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THE SAME BUT DIFFERENT

HOW THE INCOME TAX AFFECTS BLACK, HISPANIC, AND WHITE HOUSEHOLDS

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ABSTRACT

The federal income tax does not explicitly discriminate by race or ethnicity but can still generate disparate outcomes when a group's activity correlates with determinants of tax liability. Using SCF data and NBER's TAXSIM model, we find that untaxed forms of income accrue disproportionately to white households, on an overall basis and across most income levels. Black and Hispanic households face lower tax rates than whites in low-income groups due to differences in filing status and dependents but Black units face higher rates than whites in high-income groups due to differences in income composition. We also examine cross-group implications of historical and prospective policy changes.

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I. Introduction

A key issue for researchers and policy makers is the extent to which laws and institutions that are nominally blind with respect to race and ethnicity are in fact neutral in their effects across groups. For example, the federal income tax does not explicitly take race or ethnicity into account; any two tax filing units with identical sources and level of income, deductions, and credits will face the same tax liability, regardless of group identity. Yet the income tax may still generate disparate outcomes across groups because factors that affect liability may be correlated with group identity.[1] These factors include the well-documented and extensively studied differences between Black, Hispanic, and white households in terms of household composition, labor earnings, wealth accumulation, and other measures of economic status.[2]

In this paper, we investigate how the income tax – a central economic institution in the lives of almost all citizens – differentially affects Black, Hispanic and white households.[3] A prominent theme of our analysis is that the differences in economic status noted above are, in fact, among the primary determinants of tax liability and thus spill over into differences across groups in income tax burdens. In turn, the resulting differential income tax treatment may have significant effects on the differences in economic status.

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[1]Moran and Whitford (1996) and Brown (2021) provide several examples where the tax code favors the activities, resources, and behaviors more common among white than Black families. Martinez and Martinez (2011) and Martinez (2017) provide similar analysis for Latino families. Gale (2021) provides examples where pre-existing discrimination in public policies, social practices, or economic conditions can cause policies that are race-neutral on the surface to nevertheless have disparate racial impacts.

[2] See, for example, Aladangady et al. (2023); Altonji and Blank (1999); Boddupalli et al. (2024), Derononcourt et al. (2024); Gale et. al. (2022); Haskins and Sawhill (2009); Moynihan (1965), and Thompson and Suarez (2019).

[3] According to the Oxford English Dictionary (2024), "Hispanic" refers to people with ancestry from Spanish-speaking countries, whereas "Latino" refers to people of Latin American origin. The Survey of Consumer Finances asks respondents their racial identification, including one category given as "Hispanic or Latino." We use the term Hispanic throughout the paper and use it to refer to any respondent who identifies with either term. Limited sample size in the SCF constrains our ability to analyze other ethnic or racial groups. For a preliminary of income taxes and Asian-American households see Gale and Gnany (2024).

To carry out the analysis, we use data from nine waves of the Survey of Consumer Finances (SCF), a public-use triennial household survey that contains information on demographics, income, wealth, and consistent measures of respondents' self-reported race and ethnicity. We split households into tax units using a methodology developed in Gale et al. (2022a, b) and develop measures of adjusted gross income (AGI), deductions, taxable income (TI), and eligibility for credits. We apply the data to the National Bureau of Economic Research (NBER) TAXSIM model, which allows users to specify which year's tax law to use to calculate tax liability. To develop a reliable measure of households' economic status and to examine the racial implications of items that are *not* taxed in the current system, we construct a new, broad measure called "expanded income" (EI), which starts with adjusted gross income (AGI) and adds various forms of cash and non-cash income components.

We obtain several major results, all under 2018 law unless otherwise specified. First, the descriptive data show that Black, Hispanic, and white tax filing units differ systematically. White units have higher average income and, because the income tax is progressive, face higher average tax rates (ATRs), defined as the ratio of income tax liability divided by EI. Even after controlling for EI, however, important differences remain: white units are least likely to file as head of household, have the smallest tax unit size, and receive the lowest share of income in the form of wages and the highest share of income as tax-preferred or -exempt capital income. Hispanic units are the most likely to be married, have the largest average family size, and are most likely to be eligible for the Earned Income Tax Credit (EITC) and Child Tax Credit (CTC). These descriptive findings are crucial because they reflect the underlying economic differences across groups noted above and drive all the results that follow, in intuitive ways.

Second, on net, the differences between a comprehensive income tax and the current

income tax disproportionately benefit white households, on average. These differences include the non-taxation of items such as imputed rent from owner-occupied housing, unrealized capital gains, and a substantial share of business income. This result holds in the aggregate, which is unsurprising because most untaxed income accrues to high-income households, where white units are disproportionately represented. It also holds, however, after controlling for EI, for Hispanic-white differences in all income groups and Black-white differences in middle- and high-income tax units, reflecting underlying group wealth differences and income tax preferences for capital income. We estimate that white tax units derive between 2 and 5 percentage points less of their income from taxable sources than Black tax units in deciles 4-9 and Hispanic tax units in deciles 2-9. In the lowest two EI deciles, the differences between a comprehensive income tax and the current system benefit Black households on average, who receive a disproportionate share of government transfers that are not taxed but would be under a comprehensive income tax.

Third, the relative taxation of different groups varies over the income distribution. In the bottom five deciles of the EI distribution, controlling for EI, Black and Hispanic tax units face lower ATRs than white tax units (by 1-2 percentage points for Black tax units and by 2-4 percentage points for Hispanic units). These results reflect differences in household composition and largely disappear after controlling for filing status and number of dependents.[4] In contrast, in the top five deciles of the EI distribution, and again controlling for EI, Black units face higher ATRs than white units (by around 0.5 percentage points) and ATRs for Hispanic units are

[4]There is an issue as to whether to control for tax unit characteristics, as such characteristics themselves may be the results of racism. We believe comparisons with and without controls are informative. We control for tax unit characteristics here in order to explain the source of the differences in average tax rates, not to argue for the absence of racism in other parts of society. For further discussion, see Logan (2022) and Moran and Whitford (1996).

statistically indistinguishable from white units. For Black units, controlling for filing status and dependents does not eliminate this difference. Instead, the Black-white difference arises because Black tax units receive a smaller share of their income as tax-preferred or tax-exempt capital income, again reflecting racial wealth differences, and a greater share in the form of wages, which are taxed as ordinary income.[5]

These results display both "vertical" and "horizontal" differences between Black, Hispanic, and white households. Using a decomposition technique proposed in Slemrod (2022) and implemented in Lin and Slemrod (2023) for gender differences in taxes, we show that 61% (45%) of the overall difference in ATRs between Black (Hispanic) and white units is due to group differences in average income coupled with the progressivity of the income tax. The remainder is due to "horizontal" differences within the same income deciles. Because the difference in ATRs by group changes sign as EI rises, we also decompose ATRs separately in the top and bottom halves of the income distribution and find that horizontal factors dominate the difference in the bottom half while vertical (i.e., income) differences dominate in the top half. These results are consistent with the regression findings and show that many features of the tax system besides its basic progressivity affect relative tax burdens.

Fourth, we analyze prospective and recent tax reforms. Broadening the tax base by taxing currently exempt forms of capital income reduces ATRs for Black and Hispanic units relative to white units. Lowering marginal tax rates, while holding the base constant, has the same effect. Both results occur because, in most income deciles, tax-preferred and tax-exempt capital income is a larger share of income for white units than others, again reflecting underlying wealth differences.

[5]Holtzblatt, et al. (2023) and Cronin et al. (2023) obtain similar results on the share of wage and capital income.

We apply these results to the Tax Cut and Jobs Act of 2017 (TCJA) and the American Rescue Plan of 2021 (ARP). Although TCJA was regressive on an overall basis, thus benefiting white tax units relative to other groups, we find that within EI deciles the individual income tax provisions did not have substantially different effects by race and ethnicity. In fact, the lower tax rates and increased CTC in TCJA reduced taxes by slightly more for Black and Hispanic tax units than for white units within each income group. In sharp contrast, the American Rescue Plan of 2021 reduced ATRs substantially for Black and Hispanic units relative to white units in the bottom half of the EI distribution by substantially raising the CTC and the EITC.

Finally, we trace the evolution of group differences in the income tax over the past fifty-plus years. We show that, after applying 1970 law to the tax units in our sample, there is essentially no difference in average tax rates across the three groups, except at the very top. This is consistent with Strass and Gouveia (2023), who find no difference in ATRs between Black and white tax units using data from 1967 to 1973. We then trace the effects of the various policy changes that have occurred since then and have led to a system where Black and Hispanic households face lower tax taxes than white households in the bottom half of the distribution but higher rates in the top half.

Our results help shed light on how the income tax can create, reinforce, or offset pre-existing disparities across groups. Income tax liability depends on sources and levels of income, marital status, dependents, and other factors that have plausibly been affected by a history of racism and racist policies in the United States (Kawano 2022). We do not address why income tax rules might favor one group – for example, whether the differences are due to explicit or implicit racism, lack of representation in the legislature, or other causes (see Brown 2021, Martinez and Martinez 2011, Martinez 2017, Moran and Whitford 1996, and Strand and Mirkay

2023). Regardless of the cause, however, the results shed light on the racial and ethnic dimensions of the income tax.

Section II reviews previous literature. Section III discusses our data and methodology. Section IV provides descriptive data. Section V provides econometric tests of group differences in (a) the gap between a comprehensive tax base and the current tax base and (b) ATRs within income groups and also reports Lin-Slemrod decompositions. Section VI examines prospective and recent tax reforms. Section VII discusses how changes in tax law have affected group differences in income tax liability. Section VIII provides concluding remarks.

II. Previous Literature

There is a small but growing literature on racial differences in income taxation. In their classic paper, Moran and Whitford (1996) argue that although the income tax is formally race-neutral, variations in circumstances and behavior across people of different races can result in disparate tax liabilities. They provide examples in support of two major hypotheses: First, that "… deviations from the ideal of a comprehensive income tax systematically favor whites over blacks;" second, that "… even if income is held constant, the Internal Revenue Code systematically disfavors the financial interests of Blacks … [which will] trigger different tax results." Brown (2021) and Martinez and Martinez (2011) offer further examples and supporting data on these two themes for Black and Hispanic tax units, respectively. Our analysis in section V generally supports the first hypothesis but finds that the latter hypothesis holds only in the top half of the income distribution.

Most recent work on this topic, however, has focused on the racial disparities inherent in particular provisions of the income tax, rather than the tax as a whole. Using the Treasury tax model and imputing taxpayer race from other data, Cronin, DeFilippis, and Fisher (2023) find

that several major tax expenditures (including those for realized capital gains and qualified dividends) disproportionately benefit white households. Likewise, Holtzblatt et al. (2023), using the Urban-Brookings Tax Policy Center (TPC) simulation model and imputing taxpayer race from outside the model, find that preferences for realized capital gains disproportionately benefit white households. Perhaps surprisingly, neither study finds a racial/ethnic difference in use of the mortgage interest deduction, after controlling for income. Our results are consistent with all these findings.

Cronin, Deflippis, and Fisher (2023) find that refundable credits tend to disproportionately benefit Black and Hispanic households, but the difference disappears after controlling for income, filing status, and number of children (Cronin, DeFillipis, and Fisher, 2024). We find similar results in section V.

Alm et al. (2023a), with Current Population Survey data, and Holtzblatt et al. (2024), with SCF data, use TAXSIM and find that marriage penalties are more prevalent and a larger share of income among Black than white couples, because Black couples generally have more equal spousal earnings and more dependents. Alm et al. (2023a) find similar, though weaker, results for Hispanic couples relative to white couples. Costello et al. (2024), however, using the Treasury tax model and imputation procedures for taxpayer race, find different spousal earnings patterns and find that marriage penalties are not more likely among minority couples.

Other analyses of group differences created by specific aspects of the tax code include Hardy, Hokayem, and Ziliak (2022) and Alm et al. (2023b) on the EITC; Goldin and Michelmore (2021) on the CTC; Choukhmane et al. (2024) on retirement saving; and Elzayn et al. (2023) on

audit rates.[6]

The disparities created by the income tax as a whole have received less attention. Strauss and Gouveia (2023) use a 1967-73 panel of income tax returns coupled with taxpayer race data from matching federal records. They find no significant difference in the ratio of income tax liability to AGI for Black compared to white tax units after controlling for income, tax unit size, and itemization and filing status. We replicate these findings in Section VII. Unlike our work, they estimate a single coefficient for all Black households, rather than allowing the coefficient to vary freely over the income distribution. In addition, they do not have access to an income measure that is substantially broader than AGI – which matters for reasons explained in Section III – and they use data that does not reflect any of the tax changes over the past 50 years.

Sullivan (2021) uses Census and IRS data from 2018 to show that a higher share of Black residents is associated with a lower ratio of income taxes to AGI in low-income ZIP codes, but a higher ratio in high-income ZIP codes. We obtain results consistent with these in section V. We also explore individual-level determinants of tax liability, income measures broader than AGI, and the effects of tax reforms and historical changes in tax rules.

As far as we are aware, there have not been systematic statistical analyses of the income tax differences between Hispanic and white households.

III. Data and Methodology

No publicly available data set contains information about both race/ethnicity and taxes. To address this shortfall, we use survey data that includes respondent-reported race information,

[6] See Culp (1991) for an early discussion of race and taxes. In addition, for discussions of varying detail, see Moran and Whitford (1996), Hamilton and Darity (2010) and Brown (2021) on the tax treatment of gifts and inheritances; Moran and Whitford (1996) and Brown (1997, 1999, 2021) on the marriage penalty; Brown (2021) on the mortgage interest deduction; Davis et al. (2021) on the child tax credit; Davis and Schieder (2021) on the state and local income tax deduction; Moran and Whitford (1996) on the taxation of fringe benefits and capital gains; Rhee (2013) on retirement plans; Crawford and Gerzog (2020) on education benefits; and Neubig (2021) on tax expenditures;. Boddupalli et al. (2024) provide an overview of these issues.

and we impute tax liabilities. Other analysts have chosen to use data sets that already include tax information, and then impute race. There are advantages and disadvantages of each approach.[7]

A. Converting Households to Tax Filing Units

We use data from nine waves (1998 to 2022) of the SCF. The SCF provides high-quality data on *household* income, wealth, and demographic characteristics. Tax liability, however, is based on *tax filing units* not households. A "tax filing unit" (or "tax unit") is an individual or married couple who is required to file a tax return, or who would be required to file a tax return if their income were high enough, along with all dependents of that individual or married couple.

To create tax filing units out of SCF households, we build on the methodology in Gale et al. (2022a, b) and employed in Holtzblatt et al. (2024). For households that generate the vast majority of income – including singles living alone and married couples with either no dependents or with children younger than 18 – this process is simple. For other households, a variety of financial and demographic measures are used to estimate filing status. We supplement the SCF data with data on households in the Forbes 400, a group that the SCF is prohibited from

[7] Our approach—imputing taxes onto a data set that already contains information about race—captures the respondents' self-reported race and, although it may not generate the exact liability a tax unit faces, the error is likely to be small. Other empirical strategies offer different strengths and weaknesses. For example, starting with a data set that has tax information would provide more precise information on taxes but requires imputations for race. If the analysis considered only Black and white tax units, for example, the costs of imputing race incorrectly would seem to be considerable. With access to confidential tax data, Treasury Department economists have imputed a variety of races and ethnicities to filing units in the Office of Tax Analysis's microsimulation model by using a set of explanatory variables, including the taxpayer's sex, first and last names, and zip code, to make inferences about the person's race and Hispanic origin and then applying Bayesian inference to estimate the probabilities that each taxpayer falls into a race or ethnic category (Cronin et al. 2023; Fisher 2023). Recently, CBO economists have published analysis of a similar procedure (Heller et al. 2024). For a critique of this procedure, see Derby, Dowd, and Mortenson (2023). Using household survey data, the Tax Policy Center has developed race imputations to apply to its microsimulation model (Khitatrakun, Mermin, Page, and Rohaly, 2023). Alternatively, linking data sets with information on race (e.g., the Census) and taxes (e.g., tax returns) would provide greater accuracies on both measures, but the amount of tax data provided by the IRS to the Census department is limited by law and regulations. Akee et al. (2017) and Chetty et al. (2020) follow this approach, although they do not exploit the tax information in the Treasury data. Further, combining tax and Census data would not provide the extensive information on household wealth that the SCF contains and that is helpful for constructing broader income measures.

interviewing (as explained further in the Online Appendix.)

B. Observing Race and Sample Size

Beginning with the 1998 survey, the SCF has provided consistent questions about race, asking respondents to describe themselves either as white, Black or African American, Hispanic or Latino, Asian, American Indian or Alaska Native, Native Hawaiian or Pacific Islander, or other. Each tax filing unit – single or married – has only one respondent. Respondents can report more than one race but are asked which race they identify with most strongly, which we use as the race classifier.[8] We assume that, if the respondent is married, the spouse and respondent are the same race and ethnicity, thus allowing us to define tax units as Black, Hispanic, or white (or neither).[9]

Our overall sample includes all tax filing units for all races and pools the SCF survey waves since 1998. The SCF generates five "implicates" for each unit to account for missing data. We employ information on all five implicates for each tax unit, generating a data set, on an unweighted basis, with about 206,000 white tax units, 35,000 Black tax units, and 29,000 Hispanic tax units (Table 1).

We apply weights using the SCF's replicate weights (divided by the number of survey waves that we use). On a weighted basis, white units account for about 70%, Black units account for about 14%, and Hispanic units account for about 11% of all tax units, with the share

[8] A relatively small number of people report multiple racial identifications—about 1.7 percent of the sample in the 2022 survey, down from 2.3 percent in 2004. The public-use version of the SCF only provides information about whether a respondent reported identifying as more than one race, not what the other races are. In 2019, 74.5 percent of those who identified their ethnicity as Hispanic or Latino also reported it as their racial identification.

[9] According to the 2010 Census, approximately 70.4 percent of married couples were comprised of two non-Hispanic white spouses, 6.2 percent were comprised of two non-Hispanic Black spouses, and 10.1 percent were comprised of two Hispanic spouses, regardless of race. Black men are more likely to have a racial intermarriage than Black women (Lofquist et al. 2012).

accounted for by white units falling from 76% in 1998 to 69% in 2022, the share accounted for by Hispanic units rising from about 8% to 12%, and the share accounted for by Black units remaining approximately constant (the remainder being other racial categories).[10] All dollar values are adjusted to 2018 dollars using the urban Consumer Price Index.

C. Constructing AGI

We construct AGI for each tax unit. The SCF income questions are generally written to capture income concepts that are consistent with AGI. The major components of AGI – accounting for almost all AGI – are available in the SCF. However, because the SCF's measures of income do not always align with tax concepts and because some variables – including net business income and respondent's age – are intentionally rounded or masked in the public version to avoid reidentification of the participants, we derive or estimate (using other variables in the data set) several items that are needed to determine AGI (see Gale et al. 2022 a, b).[11]

D. Calculating Taxes

To compute federal income tax – given the creation of tax units, the construction of AGI, and our imputations for dependents, deductions, and eligibility for credits – we apply TAXSIM

[10] In contrast to the SCF data, analysis of the Current Population Survey (CPS, Flood et al., 2024) finds that there are more Hispanic individuals than Blacks individuals. Likewise, the Department of the Treasury (OTA, 2025) reports a larger number of Hispanic tax filing units than Black units in 2024. These differences may arise because in the CPS and OTA data, Latino/Hispanic is not an exclusive category (that is, a respondent can be Hispanic/Latino and Black or white as well), whereas in the SCF it is an exclusive category. Both the CPS and the SCF show sharply rising Hispanic shares of the population over time – from 9.4% in 1997 to 14.3% in 2022 in the SCF and from 11.5% to 19.1% over the same period in the CPS.

[11] Our procedures build on the procedures in Gale et. al (2022a, b) in several ways. We (a) include data from the 2022 SCF, (b) include the micro-file on the Forbes 400, (c) separate the alimony and child support received using relevant demographic information from the survey, (d) include non-filers, and (e) incorporate new methods for imputing net operating losses and correcting for gross versus taxable wages and salaries. Specifically, we subtract pension contributions and an estimate of employee-paid health insurance premiums from SCF respondent-reported wages and salaries to bring those into line with the taxable wages and salaries measures that show up on tax forms. Note also that we do not scale or otherwise adjust SCF AGI components to align perfectly with either NIPA or SOI aggregates. As discussed in Gale et al, (2022b), our focus is on broadly capturing the incomes reported on tax forms, not an exhaustive accounting and reconciliation of income flows estimated by either BEA or the IRS.

(Feenberg and Coutts, 1993). TAXSIM can replicate U.S. federal tax rules for any year from 1960 to 2023 and makes it possible to simulate alternative tax rules.

E. Validating the Results

Validation of the SCF-TAXSIM model against published Statistics of Income (SOI) tables is a key part of our modeling strategy. The SCF is a relatively small sample—roughly 4,000 to 6,000 observations depending on the year—and the incomes reported by respondents are not always conceptually consistent with the incomes that taxpayers report on tax forms. In addition, our modeling exercise requires separating SCF households into tax filing units, assignment of dependents, and imputations for missing tax inputs such as itemized deductions.

Figure A1 (in the Online Appendix) shows that, for each SCF wave, our estimate of aggregate AGI (the blue line) is close to, and trends with, SOI's estimate of the same measure (the orange line). In 6 of the 9 survey years, the estimates are within 2% of each other. Figure A2 (Online Appendix) shows that our estimates of aggregate tax revenues before credits (blue line) track published SOI values (orange line) well. In 7 of the 9 survey years, our estimate is within 4.5% of the SOI figure.[12] Table A1 (Online Appendix) shows that we replicate the number of returns by filing status fairly closely and that our estimates of *eligibility* for the CTC and the EITC are slightly higher than SOI's reported *usage* of those credits. This provides confidence in our simulation efforts since less-than-100% take-up rates imply that usage rates should be below eligibility rates.

[12] Comparing our simulation results to published SOI data on AGI and pre-credit liability is more conceptually consistent than comparing results for post-credit liability because we measure eligibility for credits rather than usage. Nevertheless, although not shown in the Figures, comparisons of tax liability after credits are similarly close – in 7 of the 8 waves before the 2022 SCF, our estimate is within 5 percent of the corresponding SOI figure. As of this writing, however, we do not have aggregate benchmark data for tax liability after credits in 2021 (which would correspond to the income data collected in the 2022 SCF). It is also worth noting that our estimates of aggregate taxable income track SOI estimates very closely (not shown), which is unsurprising since – as shown in the Figures – AGI and tax liability before credits match SOI estimates closely.

We report eligibility for credits and itemized deductions – rather than attempting to estimate usage – because our focus is on how the tax code itself differentially affects people of different races and ethnicities. Take-up rates for the various provisions involve factors beyond the tax rules themselves. (See Goldin and Michelmore (2021) and Davis et al. (2021) on the CTC; Hardy, Hokayem, and Ziliak (2022) and Alm et al. (2023b) on the EITC; and Benzarti (2017) on itemized deductions.)

F. Constructing Expanded Income

A distributional model must have a classifier by which to measure a tax unit's economic resources, compare and rank tax units, and use as a denominator for measuring average tax burdens. We sometimes use AGI as a classifier, because of its prominent role in the tax system and as a way to check the validity of our data. But AGI is not an ideal income classifier. AGI omits many forms of economic income, making it a poor measure of a tax unit's overall level of resources and well-being before taxes at a point in time. Moreover, changes in tax law often change the definition of AGI making it difficult to meaningfully compare values over time.

Recognizing these concerns, TPC (Rosenberg 2013) developed an income concept called "expanded cash income" (ECI). In addition to AGI, ECI includes a variety of sources of cash income (e.g., employer and employee contributions to payroll tax and retirement plans, inside buildup in retirement plans, tax-exempt interest) as well as near-cash items such as SNAP (formerly food stamps) receipts, the cost of employer-provided health insurance, and an imputation of corporate tax liability. For similar reasons, the Congressional Budget Office, the Joint Committee on Taxation, and the Treasury Department have also developed income

concepts that are broader than AGI.[13]

We construct a new measure of income, "Expanded Income" (EI), which is broader than ECI or the income concepts used by government agencies (see Gale and Sabelhaus 2024). We measure EI as the sum of our estimate of ECI plus our estimates of additional major income components, including (a) untaxed closely-held business income, (b) unrealized capital gains, (c) imputed rent on owner-occupied housing, (d) inheritance income, (e) net child support income, and (f) Medicare and Medicaid. The SCF is well-suited for estimating these income components because it contains details on businesses, the asset values that determine capital gains and rental income, and respondent-reported inheritance and child support flows.

The Online Appendix describes EI in detail. Two features of EI will play prominent roles in the analysis below. First, the *amount* of income excluded from AGI (or other existing distributional classifiers such as ECI) is substantial. Our estimates of aggregate EI are about 90 to 100% larger than aggregate AGI. Second, although EI is distributed more unequally than ECI or AGI, the ratio of EI to AGI is not monotonic; it is U-shaped over the income distribution when sorting tax units by either EI or AGI. Most of dollars accounted for by excluded incomes – such as untaxed business incomes and unrealized capital gains – skew towards the top of the income distribution, but some skew towards lower-income groups, such as untaxed government transfers.

IV. Descriptive Data

There are systematic differences between Black, Hispanic, and white tax filing units, on

[13] Refundable income tax credits and government transfer programs are equivalent in certain ways in that they both provide cash to the tax filing unit. However, we include government transfers, but not refundable credits, in the definition of EI because we intend EI to provide a measure of resources before applying the income tax and to examine the effects of the income tax, given EI. JCT, CBO, the Treasury Department, and the Urban-Brookings Tax Policy Center make a similar set of distinctions.

an overall basis and even after controlling for EI. These differences reflect well-known differences in labor earnings, wealth, and household composition noted earlier and, in turn, will drive the results in subsequent sections. The differences imply that both "vertical" and "horizontal" differences can affect the relative tax liability of the two groups.

A. Differences on an Overall Basis

We begin by comparing Black and white tax units (Table 1). The ratio of average EI across the groups is about 2.28 – $156,000 for White units compared to about $68,500 for Black units. This reflects underlying differences in AGI and taxable income (TI). As noted earlier, EI is much broader than the other two income measures. AGI comprises 52% of EI for white units and 55% for Black units. For taxable income, the analogous figures are 39% and 35%.

We calculate ATRs in two ways. In all cases, the overall ATRs are higher for white tax units than Black units because white units have higher average income and the income tax is progressive. When calculated as a ratio of aggregate income taxes to aggregate income measures for each racial group, the ATRs are 17.5% and 8.9% using TI as the denominator, 13.1% and 5.6% using AGI, and 6.8% compared to 3.1% using EI. When calculated as the mean of the distribution of each unit's tax liability divided by income, the ATRs are much lower.[14] The rates are -6.7% for white units and -34.2% for Black units using TI as the denominator, 3.2% and -2.1% using AGI, and 2.3% and -0.3% using EI.

Filing status also differs substantially across races. Among Black units, 25% claim head-of-household status and 19% claim married filing jointly. Among white units, the analogous figures are 10% and 42%, respectively. Black units are more likely to report having children –

[14] Lin and Slemrod (2023), calculating average tax rates for single men and single women, also find that the ATRs calculated using aggregate tax and aggregate income figures were substantially higher than the ATRs calculated using the means of the distribution of each tax unit's ATR.

38% versus 31% – but average tax unit size (a combination of filing status and number of dependents) is about the same for two groups. Due to these patterns combined with income differences, Black units are more likely to be eligible for the EITC but the two groups are equally likely to be eligible for the CTC. White units are more likely to be eligible for itemized deductions than are Black units.

White respondents are somewhat older than Black respondents, because a smaller share of the latter are 65 or older, reflecting differential mortality based on income (Chetty et al. 2016).

Table 1 also shows aggregate statistics for Hispanic tax units. Average income among Hispanic units is about the same as among Black units, but Hispanics face lower average tax rates than Black units because of the differences in family size and filing status. The shares of Hispanic tax units who are eligible to file married filing jointly (MFJ) or as head-of-household are intermediate between Black and white units. Hispanic units are more likely to have children and to have more children, making their eligibility for EITC and CTC higher than any other group. The older spouse in Hispanic households is, on average, about 9 and 5 years younger than their counterparts in white and Black tax units, respectively.

Table 2 reports the composition of EI by group. Only 43% of EI earned by white tax units is fully taxable, compared to 52%-53% for Black and Hispanic tax units. One substantial component of that difference is represented by wages, retirement plan withdrawals, and taxable social security benefits, which account for just over half of all EI for Black and Hispanic units but only 40% for white units. Fully taxed capital accounts for a small share of income for all three groups.

In contrast, a substantial share of EI is either untaxed or lightly taxed. Untaxed capital income accrues disproportionately to white tax units, who receive 23% of EI in this form

compared to 10%-13% for Black or Hispanic units. Within that category, differences in unrealized capital gains stand out, accounting for 17% of EI for white units as opposed to 8%-10% for Black and Hispanic units. Tax-preferred capital income also accrues disproportionately to white units, though it is substantially smaller than untaxed capital income. All told, white tax units obtain 33% of their income as returns to capital, compared to only 12%-16% for Black and Hispanic units.[15]

Untaxed labor income – chiefly fringe benefits and retirement contributions and build-up – constitute about 20% of EI for all three groups. Reflecting differences in average income, Black and Hispanic units receive 11%-13% of their EI in the form of government transfers (including Medicare and Medicaid) compared to just 4% for white units. Private transfers and implied corporate tax burdens do not vary significantly by group.

B. Differences After Controlling for Expanded Income

While differences in income drive many of the differences in other group characteristics, many of the differences remain after controlling for EI. To help clarify these issues, we present data on how selected characteristics in Tables 1 and 2 vary by EI category and race/ethnicity.[16]

Figure A3 (Online Appendix) shows the weighted distribution of tax units by EI decile and reflects the unequal levels of income between the three groups. Only 5% of Black tax units are in the top two EI deciles; 78% are in the bottom half of the EI distribution. The distribution of Hispanic tax units is very similar to that of Black units, except that a higher percentage of

[15] The table entries may not sum to the totals reported in the text due to rounding issues.

[16] Following conventional procedure (CBO 2024), percentile breaks are created using counts of persons within the overall population (as opposed to just Black, Hispanic, and white persons). Reported statistics are for tax units within percentile groups. In each of the figures in the paper, we report results for the bottom 9 deciles, the 90-99th percentiles, and separately for the top 1 percentile. The EI decile break points are $25,361, $40,179, $54,523, $70,107, $88,611, $112,519, $142,984, $189,593, and $290,285 for the bottom nine deciles and $1,388,178 for the 99th percentile.

Hispanic tax units (27% vs. 23%) are in the bottom EI decile. Figure A4 (Online Appendix) shows that within EI deciles, average EI for white, Black, and Hispanic units is close to equal, except in the top decile, where average EI for white units substantially exceeds that of Black and Hispanic units.[17]

Figure 1 provides details on demographic characteristics by EI decile.[18] Relative to white tax filing units, in almost every EI category, Black units are less likely to be eligible to file as married filing jointly, more likely to be eligible to file as head-of-household, have larger average tax unit size and are more likely to be eligible for the EITC and the CTC. These within-decile differences are sizable. For example, in the third to fifth EI deciles, white tax units are 7-13 percentage points more likely to file as MFJ, 17-19 percentage points less likely to file as head of household, and 9-15 percentage points less likely to be eligible for the EITC or the CTC.

In almost all EI categories, an even higher share of Hispanic units is eligible to file MFJ than white units. Average tax unit size, EITC eligibility, and CTC eligibility are also higher for Hispanic units than for Black or white units. The share of Hispanic units eligible to file as head-of-household is between that of white and Black units.

Controlling for EI, eligibility for itemized deductions does not vary much by group (i.e., by less than 6 percentage points in each category except the top 1 percent), consistent with earlier studies, and is higher for Blacks and Hispanics than for whites in many of the top income categories.

Figure 2 displays information on the composition of income by EI decile. Relative to

[17] The ratio of average Black (Hispanic) EI to average white EI is between 99% and 100.2% (97% and 99.8%) in the second to ninth decile. It reaches 104% (103%) in the bottom decile and falls to 84% and 87% (89% and 82%), respectively, in the 90-99th percentile and top percentile. For these reasons, in the regressions below, we not only separate sample observations by EI percentile but also control for EI level within each of those categories.

[18] Table A2 (Online Appendix) reports the numbers shown in Figures 1-4.

white tax filing units, in almost every EI decile, Black units have a higher share of EI from wages, from labor income more generally (wages, taxable retirement withdrawals, and taxable social security), and a lower share of income from various measures of overall or tax-preferred and tax-exempt capital income. These differences are especially noticeable in the 90-99th percentiles and the top percentile. Untaxed government transfers constitute a higher share of income for Black units relative to white units in the bottom half of the EI distribution but transfers are about the same share of EI for both groups in the top half.

Hispanic units derive a higher share of EI from wage income than both Black and white units in almost all deciles, and this difference is especially large at the bottom of the EI distribution. In terms of capital income and untaxed government transfers, Hispanic tax units fall somewhere in between Black and white units: in the bottom 3 deciles, Hispanic tax units have a similar share of EI from capital income to Black units (4-6%), and in deciles 7-9 that share is similar to white tax units (17-22%).[19]

V. Analysis of Tax Differentials

In this section, we analyze three questions: Do deviations from a comprehensive income tax favor whites over other groups? Controlling for income, how does the income tax differentially affect each group, and why? To what extent are overall differences in average tax burdens due to differences in income versus differences in other factors?

A. Deviations from a Comprehensive Income Tax

As noted above, Moran and Whitford (1996) hypothesize that deviations from a comprehensive income tax systematically favor white over Black tax units. Martinez and Martinez (2011) suggest the same conclusion for Hispanic units.

[19] Untaxed labor/retirement income, private transfers, and corporate tax burdens do not vary significantly by race, after controlling for EI decile.

In general, deviations between a comprehensive income tax base (which we approximate using EI) and the current income tax base (TI) can be divided into two forms: exclusions that never show up in AGI and those that are included in AGI but not TI. Those that do not show up in AGI in the first place can be further divided into two broad categories – market income and government transfers.

The descriptive data provide some clues about the hypothesis. AGI is a smaller share of EI for white tax units (52%) than for Black (55%) or Hispanic units (58%), suggesting that white units benefit more from untaxed components of EI. The difference arises because white units have more EI on average and most untaxed forms of private income accrue mainly to high-income households. But TI comprises a smaller share of EI for Black and Hispanic units (34%-35%) than for white units (39%), mainly because the standard deduction is a much larger share of average AGI for Black and Hispanic units than for white units.

Figure 3 shows how these patterns play out by EI percentile. In the bottom two EI deciles, AGI and TI are higher for white tax units than Black tax units. This reflects the higher level of government transfers for Black relative to white tax units in these EI categories (and in the first decile, a higher share of labor income in EI for white units, as shown in Figure 4). From the fourth decile to the top of the income distribution, the result is reversed – in each EI category, AGI and TI are lower for white units than Black units. That is, in this income range, the deviations between a comprehensive income tax and the current system are larger for whites than Blacks. This result stems from several factors: as EI rises, the composition of EI changes, with government transfers declining, untaxed capital income and fully taxed labor/retirement income rising (until the top decile). All these trends raise AGI and TI for Black units relative to whites, holding EI constant. For Hispanic tax units, AGI and TI are higher than for white units in every

income category.

To examine these issues more formally, in Table 3, we estimate equation (1)

$$(1)\quad Y_i = \alpha + \beta\,(EI_i) + \gamma_1 Black_i + \gamma_2 Hispanic_i + \sum_{j=2}^{9} \delta_j SurveyYear_j + \varepsilon$$

where *i* indexes tax units, *j* indexes survey waves, Y_i is either the ratio of AGI to EI or the ratio of TI to EI for tax unit *i* (represented as a percent), EI is expanded income, and Black and Hispanic identify the tax unit's race and ethnicity (with white as the omitted category). We run separate regressions for each EI category to allow for heterogeneity across the income distribution.

Table 3 shows the results. Even after controlling for EI within EI classes, Black units have higher ratios of AGI to EI than white units from the fourth through the ninth decile of the income distribution and higher TI in the fourth through eighth deciles. In those deciles, AGI and TI are about 2-4 percentage points of EI higher for Black units than white units, indicating that the deviations between a comprehensive income tax and the current tax base are larger for white tax units in that group. In the top decile, similar qualitative results occur, but they are not statistically significant. In contrast, in the bottom EI deciles, AGI and TI are lower for Black than white units, due to the higher share of government transfers in Black EI relative to white EI.

The point estimates also indicate that Hispanic units have higher AGI and TI than white units in every EI category. Among the bottom 90 percent of the EI distribution, the results are precisely estimated and large – ranging between 3 and 15 percentage points for AGI and 2-4 percentage points for TI.

Table 3a reports the results of estimating equation (1) using the level of AGI or TI, rather than the ratio relative to EI, as the dependent variable. AGI is between about $1,900 and $5,700 higher for Black tax units relative to white tax units in the fourth through ninth EI deciles; TI is

about $1,400 to $4,600 higher in the fourth through eighth deciles. In the top EI categories, both AGI and TI are far higher for Black tax units than white units with the difference reaching more than $22,000 in the 90-99th percentile and exceeding $500,000 in the top 1%. These results indicate the extent to which tax preferences or exclusions relating to capital income benefit white households over Black households, even after controlling for EI. In contrast, in the bottom decile, both AGI and TI are lower for Black tax units than white units, because Black tax units receive substantially more government transfers.[20]

The results for Hispanic tax units also show that white tax units disproportionately benefit from deviations from a comprehensive income tax. In the bottom 90 percent of the EI distribution, after controlling for EI, Hispanic units have between about $1,300 and $7,800 more in AGI and between $1,000 and $6,000 more in TI than white units. The results in the top decile are qualitatively the same but not statistically significant.

Taken together, the results suggest white tax units in all EI categories disproportionately benefit from excluded forms of income relative to Hispanic units, and that middle- and high-income white tax units disproportionately benefit from excluded forms of capital income relative to Black units with the same EI, while low-income Black units disproportionately benefit from the non-taxation of government transfers. Thus, the results provide substantial but not complete support for the hypotheses put forth by Moran and Whitford (1996) and Martinez and Martinez (2011) about the racial/ethnic effects of differences between the income tax base and a comprehensive income tax; in particular, the findings support their proposition to the extent that

[20] Tables A3-A12 (Online Appendix) report the full set of estimates for the regressions in this paper. In all the regressions, adding controls for the age category of the household and for itemization status had virtually no impact on the results.

the deviations considered focus on untaxed or tax-preferred forms of capital income.[21]

B. Differences in Income Taxes Within EI Categories

Moran and Whitford (1996) and Martinez and Martinez (2011) also hypothesize that, even after controlling for income, the income tax discriminates against Black and Hispanic tax units. We find support for that view in the upper income deciles but not in the lower income deciles, and we explain the divergences in terms of differences in household composition and income composition.

Figure 4 shows that in the bottom five EI deciles, Black units face lower ATRs (income tax liability divided by EI) than white units. For Black units, the difference with white units is about 2% of EI in the bottom three deciles and declines to 1.2% in the fourth decile and 0.7% in the fifth decile. In contrast, the Figure shows that in the top five deciles, the result is reversed. The difference in ATR is relatively small (between 0.3% and 0.5% of EI) in the sixth through ninth decile but rises to 1.2% in the 90-99th percentile and to 6.2% in the top 1%.

The differences between Hispanic and white units are even larger. In the bottom three deciles, Hispanic units face ATRs that are between 3 and 4 percentage points lower than white units. Moreover, lower ATRs for Hispanic tax units extend through the eighth decile. Only in the top 1% do ATRs for Hispanic units exceed those for white units. ATRs for Hispanics are lower than for Black units throughout the EI distribution.

To account for these differences, we employ several regressions, the most general of which is

[21] The proposition that deviations from a comprehensive income tax favor white units over Black units could also be tested by flipping the ratios and examining EI/AGI and TI/AGI by AGI category and TI category, respectively. Doing so provides unambiguous support for the view that deviations from the comprehensive income tax favor white tax units. The ratio EI/AGI is larger for white units than Black or Hispanic units in every AGI decile and EI/TI is larger for white units than minority units in every TI decile. In the text, we specify the tests with EI in the denominator for consistency with the other sections of the paper.

$$(2)\quad Y_i = \alpha + \beta_1(EI_i) + \beta_2 Black_i + \beta_3 Hispanic_i + \sum_{n=1}^{3} \beta_{4n} D_{ni} + \sum_{m=1}^{2} \beta_{5m} C_{mi} + \sum_{j=2}^{9} \delta_j SurveyYear_{ji} + \varepsilon_i$$

where D_n is a vector of demographic controls that contains an indicator for joint filing, an indicator for filing as a head of household, and the number of dependents, and C_m is a vector of income composition controls that contains the share of fully and partially taxed income in EI. We run separate regressions for each EI decile to allow for heterogeneity in responses across the income distribution and as a flexible and straightforward way to allow for the non-linearity of the income tax system without requiring a complicated specification.

In Table 4, we estimate three specifications: the first excludes the demographic and income composition controls, the second adds demographic controls, the third includes both demographic and income composition controls. Each specification contains the indicators for both Black and Hispanic tax units. To present and discuss the results, however, we first examine the results for Black tax units in each specification and then turn to the results for Hispanic units.

The results from the first specification, excluding the controls for demographics and income composition, confirm the descriptive findings in Figure 4. Controlling for EI, the coefficient on the Black indicator is negative and significant in the bottom five deciles and ranges between 0.6 and 2 percentage points. It is positive throughout the top half and significantly different from zero in decile 7 through the 90-99th percentile, ranging between 0.5 and 0.83 percentage points. Figure 5, Panel A, plots the coefficients and 95% confidence intervals for the results in Table 4 for Black tax units.

The second set of regressions in Table 4 expand on the simple specification to include

basic demographic information (the vector D_n) – indicator variables for those filing as MFJ or as head of households (relative to single or married filing singly as the omitted categories) and the number of dependents. Controlling for these factors greatly reduces the magnitude of the coefficient – to between 0.04 and 0.36 percentage points – and eliminates the impact of race on tax liability in almost all the deciles in the bottom half of the income distribution. The controls also weaken slightly the positive coefficients in the top half of the income distribution, as shown in Figure 5.

To help explain the remaining ATR differences in the top half of the income distribution, the third set of regressions in Table 4 add two items (the vector C_m) to the right-hand side – the share of EI that is in the form of fully taxable labor or capital income (as in Table 2) and the share of EI in the form of tax-preferred capital income. Adding these variables essentially eliminates the remaining racial differences in ATRs in the top half of the income distribution through the 99th percentile – reducing the size of the coefficient to between 0.08 – 0.24 percentage points. In the top 1%, the coefficient on the Black indicator is positive but not significant in all three specifications.

Results for the coefficient on the Hispanic indicator are shown in the bottom panel of Table 4 and in Figure 5, Panel B, and are similar in many ways to the results for Black tax units. Controlling for EI, the coefficient on the Hispanic indicator is negative and significant in the bottom five deciles. The effect is larger for Hispanic units, though, ranging between 2.0 and 4.2 percentage points. Adding the basic demographic information greatly reduces the estimated coefficient in the bottom half of the income distribution to less than 1 percentage point (although the estimates in the bottom two deciles remain statistically significant). This generally shows the importance of differences in eligibility for MFJ and HOH filing status and for the EITC and CTC

for Hispanics relative to whites. Adding the income composition variables does not have much of an impact on the results, and ATR differences remain in several of the income categories.

Table 4a repeats the analysis and specifications in Table 4 but using the level of income tax liability, rather than the average tax rate, as the dependent variable. Controlling only for EI, in the bottom five deciles, Black tax units face tax bills that average between $263 and $924 less than white units. In the top four deciles, Black tax units pay higher taxes than white units, with average differences between $637 and $1,460 in the 7th to 9th deciles and rising dramatically in the top decile. The estimates in the second row show that controlling for filing status and number of dependents essentially knocks out the difference in the bottom five deciles. Finally, adding controls for income composition reduces the coefficients by half or more relative to the first-row specification.

The second panel of Table 4a shows results for Hispanic tax units. In the bottom half of the income distribution, controlling just for EI, Hispanic tax units face lower tax bills than white units by between $510 and $1,647. Controlling for household composition substantially reduces the coefficients, to $167 or less, though the estimates in the bottom two deciles remain significant. Adding income composition variables boosts some of the low-income coefficients.

In summary, the parsimonious list of explanatory variables helps explain differential results for all three groups in the bottom half of the EI distribution but does a better job explaining Black-white differences at the top than Hispanic-white differences. As shown in Figure 5, the results suggest some, but not complete, support for the second Moran and Whitford (1996) hypothesis – that controlling for income, the tax system is biased against Black units. Specifically, in the top half of the income distribution, Black tax units generally face higher ATRs than white units, controlling for EI. This is consistent with the Moran-Whitford hypothesis

because the difference is due to the higher share of wages and the smaller share of lower-taxed capital income in the income of Black units. In the bottom half of the EI distribution, Black units face lower ATRs than white units, controlling for EI, due to the way the income tax treats filing status and dependents. These features favor low-income Black units over low-income white units, in contradiction to the hypothesis.[22] Likewise, in the bottom half of the income distribution, the data do not support Martinez and Martinez's claims that the tax system is biased against Hispanic households.[23]

C. Sensitivity Analysis

Figure 6 presents sensitivity analyses, with the basic conclusion that the patterns shown above are robust to several changes. The Figures reports the ATR *difference* for Black-white and Hispanic-white comparisons, respectively. A negative entry means that Black or Hispanic tax units face lower ATRs than white tax units. In all the cases, we sort by EI.

The (red) "2018 law" line is simply a reconfiguration of the lines shown in Figure 4 and serves as a base case. In the first sensitivity analysis, we measure the ATR by the ratio of income

[22] We have analyzed the hypotheses put forth by Moran and Whitford (1996) in the context of the current tax system. But in fairness to them, they were analyzing the tax system as it existed in the 1990s and before. Thus, it is appropriate to look at racial differences in taxes as they arose under the law in effect at the time. While we cannot use earlier data to undertake this experiment, below we apply earlier years' tax laws to the data. For example, using 1992 tax law (before the EITC increase in 1993 and before the publication of their article), the qualitative pattern of ATRs by income is the same as under recent law – Black tax units face lower ATRs than white units in the bottom several quintiles and higher tax rates in the upper deciles. That said, the differences are less pronounced under 1992 law than under 2018 law – that is, the average tax rate on Black units relative to white units was higher in the bottom half of the income distribution and lower in the top 1 percent than under 2018 law. We conclude that our analysis of the Moran and Whitford's (1996) hypotheses under recent tax law seems justified, and that the results would have been similar qualitatively using prevailing tax law at the time they were formulating their ideas. We report more data on 1992 law in Section VII.

[23] Martinez and Martinez (2011) note that Hispanic families tend to underutilize the dependent care tax credit, because they tend to provide child care via members of the extended family rather than through third-party commercial operations. Thus, our estimates, which examine eligibility – rather than the take-up rates – for various credits could overstate the difference in actual tax burdens between Hispanic and white families in low-income groups. However, the main drivers of those differences are likely to be filing status, number of dependents, the EITC and the CTC, rather than the child care tax credit.

tax liability to AGI, rather than to EI. The ATR differences follow the same qualitative pattern as in the base case but are larger (in absolute value) in the bottom half of the distribution and smaller at the top of the distribution. In the second sensitivity analysis, we adjust EI for tax unit size by dividing EI by the square root of the number of people in the tax unit, an adjustment that has only a small effect on the results for Black units, but a larger impact for Hispanic units, because their family size is larger.[24] Finally, we exclude households aged 55 and above, to address any sample differences that arise from differing mean age or life expectancy across groups. These results are similar to the base case, except for the top 1%. The difference at the top arises because the difference in untaxed income (stocks, businesses, etc.) is much larger between middle-aged groups than among their retirement-age counterparts.

D. Decomposing Differences in Group Average Tax Rates

As shown above, Black, Hispanic, and white tax units differ in two ways – they have different levels of income and, holding income constant, they have different demographic makeup and income composition. How much does each factor contribute to the overall group difference in ATRs? To address this question, we employ a decomposition technique developed by Slemrod (2022) and applied to questions of gender differences in taxes by Lin and Slemrod (2023).[25] The technique separates the differences in the groups' average tax rates into components due to (a) the existence of an intentionally progressive tax system combined with differences in income levels between the groups and (b) differences in tax liability across the

[24] See CBO (2024) Appendix A for a detailed explanation of adjusting income for household size.

[25] In many contexts, a natural way to decompose differences between Black and white households would be to use a Kitagawa-Blinder-Oaxaca decomposition. In this case, however, it would not provide any useful information because the tax code does not vary explicitly by race. For example, if Black tax filing units were assigned the characteristics of white units, they would face exactly the same tax liability that white units face.

groups within income classes.[26] We apply the formula presented in Lin and Slemrod (2023).

Table 5 summarizes the results. In the overall sample, under 2018 law, about 61% of the difference in the ATR for Black units and white units is due to "vertical" concerns – the progressivity of the tax system combined with differences in the distribution of income between the two groups. The remaining 39% is due to horizontal considerations – namely, differences in taxes controlling for income.[27]

Given that the horizontal differences change sign as income rises – that is, that ATRs for Black units are lower than for white units in the bottom half of the income distribution and higher in the top deciles – we also conduct the decomposition separately for each half of the income distribution. In the bottom five deciles, the predominant source – accounting for 85% – of group ATR differences has to do with differential taxation of Black and white units with the "same" income (i.e., within the same EI decile). This is consistent with the regression results showing that differences in filing status and number of dependents is the source of the difference between the ATRs for Black and white tax units in the bottom half of the distribution. In contrast, in the top half, vertical concerns dominate, explaining 112% of the difference in group ATR while horizontal considerations work moderately in the opposite direction.[28] This is consistent with the prevalence of white households in the top tail of the income distribution and with Black units having higher ATRs in the top deciles.

We also examine married and unmarried tax units separately. The results for married

[26] Consistent with the approach taken in Lin and Slemrod (2023) the ATRs are calculated as the average across individuals, rather than tax units and so differ slightly from the data reported in Table 1. The average ATRs are 1.6 percent for white tax units, -2.7 percent for Black tax units, and -5 percent for Hispanic tax units.

[27] In all of the scenarios shown, decomposing average tax rates using AGI (instead of EI) in the denominator and sorting households by AGI (instead of EI) leads to broadly similar results.

[28] While it may seem odd that vertical differences can explain more than 100% of the difference in ATRs, the result just means that the horizontal differences work in the opposite direction of the overall difference in ATRs.

couples are similar to results for the top half of the income distribution – vertical considerations dominate, explaining in this case about 92% of the difference in group ATRs between Black and white couples. For singles or heads of households, the aggregate mix changes to mirror the results for the bottom half of the income distribution. Horizontal considerations explain 79% of the differences in group ATRs.

The results for Hispanic-white decompositions are similar but differ in plausible ways. Specifically, the difference due to vertical considerations is lower than for the Black-white differences (45% versus 61%) and the role of horizontal considerations is commensurately higher, reflecting the larger tax unit size and different filing status patterns among Hispanic units relative to white units. Otherwise, the same patterns exist – vertical considerations are more important in the top half of the distribution, horizontal considerations are more important in the bottom half. The differences in ATRs among married taxpayers are due predominantly to vertical issues, while the differences in ATR among single taxpayers are due predominantly to horizontal differences.

These results are consistent with the regression results and emphasize the role of both horizontal and vertical differences in tax liability, which will prove important in analyzing both the effects of tax reform and the evolution of the tax system in the next two sections.

VI. Implications for Tax Reform

What can policy makers do to affect differences in ATR across groups? The methodology and results above have several implications for the impact of prospective and recent tax policy changes on Black-white differences in taxes.

First, increases in statutory tax rates, holding the tax base constant, will raise taxes more for Black (and Hispanic) units than for white tax units in the top eight (in all) EI deciles. This

follows directly from the fact that, in those deciles, the ratio of taxable income to EI is higher for Black and Hispanic units relative to white units. In principle, the opposite result occurs in the bottom two deciles for Black units, because they have lower taxable income relative to EI, but few households in those deciles face positive income tax liability, so the effect is small.

To examine this issue, Figure 7 shows that cutting all statutory income tax rates by 10 percent (not percentage points) would reduce the ATR for Black and Hispanic units relative to white units by slight amounts throughout most of the income distribution and by larger amounts in the top percentile. The effect is small both because the ratio of taxable income to EI does not vary substantially across groups and because the ratio for all groups is relatively small (less than 0.4 on average).

In contrast, broadening the tax base to include more capital income would raise taxes for Black and Hispanic units by less than for white units because tax-preferred and tax-exempt capital income is a smaller share of EI for Black and Hispanic units than white units in every income category. For example, we estimate the impact of a policy that (a) removes preferential rates for realized capital gains and qualified dividends, (b) repeals the section 199A deduction, and (c) incorporates imputed rent, unrealized gains, untaxed business income, and tax-exempt interest into the tax base. We are not arguing that such a policy is plausible, just that it creates an upper bound on how much broader taxation of capital income could affect Black-white tax differences. Figure 7 shows that this base-broadening policy would generally reduce ATRs for Black and Hispanic units relative to white units throughout the EI distribution. For Black-white comparisons, there are consistent reductions of about 0.2% of EI in the bottom eight deciles that rise to 3.5% of EI among the top 1 percent. For Hispanic-white comparisons, the reduction in the top 1 percent is smaller – about 1.7% of EI – and there is less of a clear trend in deciles 1-8. This

occurs because Hispanic tax units have a higher reliance on capital forms of income than Black tax units in deciles 3-9 (see Figure 2).

These results help frame analysis of two recent tax changes, The Tax Cut and Jobs Act of 2017 (TCJA) and the American Rescue Plan of 2021 (ARP). TCJA altered taxes on individuals, estates, and corporations (Gale, Hoopes, Pomerleau 2024). We examine the changes to the individual income tax, where TCJA cut marginal tax rates, repealed personal exemptions, expanded the standard deduction and the child credit, created a deduction for certain forms of pass-through income, and capped the deduction for state and local income taxes.[29] The TCJA was regressive on an overall basis (Gale, Hoopes, Pomerleau 2024), which benefits white units relative to Black units simply because white units have much more income. In particular, TCJA provided substantial benefits to the top 1 percent, where whites are quite disproportionately represented (see Figure A1).

Figure 8 shows, however, that under 2018 law relative to 2017 law, the relative ATR for Black and white units is virtually unchanged. This indicates that the individual income tax provisions of TCJA did not have a strong racial impact, after controlling for income differences. This result may be surprising but is due to the lower rates and the increase in the child credit, both of which tend to help Black and Hispanic tax filing units relative to white units through much of the income distribution. In contrast, the 199A deduction and the cap on the SALT deduction affect mainly the highest-income households, most of whom are white, and had at least partially offsetting effects on affluent households. We also note that TCJA did not raise

[29] Bivens (2017) combines (1) TPC measures of the share of the tax cut going to different income groups and (2) SCF data of the share of households by race within each group to generate (rough) estimates of the allocation of the net tax cuts provided by the TCJA to different racial groups, by income level and overall. Wiehe et al. (2018), Huang and Taylor (2019), Hill et al. (2019), and Moran (2024) provide detailed discussions of how the various provisions of the TCJA affect racial disparities in the tax code. None of the studies estimates the impact on ATRs.

taxes on tax-preferred capital income such as dividends or capital gains and did not bring any of the major untaxed sources of capital income into the tax base, either of which would have raised taxes on white units relative to Black units.

The American Rescue Plan of 2021 (ARP) provided $1.9 trillion in economic stimulus (CBO 2021). The major income tax provisions included temporary increases (for 2021 only) in the CTC, the child and dependent care credit, and the EITC (CRS 2021a). Figure 8 shows that, under 2021 law, Black (Hispanic) tax units received substantial tax cuts relative to white units in the bottom half (bottom eight deciles) of the income distribution. These effects are attributable to the higher eligibility for the various credits among Black and Hispanic tax filing units – due to differences in filing status and the presence of dependents, as shown in Figure 2 – combined with the higher credit amounts in ARP.

VII. Evolution of the Income Tax

Policy makers have changed the income tax in many ways over the last half century. In this section, we examine how those changes plausibly affected racial differences in taxes. To do so, we use the feature of TAXSIM that allows users to specify which year's tax law to apply to a data set.[30]

In prior work, Strauss and Gouveia (SG, 2023) use a sample of federal income tax returns from 1967-1973, coupled with tax filers' racial identification added from other federal administrative records and matched to the filer by social security number. Their basic finding is that ATRs (defined as income tax liability divided by AGI) did not vary between Black and white tax filing units, once income levels and other prominent features of tax filing (filing status,

[30] To be clear, we are using data from the 1995-2022 SCF and applying tax law from years outside that time range. We acknowledge that this is not the same thing as using data from the specific years in question, but we believe the results are nevertheless informative.

dependents, itemization status, etc.) are considered.

Figure 9 shows our estimates of the difference in Black-white ATRs and Hispanic-white ATRs in our data set under 1970 law.[31] To maximize comparability, we follow SG in calculating ATRs as income taxes divided by AGI and sort tax filing units by AGI.[32] We essentially replicate SG results. There is virtually no difference in ATRs across race except among the top 1 percent, a group whose income has changed dramatically relative to the rest of the population over the past 50 years.[33] In contrast, the results using 2018 law (and dividing by, and ranking by, AGI instead of EI) show a generally similar pattern as in Figure 6: lower ATRs for Black and Hispanic units relative to white units in the bottom half of the distribution and somewhat higher rates at the top, especially for the top 1%.

These findings suggest that racial differences in the income tax have evolved over time. Before turning to that issue, however, we emphasize the problems – noted above – associated with using AGI as a measure of household resources, either at a point in time or over time. Thus, we turn back to analysis using EI as the income classifier.

Figures 10 displays the evolution of racial differences in income taxation due to changes in tax law, starting in 1970, focusing on tax units in four parts of the income distribution: the 2nd

[31] Similar results, not shown, arises when using tax law from any year from 1967 to 1973, the range that SG employed.

[32] SG also report results using an income measure broader than AGI, which they call "economic income." Their measure, however, hues fairly closely to AGI. The ratio of their "economic income" measure to AGI is exactly 1.0 (i.e., there is zero broader income beyond AGI) for at least 75% of tax filers in their sample, and less than 1.17 for at least 95% of filers in their sample. We add substantially more income to AGI to obtain EI. As discussed in the Online Appendix, the EI/AGI ratio in our data is much larger – in 2019 for example, the ratio is 2.31 at its 75th percentile, and 7.30 at its 95th percentile.

[33] As one example that is consistent with the top 1 percent changing substantially over the past 50 years, we note that SG report that the ratio of average AGI for white units relative to Black units in their sample is about 1.40, about one-third lower than what we report in Table 1 for the 1995-2022 SCF sample. More generally, there has been substantial growth in income at the top (Piketty, Saez, and Zucman 2018; Auten and Splinter 2024).

decile (where income is low, but high enough to include substantial wages, so that we can capture the effects of introducing or expanding the EITC and the CTC); the 5th decile (to capture middle-income households); the 8th decile (to capture upper-income households) and the top 1% (because the effects of rate and base changes can be seen most clearly in this group).

Focusing first on the 2nd decile, under 1970 law, Black and Hispanic tax units faced a slightly lower average tax rate than white units. This is slightly different than the AGI results in Figure 9, which show no racial difference in average tax rates. The reason is the higher share of untaxed government transfers in EI for Black and Hispanic units relative to white units.

For Black units, this differential grows gradually with the introduction of EITC in 1975 and subsequent major expansions in 1990 and 1993, and the introduction of the child credit in 1997 and expansions in 2001 and during the Great Recession (Congressional Research Service 2018, 2021b). Although the CTC was expanded further in 2017, there is little impact of TCJA on the racial difference in ATRs in this group, as shown earlier, because of the net effect of a wide variety of enacted changes. In contrast, also as noted earlier, the EITC and CTC expansions in ARP had a very large effect on racial tax differences in this decile under 2021 law. For Hispanic units, the trends are the same, but all the effects are larger in absolute value, because of the differences in filing status and number of dependents.

The ATR difference in the 5th decile generally has the same sign as in the 2nd decile and follows the same qualitative pattern over time, but the differences in general and effects of ARP in particular are more muted.

Moving to the 8th decile, the most obvious difference is that Black units consistently face (slightly) higher ATRs than white units over the past 50+ years, whereas Black units in the lower half of the distribution consistently faced lower ATRs than their white counterparts. However,

Hispanic units continued to face lower ATRs than white units in the same EI decile, again for demographic reasons. The various changes in tax base and tax rates over the last several decades have had little impact on the racial difference in ATRs in this decile, with the exception of the effect of ARP on Hispanic units' ATR.

Finally, in the top 1%, Black and Hispanic units have consistently faced substantially higher ATRs than white units. In addition, the relative change in ATRs are more sensitive to historical policy changes in this group than the others. A straightforward way to interpret the results below is that lower marginal tax rates and expansions of the capital income tax base help Black and Hispanic units relative to white units. The reason is that in the top 1%, taxable forms of income are a greater share of EI and tax-preferred and tax-exempt capital income are a lower share of EI for Black and Hispanic units than white units (Figure 2).

For example, the Economic Recovery and Tax Act of 1981 reduced top rates and reduced the taxation of capital income. These effects are of opposite sign for the racial differences in ATRs, but the data suggest that the rate cut dominated and hence that ATRs for Black and Hispanics tax units fell relative to white units under 1984 law relative to 1981 law.

The Tax Reform Act of 1986 lowered marginal tax rates and expanded the capital income tax base, and both changes reduced ATRs for top-income Black and Hispanic units relative to white units from 1986 to 1988. In contrast, increases in the top income tax rate in 1990 (to 31% from 28%) and 1993 (to 39.6%) hurt Black and Hispanic taxpayers relative to white taxpayers in the top 1%.

The 2001 tax cut reduced rates over 5 years and thus helped Black taxpayers relative to white taxpayers. The 2003 tax cut is well-known for reducing taxes on realized capital gains and qualified dividends, changes which helped white taxpayers relative to Black taxpayers. But it

also accelerated tax rate cuts enacted in 2001, weakened the AMT, and accelerated marriage penalty relief provisions. The net effect of these and other provisions was a slight reduction in taxation of Black relative to white tax units in the top 1% but a slight increase in the relative taxation of Hispanic units. As noted earlier, TCJA and ARP did not have substantial effects on the Black-white ATR differential in the highest income group.

VIII. Conclusion

Even in a tax system that explicitly avoids mention of race, differences in tax liability can arise because the various behaviors and circumstances that affect tax liability may be associated with race. Slemrod (2022) refers to this effect as "implicit discrimination." Alm and Lind (undated) call it "implicit bias." Both note that, given the complexity of the tax system and the large number of ways to divide the population, it is inevitable that such differences will occur. Nevertheless, knowing the nature, source, and magnitude of the differences can be an important input into tax analysis.

Our paper provides new evidence on the differential impact of the income tax on Black, Hispanic, and white tax units and the factors behind those effects, with specific results summarized in the Introduction. Taken together, the findings suggest that, in income ranges where Black and Hispanic units face higher taxes than white units, the principal factor is the tax preferences or exemptions accorded to various forms of capital income. In addition, in income ranges where Black and Hispanic units face lower tax rates than white units, the reason is that the low-income credits, subsidies to heads-of-households relative to singles, and untaxed government transfers help Black and Hispanic tax units relative to white units.

These differences are directly related to – indeed, they stem from – well-known racial differences in household composition, earnings, and wealth. Differences in family formation lead

to differences in filing status. Differences in earnings lead to different eligibility for credits and different marginal tax rates. Differences in the level and composition of wealth affect the level of EI consisting of capital income and hence the share that is taxable.

Both Slemrod (2022) and Alm and Lind (undated) argue that it would be neither feasible nor desirable to eliminate all such differences, given the many goals of tax policy. Still, one notable implication of our results for tax reform is that standard arguments for moving to a system with a broader base (typically meant to imply removal of the exclusions and tax preferences related to capital and labor income) and lower rates would also have the effect of helping Black and Hispanic taxpayers, on average, relative to white taxpayers, relative to the current system. A second policy implication, given the results under 2018 law versus 2021 law, is that increases in low-income refundable credits – e.g., the child tax credit and the earned income tax credit – can also help Black and Hispanic households relative to white households.

Future research could constructively build on the results in this paper in at least three ways: by broadening the list of taxes considered; by examining differential tax effects for other racial and ethnic groups; and by examining how the differences in income tax liability in turn affect other factors, such as racial differences in wealth, household composition, and economic mobility.

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Table 1. Summary Statistics

	White	Black	Hispanic
SAMPLE SIZE			
Unweighted	206442	35259	28837
Weighted (Thousands)	114927	23198	18423
INCOME			
Average Taxable Income	60838	23655	22894
Average AGI	81448	37438	38631
Average EI	155958	68523	66582
Average TI/Average EI	0.39	0.35	0.34
Average AGI/Average EI	0.52	0.55	0.58
TAX			
Average Income Tax Liability	10650	2104	1317
Average Tax Rate (taxes/TI, aggregate)	0.175	0.089	0.058
Average Tax Rate (taxes/AGI, aggregate)	0.131	0.056	0.034
Average Tax Rate (taxes/EI, aggregate)	0.068	0.031	0.020
Average Tax Rate (taxes/TI, personal)	-0.067	-0.342	-0.473
Average Tax Rate (taxes/AGI, personal)	0.032	-0.021	-0.038
Average Tax Rate (taxes/EI, personal)	0.023	-0.003	-0.019
FILING STATUS AND FAMILY CHARACTERISTICS			
Single	0.46	0.53	0.45
Head of Household	0.10	0.25	0.19
Married Filing Jointly	0.42	0.19	0.33
Married Filing Separately	0.01	0.03	0.03
Average Tax Unit Size	2.04	2.00	2.38
Has Children	0.31	0.38	0.45
Average Number of Dependents	0.63	0.81	1.06
EITC Eligibility	0.12	0.26	0.32
CTC Eligibility	0.27	0.27	0.35
Itemized Deductions Eligibility	0.20	0.10	0.09
AGE OF HEAD			
Average Age	49.6	45.8	40.9
Younger than 25	0.09	0.09	0.14
65 or Older	0.24	0.16	0.09

Notes: The Table reports summary statistics by race/ethnicity for our sample, which is comprised of 156,548 weighted tax units constructed according to Gale et al. (2022a, 2022b). Federal income tax liability, filing status, and credit eligibility is determined by the TAXSIM tax calculator (Feenberg and Coutts 1993) and tax rates are calculated either as the ratio of aggregate taxes to aggregate income or the average of individual tax unit ratios of taxes to income. Age of Head refers to the age of the head of household.
Source: Surveys of Consumer Finances and authors' calculations.

Table 2. Composition of Income

	White	Black	Hispanic
FULLY TAXABLE LABOR/RETIREMENT	**0.40**	**0.51**	**0.52**
Wage Income	0.35	0.45	0.50
Taxable Retirement Withdrawals	0.04	0.05	0.02
Taxable Social Security	0.01	0.01	0.00
UNTAXED LABOR/RETIREMENT	**0.16**	**0.21**	**0.17**
Employee-paid Benefits	0.01	0.01	0.01
Employer-paid Benefits	0.03	0.05	0.05
Employer-paid Payroll and UI Taxes	0.03	0.04	0.05
Non-taxable Social Security	0.02	0.04	0.02
Retirement Contributions and Buildup	0.07	0.06	0.04
FULLY TAXABLE CAPITAL	**0.03**	**0.01**	**0.01**
Taxable Interest	0.01	0.00	0.00
Net Operating Loss	0.00	0.00	0.00
Taxable Business Income	0.03	0.01	0.01
TAX-PREFERRED CAPITAL	**0.06**	**0.02**	**0.02**
Dividends	0.01	0.00	0.00
Realized Capital Gains	0.04	0.01	0.00
Section 199A	0.01	0.01	0.02
UNTAXED CAPITAL	**0.23**	**0.10**	**0.13**
Tax-exempt Interest	0.00	0.00	0.00
Unrealized Capital Gains	0.17	0.08	0.10
Untaxed Business Income	0.04	0.02	0.03
Imputed Rent on OOH	0.02	0.01	0.01
GOVERNMENT TRANSFERS	**0.04**	**0.13**	**0.11**
Unemployment Income	0.00	0.00	0.01
SSI, TANF, and Other Transfers	0.01	0.04	0.03
Medicare	0.02	0.04	0.03
Medicaid	0.01	0.05	0.05
PRIVATE TRANSFERS	**0.02**	**0.01**	**0.00**
Alimony Income	0.00	0.00	0.00
Net Child Support	0.00	0.00	0.00
Inheritance Income	0.02	0.01	0.01
CORPORATE TAX BURDEN	**0.02**	**0.02**	**0.01**

Notes: The Table reports statistics on the composition of Expanded Income (EI) by race/ethnicity for our sample, which is comprised of 156,548 weighted tax units constructed according to Gale et al. (2022a, 2022b). For more information on the construction of EI, see the Online Appendix and Gale and Sabelhaus (2024).
Source: Surveys of Consumer Finances and authors' calculations.

Table 3. Regression Estimates: Differences in Adjusted Gross Income and Taxable Income as a Share of Expanded Income, by EI Percentile, Race/Ethnicity, and Income

	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	P90-P99	P99-P100
Panel A. Dependent Variable = AGI/EI											
(1) Coefficient on Black indicator	-6.034***	-1.272	1.242	3.059**	3.611***	4.083***	3.557***	2.959***	2.531**	2.360	12.88
	(1.712)	(1.315)	(1.293)	(1.219)	(1.261)	(1.187)	(1.217)	(1.077)	(1.209)	(2.028)	(9.019)
(2) Coefficient on Hispanic indicator	4.734***	15.56***	10.25***	7.000***	6.649***	5.616***	6.197***	3.035**	3.273***	1.974	5.943
	(1.553)	(1.347)	(1.334)	(1.341)	(1.401)	(1.277)	(1.267)	(1.358)	(1.257)	(2.138)	(6.378)
Panel B. Dependent Variable = TI/EI											
(3) Coefficient on Black indicator	-1.149***	-2.132***	-0.411	2.309**	2.938***	4.609***	4.248***	2.532**	1.996	2.087	13.22
	(0.367)	(0.798)	(0.994)	(1.078)	(1.136)	(1.149)	(1.178)	(1.091)	(1.292)	(1.981)	(9.885)
(4) Coefficient on Hispanic indicator	0.500	3.314***	1.827*	2.379**	3.021**	3.596***	4.686***	2.002	2.370*	1.199	7.787
	(0.402)	(0.935)	(0.961)	(1.098)	(1.272)	(1.206)	(1.342)	(1.411)	(1.403)	(2.223)	(6.855)

Notes: Robust standard errors in parentheses; *p<.1; **p<.05; ***p<.01. The table shows the coefficients on the indicator variable for Black or Hispanic tax units in regressions estimated separately for tax units in each expanded income (EI) decile, where the right-hand side variables include a constant, EI, the Black and Hispanic indicators, and an indicator for SCF survey wave (with one excluded). Each coefficient represents percentage point differences. The full set of regression estimates are shown in Tables A3 and A5.
Source: Surveys of Consumer Finances and authors' calculations.

Table 3a. Regression Estimates: Differences in Adjusted Gross Income and Taxable Income, by EI percentile, Race/Ethnicity, and Income

	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	P90-P99	P99-P100
Panel A. Dependent Variable = AGI											
(1) Coefficient on Black indicator	-748.1***	-374.8	517.3	1,892**	2,998***	4,055***	4,583***	4,953***	5,721**	22,964*	510,291**
	(208.6)	(430.2)	(606.3)	(759.3)	(993.6)	(1,190)	(1,520)	(1,747)	(2,796)	(12,632)	(253,788)
(2) Coefficient on Hispanic indicator	1,299***	5,039***	4,691***	4,312***	5,239***	5,574***	7,813***	4,599**	7,586***	7,904	207,636
	(197.2)	(455.5)	(634.1)	(823.4)	(1,106)	(1,266)	(1,597)	(2,208)	(2,905)	(10,730)	(298,438)
Panel B. Dependent Variable = TI											
(3) Coefficient on Black indicator	-239.7***	-685.2**	-240.1	1,442**	2,460***	4,611***	5,435***	4,160**	4,582	23,093*	528,811*
	(80.67)	(269.9)	(463.9)	(670.7)	(894.7)	(1,149)	(1,472)	(1,783)	(2,962)	(12,460)	(277,798)
(4) Coefficient on Hispanic indicator	89.76	1,099***	818.3*	1,446**	2,415**	3,596***	5,911***	2,979	5,653*	3,930	269,526
	(85.14)	(321.7)	(458.6)	(677.3)	(1,009)	(1,200)	(1,681)	(2,317)	(3,241)	(11,344)	(298,147)

Notes: Robust standard errors in parentheses; *p<.1; **p<.05; ***p<.01. The table shows the coefficients on the indicator variable for Black and Hispanic tax units in regressions estimated separately for tax units in each expanded income (EI) decile, where the right-hand side variables include a constant, EI, the Black and Hispanic indicators, and an indicator for SCF survey wave (with one excluded). Each coefficient is measured in (2018) dollars. The full set of regression estimates are shown in Tables A4 and A6.

Source: Surveys of Consumer Finances and authors' calculations.

Table 4. Regression Estimates: Differences in Average Tax Rate by Race/Ethnicity and Expanded Income Percentile

	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	P90-P99	P99-P100
Panel A. Controls: EI											
(1) Coefficient on Black indicator	-1.693***	-1.896***	-1.953***	-1.085***	-0.643***	0.311	0.496**	0.554**	0.615**	0.833*	5.661
	(0.270)	(0.267)	(0.303)	(0.246)	(0.248)	(0.232)	(0.233)	(0.225)	(0.297)	(0.479)	(3.885)
(2) Coefficient on Hispanic indicator	-2.992***	-4.188***	-3.566***	-2.564***	-1.988***	-0.642**	-0.357	-0.265	0.182	0.323	3.196
	(0.345)	(0.398)	(0.349)	(0.317)	(0.315)	(0.263)	(0.287)	(0.271)	(0.278)	(0.518)	(2.638)
Panel B. Controls: EI, Demographics											
(3) Coefficient on Black indicator	-0.199	-0.0444	-0.358**	0.174	0.0544	0.340*	0.493***	0.373*	0.537*	0.794	5.074
	(0.184)	(0.163)	(0.181)	(0.170)	(0.169)	(0.183)	(0.191)	(0.210)	(0.276)	(0.484)	(3.468)
(4) Coefficient on Hispanic indicator	-0.964***	-0.600***	-0.140	0.214	0.283	0.385**	0.640***	0.265	0.336	0.190	2.430
	(0.200)	(0.226)	(0.217)	(0.206)	(0.206)	(0.191)	(0.224)	(0.239)	(0.278)	(0.532)	(2.343)
Panel C. Controls: EI, Demographics, Income Composition											
(5) Coefficient on Black indicator	-0.259	0.0657	-0.324**	0.108	-0.129	0.0755	0.235**	0.0328	0.122	0.125	1.319
	(0.199)	(0.160)	(0.154)	(0.141)	(0.116)	(0.115)	(0.116)	(0.130)	(0.137)	(0.202)	(0.991)
(6) Coefficient on Hispanic indicator	-0.925***	-1.111***	-0.726***	-0.318*	-0.256	0.0312	0.299**	0.312**	-0.0755	0.395	2.344*
	(0.200)	(0.222)	(0.208)	(0.176)	(0.156)	(0.126)	(0.147)	(0.132)	(0.130)	(0.246)	(1.398)

Notes: Robust standard errors in parentheses; *p<.1; **p<.05; ***p<.01. The table shows the coefficients on the indicator variables for Black and Hispanic tax units in regressions estimated separately for tax units in each expanded income (EI) decile. Each coefficient represents percentage point differences in average tax rate (defined as income tax liability divided by EI). In the first and second rows, the right-hand side variables include a constant, EI, the indicators for Black and Hispanic tax units, and an indicator for SCF survey wave (with one excluded). In the third and fourth rows, controls are added for those units who file as married filing jointly, those who file as head of household, and the number of people in the tax unit. In the fifth and sixth rows, the specification in the third and fourth rows is supplemented with two variables – the share of EI that is fully taxable and the share that is partially taxable. The full set of regression estimates are shown in Tables A7-A9.

Source: Surveys of Consumer Finances and authors' calculations.

Table 4a. Regression Estimates: Differences in Income Tax Liability by Race/Ethnicity and Expanded Income Percentile

	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	P90-P99	P99-P100
Panel A. Controls: EI											
(1) Coefficient on Black indicator	-262.6***	-618.8***	-924.0***	-672.0***	-473.7**	327.8	636.8**	927.1**	1,460**	8,635**	210,400*
	(43.23)	(87.08)	(139.7)	(154.6)	(194.8)	(233.7)	(292.2)	(365.6)	(694.6)	(3,543)	(110,653)
(2) Coefficient on Hispanic indicator	-510.3***	-1,353***	-1,647***	-1,606***	-1,531***	-616.6**	-413.9	-430.9	498.9	1,288	109,462
	(61.77)	(129.8)	(161.5)	(196.5)	(246.2)	(261.9)	(355.7)	(454.1)	(641.6)	(2,869)	(105,277)
Panel B. Controls: EI, Demographics											
(3) Coefficient on Black indicator	-13.77	-15.24	-176.7**	110.5	69.91	352.4*	633.7***	630.0*	1,280**	8,391**	187,397*
	(33.22)	(52.97)	(83.29)	(105.3)	(133.9)	(185.4)	(239.4)	(346.2)	(647.4)	(3,551)	(98,555)
(4) Coefficient on Hispanic indicator	-159.0***	-166.5**	-33.28	121.7	254.8	402.6**	845.3***	427.8	839.0	200.6	88,375
	(36.30)	(72.68)	(100.7)	(126.4)	(161.0)	(188.2)	(277.0)	(400.1)	(650.1)	(2,945)	(98,665)
Panel C. Controls: EI, Demographics, Income Composition											
(5) Coefficient on Black indicator	-13.57	21.93	-160.4**	69.46	-74.27	90.12	308.7**	70.61	314.2	4,457*	62,826
	(33.40)	(51.07)	(71.91)	(87.60)	(92.10)	(117.2)	(146.8)	(218.3)	(334.6)	(2,483)	(46,183)
(6) Coefficient on Hispanic indicator	-158.3***	-341.6***	-311.9***	-208.8*	-169.2	49.81	414.4**	505.9**	-118.4	1,474	98,494
	(35.80)	(70.83)	(95.82)	(108.3)	(121.3)	(126.1)	(179.9)	(230.7)	(321.0)	(1,878)	(69,145)

Notes: Robust standard errors in parentheses; *p<.1; **p<.05; ***p<.01. The table shows the coefficients on the indicator variables for Black and Hispanic tax units in regressions estimated separately for tax units in each expanded income (EI) decile. Each coefficient represents differences in income tax liability (in 2018 dollars). In the first and second rows, the right-hand side variables include a constant, EI, the indicators for Black and Hispanic tax units, and an indicator for SCF survey wave (with one excluded). In the third and fourth rows, controls are added for those units who file as married filing jointly, those who file as head of household, and the number of people in the tax unit. In the fifth and sixth rows, the specification in the third and fourth rows is supplemented with two variables – the share of EI that is fully taxable and the share that is partially taxable. The full set of regression estimates are shown in Tables A7-A9.

Source: Surveys of Consumer Finances and authors' calculations.

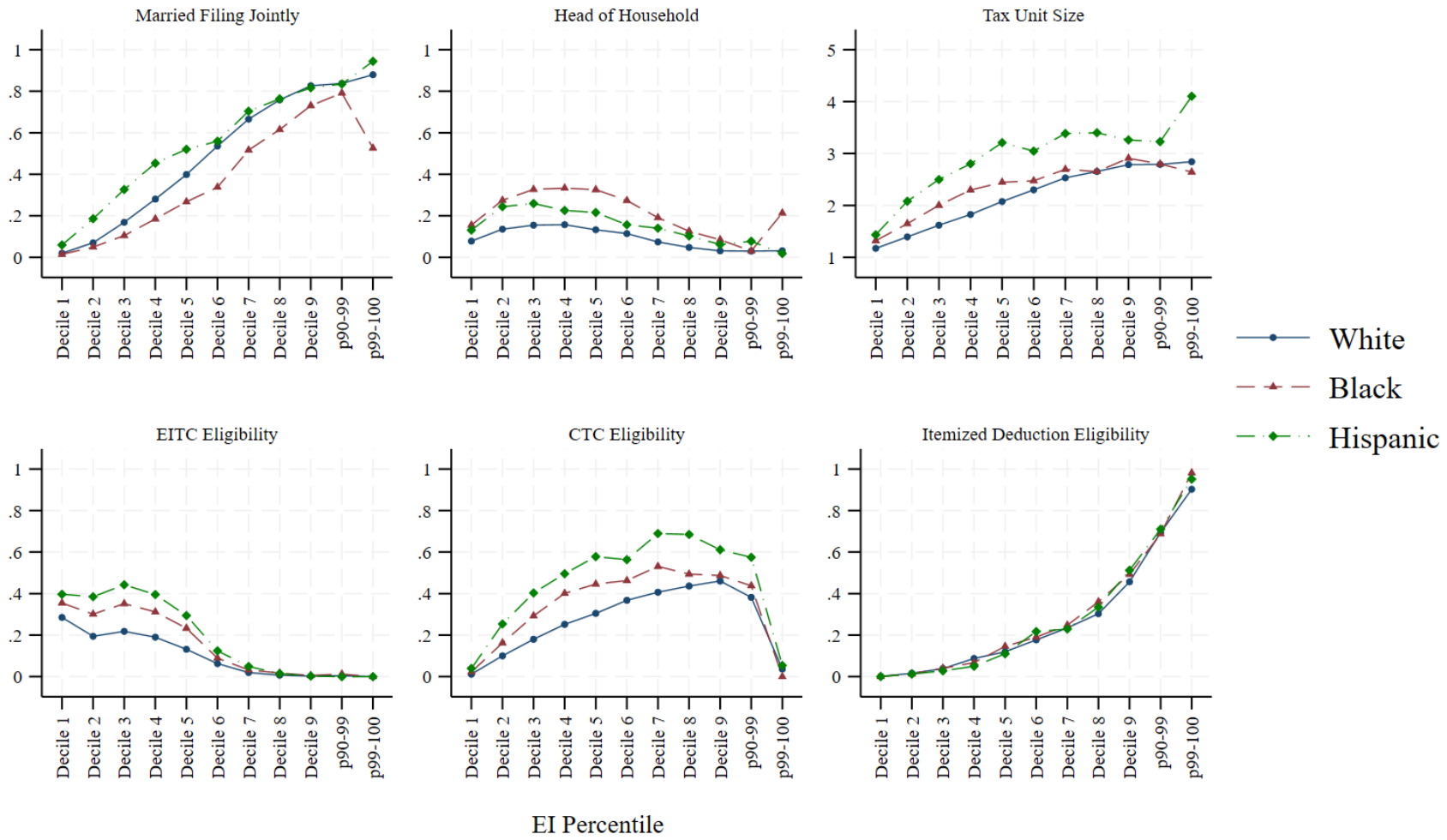
Table 5. Summary of Lin-Slemrod Decompositions

	Vertical Considerations	Horizontal Considerations
Panel A. Black and White Tax Units		
All deciles	61%	39%
Bottom half	15%	85%
Top half	112%	-12%
Married taxpayers	92%	8%
Unmarried taxpayers	21%	79%
Panel B. Hispanic and White Tax Units		
All deciles	45%	55%
Bottom half	10%	90%
Top half	62%	38%
Married taxpayers	76%	24%
Unmarried taxpayers	28%	72%

Notes: The Table reports headline results from 10 different applications of the formula developed in Slemrod (2022) and used in Lin and Slemrod (2023). The formula decomposes the raw difference between ATRs for two groups into tax differentials that arise from vertical factors (the relative distribution of two groups across the income distribution combined with an intentionally progressive tax system) and from horizontal factors (differences in tax rate within narrow income bands). We use Expanded Income (EI) as our income classifier, and EI deciles as income bands to analyze horizontal equity. Panel A decomposes the difference in ATRs for Black and white taxpayers with different sample restrictions, and Panel B does the same for Hispanic and white taxpayers.

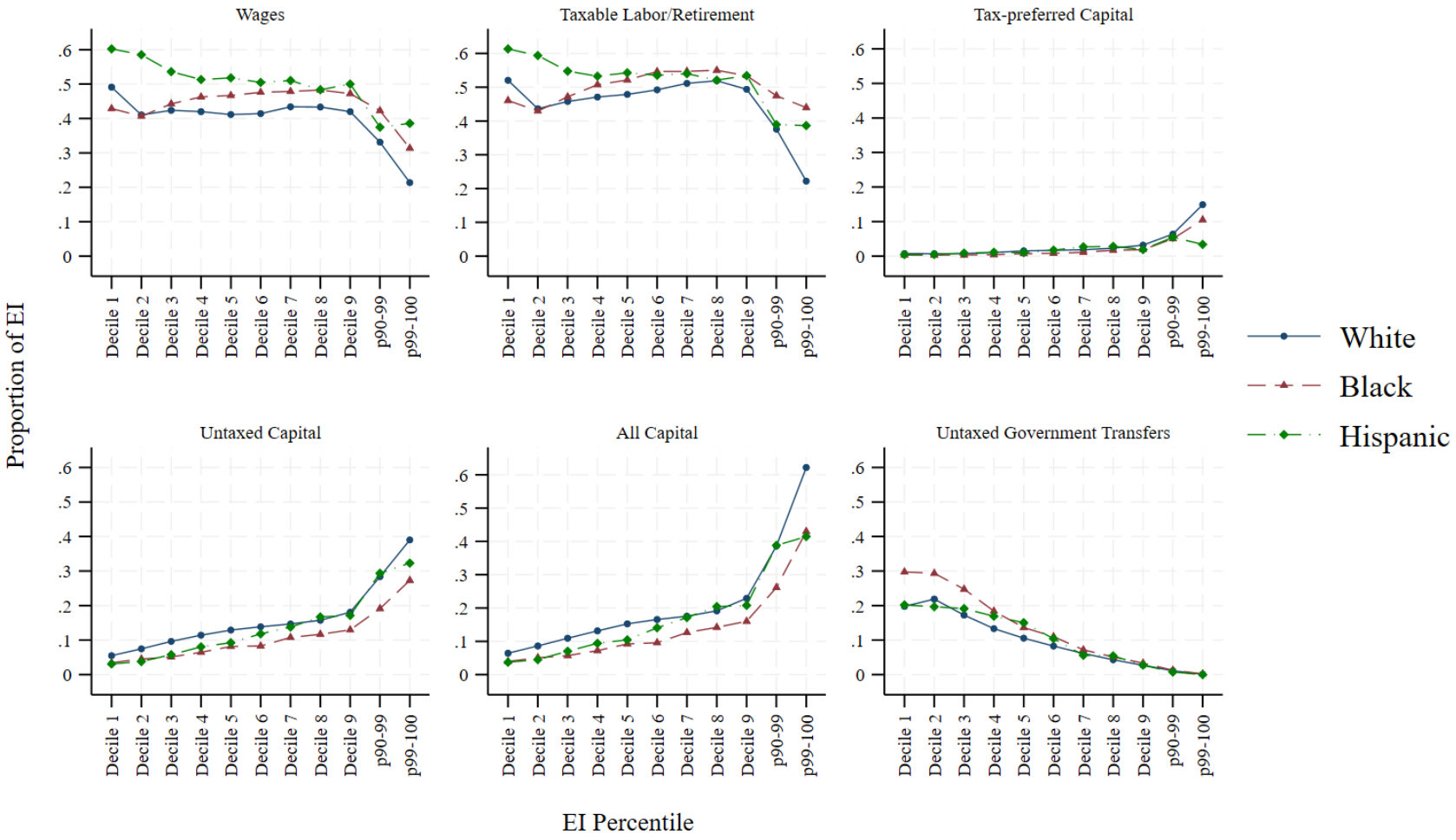
Source: Surveys of Consumer Finances and authors' calculations.

Figure 1. Filing Status and Household Composition by EI Percentile



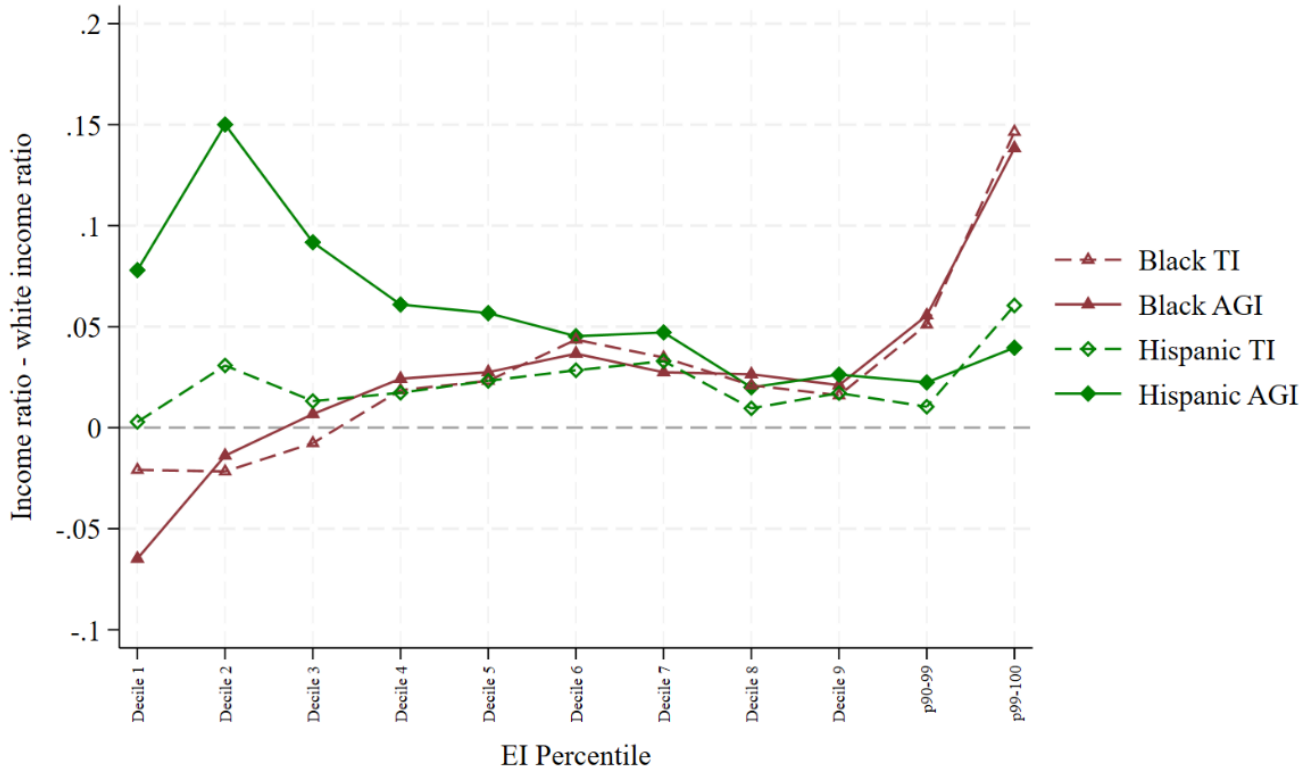
Notes: The Figure reports statistics on filing status, tax unit size, and eligibility for credits and deductions by race/ethnicity across the Expanded Income (EI) distribution. Distributional breaks are calculated using population weights, and other statistics are calculated using tax unit weights. Tax units are constructed according to Gale et al. (2022a, 2022b) and filing status and credit/deduction eligibility are determined by TAXSIM.
Source: Surveys of Consumer Finances and authors' calculations.

Figure 2. Composition of Income by EI Percentile



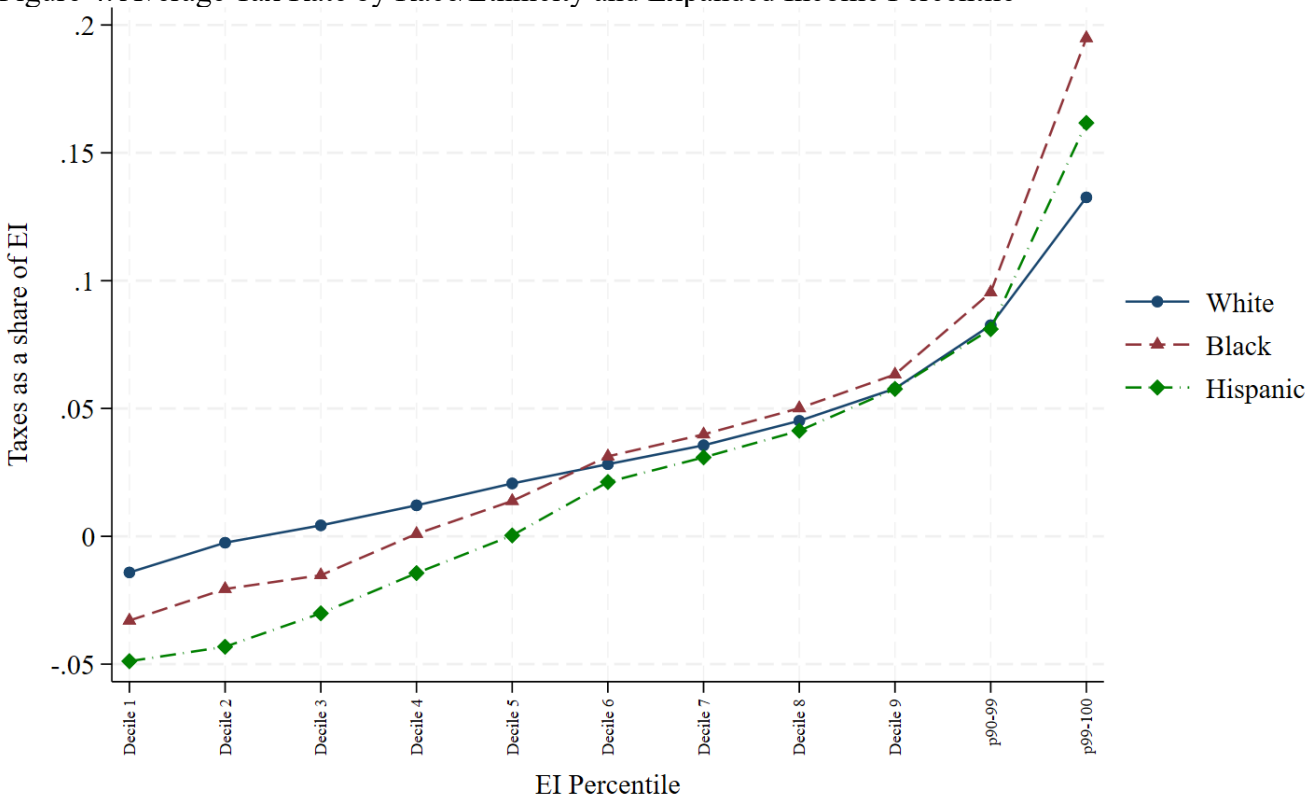
Notes: The Figure reports statistics on filing status, tax unit size, and eligibility for credits and deductions by race/ethnicity across the Expanded Income (EI) distribution. Distributional breaks are calculated using population weights, and other statistics are calculated using tax unit weights. See Figure 2 for the components of each income category. For more information on the construction of EI, see the Online Appendix and Gale and Sabelhaus (2024).
Source: Surveys of Consumer Finances and authors' calculations.

Figure 3. Adjusted Gross Income and Taxable Income as a share of Expanded Income, by Race/Ethnicity and Expanded Income Percentile



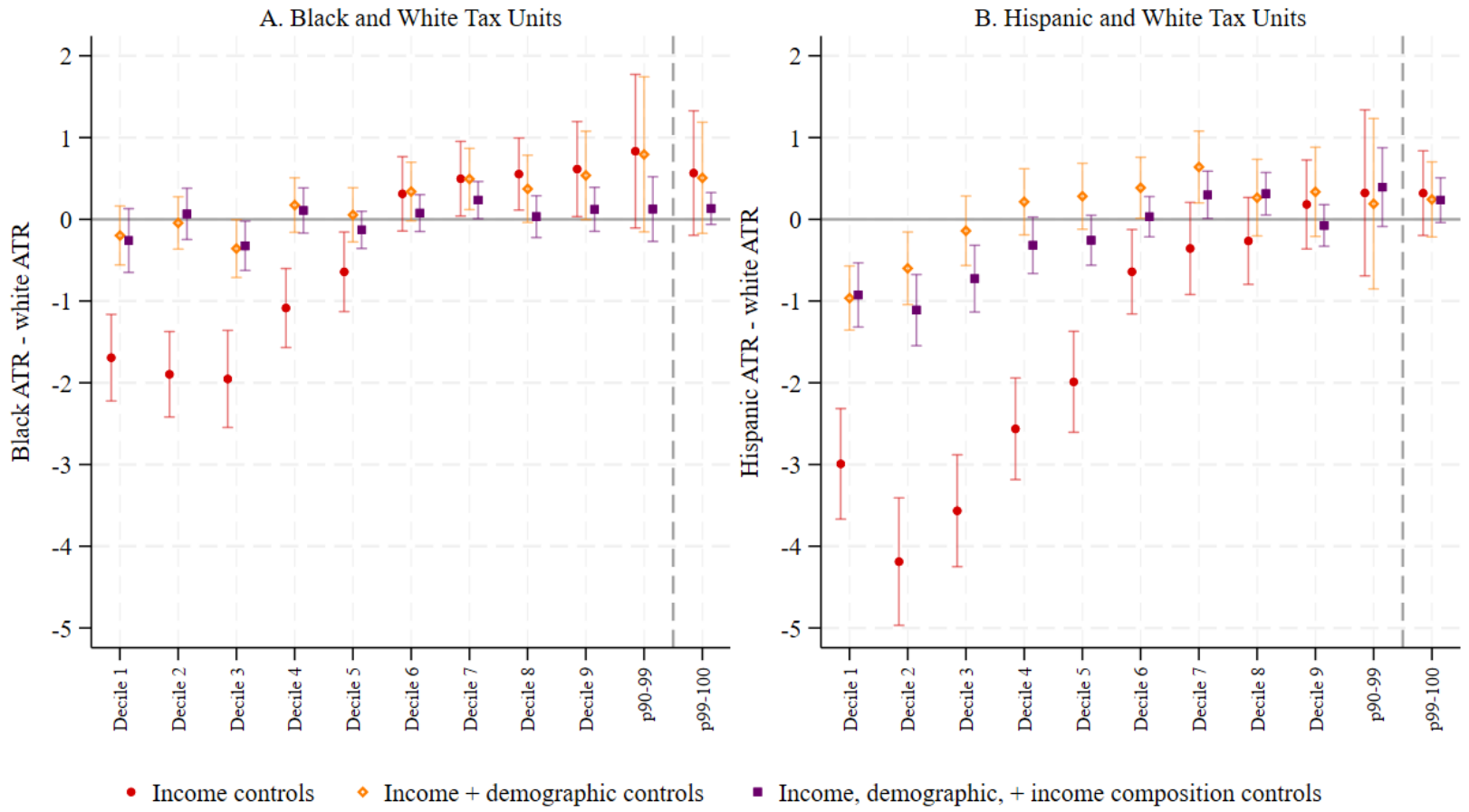
Notes: The Figure reports the difference between Black and Hispanic and white ratios of Taxable Income (TI) and Adjusted Gross Income (AGI) to Expanded Income (EI) by EI percentile. Distributional breaks are calculated using population weights, and income ratios are calculated as the share of aggregate TI (AGI) to EI in a given percentile using tax unit weights.
Source: Surveys of Consumer Finances and authors' calculations.

Figure 4. Average Tax Rate by Race/Ethnicity and Expanded Income Percentile



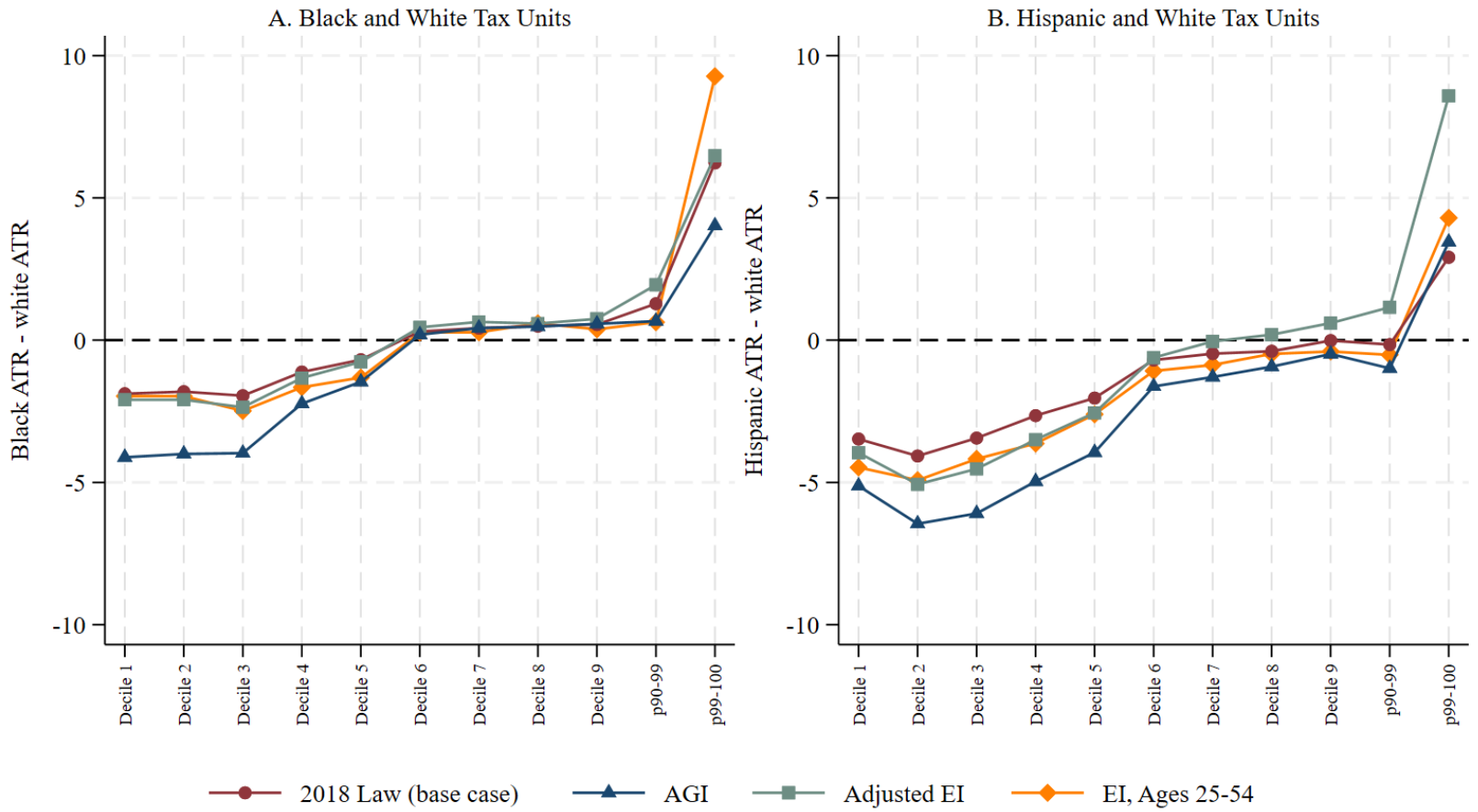
Notes: The Figure reports Average Tax Rates (ATRs) by race/ethnicity across the Expanded Income (EI) distribution. Distributional breaks are calculated using population weights, and ATRs are calculated as the ratio of aggregate income tax liability to aggregate EI in a given percentile using tax unit weights.
Source: Surveys of Consumer Finances and authors' calculations.

Figure 5. Difference in Average Tax Rate by Expanded Income Percentile



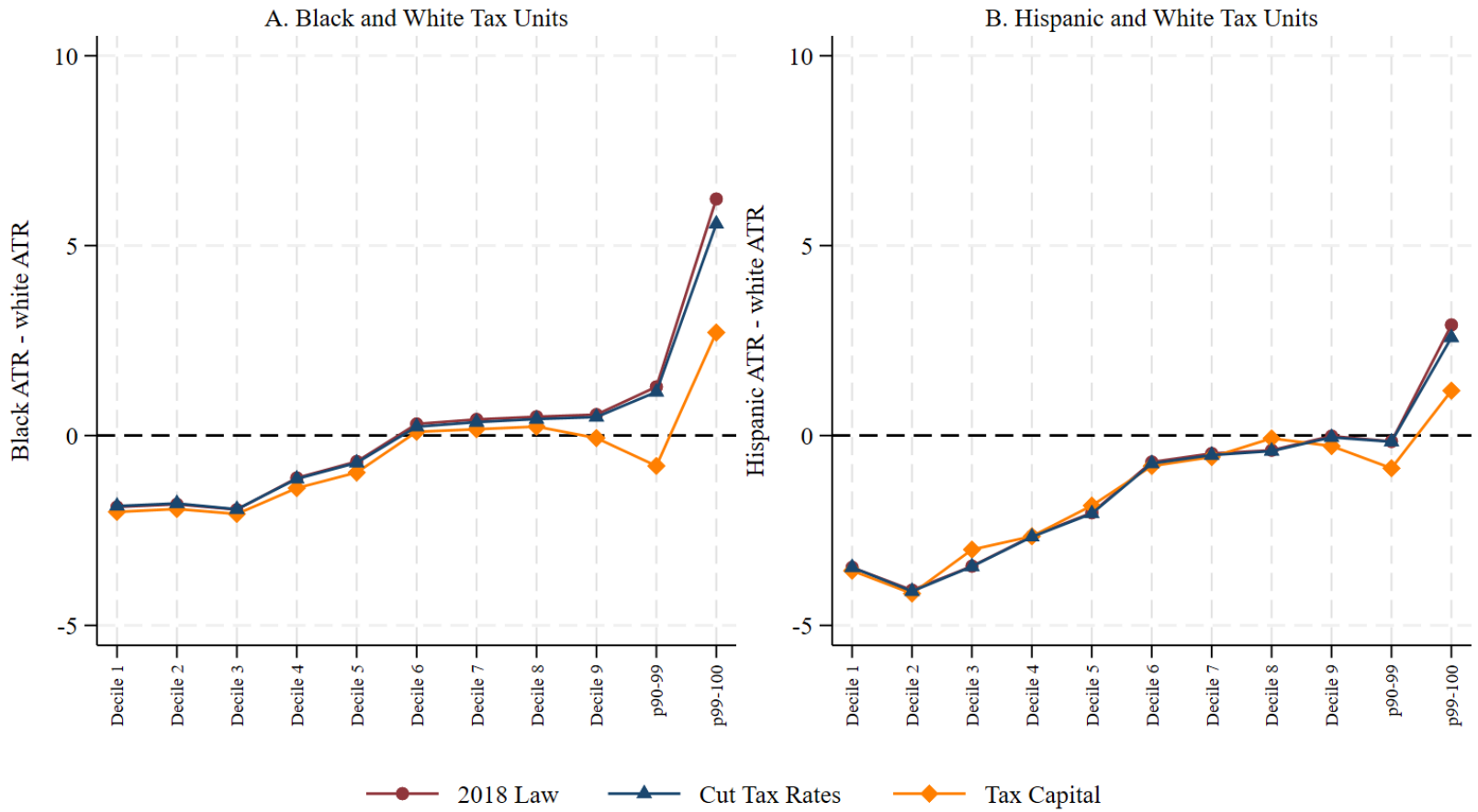
Notes: The Figure reports point estimates and 95% confidence intervals (both divided by 10 in the top 1 percent for scale) from regressions displayed in Table 4 and estimated in Tables A7-A9. The red circles plot coefficients for separate regressions by Expanded Income (EI) decile that regress Average Tax Rate (ATR) on EI, a Black indicator, a Hispanic indicator, and survey round fixed effects. The orange diamonds display the same coefficients for regressions that additionally control for filing status and number of dependents, and the purple squares display the same coefficients for regressions that additionally control for the share of fully and partially taxed income in EI. Panel A displays coefficients on the Black indicator variable, and Panel B displays coefficients on the Hispanic indicator variable. Distributional breaks are calculated using population weights, and regressions are estimated using tax unit weights.
Source: Surveys of Consumer Finances and authors' calculations.

Figure 6. Difference in Average Tax Rate by Expanded Income Percentile: Sensitivity Analysis



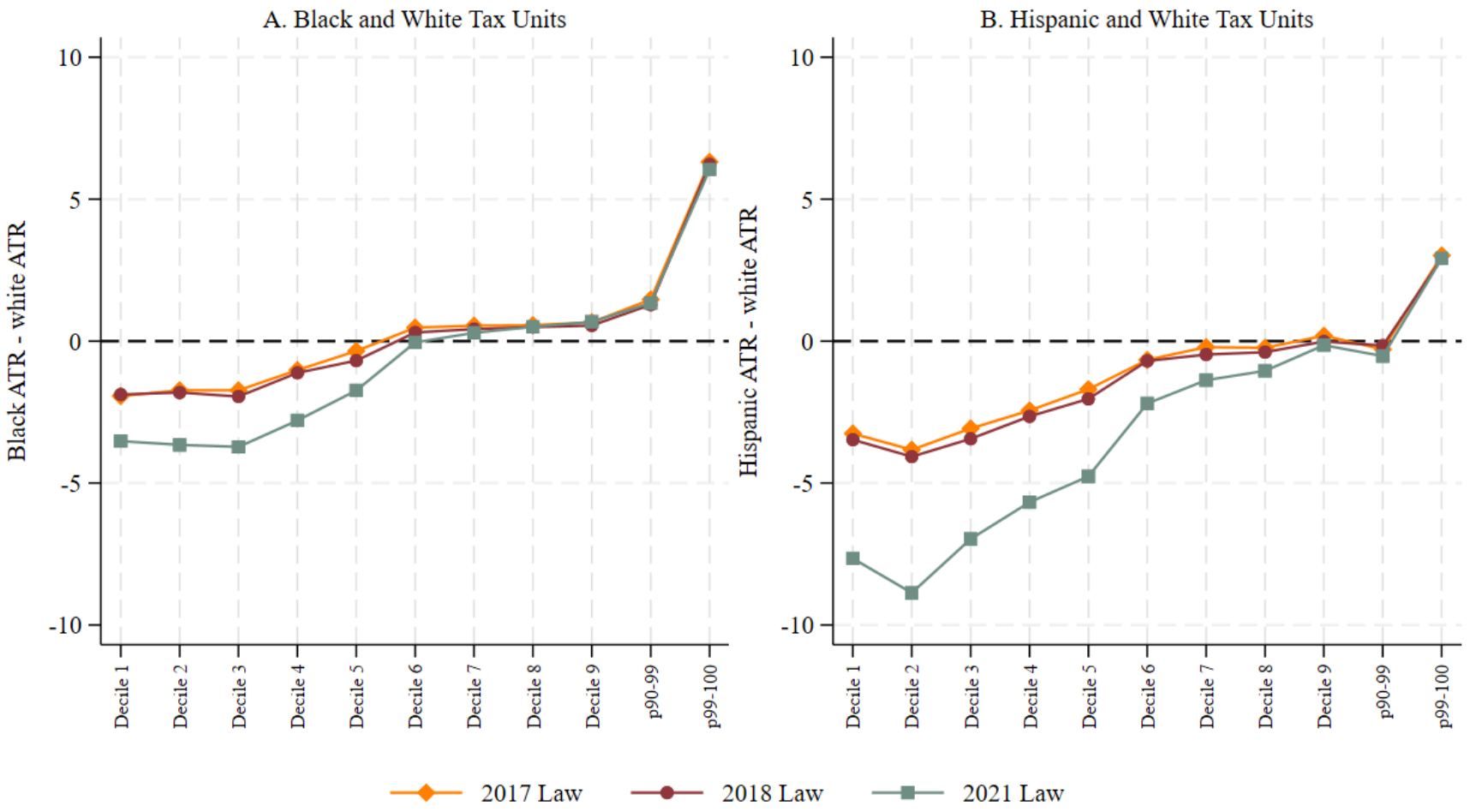
Notes: The Figure reports the difference in average tax rate for Black relative to white tax units in Panel A and Hispanic relative to white tax units in Panel B. The 2018 law lines are simply transformations of the lines reported in Figure 4. The AGI line calculates ATRs as the ratio of tax burden to AGI in a given EI decile, the Adjusted EI line adjusts for family size by dividing EI by the square root of the number of people in the tax unit, and the Ages 25-54 line restricts the sample to include tax units with a head of household between 25 and 54 years old. Distributional breaks are calculated using population weights, and other statistics are calculated using tax unit weights.
Source: Surveys of Consumer Finances and authors' calculations.

Figure 7. Effects of Tax Reform on Average Tax Rate Differences by Expanded Income Percentile



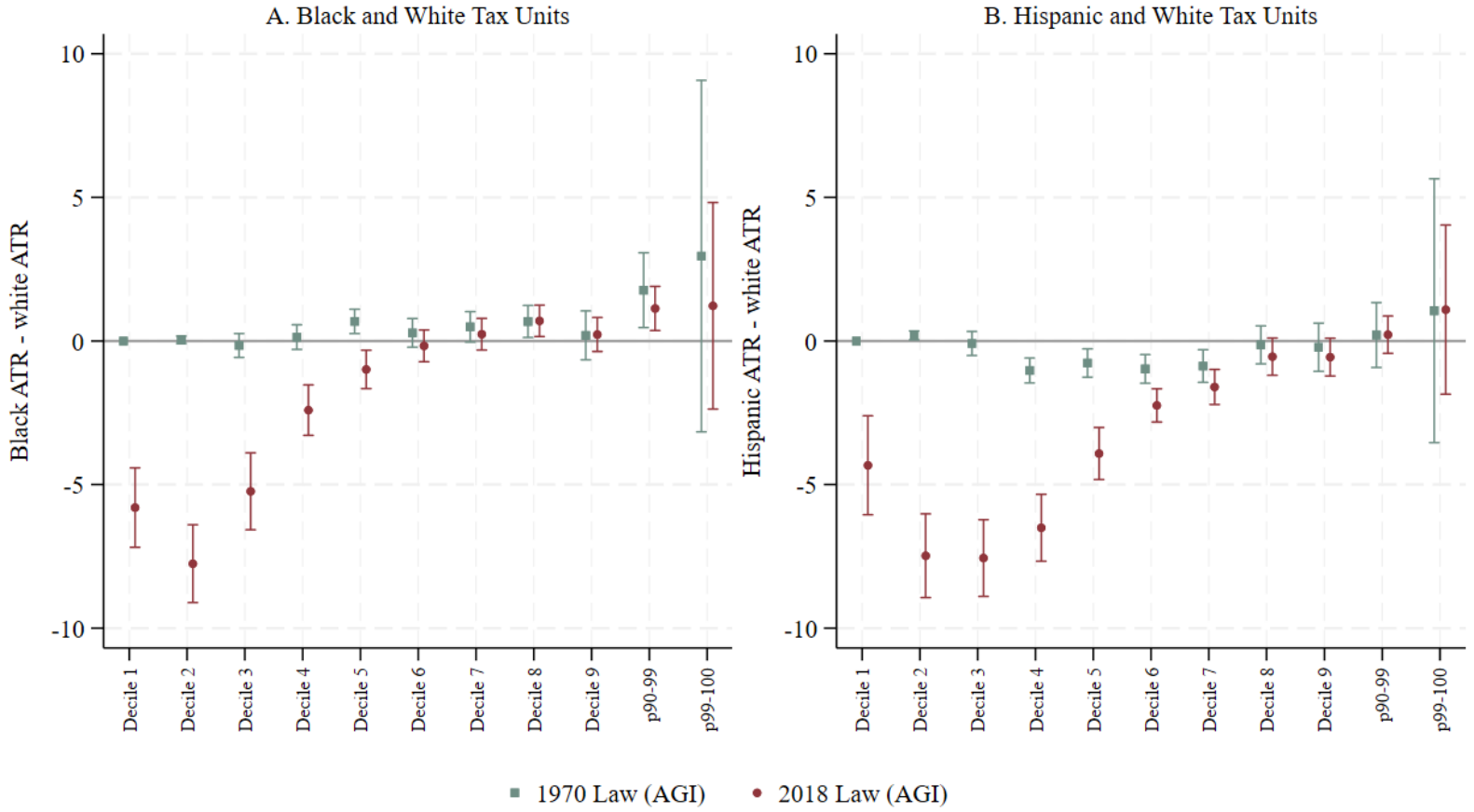
Notes: The Figure reports the differences in ATR by EI decile for Black and white tax units (Panel A) and Hispanic and white tax units (Panel B) under 2018 law, a reform that reduces income tax rates by 10 percent and a reform that broadens the tax base by (a) removing preferential rates for realized capital gains and qualified dividends, (b) repealing the section 199A deduction, and (c) incorporating imputed rent, unrealized gains, untaxed business income, and tax-exempt interest into the tax base. Distributional breaks are calculated using population weights, and other statistics are calculated using tax unit weights.
Source: Surveys of Consumer Finances and authors' calculations.

Figure 8. Effects of TCJA and ARP on Average Tax Rate Differences by Expanded Income Percentile



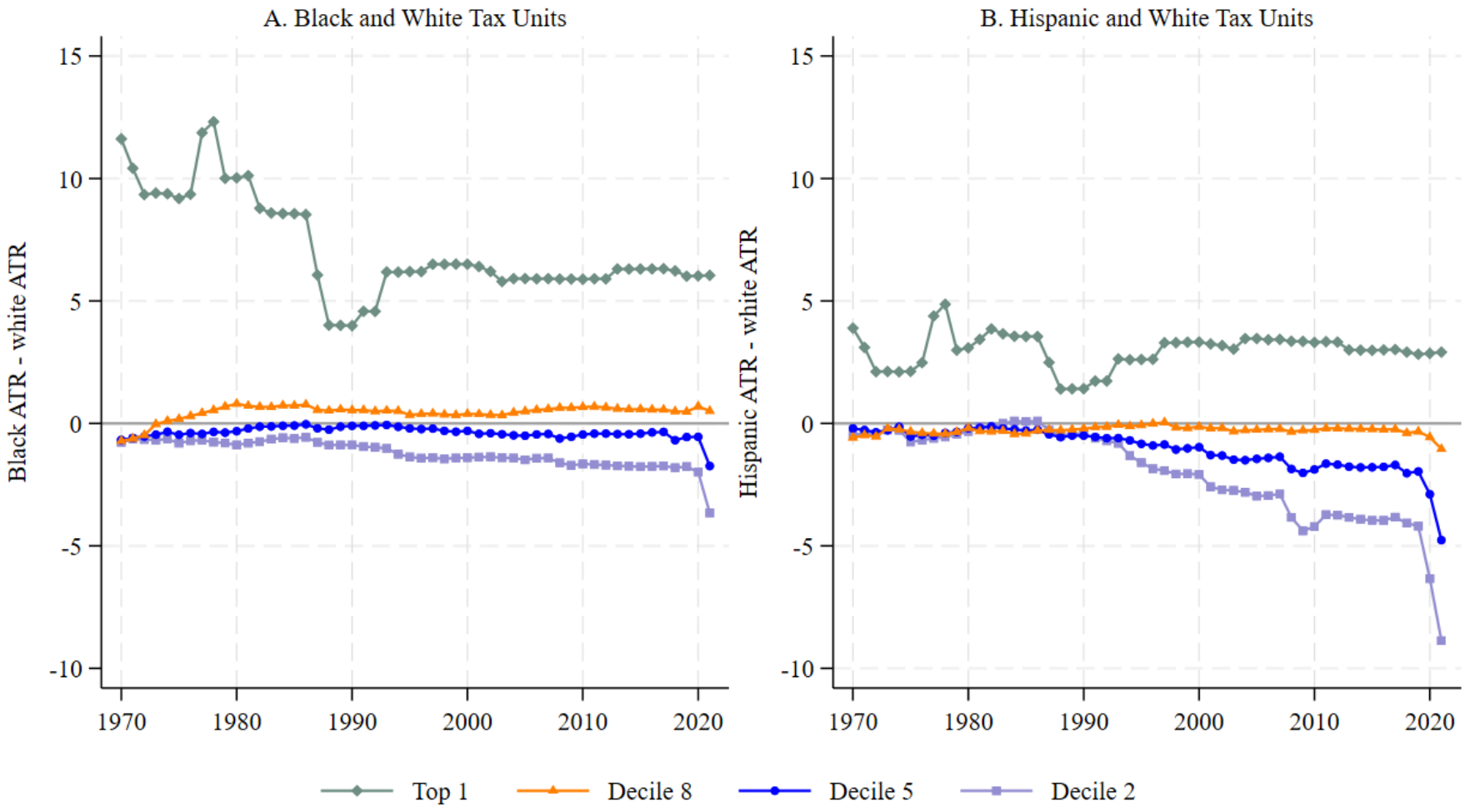
Notes: The Figure reports the differences in ATR by EI decile for Black and white tax units (Panel A) and Hispanic and white tax units (Panel B) under 2017, 2018, and 2021 tax law. Distributional breaks are calculated using population weights, and other statistics are calculated using tax unit weights.
Source: Surveys of Consumer Finances and authors' calculations.

Figure 9. Differences in Tax Liability as a Share of Adjusted Gross Income Under 1970 and 2018 Law, by Adjusted Gross Income Percentile



Notes: The Figure reports point estimates and 95% confidence intervals from regressions of taxes as a share of AGI on AGI, a Black indicator, a Hispanic indicator, and survey round fixed effects. The 1970 Law point estimates apply 1970 tax law to our sample, and the 2018 Law point estimates apply 2018 tax law to our sample and can be compared with similar regressions using EI, displayed in Figure 5. Panel A displays coefficients on the Black indicator variable, and Panel B displays coefficients on the Hispanic indicator variable. Distributional breaks are calculated using population weights, and regressions are estimated using tax unit weights.
Source: Surveys of Consumer Finances and authors' calculations.

Figure 10. Differences in Average Tax Rate Under Changing Tax Law, 1970-2021, by Expanded Income Percentile



Notes: The Figure displays the difference between Black and white (Panel A) and Hispanic and white (Panel B) Average Tax Rates (ATRs) for select Expanded Income (EI) percentiles across different years' tax law. Distributional breaks are calculated using population weights, and other statistics are calculated using tax unit weights.
Source: Surveys of Consumer Finances and authors' calculations.