Research, Applied Analytics, and Statistics

TAX POLICY CENTER
URBAN INSTITUTE & BROOKINGS INSTITUTION

9th Annual IRS/TPC Research Conference on Tax Administration

Abstracts of Papers

Session 1: Estimating the Effects of Tax Administration on Compliance

Estimating the Specific Indirect Effect for Multiple Types of Correspondence Audits

*Ben Howard, **Lucia Lykke**, and Leigh Nicholl (MITRE Corporation), and Alan Plumley (IRS, RAAS)*

Tax enforcement actions undoubtedly have an *indirect* effect on revenues: a change in the future behavior of taxpayers who either have experienced an enforcement contact themselves (the "specific" indirect effect) or have some knowledge or perception about others' tax enforcement experience (the "general" indirect effect). This study seeks to estimate and compare the magnitudes of the specific effects on taxpayers following a correspondence audit. Using taxpayers' subsequent change in reported line items as measures of compliance, we estimate specific effects in three distinct categories of IRS audits. For each category, we compare two groups: (1) taxpayers who were audited and (2) a control group of taxpayers whose return characteristics met all operational selection criteria for that category of audit but were not audited. We fit linear mixed-effects models to estimate the specific indirect effect in the years following the audit. Our findings suggest that the audited taxpayers reported greater total tax liability in subsequent years compared with eligible but unaudited taxpayers, and that difference increased around three tax years after the one subject to or eligible for audit, then attenuated. We also observe that audited taxpayers change their reporting of audit-relevant line items for at least two categories of audit. These estimates may eventually assist the IRS in improving the allocation of its examination resources and even the selection of returns to audit.

Enforcement vs. Outreach - Impacts on Tax Filing Compliance

***Anne Herlache**, Stacy Orlett, Rizwan Javaid, Ishani Roy and Alex Turk (IRS, RAAS)*

This paper reports initial results from a pilot comparing the impact of enforcement (via notices regarding delinquent tax returns) with outreach that encourages taxpayers to file their current tax return. The study began in April 2018, during the 2017 filing season, and focuses on filing behavior for tax years 2016 and 2017. Over three waves of outreach, taxpayers were contacted with reminders, "soft" letters (i.e., letters worded less forcefully than typical enforcement notices), and/or delinquent return notices. This design yields insight into the trade-offs of addressing past noncompliance versus encouraging future compliance, the potential benefit of repeated contact, and the impacts of delaying treatments, in terms of the future compliance ramifications. Furthermore, we sampled from two populations of taxpayers: known nonfilers (i.e., those who did not file their prior year return and will likely have a filing requirement in the current tax year) and potential stopfilers (i.e., taxpayers who filed their prior year return but are at risk for becoming nonfilers in the current tax year). We can garner insights into the trade-offs in timing and type of contact for noncompliant taxpayers and learn how to help at-risk taxpayers avoid the challenges associated with becoming noncompliant in the first place.

Assessing the Impact of Exchange of Information

***Pierce O'Reilly** (OECD)*

This paper describes ongoing work to assess the impact of increasing tax transparency and exchange of information on cross-border financial activity. Since 2009, there has been a dramatic increase in tax transparency around the world, stemming from the implementation of new standards of exchange of information on request and automatic exchange of information. Examining cross-border financial activity in light of these initiatives can help assess whether these standards have strengthened tax compliance and reduced offshore activity. I focus on cross-border bank deposits, using a dataset from the Bank for International Settlements, which provides bilateral data on bank assets and liabilities for 37 jurisdictions from 2000 to 2018. My preliminary observations are as follows: (1) Bank deposits in International Financial Centres (IFC) to nonbank counterparties increased substantially from 2000 to 2008, then fell substantially by the first quarter of 2018; (2) tax transparency and exchange of information play a material role in these changes; (3) the reduction has varied across jurisdictions; (4) the signature of an agreement that enables exchange of information on request between an IFC and a non-IFCs is associated with reduced bank deposits in the IFC with respect to the non-IFC counterparty of between 11 percent and 13 percent; and (5) the start of an automatic exchange of information is associated with further reduced bank deposits of between 22 percent and 28 percent, over and above the reduction associated with exchange of information on request.

Session 2: The Influence of External Factors on Compliance

Recent Changes in the Paid Return Preparer Industry and EITC Compliance

Emily Y. Lin *(US Treasury, Office of Tax Analysis)*

This paper examines the extent to which the legislative, regulatory and tax administrative changes affecting the paid return preparer industry in the late 2000s and early 2010s—changes aimed at reducing return errors through enhanced preparer competence and compliance—have improved EITC compliance. I use four indicators to predict errors on an EITC claim: claiming the head-of-house filing status, claiming a qualifying child to whom the taxpayer is not a parent, being identified as violating rules specified in an IRS compliance scoring system, and reporting an income around the first kink of the EITC schedule for the self-employed. Using difference-in-difference estimation, I show that the industry reform has lowered the frequency of all four potential error indicators shown on paid-preparer returns. The estimates imply modest and statistically significant reductions in the proportion of EITC returns containing filing status, qualifying child, or self-employment income misreporting errors.

Taxpayer Responses to Third-Party Income Reporting: Evidence from Spatial Variation across the US

Bibek Adhikari *and Timothy F. Harris (Illinois State University), and James Alm (Tulane University)*

We propose and implement a new method of estimating the impact on small business tax compliance of Form 1099-K, a third-party income reporting law that requires payment companies to report the gross amount of all payment transactions that merchants receive through their payment system to the IRS. We argue that, if firms are located in a zip code where the use of payment cards by consumers is high, then a greater share of the firms' revenues will be collected through payment cards, and thus a greater share of those firms' revenues will be third-party reported. We first construct an index of credit card usage at the zip code level. We then use this index, with administrative data from tax returns and information reports, to analyze the impact of geographic variation in the use of payment cards on tax compliance by small businesses after Form 1099-K implementation. We find that the implementation of third-party reporting via Form 1099-K led, in most cases, to a significant increase in firm reporting.

Effect of Recent Reductions in the Internal Revenue Service's Appropriations on Revenues

Janet Holtzblatt *(Tax Policy Center) and Jamie McGuire (Joint Committee on Taxation)*

In 2017, the IRS received appropriations totaling $11.2 billion—over 20 percent less than it received in 2010, when appropriations for the IRS reached their highest level (in 2017 dollars) over the past two decades. The biggest cutbacks were in enforcement, though that activity still received the largest share of the IRS's budget. The reduction in IRS appropriations coincided with declines in various IRS enforcement activities. From 2010 through 2017, the overall audit rate fell from 0.9 percent to 0.5 percent.

In this paper, we estimate the amount of enforcement revenue lost because of the reduction in the 2017 IRS budget from its 2010 level. We estimate the average ratio of direct enforcement revenue from audits conducted in 2017 relative to costs incurred for those audits, appeals, and collections. We also examine whether the IRS was able to offset at least some of the budget reductions by shifting from field and office audits to those conducted through correspondence, by reducing the average number of hours worked on cases by type of audit, or by certain other actions.

Our analysis relies on the Enforcement Revenue Income System, which follows each tax return from the inception of an audit through collections. The Enforcement Revenue Income System contains information on the duration of the process, the number of hours worked by IRS personnel, and their grade. Information on the amounts of collections is also included in Enforcement Revenue Income System.

Session 3: Improving the Digital Taxpayer Experience

Online Account User Testing

Heather Gay *(Mediabarn Inc.)*

Mediabarn, on behalf of the IRS, has conducted over 15 rounds of iterative design and user testing with taxpayers for Online Account. In talking with nearly 200 research respondents, we have uncovered findings related to both how taxpayers expect to access their tax information online and their perspectives on interacting with the IRS generally. This paper will share some key discoveries and how these findings inform IRS decisions to optimize the online account app to better address user needs.

Accessible Authentication for All: An Evaluation Framework for Assessing Usability and Accessibility of Authentication Methods

Becca Scollan and ***Ronna ten Brink*** *(MITRE Corporation)*

Currently, one out of five adults in the United States has a disability. As the population ages, the number of adults with disabilities will swell. As critical government services move online, the need for accessibility grows. However, poor accessibility and usability in authentication methods can form a barrier to the use of important websites, such as tax and benefit services. Given current commercial trends, biometric authentication methods will be used more widely to ensure secure access to such services. There is currently a dearth of research into both accessibility and usability of authentication modalities, including biometric methods. Thus, we investigated the usability of biometric authentication schemes for users with and without disabilities (vision or hearing). We comparatively evaluated three biometric authentication schemes (fingerprint, eye, and palm recognition) and one nonbiometric authentication scheme (PIN) on effectiveness, efficiency, and perceived usability. Traditional and biometric schemes showed some usability differences. Biometric schemes' usability often differed based on whether the interaction required dynamic device positioning (placing and holding the device in relation to specific points on the user's frame). Biometrics that required dynamic device positioning (e.g., palm) had lower usability for participants with limited or no vision. We therefore put forth dynamic device positioning as a new consideration for usability evaluations of biometrics.

Understanding the Voice of the Taxpayer Through the User-Centered Design Paradigm to Customer Experience Research Leads to Better Design and Increased Adoption

Nikki Kerber*, Kristen Papa, and Jake Sauser (Booz Allen Hamilton)*

This paper discusses the development of a customer experience (CX) practice at the IRS and the application of a user-centered research framework to identify customers, journeys, and interactions. Through CX research, the IRS hopes to better understand the needs, wants, opinions, and challenges of taxpayers. Along with web analytics and operational data, these "voice of the taxpayer" insights provide opportunities for the IRS to optimize existing services, develop new services, and influence channel usage. To establish a baseline, data was collected from over 200 interviews and ethnographic sessions and analyzed to create a core set of scenarios, personas, and a branching interactive journey map platform showcasing the process, pain points, and emotions of the tax filing process. When faced with the need to increase online payments of taxes owed, the IRS turned to CX research and artifacts to meet the goal. Applying CX research to agency strategy and goals can increase taxpayer compliance and satisfaction. By learning about taxpayers' expectations and preferences, the IRS conjectured customer experience improvements were needed if the online payment process was going to attract/serve more taxpayers.

Session 4: Understanding the Drivers of Taxpayer Behavior

Underpayment of Estimated Tax: Understanding the Penalized Taxpayer Population

***Janet Li**, Brett Collins, Alex Turk, Alicia Miller, Victoria Bryant, and Stacy Orlett (IRS, RAAS)*

Millions of taxpayers incur underpayment penalties each year, some of whom are simply unaware of their estimated tax payment obligations. Estimated taxes are typically required for those who are filing Schedule C and/or Schedule SE; income from these sources may also be reported to the IRS on forms 1099-MISC and/or 1099-K. This paper presents a deeper dive into penalized taxpayers, differentiating between those who have access to withholding and those who can only make estimated payments, and focusing on income characteristics, penalty sizes, types of income, and behavioral characteristics of married-filing-jointly taxpayers.

We estimate that 9.6 million taxpayers (tax year 2015) a year receive an underpayment penalty. Of these, about 74 percent are making wage income with access to withholding. However, 38 percent of penalized taxpayers make most of their income from nonwage income, as opposed to just 6 percent of nonpenalized taxpayers (TY 2016).

We also investigate the duration and characteristics of taxpayers incurring repeat penalties to see if incurring a penalty is a means of active financial planning or a result of unawareness. Of the roughly 9.6 million penalized taxpayers, about half received a penalty on their previous return, and 2.6 million received penalties on their last two tax returns. Most taxpayers, 68 percent, who were penalized in consecutive years were hit with a larger penalty in the second year than the first (tax years 2015 to 2016). That the underpayment penalty is a chronic problem for many taxpayers suggests that the penalty, which is currently calculated as 4 percent of the taxpayer's outstanding tax bill, may not provide enough of a disincentive for certain taxpayers to change their behavior around making estimated payments. Indeed, most penalties are less than $100; less than 10 percent of penalties are $500 or more (tax year 2016).

The Effect of Audit Burden on Subsequent Tax Evasion

*Amy Hageman (Kansas State University), **Ethan LaMothe** (University of South Carolina), and Mary Marshall (Louisiana Tech University)*

While undergoing an audit, individuals can incur both monetary and nonmonetary costs unrelated to their chosen level of compliance. We refer to these costs of being audited (as opposed to costs of being noncompliant) as "audit burden" and examine its effect on subsequent compliance decisions. Motivated by theory on cost-loss framing, we predict individuals who were initially noncompliant on an audited return will subsequently increase compliance, while those who were initially compliant will subsequently decrease compliance. Consistent with our hypotheses, results from the primary experiment suggest burdensome audits are beneficial in deterring noncompliance but also result in greater noncompliance from individuals who were initially compliant. In a follow-up experiment, we find a simple apology can mitigate the negative effect of audit burden on compliers. These results provide theoretical implications to the literature on cost-loss framing as well as practical implications to the IRS and other tax authorities.

Using a Graph Database to Analyze the IRS Databank

*Ririko Horvath and **Rahul Tikekar** (IRS, RAAS)*

The IRS Databank is a vast repository of longitudinal data from 1996 that provides a detailed picture on American taxpayers, compiled from information returns received by the IRS. The databank tracks a large collection of taxpayer attributes, such as the wages earned from all sources, spouses, dependents, zip codes, etc. Computationally, the databank is stored as a relational database: data is stored in tables. To effectively analyze this information requires expertise in relational database technology. Storing longitudinal data in a relational database is not efficient, both from a conceptual and an implementation perspective, because connecting a taxpayer to his or her children and grandchildren, and ultimately descendants, is neither intuitive nor efficient. In this work, an alternative model is proposed to analyze the data in the databank: linking data via a graph database. A graph database makes it easier to model and analyze relationships among data that is linked many levels deep. The querying and visualization in a graph database are more intuitive and easier to manage. Further, many of the queries are also very efficiently executed because of the implementation of data storage in a graph database.