

**Does taxpayer assistance encourage income tax compliance?
Evidence from Internal Revenue Service (IRS) staffing**

Vishal P. Baloria
University of Connecticut

Todd D. Kravet
University of Connecticut

Jennifer Luchs-Nuñez
Colorado State University

We thank Sutirtha Bagchi, Sakshi Bhardwaj, Sabrina Chi, Brian Erard, Jacob Goldin, Sam Gunter, Lisa Hillmann, David Kenchington, Sam Liew, Frank Murphy, Brad Nathan, Terry Shevlin, Steve Utke, Dave Weber and participants at the Southern California Tax Readings Group, University of Connecticut Tax Readings Group, and WHU-Accounting and Tax Readings Group for helpful suggestions. Vishal Baloria and Todd Kravet acknowledge support from the University of Connecticut School of Business. Jennifer Luchs-Nuñez acknowledges support from the Colorado State College of Business. This research project uses data generously made available by the Internal Revenue Service (IRS)'s Statistics of Income (SOI) Program as well as the Bureau of Labor Statistics (BLS) Occupational Employment and Wage Statistics (OEWS) Program. We thank Daphne Armstrong, Ping Gong, Caroline Tolbert, and their respective co-authors for making their data available. We appreciate excellent research assistance from Irina Zigray. Vishal Baloria, Todd Kravet, and Jennifer Luchs-Nuñez have no conflicts of interest related to this research.

Vishal P. Baloria, University of Connecticut, School of Business, Accounting Department, Storrs, CT, USA; Todd D. Kravet, University of Connecticut, School of Business, Accounting Department, Storrs, CT, USA; Jennifer Luchs-Nuñez, Colorado State University, College of Business, Department of Accounting, Fort Collins, CO, USA

Data Availability: Data used in this study are available from public sources identified in the paper.

JEL Codes: H11, H24, H71

Keywords: taxpayer assistance, enforcement, individual taxation, income tax, IRS staffing

**Does taxpayer assistance encourage income tax compliance?
Evidence from Internal Revenue Service (IRS) staffing**

Abstract: We assess the impact of taxpayer assistance services on individual income tax compliance. Internal Revenue Service (IRS) operational changes are more likely to be impactful in states with individual income taxes, providing plausibly exogenous cross-sectional variation. For time-series variation, we employ the 5% IRS workforce reduction in 2012. We find that the 2012 cuts led to lower tax filings in income-tax states, with larger decreases in states experiencing greater IRS staffing losses. The decline is weaker in states with more tax examiners and collectors, suggesting enforcement deters noncompliance, and in states or counties with more tax preparers, taxpayer assistance centers, or internet access, indicating taxpayers can substitute with alternative assistance. We find similar inferences using an earlier 1996 5% IRS workforce reduction event and a more expansive sample period of 2006-2022. Our evidence shows that taxpayer assistance services are critical to compliance and informs policy debates on optimal IRS staffing.

Keywords: taxpayer assistance, enforcement, individual taxation, income tax, IRS staffing

JEL Codes: H11, H24, H71

Data Availability: Data used in this study are available from public sources identified in the paper.

Generative AI Disclosure: During the preparation of this work, an author used Claude in limited instances to generate initial coding for use in SAS and Stata. The author thoroughly reviewed and edited the code generated by Claude and take full responsibility for the publication's content. Furthermore, an author used ChatGPT to improve sentence clarity in limited instances.

“As the IRS prepares for the next filing season, it has lost 25% of its workforce in the midst of preparing technology and guidance for H.R.1 [One Big Beautiful Bill Act]. There are some provisions in there that I expect are going to raise taxpayer demand, tax professional demand, for IRS help and it’s going to be very difficult” Douglas O’Donnell, Former IRS Commissioner

1. Introduction

A central question of interest to academics and policymakers is “Why do people pay taxes?” (Alm, McClland, and Schultze 1992). While a long-standing literature examines the impact of Internal Revenue Service (IRS) enforcement through audits and penalties (Allingham and Sandmo 1972; Yitzhaki 1974), more recent research in accounting (Armstrong and Glaeser 2025) and public economics (Alm, Cherry, Jones, and McKee 2010; Alm 2019) suggests that IRS taxpayer assistance services also serve an important role by providing taxpayers with valuable information. In this study, we examine whether disruptions to taxpayer assistance services, through material reductions in IRS staffing levels, impact individual income tax compliance behavior.

Our research question is timely considering recent reductions to the IRS workforce. An estimated 25% of workers were laid off in the first half of 2025 (FedScoop 2025) and 50% of remaining IRS workers were furloughed in October 2025 due to the federal government shutdown (CNN 2025). These staffing cuts have the potential to negatively impact individual income tax compliance, through reductions in IRS enforcement and/or taxpayer assistance services (Cureton 2025). As policymakers have expressed an openness to reconsidering IRS staffing reductions (Government Executive 2025), empirical evidence to inform policy deliberations about the impact of IRS staffing levels on individual taxpayers is critical yet surprisingly absent from the literature.

We leverage the impact of a 5% IRS workforce reduction in 2012 in response to major budget cuts to provide initial evidence on this issue (Kalmenvitz 2023; Armstrong, Glaeser, and Hoopes 2025). This event is particularly well suited to test our research question as it represents a structural shift in IRS staffing and occurred relatively recently, thereby increasing its relevance.

An empirical challenge in evaluating the impact of IRS staffing levels on individual income tax compliance is that the IRS is a federal government agency and has a national impact. We overcome this challenge by following the tradition in the public economics literature and exploiting cross-sectional variation in states with and without individual income taxes. An econometric advantage of this empirical approach is that decisions on whether states have individual income taxes were made decades prior to the beginning of our sample period, providing a plausibly exogenous source of variation with which to identify impacts of IRS staffing events.

Individuals' decisions about compliance with federal tax obligations are closely linked to their decisions about compliance with state tax obligations (Alm, Erard, and Feinstein 1996). Individuals in 41 states with income taxes constitute our treatment sample while individuals in 9 states without income taxes constitute our control sample (Figure 1). Prior research finds that the IRS has a greater impact in states with income taxes (Birskyte 2013), with these states subjecting themselves to exogenous shocks triggered by federal tax changes (Liu and Williams 2019; Monahan 2020). Revenue departments in states with individual income taxes reduce their investment in developing expertise in income taxation and rely heavily on the IRS, suggesting that shocks to IRS taxpayer assistance will materially impact taxpayers in these states (Mason 2013).¹

IRS events demonstrably have a larger impact in states with individual income taxes. Kopczuk and Pop-Eleches (2007) study electronic filing programs and demonstrate that most states with income taxes leveraged the IRS electronic filing program and adopted state programs, while states without incomes taxes made no changes. Bagchi and Dusek (2021) study withholding and third-party reporting programs and demonstrate that most states with income taxes leveraged the IRS income tax withholding program and adopted state programs, while states without income

¹ Erard and Ho (2001) examine the alternative possibility that states with individual income taxes have stronger enforcement capabilities, which in turn increases taxpayer compliance, but find no evidence in support of this notion.

taxes made no changes. Thus, operational developments at the IRS, such as the staffing cuts we employ in this study, are expected to have a greater impact on states with individual income taxes.

Following Chen, Kenchington, Peña-Romera, and White (2025), in measuring tax compliance, we emphasize the federal tax filing decision. Taxpayers face challenges in researching relevant tax programs, accessing tax forms, inputting relevant information, and filing tax forms. Thus, a reasonable expectation is that reductions in IRS taxpayer assistance services will lead to a decrease in filing compliance (Alm et al. 2010). Correspondingly, we conduct a difference-in-differences (DID) analysis centered three years pre and post the 2012 staffing reduction event, using income tax filing data at the county level from the IRS's Statistics of Income (SOI) program. We include county-level controls for economic, demographic, and population characteristics as well as county and year fixed effects. To account for the impact of enforcement on compliance, we include a state-level control sourced from the Bureau of Labor Statistics (BLS) for the number of tax examiners, collectors, and revenue agents per 1,000 jobs (Abramova 2024). We find that this BLS measure of enforcement staff is positively associated with compliance. Controlling for this, we observe a 2% decrease in income tax filings for individuals located in states with income taxes.

The 2012 event corresponds with advocacy efforts by the National Treasury Employees Union (NTEU) in opposition to IRS layoffs, where the union disclosed decreases in IRS employee count by state, providing a rare glimpse into state-level impacts of IRS staffing reductions (NTEU 2017a). The decrease in tax filings is stronger in states with greater IRS staffing reductions, providing assurance that the changes we document are linked cross-sectionally with IRS staffing. Consistent with the service paradigms' recognition of the critical role of government enforcement in shaping tax compliance behavior (Alm et al. 2010), we find that the decrease in tax filings is weaker in states with a greater concentration of tax examiners, collectors, and revenue agents.

Next, we explore alternative sources of taxpayer assistance that mitigate the impact of IRS staffing reductions. First, we use a state-level measure sourced from the BLS for the number of tax preparers per 1,000 jobs in each state (Abramova 2024). The decrease in tax filings is weaker in states with a greater concentration of tax preparers, consistent with tax preparers providing taxpayer assistance (Kopczuk and Pop-Eleches 2007). Second, we employ a county-level measure of the number of Taxpayer Assistance Centers (TACs) (Armstrong and Glaeser 2025). The decrease in tax filings is weaker in counties with more TACs, consistent with TAC staff providing valuable taxpayer assistance.² Third, we leverage a county-level measure of residential broadband access from Federal Communications Commission (FCC) filings. The internet facilitates access to taxpayer assistance services through IRS forms, helpful resources such as TeleTax, and responses to commonly asked questions (GAO 1996). The decrease in tax filings is weaker in counties with greater broadband access, consistent with the internet serving as a critical alternative to IRS staff in providing taxpayer assistance services to individuals (Hoopes, Reck, and Slemrod 2015).

In addition to filing compliance, we explore reporting compliance (Alm et al. 2010; Bagchi and Dusek 2021; Belnap, Standridge, Thornock, and Williams 2025). This alternative dependent variable allows us to test for changes in compliance among filers. We find a decrease in reported non-wage income in states with income taxes, consistent with reduced taxpayer assistance services decreasing tax compliance among filers. We document a 7.4% decrease in reported non-wage income, which equates to \$1,018 in unreported income for the average individual taxpayer. In combination with our evidence of a 2% decrease in filing rates, which is equivalent to the loss of a public library (Chen et al. 2025), the economic magnitudes we document suggest sizeable effects.

² In untabulated analysis, we also employ a county-level measure of the number of Voluntary Income Tax Assistance (VITA) sites (Gong and Zhu 2025). The decrease in tax filings is neither weaker nor stronger in counties with more VITA sites, consistent with the narrow scope of VITA (i.e., accounting for only 1 to 2% of federal income tax filings).

To ensure that our inferences are not an artifact of confounding events around 2012 (Baloria and Klassen 2018), we conduct three additional tests. First, we examine the impact of a 5% IRS workforce reduction in 1996 in response to the Federal Workforce Restructuring Act of 1994 as well as the 1996 budget conflict (Jiang, Robinson, and Wang 2020). As with the 2012 event, we document a 1.5% decrease in income tax filings for individuals located in states with income taxes.

Second, we conduct a falsification test where we examine the impact of a 5% workforce reduction executed by the Securities and Exchange Commission (SEC) in 2007, during which IRS staffing levels decreased by less than 1%. As the SEC does not have jurisdiction over individual taxes, we predict and find no decrease in tax filings for individuals in states with income taxes.

Our third test exploits an expansive sample period, 2006 to 2022, over which we measure continuous changes in IRS staffing, as opposed to discrete changes, and exploit detailed data on IRS staffing levels. We find a positive association between IRS staffing and income tax filings for individuals in states with income taxes. We also find a positive association between IRS staffing related to taxpayer assistance (i.e., Filing and Account Services, Prefiling Taxpayer Assistance and Education), enforcement (i.e., Examinations and Collections, Investigations, and Regulatory), as well as technology and operations support and income tax filings for individuals in states with income taxes, suggesting positive return on investment for different IRS staff (Budget Lab 2025)

Collectively, while some of our analysis is consistent with primarily the taxpayer services channel (i.e., cross-sectional tests on tax preparers, TAC sites, access to internet), other analysis is consistent with both enforcement and taxpayer services channels (i.e., staffing reduction by state, cross-sectional test on tax examiners, the 2006 to 2022 sample). Our evidence supports an expanded service paradigm, which recognizes the role of enforcement but emphasizes the role of the tax administration agency (i.e., IRS) as a facilitator and provider of services (Alm et al. 2010).

We identify our main tests by exploiting plausibly exogenous variation in whether states have individual income taxes, under the assumption that individuals in states with individual income taxes are more impacted by IRS staffing reductions. As an alternative approach, we exploit variation in the percentage of IRS staff reductions in each state, which more directly captures the state-level impact of IRS staff reductions, but is less likely to provide plausibly exogenous variation.³ We observe a 1% decrease in income tax filings for individuals located in states where IRS staff cuts are in the top tercile (i.e., more than a 30% reduction of IRS staff within the state).

We offer two primary contributions to extant research. First, while much of the evidence in the individual taxation literature emphasizes IRS enforcement activities (Davis, Hecht, and Perkins 2003), we shed light on an alternative mechanism, taxpayer assistance services, through which IRS staff can impact tax compliance. Our broad-based large sample archival evidence using complementary settings extends prior analytical (Harris, Hoffman, and Saunders 1987; Vossler and Gilpatric 2018), experimental (Alm et al. 2010; Goldin, Homonoff, Javaid, and Schafer 2022), and archival research emphasizing specific taxpayers, including entrepreneurs (Armstrong and Glaeser 2025) and earned income tax credit recipients (Chen et al. 2025; Gong and Zhu 2025).

Second, we contribute to the literature on the impact of government agency (i.e., IRS) resources on taxpayer behavior (Kubick, Lockhart, Mills, and Robinson 2017; Nessa, Schwab, Stomberg, and Towery 2020; Kalmenovitz 2023; Armstrong et al. 2025). While extant research emphasizes corporate exposure to the IRS, we emphasize individual exposure to IRS staffing, answering calls to expand the scope of tax accounting research to critical issues at the intersection of public economics and individual taxation (Blouin 2025; Dyreng, Hoopes, and Maydew 2025).

³ For example, smaller states will mechanically have greater pre-post percentage reductions in IRS staff than larger states due to the small denominator effect (e.g., IRS staff in Delaware decreased from 133 to 78, resulting in a 41% pre-post decline whereas IRS staff in Texas decreased from 10,966 to 9,569, resulting in only a 13% pre-post decline)

2. Institutional Background and Hypothesis Development

2.1 Internal Revenue Service

In 1862, President Lincoln signed a law establishing the Bureau of Internal Revenue (BIR) to fund the Civil War, ultimately becoming the IRS in 1953 as a part of President Truman's reorganization efforts (IRS 2019). The first federal income tax was signed into law in 1913. This event resulted in an increased staff necessary to carry out the IRS mission, so the BIR established a Personal Income Tax Division and Correspondence Unit to answer taxpayers' questions (IRS 2019). Throughout its history, the IRS has relied on workers to carry out a labor-intensive mission.

The IRS has a dual mission as a service organization and law enforcement agency based on its statutory authority (IRS 2025a). As a taxpayer service organization, the IRS collects federal taxes by processing tax returns and issuing tax refunds and it also provides education, guidance, and assistance to taxpayers.⁴ As an enforcement agency, the IRS conducts audits and investigations to detect violations of federal tax law and enforces the law through civil and criminal proceedings.

The literature on taxpayer compliance is generally focused on the impact of IRS enforcement for both corporate and individual income taxes (e.g., Allingham and Sandmo 1972; Yitzhaki 1974; Nessa et al. 2020). Allingham and Sandmo (1972) and Yitzhaki (1974) both develop theoretical models of taxpayer compliance based on the threat of audit and penalties affecting the compliance decision. Consistent with framing non-compliance as criminal tax evasion (Becker 1968), these studies model the noncompliance decision as a function of the likelihood of being

⁴ Beginning with the inception of the federal income tax the BIT recognized the importance of their role in educating, guiding, and assisting taxpayers. For example, the "Four Minute Men" U.S. propaganda campaign to support the World War I war effort, which involved short public speeches supporting the government's effort, were used to explain and encourage compliance with the new federal income tax in the 1910s (IRS 2025a). The precursor to the IRS Taxpayer Assistance Centers were walk-in offices that were opened in the 1950s. In the 1950s, the IRS began the "Teaching Taxes" program that involved mailing teaching kits to high school principals and introduced an updated "Understanding Taxes" program for high school students in 1988. In 1966, the IRS first piloted the toll-free telephone network system for taxpayer assistance. In 1994, the National Technical Information Service launched a Bulletin Board System to make IRS forms and publications available online, which the IRS has expanded through IRS.gov.

caught and the cost versus the expected financial benefit.⁵ Nessa et al. (2020) find in the corporate income tax setting that IRS resources are associated with the extent of enforcement against firms.

Several prior studies suggest that IRS taxpayer assistance services serve an important role by providing taxpayers with valuable information (Alm et al. 2010; Alm 2019; Armstrong and Glaeser 2025). IRS workers provide education, guidance, and assistance through various outlets, including the IRS.gov website, publications, telephone assistance services, and taxpayer assistance centers (TACs). The IRS also supports other organizations through grants to assist taxpayers, with Voluntary Income Tax Assistance (VITA) being a prominent example. Alm et al. (2010) conduct an experiment where they examine the effect of manipulating the level of taxpayer assistance services and audit likelihood. Alm et al. (2010) find that taxpayer assistance services that reduce uncertainty about filing taxes results in increased compliance. Alm et al. (2010) conclude from their results that the exclusive focus in prior tax compliance literature on Becker's (1968) economics of crime is incomplete. The complexity of the federal income tax system results in taxpayer assistance services playing an important role in tax compliance. Alm et al. (2010) thus help move the literature beyond the "enforcement" paradigm and towards the "service" paradigm.

More recently, Armstrong and Glaeser (2025) examine whether the complexity of filing taxes is a barrier to entry in entrepreneurship. TACs are located across the U.S. and provide in-person taxpayer assistance. Armstrong and Glaeser (2025) find that zip codes with TACs are more likely to have new business registrations, suggesting that TACs lower compliance costs that stem from tax complexity. Other studies examine how non-IRS taxpayer assistance lowers the cost of federal tax compliance (e.g., Kopczuk and Pop-Elches 2007; Gunter 2019; Chen et al. 2025). For example, Chen et al. (2025) examine the role of public libraries in encouraging taxpayer

⁵ Davis, Hecht, and Perkins (2003) use an analytical model to demonstrate that compliance varies with enforcement and social norms. Belnap et al. (2025) find that social media acts as a conduit for social norms to impact compliance.

compliance. Public libraries provide internet access to IRS taxpayer services, host instructional seminars on tax compliance, and often host VITA programs. Chen et al. (2025) find that the number of libraries in a zip code is positively associated with individual income tax filings. Gunter (2019) finds that access to internet in a zip code is positively associated with individual income tax filings. Overall, these studies indicate that IRS employees' work, alongside others, on taxpayer assistance services is an important aspect of the IRS mission and aids with encouraging taxpayer compliance.

2.2 IRS Staffing and the 2012 Staffing Reduction Event

IRS resources have varied substantially over time due to several factors including intensive and extensive taxation margin, technological development, executive administration priorities, and politics. Recently, in the first half of 2025, at the beginning of President Trump's administration, the IRS is reported to have reduced its workforce by approximately 25% (FedScoop 2025) and in October 2025, the IRS began furloughing nearly 50% of its remaining staff (i.e., 34,400 out of 74,300 employees) and media reports attribute this to the government shutdown (CNN 2025).

The IRS prepares its budget and evaluates its resources based upon three main categories of spending, including taxpayer services, enforcement, and technology and operations support. The amount of full time equivalent (FTE) employees in each area varies over time. For example, fiscal year 2025 (2026) is budgeted to have 23,001 (34,044), 32,350 (22,303), and 10,371 (4,250) FTE employees in the areas of taxpayer services, enforcement, and technology and operations support, respectively (IRS 2025a). To the best of our knowledge, there is no direct empirical evidence to inform policy deliberations about impacts of IRS staffing on individual taxpayers.

Prior to 2025, the most recent substantial IRS workforce reduction occurred amidst budget cuts in 2012 during President Obama's fourth year in office where there was divided government as the Republican party controlled the U.S. House of Representatives. President Obama signed the

2011 Budget Control Act that led to a decrease in IRS staff beginning in 2012 (Marr and Murray 2016; Kalmenovitz 2023). In Figure 2, we present the number of IRS FTE employees for the period 2009 to 2014 and we identify 2012 as the year with the largest decrease in FTEs (an approximately 5% decrease). The National Treasury Employees Union (NTEU 2017b) in arguing against further layoffs to IRS staff noted, “such cuts would also have a disproportionate impact on middle-class taxpayers who can’t afford to hire their own tax preparers. With thousands of fewer IRS employees, taxpayers needing help to file their returns would have fewer opportunities to obtain free assistance by phone or in person.” Similarly, the National Taxpayer Advocate’s 2012 Annual Report to Congress (National Taxpayer Advocate 2012) indicated that the IRS is substantially reducing the amount and scope of its direct education and outreach to taxpayers, thereby risking increased noncompliance. The 2013 Annual Report to Congress argues that “IRS taxpayer service delivery is deteriorating to a point that will impact voluntary compliance.” The assessment is based on the IRS reporting it projects to only answer 61 percent of calls that year from taxpayers seeking to speak to a live assistor with waiting times approaching 20 minutes. Furthermore, the IRS abandoned report preparation in its walk-in sites, shut down telephone tax law assistance, significantly limited the scope of questions it is willing to answer during filing season, and decreased the overall training budget by 87 percent (National Taxpayer Advocate 2013).

Prior literature uses the 2012 IRS budget cuts as a shock to IRS staff. Armstong et al. (2025) develop a firm-level measure of exposure to government agencies using textual analysis of 10-K filings and show that firm’s exposure to IRS decreases after the 2012 IRS cuts. Kalmenovitz (2023) also develops a measure of firms’ government exposure and identifies a structural break in 2012 in the agency burden of the IRS. Nessa et al. (2020) study corporate tax audits between 2002 and 2017 and find that reductions in IRS resources (inclusive of in 2012) result in lost tax revenue.

2.3 IRS Staffing and Taxpayer Compliance

We expect IRS staffing cuts to decrease both IRS workers that enforce tax laws and that provide taxpayer assistance services. Compliance with the tax code is complicated and costly for individuals and taxpayers often rely on IRS taxpayer assistance services to lower these costs (Alm et al. 2010; Armstrong and Glaeser 2025). IRS budget cuts that decrease the number of workers providing enforcement increase taxpayers' incentive to decrease compliance to reduce tax payments. Additionally, we argue that IRS budget cuts decrease the number of workers providing taxpayer assistance services, thereby contributing to decreased tax compliance. In the IRS's publication *The Strategic Plan 2009-2013* (IRS 2009) the plan's first goal is to improve service to make voluntary compliance easier, implying that the IRS approaches taxpayer services as a key mechanism affecting taxpayer compliance.⁶ The IRS commissioner, Douglas Shulman, indicated in the plan that "We need to excel at both service and enforcement to meet our mission: it isn't an either/or proposition" and "To succeed, we will support these goals by investing in...our people."

The fact that the IRS is a federal agency creates an empirical challenge for analyzing the effects of IRS taxpayer assistance on compliance as IRS developments have national effects. We address this by exploiting cross-sectional variation in compliance costs for taxpayers based on states with and without individual income tax, under the identifying assumption that IRS operational developments have a larger impact on individuals in states with individual income tax.

Our identification strategy comparing states based on whether there is a state income tax provides a plausibly exogenous source of variation because the decision states made to have individual income taxes occurred much earlier than our sample period and were not made in

⁶ The National Taxpayer Advocate's 2013 Annual Report argued that taxpayer services are a significant factor influencing compliance and suggests the IRS adopt a paradigm of tax compliance "that includes a robust, well-funded, well-researched system of taxpayer services, designed to make it easier for taxpayers to comply with the laws."

anticipation of IRS staffing changes in our sample period. The 41 states with income taxes have had them from before 1980, and 37 out of the 41 had an income tax since before 1970 (Tax Foundation 2014). Figure 1 presents a color-coded map of the states based on the existence of an individual income tax. States without income tax are not geographically concentrated or controlled by a single political party, providing both geographical and political variation in control states.

Compliance with federal tax obligations are linked to individuals' decisions about compliance with state income tax obligations (Alm, Erard, and Feinstein 1996). Birskyte (2013) examines how changes in IRS audit rates specifically impact states with income taxes supporting the argument that the IRS has a greater impact in states with income taxes. Kopczuk and Pop-Eleches (2007) examine the impact of the introduction of state electronic filing programs on participation by individual taxpayers in the federal Earned Income Tax Credit (EITC). The authors demonstrate that the IRS's introduction of electronic filing in 1986 encouraged state electronic filing programs, but only in states with individual income taxes, that in turn affected federal tax filing. This connection between state and federal tax obligation compliance is reflected in these states' reliance on IRS functions. For example, Bagchi and Dusek (2021) show how most states with income taxes leverage the IRS income tax withholding programs to adopt their state programs while states without income taxes do not have this reliance on the IRS. Mason (2013) and Birskyte (2013) discuss how state tax departments with individual income taxes reduce their investment in developing expertise in income taxation and rely heavily on the IRS. This suggests that IRS operational developments have a larger impact on these 41 states and that states subject themselves to exogenous shocks triggered by federal tax changes (Liu and Williams 2019; Monahan 2020).

2.4 Hypothesis Development

Individuals residing in individual income tax states must file a state tax return and pay state income tax in addition to their federal income tax obligations. These taxpayers face a higher income tax compliance burden – and thus need for taxpayer assistance – compared to individuals in non-income tax states. Although state tax law differs from federal tax, IRS taxpayer assistance can nevertheless ease the increased compliance burden of state income tax.⁷ Importantly, many states use a taxpayer’s federal adjusted gross income (AGI) or taxable income as a starting point for calculating state income tax (Armstrong and Glaeser 2025). This link between federal and state tax calculation means that support related to federal tax issues can help facilitate a taxpayer’s overall tax compliance. Further, some IRS taxpayer assistance services directly support taxpayers’ state income tax filings. For example, the IRS Volunteer Income Tax Assistance (VITA) program provides free tax help to underserved taxpayers, including preparation of state income tax returns (IRS Publication 4012). Accordingly, we expect that individuals located in states with individual income taxes will respond to the increased burden created by lower taxpayer assistance services by the IRS with higher noncompliance compared to individuals located in states without income taxes. Based on the above arguments, we present our hypothesis, in alternative form, as follows:

Hypothesis: Relative to prior years and to other taxpayers located in states without individual income taxes, taxpayers located in states with individual income taxes decrease federal income tax compliance after the 2012 structural shift in IRS staffing.

We note that our hypothesis is not without tension. First, IRS staffing reductions are motivated by what is described by advocating policymakers as an inflated federal government agency. To the extent that the IRS had overinvested in taxpayer assistance services prior to the

⁷ The psychology literature finds that lower self-efficacy (i.e., belief you can succeed at a specific task) and task aversiveness (i.e., unpleasant tasks) increase the likelihood of a task will not be completed (e.g., Bandura 1977; Steel 2007). Taxpayers with obligations to complete a federal and state return face lower self-efficacy and higher aversiveness compared to those that complete only a federal return. Taxpayer assistance is likely to have a greater impact on improving self-efficacy and decreasing task aversiveness for taxpayers in states with an income tax because taxpayers obligated to file a federal and state tax return are more likely to fail completing their task without assistance.

cuts, we may not observe any impact of IRS staffing cuts on individual income tax compliance. Second, there are several alternative information sources that individual taxpayers could seek out that can potentially substitute for the assistance provided by IRS workers (e.g., internet-based resources, public libraries, professional tax preparers, VITA services). To the extent that these alternative information sources fully mitigate the loss of information due to IRS cuts, we may not observe any impact of IRS staffing cuts on individual income tax compliance. Third, prior research on taxpayer assistance largely finds evidence of a subset of taxpayers being directly impacted, whether it be entrepreneurs (Armstrong and Glaeser 2025), earned income tax credit recipients (Chen et al. 2025; Gong and Zhu 2025), or low-income households (Blaufus, Hechtner, and Milde 2025). It is thus an open question whether the individual taxpayer community at large is directly impacted by a reduction in taxpayer assistance services, and if so, the magnitude of this impact.

3. Research Design and Descriptive Statistics

3.1 Empirical Strategy and Sample Selection

Our empirical strategy combines a discrete IRS workforce reduction event with the existence of a state income tax as a source of subnational variation. Using SOI county-level individual income tax filing data, we conduct a DID analysis of federal individual income tax filings for counties in income tax states (treatment counties) compared to those in non-income tax states (control counties), for the three years before and after 2012 when the IRS workforce reduction event begins (Kalmenovitz 2023). We use county-, rather than state-, level filing data to allow for more powerful tests that can better control for local economic conditions. We control for county-level economic, demographic, and tax enforcement characteristics using data from the SOI, BLS, Bureau of Economic Analysis (BEA), and National Institutes of Health (NIH). We further perform cross-sectional tests based on additional state and county characteristics.

Table 1 presents the sample selection process. We begin with all SOI county-year observations for filing years 2009 through 2014 with populated data for the number of returns filed (N1) and aggregate AGI (A00100). Following Gunter (2019) and Chen et al. (2025), we refer to the filing year as year t , where tax returns filed in year t (e.g., 2012) report tax information from year $t-1$ (e.g., 2011). We delete observations missing control variables, as well as counties for which there is just one observation in the sample period. Our resulting primary sample consists of 18,165 county-year observations, which represent over 3,000 unique counties per year. Sample sizes for some cross-sectional tests are smaller due to data availability of variables of interest.

3.2 Regression Model and Variable Definitions

To examine the compliance effects of reductions to taxpayer assistance services around the 2012 IRS staff reduction event, we estimate the following DID model using ordinary least squares:

$$\begin{aligned}
 Ln_Filers_{cst} = & \beta_0 + \beta_1 State_IIT_{cs} \times Post2012_t + \beta_2 ln_Employment_{cst-1} \\
 & + \beta_3 ln_Establishments_{cst-1} + \beta_4 ln_Wages_{cst-1} \\
 & + \beta_5 ln_Nonwage_income_{cst-1} + \beta_6 ln_Avg_AGI_{cst} + \beta_7 Popgrowth_{cst-2} \\
 & + \beta_8 Examiners_{st} + County\ FE + Year\ FE + \varepsilon_{cst}
 \end{aligned} \tag{1}$$

Ln_Filers is the natural log of one plus the number of tax returns filed in county c in state s during calendar year t . This variable is obtained from county-level SOI data on individual income tax filings. Our independent variable of interest, $State_IIT \times Post2012$, is the interaction of an indicator variable for existence of a state income tax in state s where county c is located with $Post2012$, an indicator variable equal to one for years 2012 and thereafter. $State_IIT$ equals one for counties in any of the 41 states with an individual income tax, and zero for counties in the nine states without (Alaska, Florida, Nevada, New Hampshire, South Dakota, Tennessee, Texas,

Washington, and Wyoming).⁸ *State_IIT* does not vary for a given county during our sample period because no states enacted or repealed an individual income tax during this timeframe.

We include control variables for county-level economic conditions using data from BLS, BEA, and SOI. Following Belnap et al. (2025), we control for four measures of economic income in a county: *ln_Employment*, *ln_Establishments*, *ln_Wages*, and *ln_Nonwage_income*. We obtain data for the first three measures from the Quarterly Census of Employment and Wages (QCEW) administered by the BLS, which reports the total number of employed persons, the total number of business establishments, and the total wages paid in a given county-year. The fourth measure, a proxy for nonwage income, is based on data reported by the BEA. Specifically, we follow Belnap et al. (2025) and calculate nonwage income as total personal income less wages and supplements to wages. These controls for economic conditions are measured in year $t-1$ to align with year $t-1$ tax information being reported on returns filed in year t . We log each of these four measures and include in our model as proxies for economic income in a county. Following Chen et al. (2025), we also control for logged average AGI reported on returns filed in year t in county c (*ln_Avg_AGI*) to control for local income levels. We further control for lagged year-over-year percentage growth in county population (*Popgrowth*) to control for recent population shifts that could affect the number of returns filed in a county. We obtain county-year population data from the NIH's Surveillance, Epidemiology, and End Results (SEER) Program.⁹ To control for the effects of enforcement, we include a state-level control variable for the number of Tax Examiners, Collectors, and Revenue Agents per 1,000 jobs in state s in year t based on BLS Occupational

⁸ Although New Hampshire and Tennessee impose a tax on individuals' interest and dividend income, we follow Moretti and Wilson (2017) and treat these two states as non-income tax states. The interest and dividend income taxes are limited in nature and differ from broader-based income taxes imposed by other states and at the federal level. Tennessee fully repealed its tax on interest and dividends for tax periods beginning on or after January 1, 2021.

⁹ Available at: <https://seer.cancer.gov/popdata/download.html>.

Employment and Wage Statistics (OEWS).¹⁰ Lastly, we include county and year fixed effects to control for time-invariant county characteristics and macroeconomic trends affecting all counties. Appendix A provides definitions of all variables. When estimating Equation (1) we winsorize continuous variables at the 1st and 99th percentiles, and cluster standard errors by state.

We note that in our setting, the plausibly exogenous source of variation comes from the cross-sectional dimension (i.e., states with or without individual income taxes). The time-series dimension we explore (i.e., discrete reduction in IRS staff by 5% in 2012) could suffer more from endogeneity (i.e., timing of IRS cuts are unlikely to be random). We therefore caution readers that our evidence along this time-series dimension should be viewed as more associative, not causal.

3.3 Descriptive Statistics

Table 2 reports descriptive statistics for our sample. 81% of counties in our analysis are in states that impose an individual income tax, and the mean number of individual income tax returns filed at the county level is 38,964. Panel B presents descriptive statistics for counties in states with and without individual income tax. Counties with income tax have less filers, average nonwage income, AGI, and population growth, and a higher concentration of tax examiners compared to counties without income tax. Panel C presents descriptive statistics for pre-treatment versus post-treatment years. Counties in post-2012 years have more filers, higher nonwage income, higher average AGI, lower population growth, and fewer tax examiners compared to years prior to 2012.

4. Primary Results

4.1 Effects of 2012 IRS Staffing Cuts on Filing Compliance

Table 3 presents results from estimating Equation (1) on observations in the six-year window surrounding the 2012 IRS staffing cuts, displaying results without (with) controls in

¹⁰ Available at: <https://www.bls.gov/oes/tables.htm>.

column 1 (2). Results from this event support the hypothesis that IRS staffing cuts decrease individual federal income tax compliance to a greater extent for taxpayers in states with individual income taxes, with treatment counties demonstrating a 2.3% reduction in return filings after the 2012 IRS staff reductions ($p < 0.01$). In terms of economic magnitude, our estimate is in line with the 1-2% change documented in Chen et al. (2025) with respect to gaining and/or losing access to a public library that offers tax assistance through access to internet and VITA sites.¹¹ The significantly positive coefficient on *Examiners* provides evidence that enforcement staff deter noncompliance ($p < 0.10$), and that our effects are incremental to controlling for enforcement staff.

To further support the link between reduced IRS staffing and declines in individual income tax filings, we exploit variation in IRS workforce reductions by state. As part of its advocacy efforts in opposition to the 2012 IRS staffing cuts, the National Treasury Employees Union (NTEU) disclosed decreases in IRS employee count by state (NTEU 2017a). We use this data to create the variable *High_staff_cuts*, which equals one for counties in states where IRS staff cuts are in the top tercile among state IRS layoffs, and zero otherwise. We remove observations in the middle tercile for this empirical analysis. We estimate Equation (1) as a fully interacted model where *High_staff_cuts* is interacted with all independent variables, and present results in column 1 of Table 4.¹² The significantly negative coefficient on $State_IIT \times Post2012 \times High_staff_cuts$ provides evidence that the decrease in tax filings in states with an income tax is stronger in states that experienced greater IRS layoffs as part of the 2012 workforce reduction ($p < 0.01$). This provides assurance that the changes we document are linked cross-sectionally with IRS staffing.

¹¹ We display within R-squared because high county autocorrelations mean that county fixed effects render overall R-squared close to 100 percent in all specifications (Belnap et al. 2025; Chen et al. 2025).

¹² When estimating the cross-sectional tests tabulated in Tables 4, 5, and 7, the cross-sectional variable is fully interacted with all covariates but only the interaction with $State_IIT \times Post$ is tabulated for brevity.

We follow the service paradigm's recognition of the critical role of enforcement in shaping tax compliance (Alm et al. 2010). While our main specification controls for the concentration of tax examiners, collectors, and revenue agents in a state, we further test the enforcement effects of the 2012 IRS workforce reduction event through a cross-sectional test. Using BLS OEWS data, we create the indicator variable *High_examiners*, which equals one for counties located in states where the number of Tax Examiners, Collectors, and Revenue Agents per 1,000 jobs in the state is in the top tercile for year t , and zero if in the bottom tercile. For this analysis, we remove observations in the middle tercile. We estimate Equation (1) as a fully interacted model where *High_examiners* is interacted with all independent variables, and present results in column 2 of Table 4. We exclude the control variable *Examiners* for this analysis. The coefficient on $State_IIT \times Post2012 \times High_examiners$ is significantly positive ($p < 0.05$), suggesting that the decrease in tax filings documented in our primary analysis is weaker in states with greater enforcement staff. Even in an environment with lower taxpayer assistance, enforcement matters (Alm et al. 2010).

4.2 Cross-Sectional Tests: Alternatives for Taxpayer Assistance

We next explore alternative sources of taxpayer assistance that could mitigate the impact of IRS staffing reductions. To the extent taxpayers have greater access to various forms of tax help, we would expect to observe muted effects of IRS staffing cuts on taxpayer compliance.

4.2.1 Tax Preparers

When taxpayers are unable to access tax assistance from the IRS, an alternative source of tax help is from professional tax preparers (Kopczuk and Pop-Eleches 2007). We test the effect of access to tax preparers using data from the BLS OEWS. We create the indicator variable *High_preparers*, which equals one for counties located in states where the number of Tax Preparers per 1,000 jobs in the state is in the top tercile for year t , and zero if in the bottom tercile. For this

analysis, we remove observations in the middle tercile. We estimate Equation (1) as a fully interacted model where *High_preparers* is interacted with all independent variables, and present results in column 1 of Table 5. The coefficient on $State_IIT \times Post2012 \times High_preparers$ is significantly positive ($p < 0.01$), suggesting that the decrease in tax filings documented in our primary analysis is weaker in states where taxpayers have greater access to tax preparers. This is consistent with tax preparers providing taxpayer assistance, partially mitigating loss of IRS help.

4.2.2 Taxpayer Assistance Centers

Our next test of sources of taxpayer help examines the effect of Taxpayer Assistance Centers (TACs), which are part of the IRS portfolio of taxpayer assistance and education programs. The IRS operates TACs across the country to offer in-person tax assistance to taxpayers, such as answering questions about tax law, providing help with forms, and navigating issues with the IRS.

We identify the presence of a TAC in a county based on data from Armstrong and Glaeser (2025), who obtain locations of TAC sites through Freedom of Information Act (FOIA) requests.¹³ We create the indicator variable *High_TAC_sites*, which equals one if a county has two or more TAC sites in year t , and zero otherwise.¹⁴ As tabulated in column 2 of Table 5, the significantly positive coefficient on the interaction of *High_TAC_sites*, with $State_IIT \times Post2012$ ($p < 0.10$) indicates that our documented negative effects of IRS staffing cuts are mitigated in counties that have greater access to TACs. Even as the IRS cut taxpayer assistance staff, taxpayers in counties that maintained a higher number of TAC sites demonstrate a lower drop in income tax filings.

4.2.3 Broadband Access

¹³ Armstrong and Glaeser (2025) examine the direct effect of TACs on entrepreneurship and conduct additional tests using state tax features (i.e., income tax, conformity). In contrast, we examine the direct effect of IRS staffing cuts on compliance using variation in state tax features (i.e., income tax) and conduct additional tests using TACs. Individuals in states with income tax face a higher compliance burden and are more sensitive to IRS staffing cut events we explore.

¹⁴ Because the TAC location data from Armstrong and Glaeser (2025) is only available starting in 2010, but the first year of our sample is 2009, we assume TAC locations are the same in 2009 as they are in 2010. We believe this is reasonable because the process of closing TACs had not begun in earnest as of 2009 (Armstrong and Glaeser 2025).

Our final test on alternative sources of taxpayer help examines the moderating effect of broadband access (Gunter 2019). The internet is another means through which taxpayers can obtain tax information, including information from the IRS website such as tax forms, publications, and answers to frequently asked questions (GAO 1996). We therefore test whether the compliance reductions documented in our primary analysis are weaker for counties with greater broadband access. We measure the extent of residential broadband access in a county using data from Federal Communications Commission (FCC) Form 477, which broadband providers are required to file with the FCC to provide data on their service availability. County-level tier data from Form 477 categorizes counties based on the number of broadband connections of certain speeds per 1,000 housing units. We set the variable *High_broadband* equal to one if a county has more than 400 connections per 1,000 housing units with a downstream speed of at least 200 Kbps, and zero if the county has 400 or fewer connections per 1,000 housing units with the same downstream speed.

We present results from estimating Equation (1) as a fully interacted model in column 3 of Table 5. The significantly positive coefficient on the interaction of *High_broadband* with *State_IIT* \times *Post2012* suggests that the decrease in tax filings in states with an income tax is weaker in counties that have greater access to the broadband ($p < 0.10$). These results are consistent with the internet serving as an alternative to IRS staff in providing taxpayer assistance to taxpayers.

4.3 Effects of 2012 IRS Staffing Cuts on Reporting Compliance

The filing analyses focus on the extensive margin of individual tax compliance, i.e., whether individuals file tax returns. Next, we explore the intensive margin i.e., level of reported income conditional on filing as another aspect of compliance (Erard and Ho 2001). Alm et al. (2010) refer to the former as filing compliance and the latter as reporting compliance. Because the U.S. individual income tax system is self-assessed in nature, individuals are responsible for self-

reporting income on their tax returns. Although certain income sources such as wages are subject to information reporting and withholding requirements to improve compliance, other income types that are not subject to such requirements (e.g., business income) present greater opportunities for underreporting (Bagchi and Dusek 2021; Belnap et al. 2025). We build on the model in Belnap et al. (2025) to assess the extent to which nonwage income on individual returns is underreported:

$$\begin{aligned}
 & \textit{Reported_nonwage_income}_{cst} \\
 &= \beta_0 + \beta_1 \textit{State_IIT}_{cs} \times \textit{Post2012}_t + \beta_2 \ln_ \textit{Employment}_{cst-1} \\
 &+ \beta_3 \ln_ \textit{Establishments}_{cst-1} + \beta_4 \ln_ \textit{Wages}_{cst-1} \\
 &+ \beta_5 \ln_ \textit{Nonwage_income}_{cst-1} + \beta_6 \textit{Examiners}_{st} + \textit{County FE} + \textit{Year FE} \\
 &+ \varepsilon_{cst}
 \end{aligned} \tag{2}$$

The dependent variable, *Reported_nonwage_income*, is the difference between aggregate AGI and aggregate W-2 income reported on returns filed in year t for county c , calculated using SOI data. This measure excludes the income type least likely to be underreported – wages. The control variables *ln_Employment*, *ln_Establishments*, *ln_Wages*, and *ln_Nonwage_income*, as defined previously, capture the extent of county c 's economic income relating to year $t-1$, which aligns with the information reported on returns filed in year t . We control for the concentration of tax examiners in county c in year t to account for the effects of enforcement. Our variable of interest, *State_IIT* \times *Post2012*, captures deviation between reported income and economic income in a county related to the effects of IRS staff cuts in 2012 in states with an individual income tax.

Results from estimating Equation (2) without (with) control variables are reported in Table 6, column 1 (2). We observe a significantly negative coefficient on *State_IIT* \times *Post2012* ($p < 0.05$), consistent with IRS staffing cuts being associated with underreporting of nonwage income among filers. This analysis also provides the opportunity to quantify the economic magnitude of compliance reductions. Based on a 7.4% decrease in reported nonwage income, we estimate a

\$131 billion reduction in annual reported non-wage income nationally, and assuming a marginal tax rate of 25%, a loss of 32.75 billion in tax revenue.¹⁵ In combination with our evidence of a 2.3% decrease in filing rates, the economic magnitudes we document suggest sizeable effects.^{16,17}

5. Additional Analyses

5.1 Effects of 1996 IRS Staffing Cuts on Filing Compliance

To ensure that our inferences are not driven by potential confounding events around 2012, we conduct additional analyses to test our hypothesis in other settings. First, we examine a 5% workforce reduction that took place at the IRS in 1996 in response to the Federal Workforce Restructuring Act of 1994 and the 1996 budget conflict (Jiang et al. 2020). President Clinton took office in 1993 and Newt Gingrich from the opposing party became Speaker of the U.S. House of Representatives in 1995 resulting in a budget fight. President Clinton ultimately signed the Balanced Budget Downpayment Act that appropriated \$7.3 billion for the IRS for fiscal year 1996, which was \$860 million less than requested by President Clinton as well as \$160 million less than the prior year (GAO 1996; Jiang et al. 2020). The cost reductions resulted in a hiring freeze, layoffs, and a voluntary early-out program. The IRS described some of the concerns from the decrease in staff, including a decreased accessibility rate (from IRS answering taxpayer calls) from 20% to 11% compared to the prior year and the closure of many walk-in sites (TACs) that had provided valuable assistance to taxpayers in past years (GAO 1996). As noted by Jiang et al.

¹⁵ At the aggregate level, 7.4% estimated coefficient \times \$585,921,000 sample mean nonwage income \times 3,027 average number of counties in sample per year = \$131 billion in underreported income. \$131 billion in underreported income \times 25% marginal tax rate = \$32.75 billion in tax revenue at the aggregate level. Alternatively, at the individual return level, 7.4% estimated coefficient \times \$13,764 sample mean nonwage income per return = \$1,018 underreported income. \$1,018 in underreported income \times 25% marginal tax rate = \$255 lost tax revenue per individual return.

¹⁶ Nessa et al. (2020) study the impact of a reduction in IRS enforcement resources of the large business & international (LB&I) on corporate audits and note that, “we estimate that the IRS could have increased collections from audited LB&I corporate taxpayers by \$34.3 billion if given an additional \$13.7 billion in overall enforcement resources.”

¹⁷ Belnap et al. (2025) document a 1-2% increase in reported non-wage income due to tax avoidance perception tweets.

(2020), this staff reduction is powerful in that it also coincided with the more general Federal Workforce Restructuring Act of 1994 (FWRA) that had a particularly strong impact on the IRS.

The number of IRS FTE employees (FTEs) decreased by approximately 5% in 1996, which was the largest decrease in FTEs for the period 1993 to 1998. As part of this restructuring, the IRS consolidated seven regional offices to four on October 1, 1995 and consolidated 63 districts to 33 by September 30, 1996 (Tax Notes 1995; IRS 1996; Jiang et al. 2020).¹⁸ This consolidation resulted in a decrease in taxpayer assistance by reducing telephone service sites from 70 to 23, reducing computer centers from twelve to three, and reducing submission processing centers of paper returns from ten to five (Tax Notes 1995). The IRS closed 93 walk-in assistance sites (TACs), reduced the operating hours of some of the 442 sites that remained open, and eliminated free electronic filing at 195 of the sites (IRS 1996). Attributing a decline in taxpayers receiving assistance from the IRS because of this, the IRS indicated that walk-in sites served about 1.7 million taxpayers from January 1st to March 9th in 1996 and that was approximately 16% fewer taxpayers than the same period over the previous year (IRS 1996). The IRS noted that walk-in sites provide various free services, including copies of the more commonly used tax forms and publications, help in preparing tax returns, and answers to tax law questions. Overall, the 1996 IRS staff cut represents a substantial decrease to taxpayer assistance services at the IRS.

We examine the effect of the 1996 IRS staff reduction event on individual income tax filing by estimating Equation (1) on a sample of county-years for the six-year window surrounding 1996. We exclude the control variable *Examiners* due to missing data. Table 7 presents results in column 1. The coefficient on $State_IIT \times Post1996$ suggests that counties in states with an individual

¹⁸ Jiang et al. (2020) use the decrease in IRS staffing as an exogenous shock to the supply of accountants with IRS experience and finds that hiring employees with IRS experience decreases the variance of effective tax rates (ETRs).

income tax experience a 1.5% reduction in federal income tax return filings after the 1996 IRS staffing cuts, relative to counties in non-income tax states ($p < 0.01$), reinforcing results from 2012.

To test for mitigating effects of alternative sources of tax information, we perform a cross-sectional test for the 1996 event based on residential internet access by county. Internet access was much less widespread in 1996 than in 2012 and rapidly spreading in the late 1990s. The National Technical Information Service had started to make IRS forms and publications available online starting in 1994. To measure internet access, we use data from Tolbert and Mossberger (2020) to create the indicator variable *High_internet*, which equals one if the percentage of home internet access in a county in 1998 is in the top tercile, and zero if it is in the bottom tercile.¹⁹ We use 1998 internet access rates because it is the earliest year available in the Tolbert and Mossberger (2020) data. We estimate Equation (1) for the 1993-1998 sample period as a fully interacted model where *High_internet* is interacted with all independent variables, and present results in column 2 of Table 7. Consistent with our findings on broadband access in the 2012 setting, we find a significantly positive coefficient on $State_IIT \times Post1996 \times High_internet$ ($p < 0.05$), suggesting that greater internet access mitigates the negative compliance effects of reductions in IRS taxpayer assistance.

5.2 Falsification Test: Effects of 2007 SEC Staffing Cuts on Filing Compliance

We next perform a falsification test centered around staffing cuts that occurred at another federal agency: the Securities and Exchange Commission (SEC). In 2007, the SEC workforce shrunk by more than 5% due to a hiring freeze while during the same time IRS FTEs decreased by less than one percent (Gravois 2011; Armstrong, Glaeser, and Hoopes 2025).²⁰ Because the SEC has no responsibilities for individual tax filings, we expect to find no effect on tax filings when

¹⁹ The sample size for this test is reduced due to county-level internet connectivity rates being available only for a limited number of counties during this time period. This analysis also excludes observations in the middle tercile.

²⁰ Weber, Xu, and Zhang (2025) detail the budget, staffing, and organizational changes at the SEC around 2007.

using 2007 as the event year. We perform this falsification test by estimating Equation (1) for a 2004-2009 sample period, and use *Post2007* as the post-period indicator variable. As predicted, the coefficient on *State_IIT* \times *Post2007*, shown in Table 7, column 3, is not statistically significant. Thus, around a workforce reduction event for a federal agency other than the IRS, we find no evidence of an effect on individual taxpayer compliance, reinforcing results from the 2012 event.

5.3 2006-2022 Sample Period and Filing Compliance

As an alternative specification, we test the relationship between IRS staffing levels and compliance over the period 2006-2022. Although this analysis is not centered around one identifiable reduction to the IRS workforce, granular SOI data during this period allows us to test detailed IRS staffing categories. In addition to IRS staffing as a whole, the IRS reports FTE positions over this time period for various budget activities that align with the three main spending categories of (1) taxpayer services, (2) enforcement, and (3) technology and operations support. Testing the effect of staffing levels on tax return filings provides an additional opportunity to validate that our conclusions from the 1996 and 2012 events extend to a more recent period.

For our analysis of the 2006-2022 period, we again utilize SOI county-level individual income tax filing data. We examine how IRS staffing levels (at the aggregate level but also at the disaggregated level emphasizing taxpayer services, enforcement, as well as technology and operations staff), interacted with the existence of a state income tax, affect county-level individual income tax return filings. The sample period for this analysis begins in 2006 because this is the earliest year for which staffing data is presented using the current appropriations structure. The sample period ends in 2022, the last year for which SOI individual filing data is currently available. As in our DID regressions, we control for local economic, demographic, and enforcement conditions using SOI, BLS, BEA, and NIH data. We estimate the following OLS regression:

$$\begin{aligned}
Ln_Filers_{cst} = & \beta_0 + \beta_1 State_IIT_{cs} \times IRS_FTEs_t + \beta_2 ln_Employment_{cst-1} \\
& + \beta_3 ln_Establishments_{cst-1} + \beta_4 ln_Wages_{cst-1} \\
& + \beta_5 ln_Nonwage_income_{cst-1} + \beta_6 ln_Avg_AGI_{cst} \\
& + \beta_7 Popgrowth_{cst-2} + \beta_8 Examiners_{st} + County\ FE + Year\ FE \\
& + \varepsilon_{cst}
\end{aligned}
\tag{3}$$

The dependent variable Ln_Filers is defined as above for Equation (1). Our independent variable of interest, $State_IIT \times IRS_FTEs$, is the interaction of an indicator variable for existence of a state income tax in state s where county c is located with a measure of IRS staffing levels (IRS_FTEs). The IRS reports average FTE positions realized under various budget activities in its annual Data Book (IRS 2006-2022). We first replace IRS_FTEs with the natural log of one plus total IRS FTE positions realized in the federal government’s fiscal year t ($ln_IRS_Staffing$), as reported in Data Book Table 33. To then test the effect of staffing within various IRS functions, we replace IRS_FTEs with FTE positions from more detailed spending categories: Taxpayer Services, Enforcement, or Technology and Operations Support. To directly address our focus on taxpayer assistance services, we use the natural log of one plus IRS FTE positions in Taxpayer Services ($ln_TP_services$), which encompasses the Pre-Filing Taxpayer Assistance and Education and Filing and Account Services budget activities.²¹ To examine the critical effect of enforcement as suggested by the service paradigm (Alm et al. 2010), $ln_Enforcement$ is the natural log of one plus IRS FTE positions in the Examinations and Collections, Investigations, and Regulatory budget activities. For completeness, we also create the variable $ln_Support_services$, which includes Information Services, Shared Services, and Business Systems Modernization. We retain the same controls from Equation (1), including county and year fixed effects. When estimating

²¹ The IRS describes Filing and Account Services as including “programs that provide filing and account services to taxpayers, process paper and electronically submitted tax returns, issue refunds, and maintain taxpayer accounts,” while Pre-Filing Taxpayer Assistance and Education includes activities to “assist with tax form preparation, including tax law interpretation, publication, production, and advocate services” (IRS 2025b).

Equation (3) we winsorize continuous county-level variables at the 1st and 99th percentiles, and cluster standard errors by state. Appendix A provides detailed definitions of all variables.

Table 8 presents results for the 2006-2022 sample period. As reported in column 1, there is a significant positive coefficient on the interaction between *State_IIT* and *ln_IRS_Staffing* (coefficient = 0.135, $p < 0.01$). While this indicates that more IRS workers are associated with greater individual federal income tax filing rates in states that impose an income tax, using the total IRS workforce level does not distinguish among the various roles of IRS employees. We therefore turn to the more detailed staffing categories. When we replace *ln_IRS_Staffing* with *ln_TP_services* in column 2 we continue to observe positive effects on individual tax compliance ($p < 0.05$). These results provide direct evidence of the positive effect of taxpayer services IRS staff on individual tax compliance, which is greater in states that also impose an income tax.

As the service paradigm does not replace the enforcement paradigm but rather considers another role for the tax authority in addition to enforcement, we next report results for IRS enforcement staffing levels in column 3. As with the taxpayer services result, the coefficient on *State_IIT* \times *ln_Enforcement* is positive and significant ($p < 0.01$), consistent with IRS enforcement staffing levels promoting individual income tax filing. For completeness we tabulate results for IRS operational support services in column 4, which are also positive and significant ($p < 0.05$), suggesting that the IRS's operational staffing also promotes better outcomes (Budget Lab, 2025).

Taken together, the results from these settings – 1996 IRS staff reduction, 2007 SEC staff reduction, and 2006-2022 IRS staffing levels – confirm our findings from the 2012 IRS staff cuts and provide additional evidence of effects of taxpayer assistance services on tax compliance. While our 2012 event and each of these three settings comes with its own distinct set of strengths and limitations, the collective evidence suggests that taxpayer assistance services is key to compliance.

5.4 Parallel Trends Analysis

To evaluate the parallel trends assumption for our DID analyses, we perform a dynamic analysis in which we modify Equation (1) to include the interaction of *State_IIT* with each year in event time relative to the IRS workforce reduction year. We estimate this dynamic analysis for the 2006-2017 time period and plot the coefficients on the interaction variables in Figure 3, using 2010 as the base comparison year. Although our primary DID analysis of the 2012 event includes only the years 2009-2014, we extend the pre-treatment window to year $t-6$ in this event study specification to better examine potential pre-treatment trends (Hribar, McInnis, and Wang 2025). We also extend the post-treatment window to year $t+6$ in this event study to examine whether 2012 in fact represents a structural shift in IRS resources (Kalmenovitz 2023; Armstrong et al. 2025)

In Figure 3, we observe no significant effects in the years prior to 2010. However, there is some potential evidence that the decrease in tax return filing began in 2011, the year prior to the year identified as the IRS staffing reduction event. Our research design to identify a material IRS staff reduction suitable for a DID analysis requires us to select a specific event year (i.e., 2012) based on the largest percentage staff decrease, but some staffing effects could have preceded these event years. For example, in Figure 2, Panel B (C) we observe some decreases in Taxpayer Services (Prefiling Taxpayer Assistance and Education) FTEs prior to 2012. This reflects attrition and the “by exception-only” hiring freeze implemented by the IRS in late 2010. We thus could observe a decrease in compliance preceding the year 2012 that is still consistent with our baseline arguments.

As strongly recommended by Hribar et al. (2025), we assess the sensitivity of our results to controlling for pre-trends by including a control variable that interacts the treatment variable *State_IIT* with both a trend term and quadratic trend term. Table 9 presents results, which suggest that the negative effect on filing compliance persists even after controlling for potential pre-trends.

5.5 *Alternative Treatment Definition*

In our main tests, the exogenous source of variation is primarily cross-sectional (i.e., whether or not a state has an individual income tax) as opposed to time-series (i.e., the fact that IRS budget cuts occurred specifically in 2012 may be driven by economic and political factors).²² We also provide economic rationale, sourced from the law and economics literature, justifying why operational developments at the IRS, such as the staffing cuts we employ in this study, are expected to have a greater impact on states with individual income taxes (Kopczuk and Pop-Eleches 2007; Birskyte 2013; Mason 2013; Liu and Williams 2019; Monahan 2020; Bagchi and Dusek 2021). Nonetheless, we acknowledge that this rationale is inherently indirect in nature.

To address this specific concern, we leverage rich data sourced from the National Treasury Employees Union (NTEU), where the union disclosed decreases in IRS employee count by state between 2011 and 2016.²³ The percentage of IRS staff reductions at the state-level directly captures the state-level impact of IRS staff reductions but is less likely to represent a plausibly exogenous source of variation (e.g., smaller states will be more likely to have larger percentage declines due to denominator effects). We therefore view this as a complementary approach to our main tests.

We re-estimate Equation (1) on a sample of county-years for the six-year window surrounding 2012 and replace our treatment variable *State_IIT* with *High_staff_cuts*. Table 10 presents the results. The coefficient on *High_staff_cuts* \times *Post2012* suggests that counties in 17 states with top tercile IRS staff reductions (i.e., at least a 30% reduction of IRS staff within the state) experience a 1.0% reduction in federal income tax return filings after the 2012 IRS staffing cuts, relative to counties in the other 33 states ($p < 0.10$), reinforcing results from our main tests.

²² It is not uncommon to have variation that is partly exogenous and partly endogenous. For example, Baloria and Klassen (2018) combine exogenous time-series (i.e., election timing is predetermined) with endogenous cross-sectional (i.e., whether or not a firm is politically connected is based on endogenous firm characteristics) variation.

²³ The national pre-post decline in IRS staff is 21%, from a low of 8% in Tennessee to a high of 41% in Delaware.

6. Conclusion

Government agencies periodically reduce their workforce. In the first half of 2025, the IRS reduced its workforce by approximately 25% and in the second half of 2025, furloughed 50% of its remaining workers. We posit that reductions in IRS staffing negatively impact taxpayer assistance services, whereby individual taxpayers lose access to information that aids them in filing income taxes. We expect individuals from states with income taxes to be more impacted by IRS operational decisions. We find that 5% workforce reductions executed by the IRS in 2012 result in 2% lower tax filings in states with income taxes, after controlling for level of enforcement staff. This decrease in tax filing is higher in states with more IRS worker reduction. The decrease in tax filings is mitigated in states with greater access to tax preparers, more taxpayer assistance centers, and in counties with broader access to the internet, which serve as an alternative source of taxpayer information. We find that the decrease in tax filings is weaker in states with more tax examiners and collectors, suggesting that enforcement deters noncompliance. We corroborate the event study inferences using a similar IRS staff reduction in 1996, as well as a 2006-2022 sample period over which we measure continuous changes in IRS staff levels. We find that IRS taxpayer assistance staffing is positively associated with individual income tax compliance in states with income taxes.

We contribute to an emerging literature on taxpayer assistance by demonstrating that the IRS can impact tax compliance not only through enforcement but also through taxpayer services. We use rich data at the county and state level to study individual income tax compliance behavior in response to IRS staffing reductions. Our findings answer calls for tax accounting research to extend its focus to questions at the intersection of accounting, public economics, and individual taxes. Our evidence could inform policy makers in determining optimal IRS staffing levels, and is timely, considering ongoing deliberations on the impact of IRS staffing on income tax collection.

References

- Abramova, I. 2024. Labor supply and M&A in the audit market. *Journal of Accounting & Economics*, 78: 101700.
- Allingham, M., & Sandmo, A. 1972. Income tax evasion: A theoretical analysis. *Journal of Public Economics*, 1: 323-338.
- Alm, J. 2019. What motivates tax compliance? *Journal of Economic Surveys*, 33; 353-388.
- Alm, J., Cherry, T., Jones, M., & McKee, M. 2010. Taxpayer information assistance services and tax compliance behavior. *Journal of Economic Psychology*, 31: 577-586.
- Alm, J., Erard, B., & Feinstein, J. 1996. The relationship between state and federal tax audits. Chapter in *Empirical Foundations of Household Taxation*, University of Chicago Press.
- Alm, J., McCelland, G., & Schultze, W. 1992. Why do people pay taxes? *Journal of Public Economics*, 48: 21-38.
- Armstrong, D., & Glaeser, S. 2025. Does taxpayer assistance encourage entrepreneurship? *Journal of Accounting & Economics*, Forthcoming.
- Armstrong, D., Glaeser, S., & Hoopes, J. 2025. Measuring firm exposure to government agencies. *Journal of Accounting & Economics*, 79: 101703.
- Bagchi, S., & Dusek, L. 2021. The effect of introducing withholding and third-party reporting on tax collections: Evidence from the U.S. state personal income tax. *Journal of Public Economics*, 204: 104537.
- Baloria, V., & Klassen, K. 2018. Supporting tax policy change through accounting discretion: Evidence from the 2012 elections. *Management Science*, 64: 4893-4914.
- Bandura, A. 1977. Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2): 191–215.
- Becker, G. 1968. Crime and punishment: An economic approach. *Journal of Political Economy*, 76: 169-217.
- Belnap, A., Standridge, K., Thornock, J., & Williams, B. 2025. Social tax avoidance. Working paper, University of Texas Austin, University of Utah, and Brigham Young University.
- Birskyte, L. 2013. Effects of tax auditing: Does the deterrent deter? *Research Journal of Economics, Business, and ICT*, 8: 1-8.
- Blaufus, K., Hechtner, F., & Milde, M. 2025. How does improved tax administration service quality affect taxpayer behavior. Working paper, Leibniz Universität Hannover.

- Blouin, J. 2025. Firms' real and reporting response to taxation: A discussion. *Journal of Accounting & Economics*, 80: 101836.
- Chen, S., Kenchington, D., Peña-Romera, F., & White, R. 2025. Do public libraries play a role in tax filings and earned income tax credit uptake? Working paper, Arizona State University.
- CNN. 2025. IRS furloughs nearly half of its staff amid shutdown, prompting chaos and confusion. Retrieved from: <https://www.cnn.com/2025/10/09/politics/irs-furloughs-government-shutdown>
- Cureton, J. 2025. On tax day, Reject DOGE-led cuts to the IRS workforce and budget. Center for Budget and Policy Priorities. Policy brief.
- Davis, J.S., Hecht, G., & Perkins, J.D. 2003. Social behaviors, compliance, and tax compliance dynamics. *The Accounting Review*, 78: 39-69.
- Dyreng, S., Hoopes, J., & Maydew, E. 2025. The scope of tax accounting research. *Journal of the American Taxation Association*, Forthcoming.
- Erard, B., & Ho, C. 2001. Search for ghosts: Who are the non-filers and how much tax do they owe? *Journal of Public Economics*, 81: 25-50.
- Federal Communications Commission (FCC). 2009-2014. Form 477 County Data on Internet Access Services. Retrieved from: <https://www.fcc.gov/form-477-county-data-internet-access-services>.
- FedScoop. 2025. ITS has lost 25% of its workforce since Trump took office, watchdog finds. Retrieved from: <https://fedscoop.com/irs-workforce-cuts-it-staff-report/>
- Goldin, J., Homonoff, T., Javaid, R., & Schafer, B. 2022. Tax filing and take-up: Experimental evidence on tax preparation outreach and benefit claiming. *Journal of Public Economics*, 104550.
- Gong, P., & Zhu, C. 2025. Do government provided free tax services promote public financial literacy? The impact of taxpayer assistance centers on EITC Claims. Yale and Wharton.
- Government Accountability Office (GAO). 1996. Tax Administration: IRS's Fiscal Year 1996 and 1997 Budget Issues and the 1996 Filing Season. Retrieved from: <https://www.govinfo.gov/content/pkg/GAOREPORTS-T-GGD-96-99/html/GAOREPORTS-T-GGD-96-99.htm>
- Government Executive. 2025. IRS is cancelling its layoff plans, will ask some it fired or pushed out to return. Retrieved from: <https://www.govexec.com/workforce/2025/08/irs-canceling-its-layoff-plans-will-ask-some-it-fired-or-pushed-out-return/407620/>

- Gravois, J. 2011. More bureaucrats, please. *Washington Monthly*. Retrieved from: <https://washingtonmonthly.com/2011/03/09/more-bureaucrats-please/>
- Gunter, S. R. 2019. Your biggest refund, guaranteed? Internet access, tax filing method, and reported tax liability. *International Tax and Public Finance*, 26(3), 536–570.
- Harris, C., Hoffman, K., & Saunders, P. 1987. Modeling the IRS telephone taxpayer information system. *Operations Research*, 35: 504-523.
- Hoopes, J., Reck, D., & Slemrod, J. 2015. Taxpayer search for information: Implications for rational attention. *American Economic Journal: Economic Policy*, 7: 177-208.
- Hribar, P., McInnis, J., & Wang, A. 2025. Trends in accounting research. Working paper, University of Iowa and University of Texas – Austin.
- Internal Revenue Service (IRS). 1993-2022. *Internal Revenue Service Statistics of Income Data Book*. Retrieved from: <https://www.irs.gov/statistics/soi-tax-stats-all-years-irs-data-books>.
- Internal Revenue Service (IRS). 1996. Tax administration: IRS's fiscal year 1996 and 1997 budget issues and the 1996 filing season. Retrieved from: <https://www.gpo.gov/fdsys/pkg/GAOREPORTS-T-GGD-96-99/html/GAOREPORTS-T-GGD-96-99.htm>
- Internal Revenue Service (IRS). 2009. The Strategic Plan 2009-2013. Retrieved from: <https://www.naepcjournal.org/journal/issue061.pdf>
- Internal Revenue Service (IRS). 2019. IRS History Timeline. Retrieved from: https://www.irs.gov/pub/newsroom/irs-history-timeline_march-2019.pdf
- Internal Revenue Service (IRS). 2024. *Publication 4012: VITA/TCE Volunteer Resource Guide*. Retrieved from: [irs.gov/pub/irs-access/p4012_accessible.pdf#page=2.04](https://www.irs.gov/pub/irs-access/p4012_accessible.pdf#page=2.04).
- Internal Revenue Service (IRS). 2025a. The agency, its mission and statutory authority. Retrieved from: <https://www.irs.gov/about-irs/the-agency-its-mission-and-statutory-authority>.
- Internal Revenue Service (IRS). 2025b. *Publication 5530: Budget in Brief*. Retrieved from: [irs.gov/pub/irs-pdf/p5530.pdf#page=5.17](https://www.irs.gov/pub/irs-pdf/p5530.pdf#page=5.17).
- Jiang, J., Robinson, J., & Wang, M. 2020. Sleeping with the enemy: Taxes and former IRS employees. Working paper, Michigan State University, Texas A&M University, and University of International Business and Economics.
- Kalmenovitz, J. 2023. Regulatory intensity and firm-specific exposure. *Review of Financial Studies*, 36: 3311-3347.

- Kopczuk, W., & Pop-Eleches, C. 2007. Electronic filing, tax preparers, and participation in the earned income tax credit. *Journal of Public Economics*, 91: 1351-1367.
- Kubick, T., Lockhart, G., Mills, L., & Robinson, J. 2017. IRS and corporate taxpayer effects of geographic proximity. *Journal of Accounting & Economics*, 63: 428-453.
- Liu, C., & Williams, N. 2019. State-level implications of federal tax policies. *Journal of Monetary Economics*, 105: 74-90.
- Marr, C., & Murray, C. 2016. IRS funding cuts compromise taxpayer service and weaken enforcement. Working paper, Center on Budget and Policy Priorities.
- Mason, R. 2013. Delegating up: State conformity with the federal tax base. *Duke Law Journal*, 62: 1267-1348.
- Monahan, A. 2020. State individual income tax conformity in practice: Evidence from the Tax Cuts & Jobs Act. *Columbia Journal of Tax Law Review*, 11: 57-102.
- Moretti, E. and D.J. Wilson. 2017. The Effect of State Taxes on the Geographical Location of Top Earners: Evidence from Star Scientists. *American Economic Review* 107(7): 1858-1903.
- National Taxpayer Advocate (NTA). 2012. *2012 Annual Report to Congress*. Retrieved from: <https://www.taxpayeradvocate.irs.gov/reports/2012-annual-report-to-congress/full-report>.
- National Taxpayer Advocate (NTA). 2013. *2013 Annual Report to Congress*. Retrieved from: <https://www.taxpayeradvocate.irs.gov/reports/2013-annual-report-to-congress/full-report>.
- National Treasury Employees Union (NTEU). 2017a. IRS employee count by state, 2011-2016. Retrieved from: <https://www.nteu.org/media-center/news-releases/2017/02/28/~media/FFE1078DE484407387BA2A33E69347FE.ashx>
- National Treasury Employees Union (NTEU). 2017b. Proposed budget cuts harmful to taxpayers, federal employees. Retrieved from: <https://www.nteu.org/media-center/news-releases/2017/02/28/proposed-budget-cuts-harmful-to-taxpayer>
- Nessa, M., Schwab, C. Stomberg, B., & Towery, E. 2020. How do IRS resources affect the corporate audit process? *The Accounting Review*, 95: 311-338.
- Steel, P. 2007. The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin*, 133(1): 65-94.
- Tax Foundation. 2014. "When Did Your State Adopt Its Income Tax?" *Tax Foundation*, June 10, 2014. <https://taxfoundation.org/data/all/state/when-did-your-state-adopt-its-income-tax/>

- Tax Notes. 1995. IRS announces major field office reorganization. Retrieved from: <https://www.taxnotes.com/research/federal/other-documents/irs-news-releases/irs-announces-major-field-office-reorganization/13b5q>
- Tolbert, C., Mossberger, K. 2020. U.S. current population survey & American community survey geographic estimates of internet use, 1997-2018. Arizona State University.
- The Budget Lab - Yale. The revenue and distributional effects of IRS funding. Retrieved from: <https://budgetlab.yale.edu/research/revenue-and-distributional-effects-irs-funding>
- Vossler, C., & Gilpatric, S. 2018. Endogenous audits, uncertainty, and taxpayer assistance services: Theory and experiments. *Journal of Public Economics*, 165: 217-229.
- Waggoner, M. 2025. Is the IRS just between shutdowns? Former IRS commissioners are worried. Retrieved from: <https://www.journalofaccountancy.com/news/2025/nov/is-the-irs-just-between-shutdowns-former-irs-commissioners-are-worried/>
- Weber, D., Xu, N., & Zhang, K. 2025. SEC scrutiny and corporate risk-taking. *Journal of Accounting & Economics*, Forthcoming.
- Yitzhaki, S. 1974. A note on income tax evasion: A theoretical analysis. *Journal of Public Economics*, 3: 201-202.

Appendix A Variable Definitions

Variable Name	Description
Dependent Variables	
<i>ln Filers</i>	Natural log of one plus the number of individual income tax returns (N1) filed in county <i>c</i> in year <i>t</i> . Source: SOI County Data.
<i>ln Reported nonwage income</i>	Natural log of one plus total reported adjusted gross income less W-2 income (i.e., A00100-A00200) for returns filed in county <i>c</i> in year <i>t</i> . Source: SOI County Data.
Independent Variables	
<i>High staff cuts</i>	Indicator variable equal to one if 2012 IRS staff layoffs in the state are in the top tercile among state IRS layoffs; zero otherwise. Source: NTEU (2017a).
<i>Examiners</i>	The state-level number of Tax Examiners and Collectors and Revenue Agents per 1,000 jobs, in year <i>t</i> . Source: BLS Occupational Employment and Wage Statistics.
<i>High broadband</i>	Indicator variable equal to one if county <i>c</i> has >400 connections per 1,000 housing units with a downstream speed of at least 200 Kbps, zero if the county has ≤400 connections per 1,000 housing units with a downstream speed of at least 200 Kbps, in year <i>t</i> . Source: FCC Form 477.
<i>High examiners</i>	Indicator variable equal to one if county <i>c</i> is located in a state where the number of Tax Examiners and Collectors and Revenue Agents per 1,000 jobs in the state is in the top tercile for year <i>t</i> ; zero if in the bottom tercile. Source: BLS Occupational Employment and Wage Statistics.
<i>High internet</i>	Indicator variable equal to one if the 1998 percentage of home internet access in county <i>c</i> is in the top tercile, zero if in the bottom tercile. Source: Tolbert and Mossberger (2020).
<i>High preparers</i>	Indicator variable equal to one if county <i>c</i> is located in a state where the number of Tax Preparers per 1,000 jobs in the state is in the top tercile for year <i>t</i> ; zero if in the bottom tercile. Source: BLS Occupational Employment and Wage Statistics.
<i>High TAC sites</i>	Indicator variable equal to one if county <i>c</i> has two or more TAC sites in year <i>t</i> ; zero otherwise. 2009 TAC sites are backfilled with 2010 data. Source: Armstrong and Glaeser (2025).
<i>ln Avg AGI</i>	Natural log of one plus average AGI reported on returns filed in county <i>c</i> in year <i>t</i> . Source: SOI County Data.
<i>ln Employment</i>	Natural log of one plus the total employment in county <i>c</i> in year <i>t-1</i> . Source: QCEW.
<i>ln Establishments</i>	Natural log of one plus the number of establishments in county <i>c</i> in year <i>t-1</i> . Source: QCEW.
<i>ln Enforcement</i>	Natural log of one plus IRS full-time equivalent positions in Examinations & Collections, Investigations, and Regulatory during the federal government's fiscal year <i>t</i> (10/1/ <i>t-1</i> to 9/30/ <i>t</i>). Source: IRS Data Book, Table 30, 32, or 34 (depending on year).
<i>ln IRS Staffing</i>	Natural log of one plus IRS full-time equivalent positions during the federal government's fiscal year <i>t</i> (10/1/ <i>t-1</i> to 9/30/ <i>t</i>). Source: IRS Data Book, Table 33.

<i>ln Nonwage income</i>	Natural log of county c 's total personal income minus its wages and supplements to wages in year $t-1$ (i.e., using the CAINC4 file, line code 10 minus line code 50 and line code 60). Source: BEA.
<i>ln Support services</i>	Natural log of one plus IRS full-time equivalent positions in Information Services, Shared Services, and Business Systems Modernization during the federal government's fiscal year t (10/1/ $t-1$ to 9/30/ t). Source: IRS Data Book, Table 30, 32, or 34 (depending on year).
<i>ln TP services</i>	Natural log of one plus IRS full-time equivalent positions in Prefiling Taxpayer Assistance & Education and Filing & Account Services during the federal government's fiscal year t (10/1/ $t-1$ to 9/30/ t). Source: IRS Data Book, Table 30, 32, or 34 (depending on year).
<i>ln Wages</i>	Natural log of one plus the total wages paid in county c in year $t-1$. Source: QCEW.
<i>Popgrowth</i>	Year-over-year percentage growth in county c 's population, lagged by two years. Source: NIH Surveillance, Epidemiology, and End Results (SEER) Program.
<i>Post1996</i>	Indicator variable equal to one for years 1996 and thereafter; zero otherwise
<i>Post2007</i>	Indicator variable equal to one for years 2007 and thereafter; zero otherwise
<i>Post2012</i>	Indicator variable equal to one for years 2012 and thereafter; zero otherwise
<i>State IIT</i>	Indicator variable equal to one if county c is located in a state that imposes an individual income tax; zero otherwise

Figure 1
States With and Without State Individual Income Tax

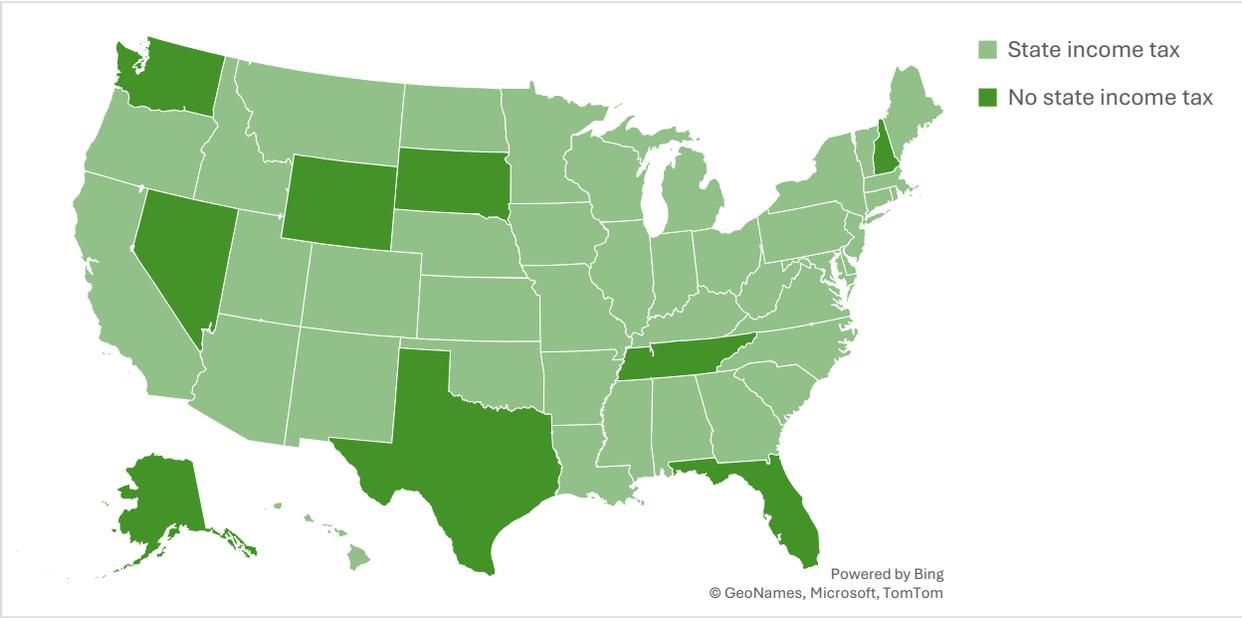
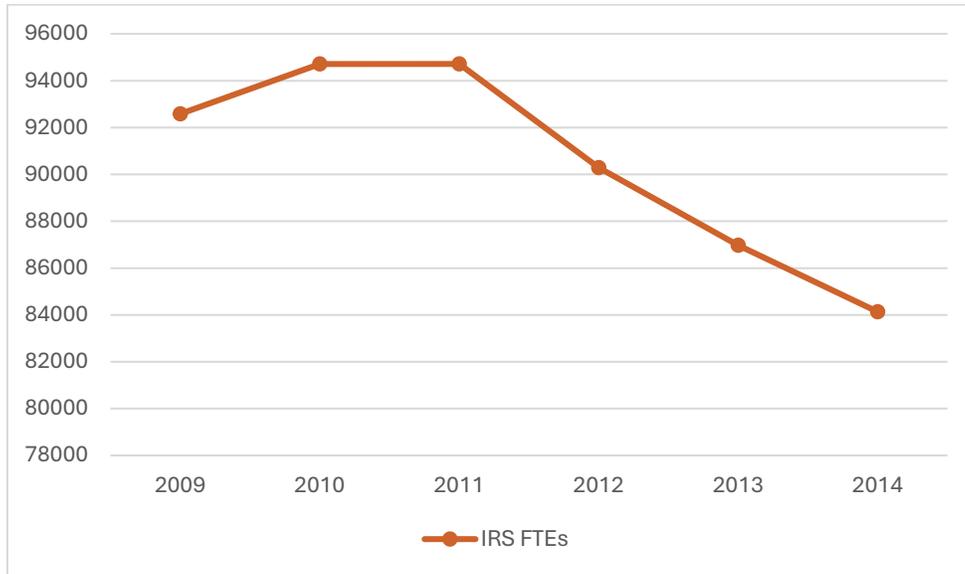


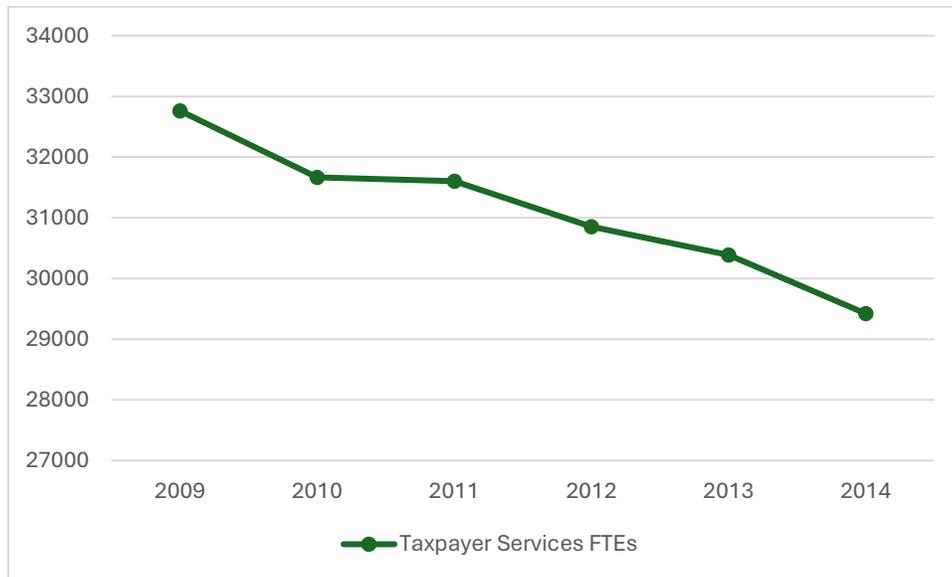
Figure 1 illustrates which states do or do not impose an income tax on individuals. For a given state, the (non-) existence of state individual income tax is constant throughout all years in our study.

Figure 2
IRS Full-time Equivalent Positions Around 2012 IRS Staffing Event

Panel A: IRS FTEs



Panel B: Taxpayer Services FTEs



Panel C: Prefiling Taxpayer Assistance and Education FTEs

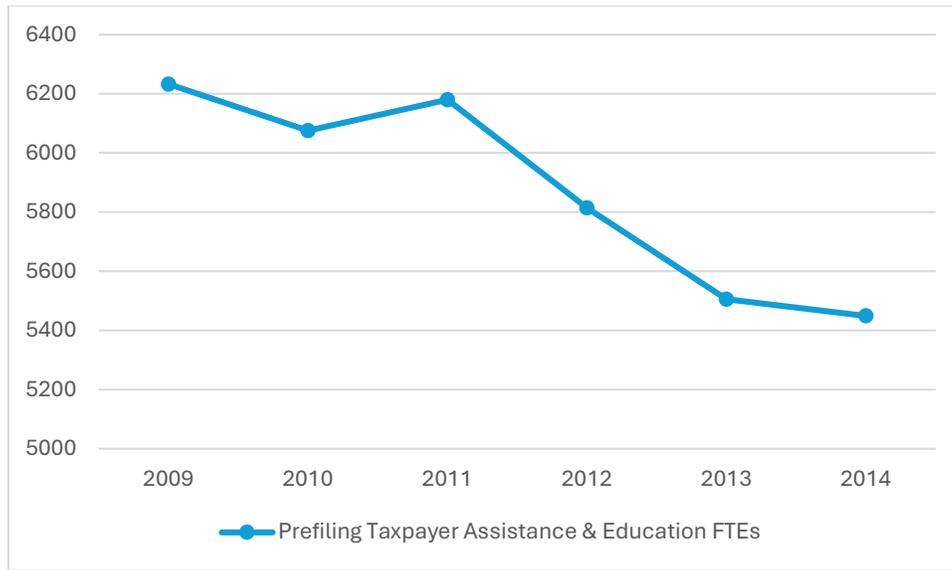


Figure 2 plots average IRS full-time equivalent (FTE) positions realized for each fiscal year in our sample period around the 2012 IRS staffing event. Panel A reflects total IRS FTE positions. Panel B reflects FTE positions with the type “Taxpayer Services,” which is a subset of total IRS FTE positions. Panel C reflects FTE positions with the type “Prefiling Taxpayer Assistance and Education,” which is a subset of Taxpayer Services positions. Sources: IRS SOI Data Books 2009-2014, Tables 30 and 33.

Figure 3
Dynamic Analysis Around 2012 IRS Staffing Event

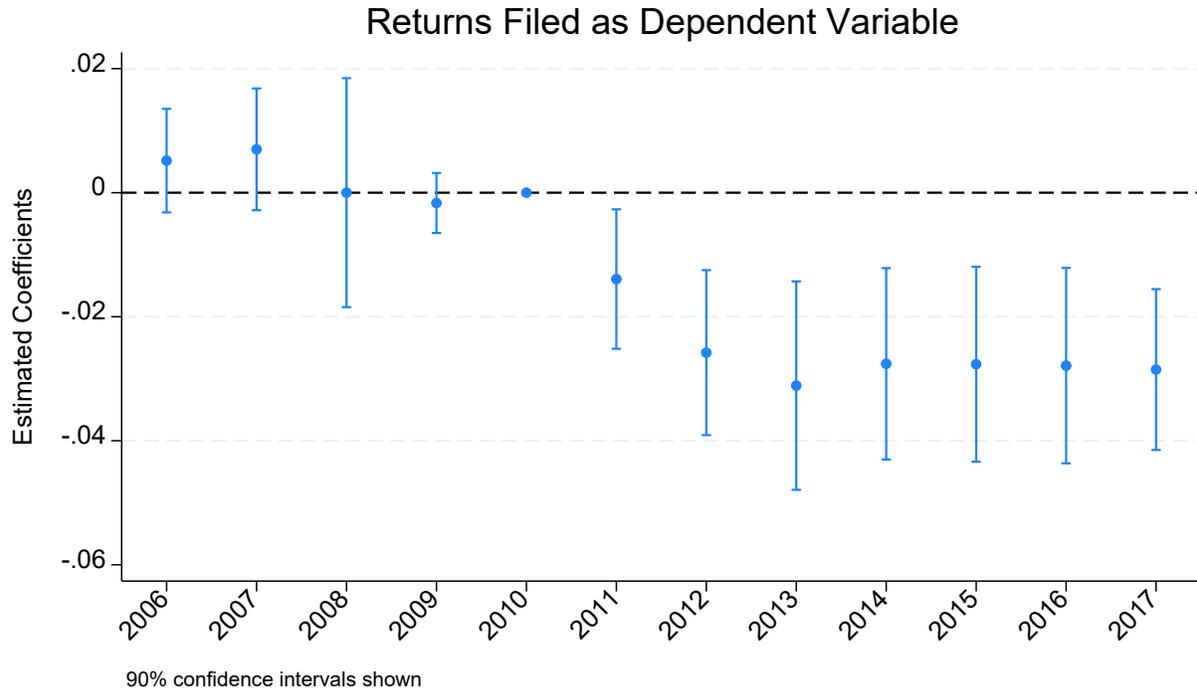


Figure 3 plots results of estimating Equation (1), modified to include the interaction of *State_IIT* with each year in event time relative to the 2012 IRS staff reduction event. 2010 serves as the base comparison year. For each year, the point estimate for the coefficient on the interaction between *State_IIT* and the relative year is shown with its 90 percent confidence interval. We extend the pre-treatment window in this analysis to year $t-6$ to better examine potential pre-treatment trends (Hribar, McInnis, and Wang 2025) and the post-treatment window to year $t+6$ to assess whether the event reflects a structural shift in IRS resource levels (Kalmenovitz 2023; Armstrong, Glaeser, and Hoopes 2025). All variables are defined in Appendix A.

Table 1
Sample Selection

SOI county-year observations with populated number of returns filed and AGI for filing years 2009-2014	18,682
Less: observations missing control variables	(516)
Less: singleton observations excluded from fixed effects models	(1)
2009-2014 County-Year Sample	18,165

Table 1 summarizes the sample selection process for our primary county-year sample.

Table 2
Descriptive Statistics

Panel A: 2009-2014 Sample period

Variable	N	Mean	Std Dev	25th Pctl	50th Pctl	75th Pctl
<i>State_IIT</i>	18,165	0.81	0.39	1.00	1.00	1.00
<i>Filers</i>	18,165	38,964	86,892	4,570	10,700	28,599
<i>Reported_nonwage_income (1000's)</i>	18,165	585,921	1,460,299	53,605	130,366	377,487
<i>Employment</i>	18,165	35,542	87,367	3,109	8,073	23,232
<i>Establishments</i>	18,165	2,329	5,390	281	629	1,646
<i>Wages (1000's)</i>	18,165	1,556,865	4,407,451	94,925	262,110	845,897
<i>Nonwage_income (1000's)</i>	18,165	1,439,419	3,077,096	207,806	444,456	1,100,136
<i>Avg_AGI (1000's)</i>	18,165	46.72	11.44	39.18	44.57	51.45
<i>Popgrowth</i>	18,165	0.003	0.012	-0.005	0.002	0.009
<i>Examiners</i>	18,165	0.483	0.268	0.312	0.410	0.602

Panel B: Descriptives split on county treatment status

Variable	State_IIT = 0						State_IIT = 1					
	N	Mean	Std Dev	25th Pctl	50th Pctl	75th Pctl	N	Mean	Std Dev	25th Pctl	50th Pctl	75th Pctl
<i>Filers</i>	3,464	41,270	97,695	3,214	8,909	25,813	14,701	38,420	84,140	4,930	11,120	29,195
<i>Reported_nonwage_income (1000's)</i>	3,464	644,173	1,614,714	42,041	110,664	384,769	14,701	572,195	1,421,186	56,829	134,183	376,074
<i>Employment</i>	3,464	36,421	95,899	2,270	6,709	19,666	14,701	35,335	85,235	3,294	8,366	24,261
<i>Establishments</i>	3,464	2,413	5,903	216	507	1,432	14,701	2,310	5,262	307	656	1,685
<i>Wages (1000's)</i>	3,464	1,577,767	4,692,892	72,539	233,646	729,610	14,701	1,551,940	4,337,611	100,766	273,350	876,402
<i>Nonwage_income (1000's)</i>	3,464	1,608,011	3,519,793	150,785	383,731	1,169,559	14,701	1,399,693	2,961,908	219,983	453,444	1,088,380
<i>Avg_AGI (1000's)</i>	3,464	48.11	12.42	39.69	45.63	53.83	14,701	46.40	11.17	39.09	44.35	50.94
<i>Popgrowth</i>	3,464	0.006	0.014	-0.003	0.005	0.013	14,701	0.002	0.012	-0.005	0.001	0.008
<i>Examiners</i>	3,464	0.454	0.145	0.369	0.410	0.547	14,701	0.490	0.289	0.300	0.407	0.640

Panel C: Descriptives split on pre- and post-2012

Variable	Post2012 = 0						Post2012 = 1					
	N	Mean	Std Dev	25th Pctl	50th Pctl	75th Pctl	N	Mean	Std Dev	25th Pctl	50th Pctl	75th Pctl
<i>State_IIT</i>	9,008	0.81	0.39	1.00	1.00	1.00	9,157	0.81	0.39	1.00	1.00	1.00
<i>Filers</i>	9,008	37,230	83,615	4,452	10,408	27,666	9,157	40,669	89,972	4,680	10,975	29,546
<i>Reported_nonwage_income (1000's)</i>	9,008	515,151	1,310,982	47,902	117,317	338,993	9,157	655,540	1,590,596	59,717	143,312	422,892
<i>Employment</i>	9,008	35,477	86,982	3,134	8,181	23,425	9,157	35,606	87,749	3,076	7,965	22,888
<i>Establishments</i>	9,008	2,333	5,373	285	641	1,679	9,157	2,325	5,407	278	619	1,622
<i>Wages (1000's)</i>	9,008	1,513,083	4,308,142	93,106	257,192	829,175	9,157	1,599,935	4,502,827	96,645	267,378	868,737
<i>Nonwage_income (1000's)</i>	9,008	1,355,443	2,951,127	193,648	417,822	1,038,728	9,157	1,522,028	3,194,183	222,195	471,666	1,169,955
<i>Avg_AGI (1000's)</i>	9,008	45.47	10.85	38.38	43.58	49.97	9,157	47.95	11.86	40.12	45.59	52.86
<i>Popgrowth</i>	9,008	0.005	0.013	-0.003	0.003	0.011	9,157	0.001	0.012	-0.006	0.000	0.007
<i>Examiners</i>	9,008	0.509	0.284	0.312	0.434	0.654	9,157	0.457	0.248	0.307	0.392	0.566

Table 2 presents descriptive statistics for county-year observations in our primary 2009-2014 sample. Panel A presents overall descriptives for the sample, Panel B presents descriptives split by county treatment status, and Panel C presents descriptives split by pre- and post-period. Variables that are not indicators or percentages are presented in unlogged form. All variables are defined in Appendix A.

Table 3
Difference-in-Differences Analysis: 2012 IRS Staff Reduction Event

VARIABLES	(1) <i>ln Filers</i>	(2) <i>ln Filers</i>
<i>State_IIT</i> × <i>Post2012</i>	-0.028*** (-3.37)	-0.023*** (-3.51)
<i>ln_Employment</i>		0.111** (2.40)
<i>ln_Establishments</i>		0.102** (2.64)
<i>ln_Wages</i>		0.039 (1.66)
<i>ln_Nonwage_income</i>		0.038*** (5.88)
<i>ln_Avg_AGI</i>		-0.036 (-1.67)
<i>Popgrowth</i>		0.005 (0.06)
<i>Examiners</i>		0.024* (1.77)
Constant	9.420*** (2,788.82)	6.605*** (20.18)
Observations	18,165	18,165
Within R-squared	0.0187	0.0816
Fixed Effects	County & Year	County & Year
Cluster	State	State

Table 3 presents multivariate estimates from Equation (1) without (with) control variables in column 1 (2). All variables are defined in Appendix A. All analyses include indicated fixed effects and cluster standard errors by state. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance level, respectively.

Table 4
Heterogeneity in Staffing Cuts and Enforcement Staff

VARIABLES	(1) <i>ln Filers</i>	(2) <i>ln Filers</i>
<i>State_IIT</i> × <i>Post2012</i>	-0.016* (-1.83)	-0.055*** (-3.07)
<i>State_IIT</i> × <i>Post2012</i> × <i>High_staff_cuts</i>	-0.037*** (-3.03)	
<i>State_IIT</i> × <i>Post2012</i> × <i>High_examiners</i>		0.041** (2.10)
<i>High_examiners</i>		0.525 (1.22)
<i>ln_Employment</i>	0.105* (1.88)	0.013 (0.20)
<i>ln_Establishments</i>	0.111 (1.51)	0.143*** (3.51)
<i>ln_Wages</i>	0.022 (1.17)	0.090** (2.04)
<i>ln_Nonwage_income</i>	0.038*** (6.10)	0.026*** (3.00)
<i>ln_Avg_AGI</i>	0.022* (1.74)	-0.047** (-2.30)
<i>Popgrowth</i>	-0.088 (-0.92)	0.076 (0.71)
<i>Examiners</i>	-0.025 (-0.52)	
Constant	6.692*** (16.38)	6.537*** (15.94)
Observations	12,713	10,805
Within R-squared	0.162	0.161
Fixed Effects	County & Year	County & Year
Cluster	State	State

Table 4 presents cross-sectional analyses of Equation (1) based on state-level variation in IRS staffing cuts (column 1) or tax examiners (column 2). In each regression, the cross-sectional variable (*High_staff_cuts* or *High_examiners*) is fully interacted with all covariates but only the interaction with *State_IIT* × *Post2012* is tabulated for brevity. All variables are defined in Appendix A. All analyses include indicated fixed effects and cluster standard errors by state. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance level, respectively.

Table 5
Heterogeneity in Availability of Taxpayer Assistance

VARIABLES	(1) <i>ln Filers</i>	(2) <i>ln Filers</i>	(3) <i>ln Filers</i>
<i>State_IIT × Post2012</i>	-0.058*** (-6.25)	-0.023*** (-3.51)	-0.034*** (-3.40)
<i>State_IIT × Post2012 × High_preparers</i>	0.046*** (2.91)		
<i>State_IIT × Post2012 × High_TAC_sites</i>		0.054* (1.85)	
<i>State_IIT × Post2012 × High_broadband</i>			0.014* (1.73)
<i>High_preparers</i>	-0.016 (-0.06)		
<i>High_TAC_sites</i>		-3.999 (-1.66)	
<i>High_broadband</i>			-0.408*** (-2.78)
<i>ln_Employment</i>	0.040 (0.70)	0.114** (2.43)	0.118*** (2.78)
<i>ln_Establishments</i>	0.081 (1.30)	0.102** (2.63)	0.066* (1.94)
<i>ln_Wages</i>	0.097*** (3.27)	0.036 (1.46)	0.027 (1.19)
<i>ln_Nonwage_income</i>	0.038*** (4.50)	0.038*** (5.86)	0.035*** (5.15)
<i>ln_Avg_AGI</i>	-0.103*** (-3.16)	-0.034 (-1.57)	-0.056* (-1.93)
<i>Popgrowth</i>	-0.129 (-0.85)	0.009 (0.11)	-0.167** (-2.62)
<i>Examiners</i>	0.005 (0.36)	0.024* (1.70)	0.021* (1.94)
Constant	6.494*** (12.98)	6.624*** (19.92)	7.123*** (20.43)
Observations	10,516	18,165	18,165
Within R-squared	0.0915	0.0837	0.121
Fixed Effects	County & Year	County & Year	County & Year
Cluster	State	State	State

Table 5 presents cross-sectional analyses of Equation (1) based on county-level variation in Taxpayer Assistance Center (TAC) sites (column 1) or broadband access (column 2), or state-level variation in tax preparers (column 3). In each regression, the cross-sectional variable (*High_TAC_sites*, *High_broadband*, or *High_preparers*) is fully interacted with all covariates but only the interaction with *State_IIT × Post* is tabulated for brevity. All variables are defined in Appendix A. All analyses include indicated fixed effects and cluster standard errors by state. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance level, respectively.

Table 6
Reported Nonwage Income as Dependent Variable

VARIABLES	(1)	(2)
	<i>ln Reported nonwage income</i>	<i>ln Reported nonwage income</i>
<i>State_IIT × Post2012</i>	-0.097** (-2.34)	-0.074** (-2.62)
<i>ln_Employment</i>		-0.225 (-1.67)
<i>ln_Establishments</i>		0.321*** (3.18)
<i>ln_Wages</i>		0.490*** (6.52)
<i>ln_Nonwage_income</i>		0.163*** (7.49)
<i>Examiners</i>		-0.008 (-0.14)
Constant	11.981*** (708.50)	0.181 (0.12)
Observations	18,165	18,165
Fixed Effects	County & Year	County & Year
Cluster	State	State
Within R-squared	0.0124	0.0534

Table 6 presents multivariate estimates from Equation (2) without (with) control variables in column 1 (2). All variables are defined in Appendix A. All analyses include indicated fixed effects and cluster standard errors by state. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance level, respectively.

Table 7
Alternative Event Years

VARIABLES	1996 IRS Staffing Reduction		2007 SEC Falsification Test
	(1) <i>ln Filers</i>	(2) <i>ln Filers</i>	(3) <i>ln Filers</i>
<i>State_IIT × Post1996</i>	-0.015** (-2.52)	-0.034*** (-4.87)	
<i>State_IIT × Post1996 × High_internet</i>		0.027** (2.32)	
<i>State_IIT × Post2007</i>			-0.004 (-0.66)
<i>ln_Employment</i>	0.151*** (4.54)	0.426*** (4.95)	0.102 (1.33)
<i>ln_Establishments</i>	0.280*** (8.31)	0.104 (1.20)	0.173*** (6.28)
<i>ln_Wages</i>	0.030 (1.54)	0.047 (0.83)	0.050 (1.23)
<i>ln_Nonwage_income</i>	0.062*** (5.57)	0.006 (0.54)	0.064*** (6.26)
<i>ln_Avg_AGI</i>	0.177*** (2.99)	0.025 (0.30)	-0.185*** (-5.96)
<i>Popgrowth</i>	0.338*** (3.59)	0.344* (1.83)	0.458*** (7.15)
<i>Examiners</i>			0.013 (1.00)
Constant	4.066*** (11.51)	4.918*** (8.03)	6.137*** (21.77)
Observations	18,250	799	17,620
Within R-squared	0.155	0.577	0.134
Fixed Effects	County & Year	County & Year	County & Year
Cluster	State	State	State

Table 7 presents results of estimating Equation (1) using alternative event years. Based on a 5% IRS staffing reduction that took place in 1996, Column 1 treats 1996 as the event year and uses a sample period of 1993-1998. Column 2 reports results of a cross-sectional test for the 1996 event using variation in county-level internet access. In this cross-sectional test, *High_internet* is fully interacted with all covariates but only the interaction with *State_IIT × Post1996* is tabulated for brevity. Column 3 presents results of a falsification test using 2007 as the event year, when the Securities and Exchange Commission (SEC) experienced about 5% staff cuts, but the IRS did not. All variables are defined in Appendix A. All analyses include indicated fixed effects and cluster standard errors by state. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance level, respectively.

Table 8
2006 – 2022 Sample Period

VARIABLES	(1)	(2)	(3)	(4)
	<i>ln_Filers</i>	<i>ln_Filers</i>	<i>ln_Filers</i>	<i>ln_Filers</i>
<i>State_IIT</i> × <i>ln_IRS_Staffing</i>	0.135*** (2.94)			
<i>State_IIT</i> × <i>ln_TP_services</i>		0.168** (2.35)		
<i>State_IIT</i> × <i>ln_Enforcement</i>			0.086*** (3.04)	
<i>State_IIT</i> × <i>ln_Support_services</i>				0.136** (2.35)
<i>ln_Employment</i>	0.338*** (9.93)	0.340*** (9.97)	0.337*** (10.00)	0.339*** (9.94)
<i>ln_Establishments</i>	0.192*** (5.48)	0.197*** (5.34)	0.191*** (5.50)	0.198*** (5.35)
<i>ln_Wages</i>	-0.006 (-0.25)	-0.005 (-0.26)	-0.005 (-0.23)	-0.003 (-0.16)
<i>ln_Nonwage_income</i>	0.087*** (10.04)	0.087*** (9.98)	0.087*** (10.05)	0.087*** (10.04)
<i>ln_Avg_AGI</i>	-0.088*** (-4.74)	-0.088*** (-5.02)	-0.088*** (-4.62)	-0.086*** (-4.61)
<i>Popgrowth</i>	0.167** (2.35)	0.166** (2.34)	0.166** (2.35)	0.155** (2.26)
<i>Examiners</i>	0.002 (0.08)	0.004 (0.16)		0.002 (0.10)
Constant	3.123*** (7.05)	2.907*** (4.78)	3.624*** (11.47)	3.229*** (6.15)
Observations	50,583	50,583	50,583	50,583
Within R-squared	0.357	0.354	0.357	0.353
Fixed Effects	County & Year	County & Year	County & Year	County & Year
Cluster	State	State	State	State

Table 8 presents results of estimating Equation (3) using the 2006-2022 sample period. The control variable *Examiners* is excluded when the regression includes *State_IIT* × *ln_Enforcement*. All variables are defined in Appendix A. All analyses include indicated fixed effects and cluster standard errors by state. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance level, respectively.

Table 9
Robustness Test: Trend Controls

VARIABLES	(1)	(2)
	<i>ln_Filers</i>	<i>ln_Filers</i>
<i>State_IIT</i> × <i>Post2012</i>	-0.010** (-2.23)	-0.010** (-2.23)
<i>State_IIT</i> × <i>Trend</i>	-0.004* (-1.88)	-0.012* (-1.82)
<i>State_IIT</i> × <i>Trend_squared</i>		0.001 (1.45)
<i>ln_Employment</i>	0.109** (2.38)	0.108** (2.38)
<i>ln_Establishments</i>	0.101** (2.63)	0.102** (2.65)
<i>ln_Wages</i>	0.039 (1.65)	0.040* (1.72)
<i>ln_Nonwage_income</i>	0.038*** (5.87)	0.037*** (5.91)
<i>ln_Avg_AGI</i>	-0.036* (-1.69)	-0.036 (-1.66)
<i>Popgrowth</i>	0.006 (0.08)	0.003 (0.03)
<i>Examiners</i>	0.025* (1.92)	0.027** (2.09)
Constant	6.630*** (20.03)	6.628*** (20.02)
Observations	18,165	18,165
Within R-squared	0.0828	0.0835
Fixed Effects	County & Year	County & Year
Cluster	State	State

Table 9 presents results of estimating Equation (1) with the addition of a control variable that interacts the treatment variable *State_IIT* with a trend term (Column 1) and quadratic trend term (Column 2) to control for potential pre-trends, following Hribar et al. (2025). Variables are defined in Appendix A. All analyses include indicated fixed effects and cluster standard errors by state. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance level, respectively.

Table 10
Alternative Treatment: State-Level IRS Staffing Cuts

VARIABLES	(1) <i>ln Filers</i>
<i>High_staff_cuts</i> × <i>Post2012</i>	-0.010* (-1.73)
<i>ln_Employment</i>	0.106** (2.37)
<i>ln_Establishments</i>	0.109*** (2.73)
<i>ln_Wages</i>	0.047** (2.27)
<i>ln_Nonwage_income</i>	0.039*** (6.09)
<i>ln_Avg_AGI</i>	-0.027 (-1.11)
<i>Popgrowth</i>	-0.025 (-0.28)
<i>Examiners</i>	0.020 (1.34)
Constant	6.393*** (19.56)
Observations	18,165
Within R-squared	0.0725
Fixed Effects	County & Year
Cluster	State

Table 10 presents results of estimating Equation (1) with an alternative method for identifying treated observations: we replace *State_IIT* with *High_staff_cuts*, an indicator variable equal to one for counties located in states where 2012 IRS staff layoffs are in the top tercile among state IRS layoffs (i.e., at least a 30% reduction of IRS staff within the state), zero otherwise. All variables are defined in Appendix A. All analyses include indicated fixed effects and cluster standard errors by state. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% significance level, respectively.