

The Effect of Paid Preparer Competition on Individual Tax Avoidance

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December 2019

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We appreciate helpful feedback from Tobias Hauck (discussant), workshop participants at Claremont McKenna, participants at the 2019 National Tax Association, and tax reading groups at the University of Arizona and UC Irvine.

The Effect of Paid Preparer Competition on Individual Tax Avoidance

Abstract: This study considers how competition among paid preparers affects individual tax avoidance. Merging individual tax return data reported to the IRS at the county level with household income reported by the U.S Census Bureau, along with supply of paid preparer establishments from the National Employment Time Series (“NETS”) database, we observe that paid preparer competition is positively associated with underreporting of income, consistent with competition facilitating client appeasement for avoiding more taxes. Our results are robust to various proxies for paid preparer competition and tax avoidance. In additional analysis, we note that our findings are stronger in counties whose taxpayers more frequently engage a paid preparer and among establishments that do not purport to be a CPA firm. This study contributes to our understanding of how competition impacts financial intermediaries’ decision-making and the environmental factors affecting paid tax preparers’ recommendations.

Keywords: paid preparer competition; individual tax avoidance

I. INTRODUCTION

This paper examines how competition in the paid preparer market affects individual tax avoidance. While the government typically has an interest in facilitating market competition to promote consumer welfare, it is also concerned about preserving the tax base. As paid preparers recommend filing positions for their clients, it is important to understand how competition in this market affects taxpayer reporting.

Ex ante, increased competition may stoke concerns about client retention and encourage paid preparers to promote, or acquiesce to, clientele tax avoidance in order to satisfy client preferences for paying less tax. If competition increases the value placed on client appeasement, we would expect greater paid preparer competition to be associated with more underreporting of income, our primary proxy of tax avoidance.

Although prior research documents various factors affecting paid preparers' decision-making (Roberts 1998), it has not addressed how the market for their services influences the returns they prepare. Extant research on external auditors and rating agencies provide mixed evidence as to how competition in these markets affects the underlying audit or ratings quality respectively (e.g. Newton et al. 2013; Boone et al. 2012; Becker and Milbourn 2011; Lizzeri 1999). While the paid preparer market similarly involves a financial intermediary who must balance incentives to appease client preferences with reputational concerns, paid preparers are unique in both the work they perform and the advisory role they assume. Moreover, a majority of taxpayers use a paid preparer (IRS 2016), underscoring the economically meaningful impact these agents have on the government's tax receipts.

To identify individual tax avoidance, we follow Boone et al. (2013) by comparing the aggregate county-wide adjusted gross income ("AGI") reported to the IRS (per the IRS Statistics

of Income (“SOI”) database) with aggregate county-wide household income reported by the U.S. Census (per the American Community Survey). We merge this dataset for years 2005 – 2013 with the National Establishment Time-Series (NETS) database that identifies the number of accounting establishments at the zip code level, as well as the number of employees at each establishment. We use the number of establishments (natural log and scaled by population) in a county and market concentration, derived through a Herfindahl index, as our proxies for paid preparer competition.

Controlling for demographic and macroeconomic characteristics, as well as county and year fixed effects, we find that paid preparer competition is positively associated with individual tax avoidance. Economically, a ten percent increase in the number of accounting establishments translates to a \$7.0 M increase in under-reported income for the average county in our sample. Our results are robust to measuring tax avoidance as the average tax liability or effective tax rate (“ETR”) in a county. Further, our results are stronger in counties whose taxpayers more frequently engage a paid preparer and among paid preparers that do not purport to be a CPA firm.

An alternative explanation for our results is that competition facilitates more benign forms of tax avoidance that do not necessarily require paid preparers to promote or acquiesce to underreporting through aggressive positions. Consistent with this explanation, we find that paid preparer competition is positively associated with the percentage of taxpayers reporting Individual Retirement Account (“IRA”) contributions, a tax-minimizing strategy created by the government to incentive retirement savings. We also find paid preparer competition is positively associated with earned income credit (“EITC”) credit claims and interpret this result as capturing some benign tax avoidance, where paid preparers may alert eligible clients about credits they

might not otherwise claim, as well as more aggressive avoidance, where paid preparers may facilitate credit claims for ineligible clients. Similarly, we find competition is positively associated with the magnitude of charitable contribution deductions, which may reflect paid preparer acquiescence to aggressive taxpayer preferences.

Lastly, we consider whether taxpayer demand for tax avoidance, as opposed to the supply of paid preparers, may be driving our result. To the extent paid preparers choose to operate in counties with greater opportunities for tax avoidance, our observed effect may instead be capturing an unobserved demand for tax avoidance. To address this concern, we include a control capturing counties whose taxpayers more frequently report business income, a proxy for greater tax planning opportunities. Our inferences remain unchanged when including this control. To the extent other unobserved characteristics reflect a county's demand for tax avoidance, we expect the county fixed effects in our models to capture such a construct. This paper contributes to at least two streams of literature. First, we provide descriptive information about the extent of competition among accounting establishments. To our knowledge, we are the first study to examine variation in the supply of accounting services available to individual taxpayers and small businesses at a local level. While we document how competition among these service providers manifests in more tax avoidance, we believe there may be other consequences worthy of study, given the various parties interested in the information accounting establishments help produce. This research should be of interest to academics and regulators who study competition among financial intermediaries more broadly.

Second, we add to the literature that considers environmental factors affecting paid preparer decision-making. Our results suggest competition intensifies paid preparers' desire to appease client preferences. As policy makers grapple with the costs and benefits of regulating

paid preparers in a way that could impact marketplace competition (Versprille and Lee 2019), we believe our findings should be informative to this debate.

We organize the remainder of this paper as follows: Section 2 reviews the literature and motivates our hypothesis, Section 3 presents our model and main results, Section 4 discusses additional analysis, and Section 5 concludes.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

In his review of tax accountants' judgment and decision-making ("JDM") research, Roberts (1998) identifies how psychological, environmental, task, processing, and context factors influence paid preparers' information search, legal interpretation, and recommendations to clients. Prior studies document that environmental factors such as IRS enforcement (e.g., Cuccia 1994; Kaplan et al. 1988; Newberry et al. 1993), legal ambiguity (Spilker et al. 1999), and client preferences (Duncan et al. 1989; Cloyd 1995; Cloyd and Spilker 1999) affect paid preparer conclusions. Moreover, Collins et al. (1990) note that client preferences for minimizing tax, consistent with taxpayers' wealth maximizing utility function derived from Allingham and Sandmo (1972), is a determinant in paid preparer use.

Roberts (1998) also posits that the economic importance of a client can incentivize paid preparers to facilitate tax avoidance in order to satisfy client preferences. Recent studies, however, provide mixed evidence of this behavior (Reckers et al. 1991; Bobek et al. 2010; Bandy et al. 1994; Vermeer et al. 2019). While these aforementioned studies employ experimental methods in a laboratory setting to evaluate the effects of client importance on specific decisions made by paid preparers, our study uses archival data to evaluate the effects of paid preparer market competition on aggregate tax return reporting.

Research examining how competition impacts financial intermediaries such as paid preparers is generally confined to the credit ratings agency (“CRA”) and external auditor spheres, where the identities of these service providers is more easily accessible. Bolton et al. (2012) develop a model showing that competition exacerbates “ratings shopping” by issuing companies that may lead to less informative ratings. Becker and Milbourn (2011) find empirical evidence consistent with this proposition that competition among CRAs coincides with a deterioration in ratings quality. Moreover, Lee et al. (2019) propose that CRA competition encourages firm misreporting and can impair investment efficiency, Faure-Grimaud et al. (2009) argue that competition can reduce information disclosure, and Goel and Thakor (2015) note that competition increases ratings coarseness. On the other hand, Lizzeri (1999), though not referring to CRAs specifically, develops a model suggesting competition among certification intermediaries can lead to full information revelation.

Similar to ratings shopping in the CRA marketplace, competition among auditors can lead to clients soliciting favorable opinions in their financial statements. Lennox (2000) provides evidence of clients successfully engaging in this phenomenon in the U.K., while Newton et al. (2016) find similar practices in the U.S. for clean internal control opinions, primarily in competitive markets. Besides influencing the underlying opinion, pressures to appease clients in a competitive market can also impact auditors’ tolerance of client accounting practices. For instance, Newton et al. (2013) observe that restatements are increasing in city level auditor competition, consistent with client retention concerns leading to a lenient audit and acquiescence to client reporting preferences. At the same time, Boone et al. (2012) find that audit competition reduces client earnings management, suggesting competition reduces auditor complacency and promotes audit quality. Moreover, Francis et al. (2013) find that the concentration of audits

conducted by the Big 4 accounting firms relative to all other accounting firms is associated with higher quality company earnings in a country, while concentration of audits within the Big 4 accounting firms is associated with lower quality earnings. Overall, the evidence is still unclear regarding the relationship between competition and accountants' decision-making in the audit sphere.

We believe there are critical differences between the CRA and audit markets and the paid preparer market. For one, while auditors and CRAs are supposed to be independent in order to provide objective information to external stakeholders, tax preparers are supposed to be advocates who assist their clients in ensuring they do not pay more taxes than legally owed (AICPA 2018). Further, these intermediaries face different monitoring environments from government agencies. While the SEC regulates CRAs and auditors of publicly held companies in order to protect outside investors, federal and state treasury departments review the output of a tax preparer's work in order to protect the government's revenue base. Lastly, the fundamental nature of work tax preparers perform is different. While auditors attest to whether a client's financial statements accord to generally accepted accounting principles and ratings analysts assess the client's ability to timely repay its debt, tax preparers advise clients based on their interpretation of relevant tax law. Therefore, although client retention and reputational concerns exist across all these sectors, differences in the objective roles served, regulatory environments, and nature of the work make studying the influence of competition on paid preparers' decision-making processes unique.

We believe increased paid preparer market competition can increase pressure on client retention or obtainment if paid preparers rationalize they will lose the client to a competing preparer if they do not support a client's preference for paying less tax. In a survey of paid

preparers, Fogarty and Jones (2014) note that just about every respondent characterized themselves as moderately aggressive within the band of their colleagues. This finding suggests paid preparers consider their competitors' behavior when formulating their own risk tolerance.

The threat of losing a client can manifest in greater efforts by paid preparers to recommend, or acquiesce to, tax positions that minimize a client's tax liability. For instance, increased competition might encourage paid preparers to rely selectively on client favorable case law, interpret ambiguous fact patterns in a more client favorable manner, or act less skeptically when presented with questionable information from the client. Therefore, if competition intensifies paid preparers' pressure to satisfy client preferences, we would expect them to recommend tax-reducing positions on their clients' returns. We state our hypothesis formally as follows:

Hypothesis: Paid preparer competition is positively associated with individual tax avoidance.

There are various reasons increased competition in the paid preparer market would not facilitate greater tax avoidance. For instance, extant literature suggests clients have varying risk attitudes that affect tax preparer decision-making (e.g., Cuccia et al. 1995; Cloyd 1995). If clients prefer to avoid scrutiny from the tax authority at the expense of tax savings, competition would be unlikely to incentivize paid preparers to advocate more tax avoidance.

Moreover, competition may increase the consequences to paid preparers of promoting tax avoidance. Should a monitoring agency, or competitor, identify noncompliance in a paid preparer's recommendations, the reputation costs would likely be greater in a competitive market as the paid preparer struggles to retain its current clientele or attract new business. This reputational threat may encourage paid preparers to be more diligent in their work by performing more objective information searches and more comprehensively considering case law to address

ambiguities in client fact patterns, both of which should offset any biases to appease client preferences. Relatedly, a competitive market place can incentivize paid preparers to build their technical expertise of the tax law in order to attract clients seeking solutions to more complex cases. To the extent increased expertise results in more objective tax advice, competition might actually decrease tax avoidance. Consistent with degree of expertise influencing paid preparer decision-making, Cuccia (1994) finds that CPAs offer less client favorable recommendations than non-CPAs. Finally, a competitive market could make it harder for paid preparers to absorb the monetary penalties of noncompliant positions, constraining these intermediaries' willingness to promote questionable positions to avoid tax.¹

III. METHODOLOGY AND RESULTS

Measuring tax avoidance among individuals, absent access to IRS audit results, is empirically challenging. We follow Boone et al. (2013) by comparing taxpayer aggregate county-wide adjusted gross income ("AGI") reported to the IRS (per the IRS Statistics of Income ("SOI") database) to household aggregate county-wide income reported by the U.S. Census (per the annual American Community Survey).² Specifically, we subtract AGI reported to the IRS from income reported by the U.S. Census and scale this difference by income reported by the U.S. Census. This proxy, *UNDERREPORT*, intends to capture the fraction of income not reported to the IRS in county j in year t and therefore represents our construct of individual tax avoidance. We believe counties represent a reasonable geographic parameter that taxpayers use when searching for a tax preparer, making it appropriate to conduct our analysis at this level.

¹ IRC Section 6694 imposes a minimum \$5,000 penalty on paid preparers for any willful attempt to understate a taxpayer's liability. There are additional penalties for promoting abusive tax shelters (Section 6700), aiding and abetting an understatement of tax liability (Section 6701), and unauthorized disclosure or use of returns (Section 6713).

² The aggregate county file in the SOI also includes the number of returns, personal exemptions, and selected components of income totals.

Boone et al. (2013) identify some limitations of this underreporting measure, including variations between each database's definition of income, the reference period over which it is measured, and the population covered. The ACS is a nationwide survey that collects data by asking respondents on an ongoing monthly basis for household income over the past 12 months in counties with populations greater than 65,000. Moreover, the income information solicited includes both taxable and tax-exempt sources of income and the respondents solicited may not have tax filing obligations. We do not, however, expect any of these variations to induce systematic measurement error in the observed relation between *UNDERREPORT* and paid preparer competition. Nevertheless, in additional analysis, we utilize alternate proxies of tax avoidance that do not rely on ACS data.

We measure paid preparer competition in three ways using data on accounting establishments from the National Establishment Time-Series (NETS) database, which reports the name, location, sales, and employment of business establishments from Duns Marketing Information. We consider establishments in SIC codes 7291 (tax return preparation services) and 8721 (accounting, auditing, and bookkeeping) for purposes of our analysis and aggregate zip code level detail to the county level.³ Our first proxy, *NUM_FIRMS*, is the log of the number of accounting establishments in a given county. Our second proxy, *NUM_FIRMS_SCALED*, is the number of accounting establishments in a given county scaled by the number of returns filed in that county, available through the IRS SOI database. Our third proxy, *HHI*, is a Herfindahl index, where we use the number of employees to capture market share of accounting establishments in a county. We use number of employees, rather than sales, because sales are estimated figures based on employees for over 90 percent of the NETS population. We compute the Herfindahl

³ We ignore establishments that do not report having any employees or sales. If there are multiple establishments of a single business in a county, we aggregate the number of employees and only count that establishment once.

index by squaring the fraction of employees at an establishment to total employees in a county and summing this squared fraction across all establishments in a county. We multiply this value by -1 so that our proxy is increasing in competition. We restrict establishments to those with less than 50 employees when measuring each of these proxies because the larger establishments, including each of the Big-4 accounting firms, likely derive most of their business from services other than individual tax preparation.⁴

We expect competition for tax return preparation services to increase as the number of service providers increases. To the extent increased competition encourages service providers to recommend, or acquiesce to, clientele tax avoidance, we expect a positive association between our proxies for competition and under-reporting of income.

We control for a host of economic and demographic characteristics in a county generally following Boone et al. (2013). From the SOI database, we control for the natural log of the average AGI in a county (*INCOME*) and natural log of number of returns filed (*NUM_TAXPAYERS*), intended to capture the county's size. From the ACS database, we control for the fraction of married households (*MARRIED*), the fraction of persons with a bachelor's degree (*EDUCATION*), the fraction of persons age 70 or older (*ELDERLY*), the poverty rate (*POVERTY*), and median age (*AGE*).⁵ We also control for county-level unemployment (*UNEMPLOYMENT*) from the Bureau of Labor Statistics and the natural log of state level GDP

⁴ This truncates about one percent of establishments in the NETS database. Our results, when using *NUM_FIRMS* and *NUM_FIRMS_SCALED* as the variable of interest, are similar when including the larger establishments; however, their inclusion distorts the measurement of *HHI*.

⁵ We do not control for religiosity, Boone et al.'s (2013) variable of interest, because the authors measure it via linear interpolation from data available in 2000 and 2010. Because our sample extends beyond 2010, we are not able to reliably interpolate county-level religiosity beyond this year. Further, the ACS survey does not provide data on *MARRIED* in 2013 for approximately nine percent of our sample. Where this year is missing, we replace it with the fraction of married households in 2012.

(*GDP*) from the Bureau of Economic Analysis (“BEA”).⁶ Finally, we include county (λ) and year (γ) fixed effects to control for demographic characteristics and macroeconomic trends not captured by our other controls that plausibly impact individual tax avoidance. We present our model formally below, where competition (*COMPETITION*) is alternately measured as *NUM_FIRMS*, *NUM_FIRMS_SCALED*, or *HHI*:

$$\begin{aligned} \text{UNDERREPORT}_{j,t} = & \beta_0 + \beta_1 * \text{COMPETITION}_{j,t} + \beta_2 * \text{INCOME}_{j,t} + \beta_3 * \text{NUM_TAXPAYERS}_{j,t} + \\ & \beta_4 * \text{MARRIED}_{j,t} + \beta_5 * \text{ELDERLY}_{j,t} + \beta_6 * \text{EDUCATION}_{j,t} + \beta_7 * \text{POVERTY}_{j,t} + \beta_8 * \text{AGE}_{j,t} + \\ & \beta_9 * \text{UNEMPLOYMENT}_{j,t} + \beta_{10} * \text{GDP}_{j,t} + \lambda_j + \gamma_t \end{aligned} \quad (1)$$

Our sample includes 7,115 unique county-year observations from 2005 – 2013. We begin our sample in 2005 when the ACS household income data is first available and end our sample in 2013 because we do not have data on accounting establishments beyond this year.⁷ We present descriptive statistics of the variables in our model in Table 1. The average (median) county has 5.1 (6.1) percent under-reported income with average (median) AGI of \$54,215 (\$51,142).⁸ The average (median) county has 230 (96) unique accounting establishments and 133,618 (67,010) taxpayers.⁹ Though there are far more accounting establishments than audit firms or ratings agencies, we still believe variation in the number of establishments provides meaningful variation in competition. Taxpayers likely select preparers from a subset of the establishments in their county based on factors such as cost, location, and personal referrals. While we cannot

⁶ Where county level unemployment is unavailable, we use the state-level unemployment. We use state-level GDP because this information is not available at the county-level for many of the smaller counties in our sample.

⁷ The ACS database only includes counties with populations above 65,000. This excludes approximately 74 percent of the county-years available in the SOI database. Nevertheless, our sample captures approximately 80 percent of U.S. taxpayers.

⁸ This estimate is smaller than the average (median) 9.37 (9.47) percent Boone et al. (2013) report. When we restrict our sample to the 2005-2009 years covered in their study, our estimates are similar to theirs.

⁹ We require each county to have at least one accounting establishment in order to compute *HHI*. This restriction, however, does not affect our primary sample.

observe these factors, we believe it is reasonable that more establishments increases taxpayers' willingness to engage alternate providers within their pre-determined parameters.

INSERT TABLE 1

Among accounting establishments with less than 50 employees, the NETS dataset contains nearly 360,000 unique establishments (2.0 million unique establishment years) with identifiable county location (untabulated). These establishments have 3.5 employees on average, with an interquartile range of one to four.¹⁰

Table 2 presents a correlation matrix. Our dependent variable is negatively correlated to each of our proxies for accounting establishment competition, counter to our hypothesis that increasing competition among tax preparers is associated with increased tax avoidance. The matrix suggests a high degree of correlation between the number of accounting establishments in a county and county size, though this is less of a concern when scaling the number of establishments by number of taxpayers.

INSERT TABLE 2

Table 3 presents results of our multivariate regression. Column (1) reports results measuring tax preparer competition as *NUM_FIRMS*; Column (2) shows the *NUM_FIRMS_SCLAED* measure; and Column (3) shows the *HHI* measure. Across each of our proxies, we observe a significantly positive association between tax preparer competition and reported county-level underreporting of income, consistent with our hypothesis. Economically, a ten percent increase in the number of accounting establishments is associated with a 0.8 percent

¹⁰ In untabulated analysis, we separately measure competition among small (i.e. one employee) and large (i.e. more than three employees) establishments and include competition for both sets in our model. The coefficients on these variables are statistically significant in both instances, but are generally bigger among the large establishments.

increase in under-reported income. For the average county, this represents a total decrease \$7M in under-reported income.¹¹

The coefficients on our control variables are directionally consistent for the most part with those of Boone et al. (2013), while the explanatory power of our model is greater. We attribute this greater explanatory power to our inclusion of county fixed effects and additional macroeconomic control variables.

IV. ADDITIONAL ANALYSIS

Variation in Type of Accounting Establishments

Federal law does not impose licensure requirements on paid preparers.¹² Instead, the certified public accountant (“CPA”) designation, conferred by states, can signal professional status within the industry. We test whether competition among establishments purporting to be CPA firms produces differential effects on individual tax avoidance than competition among non-CPA establishments. Ex ante, it is unclear which establishment type would be more sensitive to the effects of competition. Prior research asserts CPAs have greater client loyalty (Cuccia 1995; Jackson et al. 1988; IRS 1987), suggesting CPA establishments may be more eager to appease clients and promote more tax avoidance in the face of increased competition. At the same time, Cuccia (1994) finds that CPAs are more conservative than non-CPAs, suggesting CPA establishments may be reluctant to advocate more tax avoidance in response to increased competition.

¹¹ Multiplying 0.8 percent by the average household income in the ACS dataset (\$65,679) allows us to estimate the average under-reported income per taxpayer. We derive county totals by multiplying this amount by the average number of taxpayers in a county.

¹² The IRS attempted to regulate paid preparers, but its efforts were struck down by a U.S. District Court in *Loving v. IRS* (2014).

Of the nearly two million accounting establishments in our dataset, approximately 24 percent purport to be CPA firms, determined by whether the establishment name contains the “CPA” acronym. We separately measure each of our competition proxies among CPA establishments (*CPA_COMPETITION*) and non-CPA establishments (*NONCPA_COMPETITION*) and include both variables in our model.¹³ We present the results in Table 4.

INSERT TABLE 4

We find that the coefficients on competition for both establishment types are universally positive and statistically significant across all specifications, except for *NUM_FIRMS_SCALED* among CPA establishments. Moreover, the coefficient on our variable of interest for non-CPA establishments is significantly greater ($p < 0.01$) than it is for CPA establishments. From these results, we infer that CPA establishments, due to their more conservative approach, are less sensitive to the effects of competition on appeasing client preferences for tax avoidance.

Variation in County-level Reliance on Paid Preparers

We expect the effect of competition on tax avoidance to be stronger in counties that rely more on paid preparers (as opposed to self-prepared). To proxy for county reliance on paid preparers, we utilize an SOI database that provides zip code level data on the number of individual returns filed using a paid preparer. We aggregate this information to the county-level in deriving the fraction of returns filed using a paid preparer. We then partition this variable at the sample median (54.7 percent, untabulated) and create an indicator variable, *HIGH_PCT_PREP*, equal to one for county-years that more frequently relied on paid preparers,

¹³ An implicit assumption in this test is that the market for CPA preparers is different than that of non-CPA preparers.

and zero otherwise. We interact this indicator variable with *COMPETITION* and present the results in Table 5.

INSERT TABLE 5

We note the coefficient on *HIGH_PCT_PREP* is negative and statistically significant in two of our specifications, suggesting that counties whose taxpayers rely more on paid preparers exhibit less tax avoidance.¹⁴ This reliance on paid preparers is distinct, however, from the construct we are testing – competition between paid preparers. Across each of our specifications, we observe that the coefficient on the interaction term is significantly positive. By demonstrating that the effect of paid preparer competition on tax avoidance varies in the expected direction based paid preparer reliance, we believe this finding provides greater credibility to the interpretation of our primary results.

Tax Avoidance Mechanisms

To ascertain how paid preparer competition facilitates tax avoidance, we consider three strategies individuals can pursue to reduce their tax liability – contribute to an individual retirement account (“IRA”), claim the earned income tax credit (“EITC”), or deduct charitable contributions.¹⁵ Importantly, these mechanisms can shed light as to whether paid preparers acquiesce to particularly aggressive positions desired by their clients or advocate more benign tax planning techniques their clients may not have been aware of. For instance, contributing to an IRA is a perfectly legal tax-savings strategy that meets legislative goals of encouraging individuals to save for retirement. To the extent competition further incentivizes paid preparers

¹⁴ This finding is at odds with a concurrent working paper by DeBacker et al. (2019), who use proprietary IRS data and find that use of paid preparers at the individual level are associated with higher audit adjustments.

¹⁵ We acknowledge that claiming the EITC and deducting charitable contributions do not impact AGI and therefore will not affect the dependent variable from our primary test. In the next section, however, we find that paid preparer competition is also associated with lower tax liabilities, which can be attributable to EITC claims.

to promote strategies consistent with government intentions, we would expect to see paid preparer competition associated with an increased percentage of returns with IRA contributions.

EITC claims may represent either a benign or more nefarious form of tax planning. To the extent paid preparers inform eligible clients about the availability of the credit, a higher take-up of the EITC would represent a more benign form of tax avoidance. On the other hand, to the extent paid preparers facilitate ineligible clients claiming the credit, a higher EITC take-up would represent a more nefarious form of tax avoidance. The IRS (2019) estimated that improper EITC claims contribute to \$27 billion (roughly 11 percent) of the individual under-reporting tax gap between 2011-2013, highlighting its potential for abuse. Charitable contributions similarly represent a benign form of tax planning, but the deduction may also be subject to abuse by taxpayers who over-claim deductions to qualified non-profit organizations or claim deductions for contributions to ineligible organizations.

Table 6 Panel A presents descriptive statistics of the percentage of taxpayers who make IRA contributions (*PCT_IRA*), the percentage of low income taxpayers who claim the EITC (*PCT_EITC*), and the natural log of charitable contributions (*CHARITY*).¹⁶ We present results of the multivariate regressions in Panels B through D, which suggest paid preparer competition facilitates tax avoidance through each of the aforementioned mechanisms. Specifically, the coefficients on our proxies for *COMPETITION* are significantly positively associated with *PCT_IRA* in two of the specifications and are significantly positively associated with *PCT_EITC* and *CHARITY* in all three specifications. Based on these results, we are unable to definitely conclude whether paid preparer competition facilitates tax avoidance in a more benign or

¹⁶ We aggregate data at the zip code level available through the IRS SOI database for each of these measures. IRA contribution data is only available for 2004 through 2006 and 2013. The number of taxpayers claiming the EITC credit is not available in 2008. As the IRS SOI data is disaggregated by income buckets, we only consider taxpayers with reported AGI less than \$50,000 for our this analysis.

nefarious manner. While the IRA contribution results suggest paid preparers advancing client interests in a manner intended by the government, the results on EITC claims and charitable contributions allows for the possibility that paid preparers may be acting less skeptically or promoting aggressive positions in order to satisfy client preferences for paying less tax.

INSERT TABLE 6

Alternate measures of tax avoidance

Although *UNDERREPORT* intends to capture income not reported to the IRS, it fails to capture tax-reducing positions on reported income. To address this, along with the previously mentioned shortcomings of this measure, we construct two alternate proxies intended to capture tax avoidance that do not rely on ACS data. The first, borrowing from literature that treats the level of tax as a proxy for tax avoidance (e.g. Slemrod et al. 2001), is the natural log of the average tax liability in a county. We obtain tax liability information at the zip-code level from the zip-code level SOI database and aggregate this data to the county level.¹⁷ This proxy, *TAX*, captures avoidance through exclusions of gross income (i.e. business income), larger deductions (e.g., moving expenses; charitable contributions), and larger tax credits (e.g. research and development credit; earned income credit) allowed during our sample period. A drawback to this proxy is that it does not account for the income-based effects of tax. To alleviate this concern, our second alternate proxy borrows from the corporate tax avoidance literature (e.g. Dyreng et al. 2008) and scales cumulative reported tax at the county level by cumulative AGI at the county level. This effective tax rate, *ETR*, reflects the tax liability per given dollar of income and captures avoidance through larger itemized deductions or tax credits.¹⁸ A drawback to this

¹⁷ The tax liability proxy includes non-income taxes (i.e. self-employment tax) reported on Form 1040. Income tax liability specifically is not available in the SOI database prior to 2007.

¹⁸ We multiply *ETR* by 100 to facilitate interpretation of the coefficient in our model.

measure is that it does not capture underreporting of AGI. Both *TAX* and *ETR* are decreasing in tax avoidance.

By relaxing the requirement for ACS data, we expand our sample to 27,107 unique county-years. We present descriptives of *TAX* and *ETR*, as well as the explanatory model variables, in Panel A of Table 7.¹⁹

INSERT TABLE 7

The average (median) unlogged county-level tax reported in our sample is \$4,944 (\$4,331) while the average (median) *ETR* is 10.4 (10.0) percent, respectively. Because we measure our variables as averages at the county level, we do not observe as drastic variation as we might if we could measure these variables at the individual level.²⁰ Predictably, the expansion of the dataset to include smaller counties results in a sample with fewer accounting establishments (63 on average), lower AGI (\$46,003 on average), and fewer taxpayers (39,253 on average).

Panel B of Table 7 presents results from estimation of our model on this sample. Columns (1), (3), and (5) use *TAX* as our proxy for tax avoidance, while Columns (2), (4), and (6) use *ETR*. The coefficients on our proxies for competition are negative across all six specifications and statistically significant when measured as *NUM_FIRMS* and *NUM_FIRMS_SCALED*. Collectively, our results indicate that paid preparer competition facilitates both underreporting of income and avoidance of tax on reported income.

Demand-based explanation for tax avoidance

¹⁹ We exclude demographic characteristics including *MARRIED*, *ELDERLY*, *EDUCATION*, *POVERTY*, and *AGE* because they are collected from the ACS database.

²⁰ For instance, the *average* tax within a county in the 95th percentile is \$9,541. By contrast, the average tax among individuals in the 95th percentile in 2013 was \$41,704 (IRS 2013).

An alternate explanation for the association between paid preparer competition and individual tax avoidance is that paid preparers choose to operate in counties whose taxpayers have greater opportunities or demand for tax avoidance. To address this demand-side explanation, we control for the percentage of a county's taxpayers who report sole proprietorship income on Schedule C of the tax return. As business income is more difficult for the IRS to verify and is subject to considerable discretion (i.e., deductions for ordinary and necessary business expenses), we expect the opportunities for tax avoidance, and hence the demand for paid preparers, to be greater in counties with a higher percentage of sole proprietorships.

In untabulated analysis, we create an indicator variable equal to one where the percentage of returns with Schedule C business income is greater than the sample median.²¹ The coefficient on *COMPETITION* remains positive and statistically significant across all three models when controlling for counties whose taxpayers have more opportunities for tax avoidance. Overall, this result supports our theory that the supply of paid preparers produces competition in the marketplace that facilitates individual tax avoidance. When we interact this Schedule C indicator variable with our competition proxies, the coefficient on the interaction term is statistically insignificant, suggesting potential opportunities for tax avoidance do not incrementally affect the relation between paid preparer competition and tax avoidance. We further note the coefficient on the main effect of the Schedule C indicator variable is also statistically insignificant.

V. CONCLUSION

In this study, we examine how competition in the paid preparer market impacts individual taxpayer avoidance. Using the National Employment Time Series ("NETS") database that identifies the number the number of accounting establishments, as well as the number of

²¹ We omit 2008 from this sample because information on the number of Schedule C filers is not available in the IRS SOI database for this year.

employees working at those establishments, we construct county-level measures of paid preparer competition. Merging this dataset to the IRS SOI database and U.S. Census ACS survey database, we find that increased competition is associated with more underreporting of income at the county-level. These results, consistent with paid preparer supply rather than taxpayer demand for tax avoidance, suggest competition intensifies concerns about satisfying client reporting preferences. Our results are stronger among non-CPA establishments and in counties that utilize paid preparers more frequently. Finally, our results are robust to alternate measures of tax avoidance that overcome shortcomings in our primary measure. We believe these findings should be of interest to policymakers who consider the costs and benefits of imposing restrictions on paid preparers that might curtail competition in the industry.

We acknowledge at least two caveats to our study. First, tax reporting decisions are made by individuals in consultation with their paid preparers. Because we do not have access to individual tax returns, we measure tax avoidance using data aggregated at the county-level. We believe future research using individual-level data from the IRS can provide more granular insights into the relation between competition and tax avoidance. Second, our proxies for tax avoidance do not necessarily indicate paid preparers are making legally impermissible recommendations. Our results examining IRA contributions, EITC claims, and charitable contribution deductions suggest the mechanisms facilitating this tax avoidance include both benign and more aggressive forms of tax planning. We encourage future research to continue to think carefully about how to best measure individual tax avoidance.

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Appendix:

Variable Definitions

<i>UNDERREPORT</i> =	Aggregate county-wide household income from the U.S. Census Bureau ACS survey less aggregate countywide income from the IRS, scaled by household income from the U.S. Census Bureau
<i>NUM_FIRMS</i> =	Natural log of one plus the number of accounting establishments in a county
<i>NUM_FIRMS_SCALED</i> =	Number of accounting establishments scaled by number of tax returns filed in a county
<i>HHI</i> =	Herfindahl index of accounting establishment market concentration, where market share is the percentage of employees in a county at a given establishment. The sum of the squared market shares determines the county's market concentration. This concentration is multiplied by -1.
<i>INCOME</i> =	Natural log of the average taxpayer's adjusted gross income ("AGI") in a county
<i>NUM_TAXPAYERS</i> =	Natural log of the number of tax returns filed in a county
<i>MARRIED</i> =	Percentage of population in a county that is married, per the U.S. Census Bureau ACS survey
<i>ELDERLY</i> =	Percentage of population in a county over age 70, per the U.S. Census Bureau ACS survey
<i>EDUCATION</i> =	Percentage of population in a county with at least a bachelor's degree, per the U.S. Census Bureau ACS Survey
<i>POVERTY</i> =	Percentage of population in a county living in poverty, per the U.S. Census Bureau ACS Survey
<i>AGE</i> =	Median age of the county population, per the U.S. Census Bureau ACS Survey
<i>UNEMPLOYMENT</i> =	Unemployment rate in the county, per the Bureau of Labor Statistics
<i>GDP</i> =	Natural log of GDP in the state, per the Bureau of Economic Analysis

<i>HIGH_PCT_PREP</i> =	Indicator variable equal to one if the percentage of filed returns that use a third party paid preparer in a county is above the sample median, and zero otherwise
<i>PCT_IRA</i> =	Percentage of taxpayers in a county who contribute to an Individual Retirement Account (“IRA”)
<i>PCT_EITC</i> =	Percentage of low-income (AGI<\$50,000) taxpayers in a county who claim the earned income tax credit
<i>CHARITY</i> =	Natural log of charitable contributions claimed as an itemized deduction by taxpayers in a county
<i>TAX</i> =	Natural log of the average taxpayer’s tax liability in a county
<i>ETR</i> =	Cumulative tax liability in a county scaled by cumulative AGI reported in a county, multiplied by 100

Table 1
Descriptive Statistics

Variable	Mean	Std Dev	5th Pctl	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	95th Pctl
<i>UNDER_REPORT</i>	0.051	0.108	-0.125	-0.071	-0.002	0.061	0.119	0.168	0.198
<i>NUM_FIRMS (unlogged)</i>	230	363	32	39	55	96	235	572	906
<i>NUM_FIRMS</i>	4.804	1.025	3.497	3.689	4.025	4.575	5.464	6.351	6.810
<i>NUM_FIRMS_SCALED</i>	0.002	0.000	0.001	0.001	0.001	0.001	0.002	0.002	0.002
<i>HHI</i>	-0.034	0.027	-0.088	-0.069	-0.048	-0.029	-0.013	-0.005	-0.004
<i>INCOME (unlogged)</i>	54,216	13,473	38,520	40,876	45,202	51,142	59,661	71,264	82,291
<i>INCOME</i>	10.874	0.225	10.559	10.618	10.719	10.842	10.996	11.174	11.318
<i>NUM_TAXPAYERS (unlogged)</i>	133,618	174,902	28,455	31,371	40,777	67,010	139,870	317,422	464,163
<i>NUM_TAXPAYERS</i>	11.323	0.888	10.256	10.354	10.616	11.113	11.848	12.668	13.048
<i>MARRIED</i>	0.509	0.061	0.398	0.430	0.472	0.512	0.552	0.582	0.602
<i>ELDERLY</i>	0.092	0.026	0.055	0.062	0.075	0.090	0.105	0.122	0.138
<i>EDUCATION</i>	0.264	0.097	0.135	0.153	0.190	0.249	0.318	0.400	0.455
<i>POVERTY</i>	0.141	0.055	0.058	0.070	0.102	0.138	0.176	0.212	0.238
<i>AGE</i>	37.334	4.036	30.300	32.200	34.900	37.400	39.900	42.200	43.900
<i>UNEMPLOYMENT</i>	0.070	0.028	0.035	0.039	0.049	0.066	0.087	0.106	0.119
<i>GDP</i>	12.780	0.904	11.026	11.542	12.296	12.880	13.330	14.022	14.385

Notes: All model variables are winsorized at 1 and 99 percent and are defined in the appendix.

Table 2
Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 <i>UNDERREPORT</i>	-	-0.216	-0.082	-0.165	-0.515	-0.219	0.002	0.008	-0.296	0.149	-0.071	0.049	-0.044
2 <i>NUM_FIRMS</i>	-0.194	-	0.563	0.809	0.438	0.957	-0.248	-0.087	0.489	-0.108	-0.045	-0.015	0.219
3 <i>NUM_FIRMS_SCALED</i>	-0.043	0.583	-	0.525	0.308	0.308	-0.144	0.096	0.357	0.014	0.075	-0.019	0.037
4 <i>HHI</i>	-0.184	0.947	0.559	-	0.379	0.742	-0.162	-0.060	0.419	-0.121	-0.015	-0.018	0.138
5 <i>INCOME</i>	-0.484	0.430	0.257	0.429	-	0.400	0.242	-0.191	0.793	-0.640	0.083	-0.345	0.079
6 <i>NUM_TAXPAYERS</i>	-0.219	0.934	0.286	0.884	0.426	-	-0.233	-0.136	0.442	-0.135	-0.078	-0.015	0.242
7 <i>MARRIED</i>	-0.005	-0.245	-0.173	-0.204	0.217	-0.205	-	0.046	-0.054	-0.619	0.278	-0.209	-0.065
8 <i>ELDERLY</i>	0.032	-0.130	0.054	-0.147	-0.245	-0.181	-0.005	-	-0.280	0.059	0.781	0.182	0.086
9 <i>EDUCATION</i>	-0.292	0.532	0.359	0.507	0.785	0.497	-0.049	-0.294	-	-0.378	-0.131	-0.329	-0.030
10 <i>POVERTY</i>	0.178	-0.113	0.048	-0.126	-0.650	-0.176	-0.600	0.100	-0.404	-	-0.287	0.404	0.029
11 <i>AGE</i>	-0.057	-0.086	0.028	-0.075	0.024	-0.108	0.243	0.785	-0.130	-0.242	-	0.149	0.063
12 <i>UNEMPLOYMENT</i>	0.028	-0.012	-0.006	-0.005	-0.343	-0.023	-0.237	0.203	-0.312	0.408	0.179	-	0.200
13 <i>GDP</i>	-0.046	0.196	0.023	0.199	0.048	0.221	-0.074	0.103	-0.035	0.001	0.108	0.182	-

Notes: Pearson (Spearman) correlation coefficients are presented above (below) the diagonal. All coefficients significant at $p < 0.10$ are in **bold**. All variables are winsorized at 1 and 99 percent and are defined in the appendix.

Table 3
Relation between Tax Preparer Competition and Individual Tax Avoidance

<i>COMPETITION=</i>	(1) <i>NUM_FIRMS</i> <i>Y=UNDER_REPORT</i>	(2) <i>NUM_FIRMS_SCALED</i> <i>Y=UNDER_REPORT</i>	(3) <i>HHI</i> <i>Y=UNDER_REPORT</i>
<i>COMPETITION</i>	0.08*** (4.83)	51.11*** (4.09)	0.79*** (4.39)
<i>INCOME</i>	-0.82*** (-26.49)	-0.82*** (-26.24)	-0.83*** (-26.89)
<i>NUM_TAXPAYERS</i>	-0.61*** (-15.35)	-0.53*** (-13.49)	-0.57*** (-14.75)
<i>MARRIED</i>	0.53*** (11.29)	0.53*** (11.23)	0.53*** (11.37)
<i>ELDERLY</i>	-0.81*** (-3.92)	-0.82*** (-3.92)	-0.83*** (-4.03)
<i>EDUCATION</i>	0.73*** (11.39)	0.73*** (11.41)	0.74*** (11.58)
<i>POVERTY</i>	-0.49*** (-10.31)	-0.49*** (-10.38)	-0.49*** (-10.21)
<i>AGE</i>	0.00 (1.26)	0.00 (1.33)	0.00 (1.23)
<i>UNEMPLOYMENT</i>	-0.47*** (-4.74)	-0.47*** (-4.73)	-0.47*** (-4.98)
<i>GDP</i>	0.31*** (8.42)	0.31*** (8.36)	0.29*** (7.83)
<i>CONSTANT</i>	11.33*** (19.51)	10.68*** (17.67)	11.54*** (19.84)
Observations	7,115	7,115	7,115
Fixed Effects	County&Yr	County&Yr	County&Yr
Clustered SEs	County	County	County
Adjusted R-squared	0.785	0.785	0.784

Notes: *NUM_FIRMS* is the test variable in Columns (1); *NUM_FIRMS_SCALED* is the test variable in Column (2). *HHI* is the test variable in Column (3). All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics are presented below each coefficient. ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively using two-tailed p-values.

Table 4
CPA and non-CPA Establishments

	(1)	(2)	(3)
<i>COMPETITION=</i>	<i>NUM_FIRMS</i>	<i>NUM_FIRMS_SCALED</i>	<i>HHI</i>
	<i>Y=UNDER_REPORT</i>	<i>Y=UNDER_REPORT</i>	<i>Y=UNDER_REPORT</i>
<i>CPA_COMPETITION</i>	0.01* (1.83)	25.69 (1.05)	0.10*** (3.50)
<i>NONCPA_COMPETITION</i>	0.06*** (4.39)	62.08*** (4.49)	0.56*** (3.90)
<i>INCOME</i>	-0.82*** (-26.41)	-0.81*** (-26.16)	-0.83*** (-26.73)
<i>NUM_TAXPAYERS</i>	-0.61*** (-15.37)	-0.53*** (-13.31)	-0.56*** (-14.78)
<i>MARRIED</i>	0.53*** (11.28)	0.53*** (11.27)	0.53*** (11.32)
<i>ELDERLY</i>	-0.81*** (-3.89)	-0.81*** (-3.87)	-0.84*** (-4.08)
<i>EDUCATION</i>	0.73*** (11.43)	0.73*** (11.48)	0.73*** (11.55)
<i>POVERTY</i>	-0.49*** (-10.31)	-0.49*** (-10.39)	-0.48*** (-10.02)
<i>AGE</i>	0.00 (1.25)	0.00 (1.31)	0.00 (1.14)
<i>UNEMPLOYMENT</i>	-0.47*** (-4.80)	-0.48*** (-4.92)	-0.44*** (-4.56)
<i>GDP</i>	0.31*** (8.37)	0.31*** (8.38)	0.30*** (8.12)
<i>CONSTANT</i>	11.34*** (19.52)	10.59*** (17.42)	11.41*** (19.75)
Observations	7,115	7,115	7,112
Fixed Effects	County&Yr	County&Yr	County&Yr
Clustered SEs	County	County	County
Adjusted R ²	0.784	0.785	0.785

Notes: *NUM_FIRMS* is the test variable in Columns (1); *NUM_FIRMS_SCALED* is the test variable in Column (2). *HHI* is the test variable in Column (3). All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics are presented below each coefficient. ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively using two-tailed p-values.

Table 5
Reliance on Paid Preparer Cross Section

	(1)	(2)	(3)
<i>COMPETITION=</i>	<i>NUM_FIRMS</i>	<i>NUM_FIRMS_SCALED</i>	<i>HHI</i>
	<i>Y=UNDER_REPORT</i>	<i>Y=UNDER_REPORT</i>	<i>Y=UNDER_REPORT</i>
<i>COMPETITION</i>	0.07*** (4.54)	40.39*** (3.37)	0.65*** (3.44)
<i>HIGH_PCT_PREP</i>	-0.06*** (-3.71)	-0.03*** (-4.04)	0.00 (0.94)
<i>COMPETITION*HIGH_PCT_PREP</i>	0.01*** (3.52)	20.41*** (4.06)	0.18* (1.90)
<i>INCOME</i>	-0.82*** (-26.27)	-0.81*** (-26.18)	-0.83*** (-26.82)
<i>NUM_TAXPAYERS</i>	-0.60*** (-15.29)	-0.53*** (-13.25)	-0.56*** (-14.59)
<i>MARRIED</i>	0.53*** (11.41)	0.53*** (11.28)	0.53*** (11.40)
<i>ELDERLY</i>	-0.82*** (-4.01)	-0.81*** (-3.92)	-0.83*** (-4.06)
<i>EDUCATION</i>	0.73*** (11.42)	0.72*** (11.31)	0.74*** (11.56)
<i>POVERTY</i>	-0.48*** (-10.28)	-0.49*** (-10.42)	-0.48*** (-10.27)
<i>AGE</i>	0.00 (1.00)	0.00 (1.17)	0.00 (1.16)
<i>UNEMPLOYMENT</i>	-0.47*** (-4.76)	-0.46*** (-4.65)	-0.47*** (-4.94)
<i>GDP</i>	0.31*** (8.28)	0.31*** (8.40)	0.29*** (7.80)
<i>CONSTANT</i>	11.33*** (19.65)	10.61*** (17.54)	11.51*** (19.85)
Observations	7,115	7,115	7,115
Fixed Effects	County&Yr	County&Yr	County&Yr
Clustered SEs	County	County	County
Adjusted R ²	0.786	0.786	0.785

Notes: *NUM_FIRMS* is the test variable in Columns (1); *NUM_FIRMS_SCALED* is the test variable in Column (2). *HHI* is the test variable in Column (3). All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics are presented below each coefficient. ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively using two-tailed p-values.

Table 6
Tax Avoidance Mechanisms

Panel A: Descriptive Statistics

Variable	N	Mean	Std Dev	5th Pctl	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	95th Pctl
<i>PCT_IRA</i>	2,357	0.021	0.006	0.011	0.013	0.016	0.020	0.024	0.029	0.032
<i>PCT_EITC</i>	6,335	0.181	0.064	0.087	0.105	0.135	0.173	0.219	0.267	0.301
<i>CHARITY</i>	7,115	18.275	1.106	16.738	17.011	17.469	18.064	18.939	19.895	20.466

Panel B: IRA Contributions

	(1) <i>NUM_FIRMS</i> Y= <i>PCT_IRA</i>	(2) <i>NUM_FIRMS_SCALED</i> Y= <i>PCT_IRA</i>	(3) <i>HHI</i> Y= <i>PCT_IRA</i>
<i>COMPETITION=</i>			
<i>COMPETITION</i>	0.00*** (2.87)	1.46*** (3.31)	-0.00 (-0.24)
<i>INCOME</i>	0.00** (2.36)	0.00** (2.39)	0.00* (1.93)
<i>NUM_TAXPAYERS</i>	0.00 (0.18)	0.00* (1.89)	0.00* (1.90)
<i>MARRIED</i>	-0.00 (-0.04)	-0.00 (-0.01)	-0.00 (-0.16)
<i>ELDERLY</i>	-0.00 (-0.21)	-0.00 (-0.17)	-0.00 (-0.29)
<i>EDUCATION</i>	-0.00 (-0.64)	-0.00 (-0.53)	-0.00 (-0.57)
<i>POVERTY</i>	0.00 (0.47)	0.00 (0.43)	0.00 (0.55)
<i>AGE</i>	-0.00*** (-3.25)	-0.00*** (-3.23)	-0.00*** (-3.09)
<i>UNEMPLOYMENT</i>	-0.02 (-1.50)	-0.02 (-1.54)	-0.02* (-1.67)
<i>GDP</i>	-0.00 (-1.13)	-0.00 (-0.95)	-0.00 (-1.57)
<i>CONSTANT</i>	0.00 (0.02)	-0.02 (-0.76)	0.00 (0.07)
Observations	2,357	2,357	2,357
Fixed Effects	County&Yr	County&Yr	City&Yr
Clustered SEs	County	County	City
Adjusted R-squared	0.954	0.954	0.953

Table 6 (continued)
Tax Avoidance Mechanisms

Panel C: EITC Claims

<i>COMPETITION=</i>	(1) <i>NUM_FIRMS</i> <i>Y=PCT_EITC</i>	(2) <i>NUM_FIRMS_SCALED</i> <i>Y= PCT_EITC</i>	(3) <i>HHI</i> <i>Y= PCT_EITC</i>
<i>COMPETITION</i>	0.02*** (4.43)	13.62*** (4.84)	0.12*** (2.59)
<i>INCOME</i>	-0.00 (-0.57)	-0.00 (-0.34)	-0.01 (-0.73)
<i>NUM_TAXPAYERS</i>	-0.07*** (-10.24)	-0.05*** (-6.19)	-0.05*** (-7.57)
<i>MARRIED</i>	0.01 (1.19)	0.01 (1.16)	0.01 (1.24)
<i>ELDERLY</i>	0.00 (0.02)	0.00 (0.05)	0.00 (0.03)
<i>EDUCATION</i>	0.02 (1.58)	0.02* (1.72)	0.02* (1.88)
<i>POVERTY</i>	0.05*** (4.41)	0.05*** (4.44)	0.06*** (4.57)
<i>AGE</i>	0.00 (0.33)	0.00 (0.51)	0.00 (0.55)
<i>UNEMPLOYMENT</i>	0.08* (1.75)	0.08* (1.75)	0.08* (1.86)
<i>GDP</i>	-0.02** (-2.55)	-0.02** (-2.41)	-0.02*** (-2.91)
<i>CONSTANT</i>	1.15*** (10.13)	0.96*** (8.30)	1.15*** (9.95)
Observations	6,335	6,335	6,335
Fixed Effects	County&Yr	County&Yr	City&Yr
Clustered SEs	County	County	City
Adjusted R-squared	0.981	0.981	0.981

Table 6 (continued)
Tax Avoidance Mechanisms

Panel D: Charitable Contribution Deductions

<i>COMPETITION=</i>	(1) <i>NUM_FIRMS</i> Y= <i>CHARITY</i>	(2) <i>NUM_FIRMS_SCALED</i> Y= <i>CHARITY</i>	(3) <i>HHI</i> Y= <i>CHARITY</i>
<i>COMPETITION</i>	0.12* (1.82)	44.39*** (2.66)	1.30** (2.09)
<i>INCOME</i>	0.61*** (9.15)	0.62*** (9.18)	0.61*** (9.10)
<i>NUM_TAXPAYERS</i>	0.50*** (14.07)	0.60*** (9.08)	0.57*** (10.01)
<i>MARRIED</i>	-0.11 (-1.27)	-0.11 (-1.27)	-0.11 (-1.23)
<i>ELDERLY</i>	0.38 (1.21)	0.38 (1.21)	0.35 (1.09)
<i>EDUCATION</i>	-0.03 (-0.32)	-0.01 (-0.17)	-0.02 (-0.20)
<i>POVERTY</i>	-0.31*** (-4.95)	-0.31*** (-5.13)	-0.31*** (-5.10)
<i>AGE</i>	0.00 (0.28)	0.00 (0.41)	0.00 (0.25)
<i>UNEMPLOYMENT</i>	-0.94*** (-5.63)	-0.93*** (-5.74)	-0.93*** (-5.76)
<i>GDP</i>	0.18*** (3.30)	0.18*** (2.91)	0.16** (2.51)
<i>CONSTANT</i>	3.60*** (4.05)	3.02*** (3.35)	3.78*** (4.21)
Observations	7,115	7,115	7,115
Fixed Effects	County&Yr	County&Yr	City&Yr
Clustered SEs	County	County	City
Adjusted R-squared	0.996	0.996	0.996

Notes: *NUM_FIRMS* is the test variable in Columns (1); *NUM_FIRMS_SCALED* is the test variable in Column (2). *HHI* is the test variable in Column (3). All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics are presented below each coefficient. ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively using two-tailed p-values.

Table 7
Alternate measures of tax avoidance

Panel A: Descriptive statistics

Variable	Mean	Std Dev	5th Pctl	10th Pctl	25th Pctl	50th Pctl	75th Pctl	90th Pctl	95th Pctl
<i>TAX (unlogged)</i>	4,944	2,375	2,512	2,831	3,438	4,331	5,707	7,637	9,541
<i>TAX</i>	8.418	0.403	7.829	7.948	8.143	8.374	8.649	8.941	9.163
<i>ETR</i>	10.375	1.953	7.745	8.214	9.031	10.045	11.393	12.960	14.145
<i>NUM_FIRMS (unlogged)</i>	62.874	153.992	2.000	3.000	6.000	14.000	41.000	134.000	312.000
<i>NUM_FIRMS</i>	2.948	1.392	1.099	1.386	1.946	2.708	3.738	4.905	5.746
<i>NUM_FIRMS_SCALED</i>	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.003
<i>HHI</i>	-0.200	0.223	-0.662	-0.500	-0.250	-0.128	-0.057	-0.022	-0.010
<i>INCOME (unlogged)</i>	46,003	11,574	31,722	34,173	38,403	43,784	50,892	59,906	68,481
<i>INCOME</i>	10.709	0.230	10.365	10.439	10.556	10.687	10.837	11.001	11.134
<i>NUM_TAXPAYERS (unlogged)</i>	39,253	84,866	1,631	2,543	4,947	11,180	29,309	89,252	190,036
<i>NUM_TAXPAYERS</i>	9.479	1.385	7.397	7.841	8.507	9.322	10.286	11.399	12.155
<i>UNEMPLOYMENT</i>	0.071	0.030	0.032	0.037	0.047	0.065	0.089	0.112	0.127
<i>GDP</i>	12.433	0.972	10.651	11.065	11.828	12.452	12.997	13.900	14.033

Table 7 (continued)
Alternate measures of tax avoidance

Panel B: Multivariate results

	(1)	(2)	(3)	(4)	(5)	(6)
<i>COMPETITION=</i>	<i>NUM_FIRMS</i>		<i>NUM_FIRMS_SCALED</i>		<i>HHI</i>	
	Y= <i>TAX</i>	Y= <i>ETR</i>	Y= <i>TAX</i>	Y= <i>ETR</i>	Y= <i>TAX</i>	Y= <i>ETR</i>
<i>COMPETITION</i>	-0.03*** (-5.25)	-0.12*** (-3.12)	-16.18*** (-4.17)	-72.46*** (-2.93)	-0.00 (-0.06)	-0.05 (-0.71)
<i>INCOME</i>	1.21*** (32.11)	5.81*** (23.61)	1.21*** (32.08)	5.81*** (23.59)	1.22*** (32.19)	5.82*** (23.69)
<i>NUM_TAXPAYERS</i>	-1.58*** (-17.67)	0.93*** (5.28)	-1.58*** (-17.67)	0.83*** (4.78)	-1.58*** (-17.60)	0.88*** (5.17)
<i>UNEMPLOYMENT</i>	-0.05** (-2.44)	-6.73*** (-12.24)	-0.08*** (-3.49)	-6.74*** (-12.26)	-0.07*** (-2.91)	-6.75*** (-12.26)
<i>GDP</i>	0.25*** (9.19)	0.61*** (3.16)	0.25*** (9.19)	0.62*** (3.17)	0.26*** (9.38)	0.64*** (3.28)
<i>CONSTANT</i>	-6.98*** (-16.63)	-68.52*** (-22.78)	-6.84*** (-16.02)	-67.85*** (-22.37)	-7.08*** (-16.88)	-68.93*** (-23.04)
Observations	27,107	27,107	27,107	27,107	27,107	27,107
Fixed Effects	County&Yr	County&Yr	County&Yr	County&Yr	County&Yr	County&Yr
Clustered SEs	County	County	County	County	County	County
Adjusted R ²	0.969	0.938	0.969	0.938	0.969	0.937

Notes: *NUM_FIRMS* is the test variable in Columns (1) and (2); *NUM_FIRMS_SCALED* is the test variable in Columns (3) and (4). *HHI* is the test variable in Columns (5) and (6). All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles. T-statistics are presented below each coefficient. ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively using two-tailed p-values.