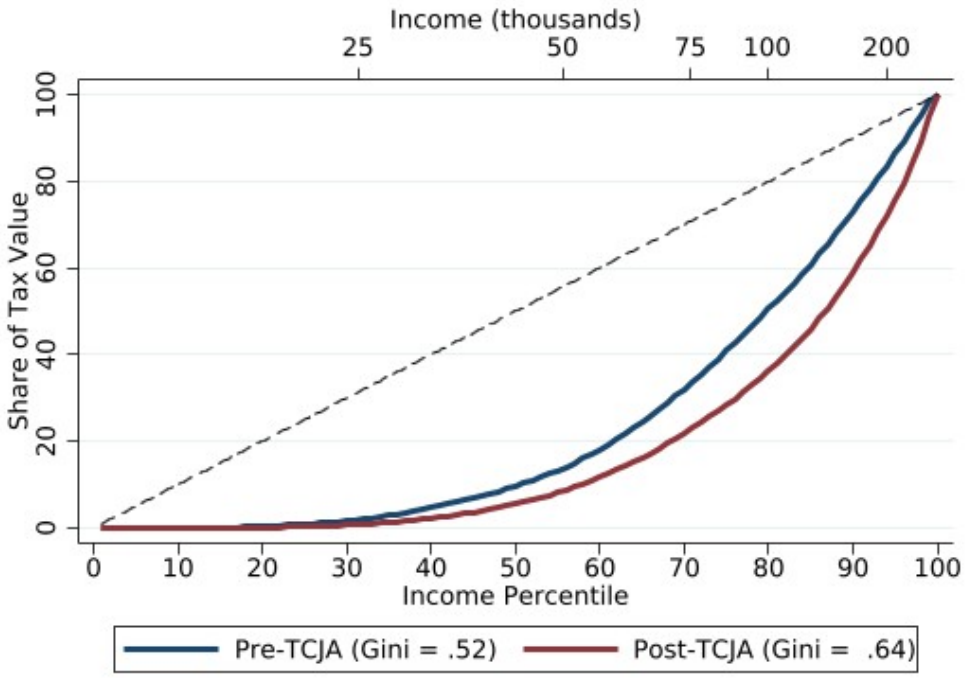
Panel B: Post-TCJA (2018-2019)

	Itemized Medical Deduction				Mortgage Interest Deduction			
Age	Share Claiming	Amount Claimed	Tax Value Claimed	Tax Value Share of Income	Share Claiming	Amount Claimed	Tax Value Claimed	Tax Value Share of Income
0-49	0.010	12899	1481	0.018	0.068	13944	2163	0.012
50-54	0.024	12308	1430	0.016	0.147	13834	2338	0.012
55-59	0.030	12490	1377	0.014	0.144	12688	2115	0.012
60-64	0.043	12574	1060	0.011	0.136	11764	1795	0.010
65-69	0.050	13378	756	0.007	0.102	11926	1496	0.008
70-74	0.067	12774	562	0.004	0.097	11480	1118	0.005
75-79	0.086	16059	543	0.003	0.080	10409	821	0.004
80-84	0.106	22373	820	0.005	0.058	9654	730	0.003
85+	0.175	39955	1602	0.011	0.033	8585	565	0.003
Total	0.029	17476	1113	0.010	0.089	13008	1959	0.011

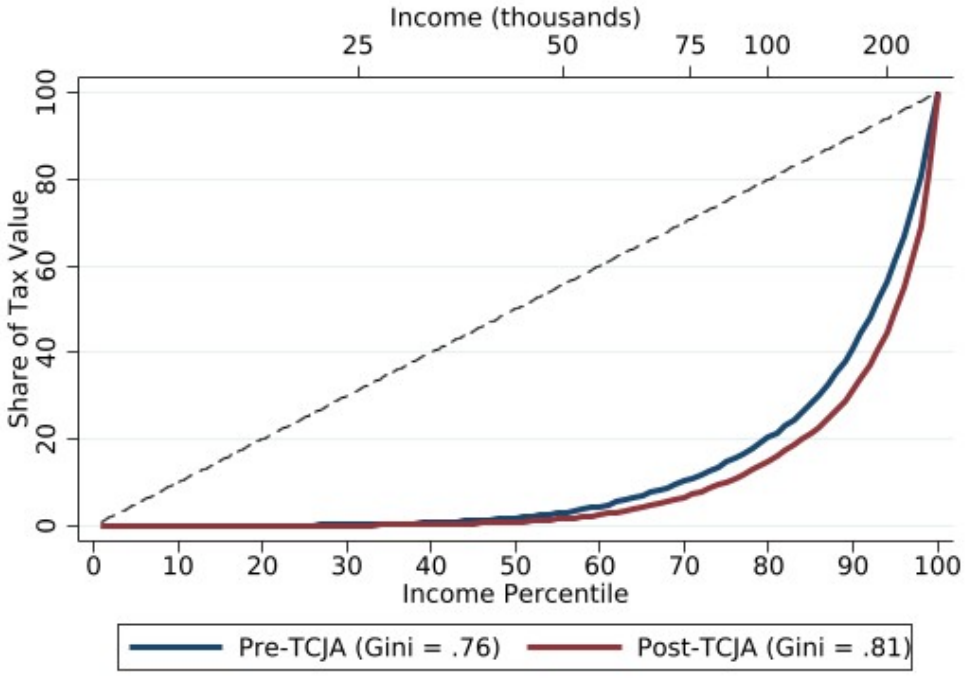
Notes: Authors' calculations using 1 percent sample of individual tax records from Internal Revenue Service population files. Share claiming represents number of returns with deduction relative to total number of returns. Amount claimed represents average amount claimed among returns with deduction. Tax value claimed represents average reduction in tax liability among returns with deduction, relative to tax liability without the deduction. Tax value share of income represents tax value claimed as a proportion of total income.

Figure 1: Distribution of Tax Savings by Income

Panel A: Itemized medical deductions



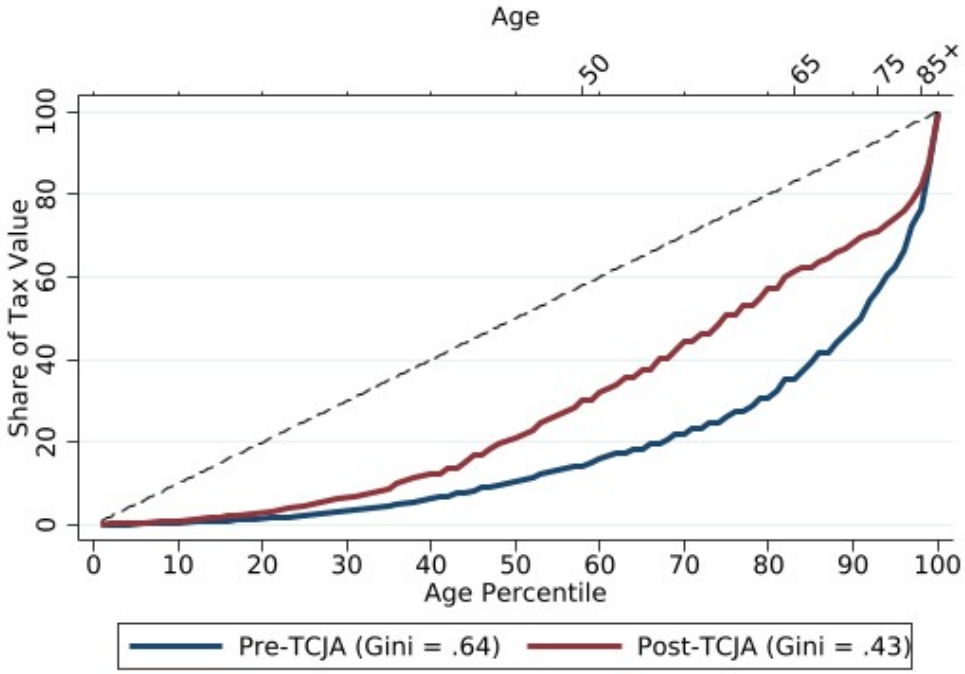
Panel B: Mortgage interest deduction



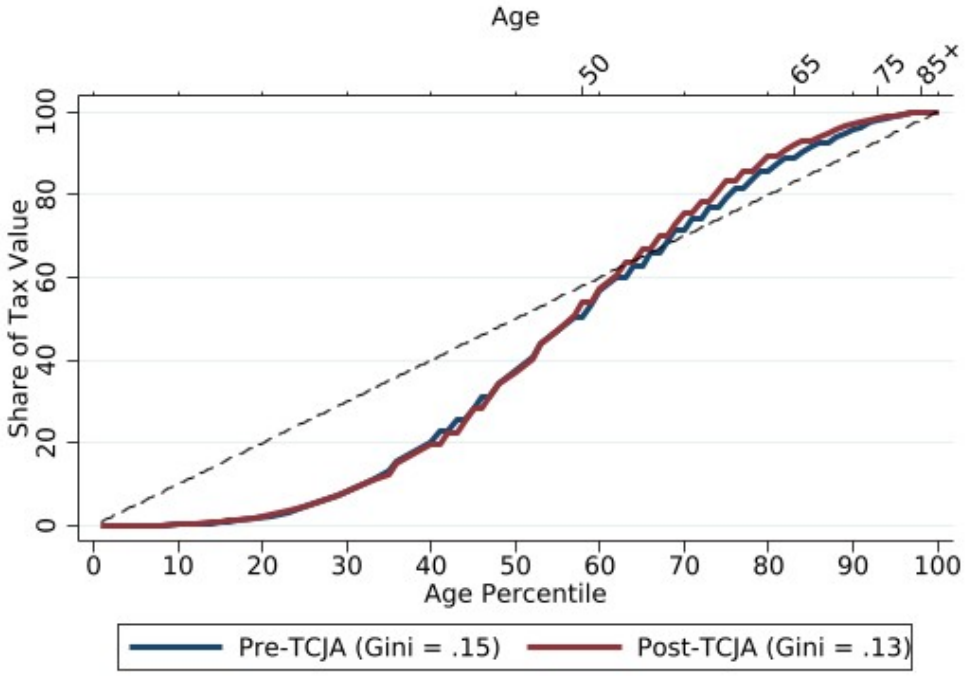
Notes: Authors' calculations using 1 percent sample of individual tax records from Internal Revenue Service population files. Lines represent cumulative share of tax value by income percentile including tax units with zero tax value.

Figure 2: Distribution of Tax Savings by Age

Panel A: Itemized medical deductions



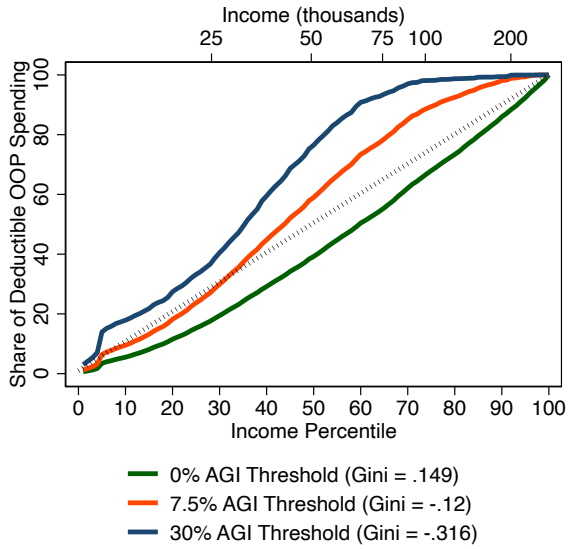
Panel B: Mortgage interest deduction



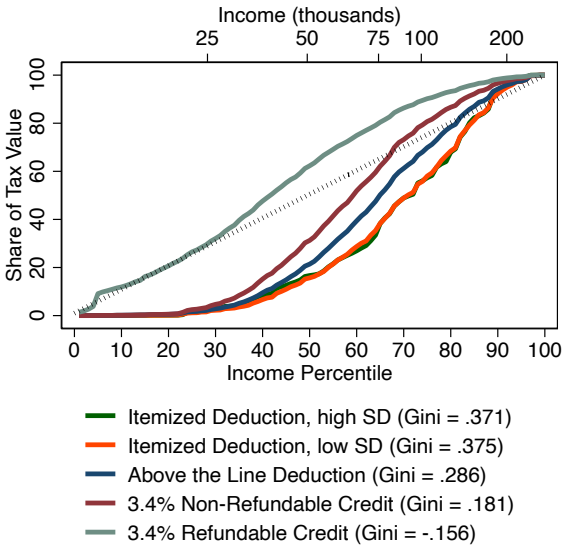
Notes: Authors' calculations using 1 percent sample of individual tax records from Internal Revenue Service population files. Lines represent cumulative share of tax value by age percentile including tax units with zero tax value. Age corresponding to a sample of age percentiles shown in top axis.

Figure 3: Counterfactual Analysis by Income

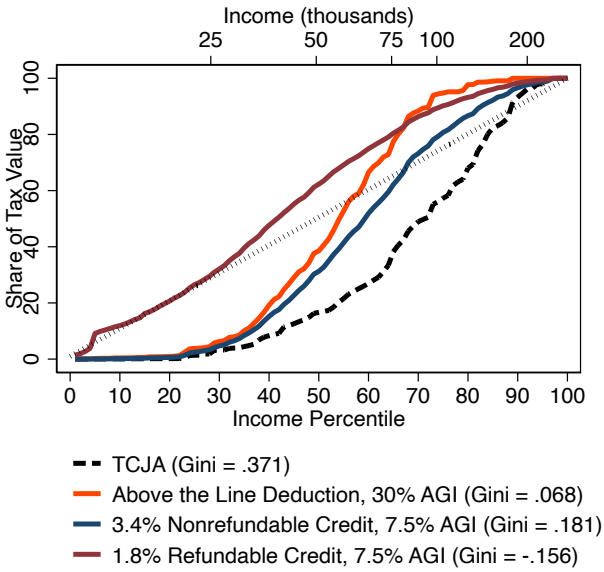
Panel A: Distribution of medical spending above different AGI thresholds



Panel B: Distribution of tax savings under different types of tax subsidy



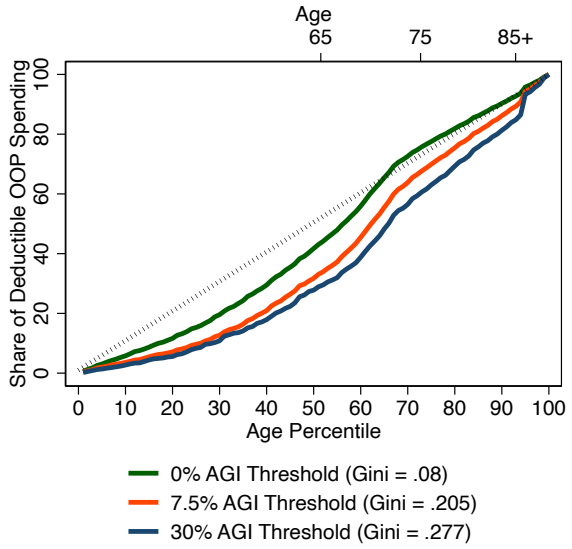
Panel C: Distribution of tax savings under budget-neutral alternatives



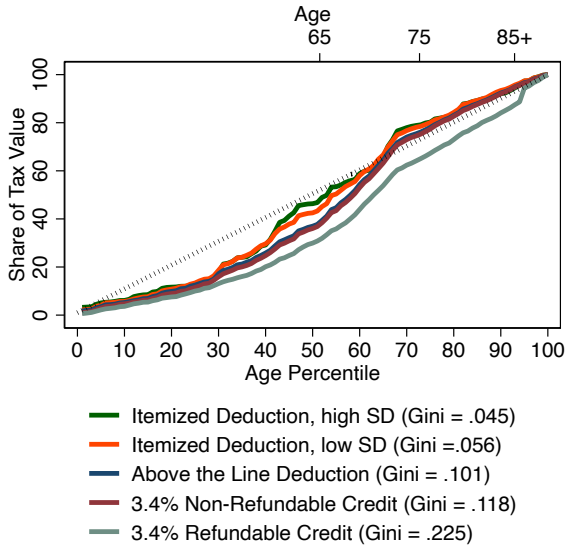
Notes: Health and Retirement Survey, Wave 13. Panel A depicts the distribution of eligible medical spending above different AGI thresholds across income. Panel B shows the distribution of the tax value under counterfactual policies that hold the AGI threshold fixed at 7.5% with different budgetary implications, including itemized deductions with different levels of the standard deduction (SD), an above-the-line deduction, and non-refundable and refundable credits. Panel C shows the distribution of the tax value under budget-neutral combinations of tax subsidy structures and AGI thresholds. AGI reported in 2023 dollars using household weights on top axis. See text for more details.

Figure 4: Counterfactual Analysis by Age

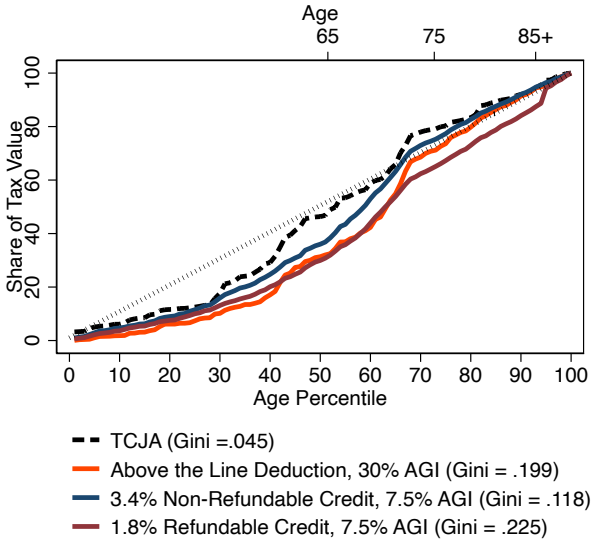
Panel A: Distribution of medical spending above different AGI thresholds



Panel B: Distribution of tax savings under different types of tax subsidy



Panel C: Distribution of tax savings under budget-neutral alternatives



Notes: Health and Retirement Survey, Wave 13. Household age assigned based on the age of the financial respondent or age of the oldest household member (if financial respondent not specified). Panel A depicts the distribution of eligible medical spending above different AGI thresholds across age. Panel B shows the distribution of the tax value under counterfactual policies that hold the AGI threshold fixed at 7.5% with different budgetary implications, including itemized deductions with different levels of the standard deduction (SD), an above-the-line deduction, and non-refundable and refundable credits. Panel C shows the distribution of the tax value under budget-neutral combinations of tax subsidy structures and AGI thresholds. See text for more details.

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Appendix A: TAXSIM Inputs

TAXSIM35, a tool provided by the National Bureau of Economic Research (NBER), enables the calculation of federal and state income tax liabilities using person-level data. We use TAXSIM35 to generate the tax savings associated with various policy scenarios. The table below describes the HRS inputs used in our calculations.

TAXSIM input	Description	HRS Variable(s) used
pwages	Wage income (primary)	Respondent earnings
swages	Wage income (secondary)	Spouse earnings
psemp	Self-employment income (primary)	Respondent self-employment earnings
ssemp	Self-employment income (secondary)	Spouse self-employment earnings
dividends	Dividend income	Household dividend income
intrec	Taxable interest received	Checking/savings interest
stcg	Short term capital gain/loss	Imputed as zero
ltcg	Long term capital gain/loss	Imputed as zero
otherprop	Interest and other property income	Business and rental income
nonprop	Other non-property income	Other income (alimony, lump sums), bond and CD income
pensions	Taxable pension income	Respondent and spouse pension income, annuity income, IRA withdrawals
gssi	Gross social security benefits	Respondent and spouse Social Security retirement and disability income
pui	Unemployment compensation (primary)	Respondent UI income
sui	Unemployment compensation (secondary)	Spouse UI income
transfers	Non-taxable transfer income	Respondent and spouse other gov't transfers
rentpaid	Rent paid	Rent paid
proptax	Property tax paid	Property tax paid
otheritem	Other itemized deductions	Preference share of medical expenses
childcare	Child care expenses	Imputed as zero
mortgage	Mortgage interest paid	Outstanding mortgage amount × rate charitable donations, non-preference share of medical expenses

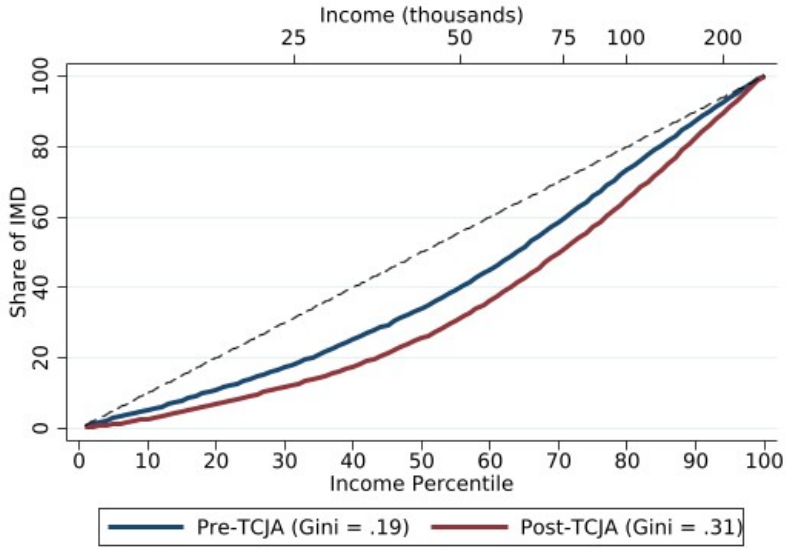
Eligible medical expenses are divided into two categories: the preference share (in *otheritem*) and the non-preference share (in *mortgage*). The preference share, which is used in the calculation of the alternative minimum tax, is at most 2.5 percent of adjusted gross income; the non-preference share is the remaining portion of eligible medical expenses.[16]

[16]Further details regarding the allocation of medical costs to the preference and non-preference shares are provided here: https://taxsim.nber.org/taxsim-calc9/medical_deduction.html.

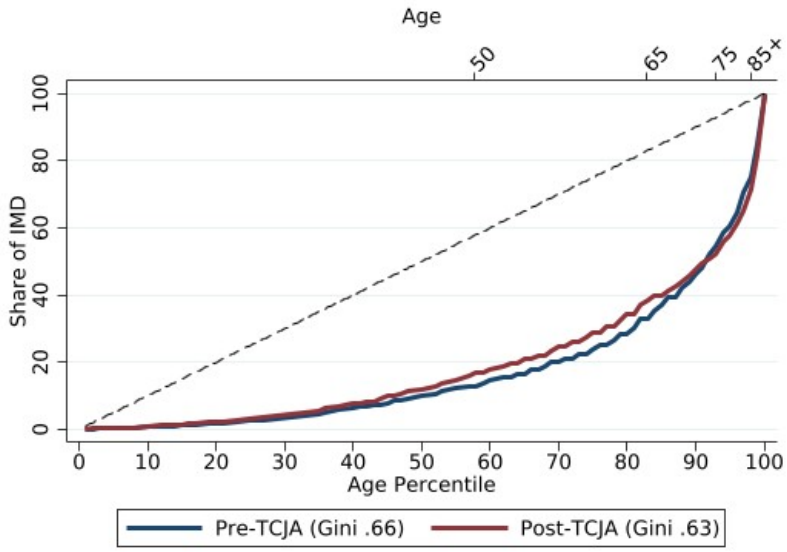
Appendix B: Distribution of IMD Amount

Figure B.1: Distribution of IMD Amount

Panel A: By Income



Panel B: By Age



Notes: Both figures use a 1 percent sample of individual tax records from Internal Revenue Service population files. Lines represent cumulative share of itemized medical deductions by income percentile including tax units with zero deduction value. AGI reported in 2023 dollars using household weights on top axis of Panel A. See text for more details.

Appendix C: IRS and HRS Comparison

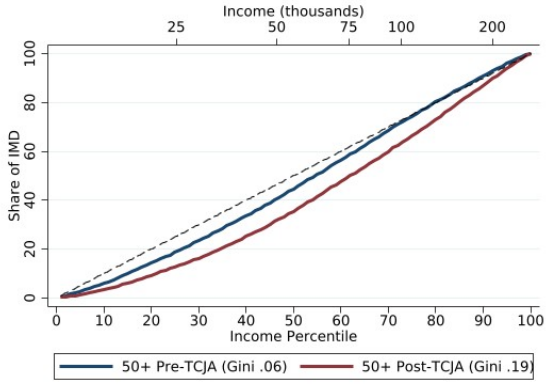
By combining data from the IRS and HRS, we are able to both examine IMD claiming with a high degree of accuracy and understand the impacts of different policy counterfactuals. However, the samples of the two data sources differ, with IRS data representative of the tax filing population at all ages, and the HRS data representative of all households with someone age 50 or over. In this section, we report the tax value distributions for a more comparable sample and discuss remaining differences. Figures C.1 and C.2 compare the the distribution of the IMD and the tax value of the IMD before and after the TCJA by income and age, respectively, where we limit the IRS sample to ages 50 and over and we exclude non-filers from the HRS sample.

Despite the overlap in the ages represented, several factors contribute to differences in the patterns across the two datasets and lead to a downward bias in the Gini coefficients for income inequality in the HRS sample. First, the 2018 wave of the HRS that is used in this study does not include information regarding actual medical deductions claimed and thus implicitly assumes full take-up. Prior work indicates that take-up of the IMD increases with income (Goda, 2024), which would bias the Gini coefficient from the HRS sample down. Second, the HRS dataset does not include information on all possible itemized deductions. While data on charitable donations is available and we construct a proxy for mortgage interest, data on what households could claim as the state and local is not included in the survey. This omission would bias downward the share of households eligible to benefit from the IMD, particularly at the high end of the income distribution, leading to a Gini coefficient in the HRS sample that is again biased downwards. Finally, the HRS reports the household, not the tax filing unit. Therefore, there is some measurement error in the the tax liability from any differences that may exist between the two.

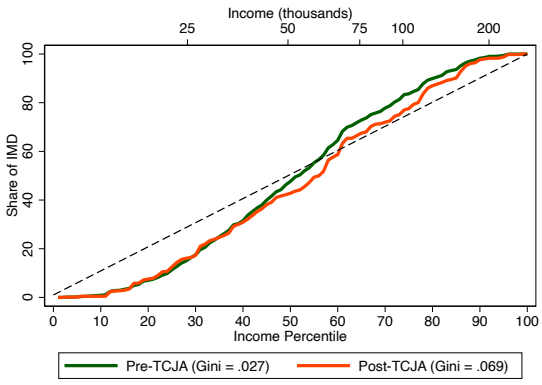
It is also worth highlighting that the Post-TCJA data in the HRS figures does not use out-of-medical spending data from the Post-TCJA time period. Instead, it represents the tax value from Pre-TCJA medical spending using Post-TCJA tax rules. By contrast, the IRS figures calculate the tax value based on actual IMDs claimed Pre-TCJA and Post-TCJA, which may incorporate behavioral responses that occurred during this time. As noted in the text, medical spending data in 2018-19 may not be of comparable quality due to data collection difficulties during the Covid-19 pandemic.

Figure C.1: IMD Amounts and Tax Values for Tax Filers Age 50 and Over by Income

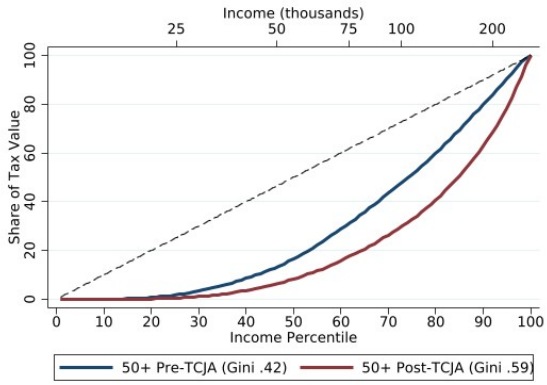
Panel A: Share of IMD (IRS)



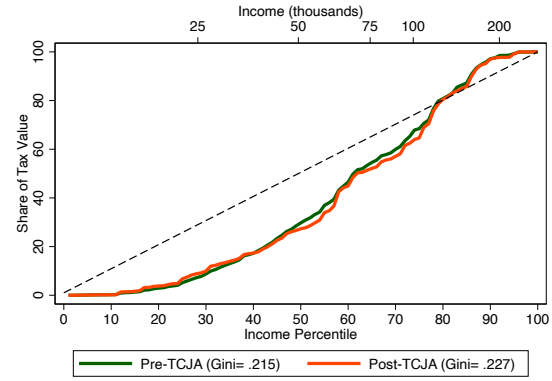
Panel B: Share of IMD (HRS)



Panel C: Share of Tax Value (IRS)



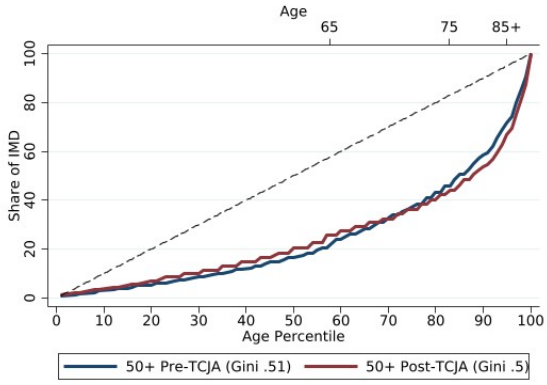
Panel D: Share of Tax Value (HRS)



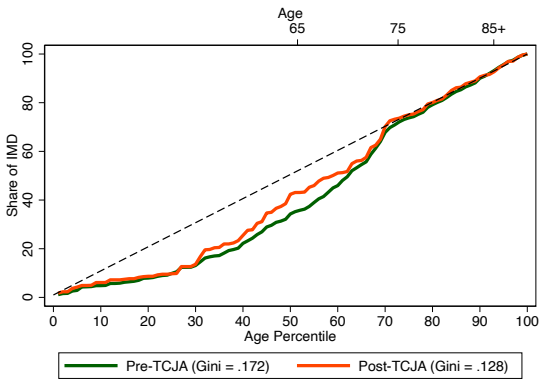
Notes: Panels A and C use a 1 percent sample of individual tax records from Internal Revenue Service population files, limited to tax filers with an individual 50 or over. Panels B and D use the Health and Retirement Survey, Wave 13, which includes households ages 50 and older, but limited to tax filers. Lines represent cumulative share of IMD and IMD tax value by income percentile. AGI reported in 2023 dollars using household weights on top axis. See text for more details.

Figure C.2: IMD Amounts and Tax Values for Tax Filers Age 50 and Over by Age

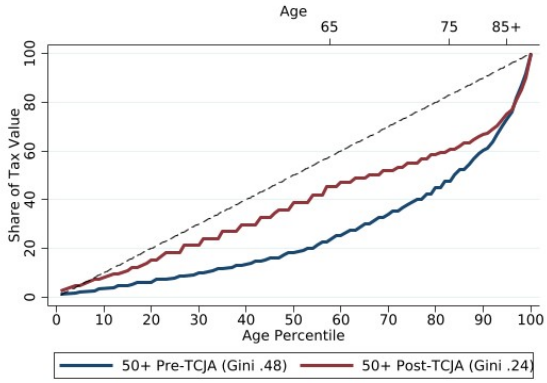
Panel A: Share of IMD (IRS)



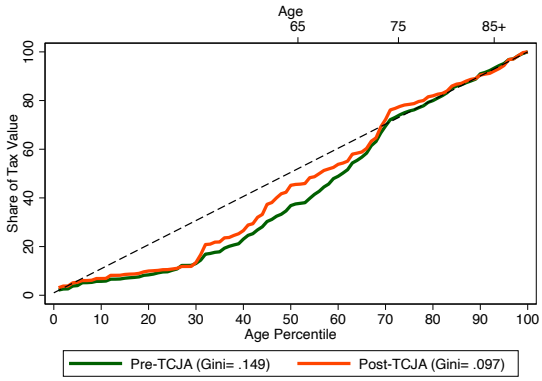
Panel B: Share of IMD (HRS)



Panel C: Share of Tax Value (IRS)



Panel D: Share of Tax Value (HRS)



Notes: Panels A and C use a 1 percent sample of individual tax records from Internal Revenue Service population files, limited to tax filers with an individual 50 or over. Panels B and D use the Health and Retirement Survey, Wave 13, which includes households ages 50 and older, but limited to tax filers. Lines represent cumulative share of IMD and IMD tax value by age percentile. AGI reported in 2023 dollars using household weights on top axis. See text for more details.