

Does credit-card information reporting improve small-business tax compliance?

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Abstract. We investigate the response of small businesses operating as sole proprietorships to Form 1099-K, an information report released in 2011 which provides the Internal Revenue Service with information about payment card sales. Theory isolates a subset of taxpayers who respond by reporting receipts equal to or slightly exceeding the amount of receipts reported on 1099-K. Information reporting made these taxpayers more likely to file Schedule C, and also increased their reported receipts by up to 24 percent. Taxpayers largely offset increased reported receipts with increased reported expenses, which do not face information reporting, diminishing the impact on reported net taxable income.

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1. Introduction

Data from randomized audits suggest that, in 2006, \$385 billion in taxes legally owed to the United States government were not remitted, amounting to about 14.5 percent of total tax payments required by the law (Internal Revenue Service 2012).¹ To combat tax evasion, Congress has historically subjected various types of income to third-party information reporting, which dramatically increases compliance for those income types. In 2006, for example, 99 percent of wage and salary income subject to information reporting and withholding was, according to the IRS, properly reported and taxed, compared to an estimated 44 percent compliance rate for taxable income subject to little or no information reporting (Internal Revenue Service 2012). While subjecting individual wage and salary income to information reporting by employers has proved successful at sustaining very high rates of compliance, tax enforcement for small businesses is more challenging. Small businesses often collect receipts in cash, keep poor or no records, have no external financial reporting requirements, and are closely held—all factors that can facilitate underreporting of tax liability.

In this paper, we study a recent attempt to curb small-business tax evasion by using a system of information reporting where some receipts were made subject to information reporting. Specifically, we examine a setting in the United States which, beginning in 2011, subjected electronic payments received by businesses (for example, credit card payments) to information reporting by the firms processing these payments. These reports are made on a new information report called the Form 1099-K.

There is good reason to suspect the impact of the Form 1099-K might differ materially from that of existing information reporting, as taxpayers can still be non-compliant by under-reporting their cash receipts, and they can substitute expense over-reporting for receipt under-

¹ These numbers are not definitive due to the difficulty of measuring evasion, even using National Research Program randomized audits. Nevertheless, the numbers should give a sense of the order of magnitude of tax evasion in the United States.

reporting.² Economic theory predicts that businesses affected by Form 1099-K should report their receipts close to the amount reported on Form 1099-K. These firms should have (1) a high propensity to under-report receipts prior to the introduction of information reporting, and/or (2) a high share of true receipts subjected to information reporting. These two firm-level characteristics are likely to be closely linked in our setting, due to the paper trail created by electronic payments.

We test these predictions using newly available confidential data from the Internal Revenue Service, consisting of the universe of sole proprietors' tax returns (Form 1040, Schedule C) and the information reports received by these sole proprietors from tax years 2004 to 2012.³ The empirical analysis fails to uncover a significant effect of Form 1099-K in aggregate, but also confirms the prediction of the theory: approximately 10 percent of firms report their gross receipts within 5 percent of the gross amount on the 1099-K's they receive. We estimate that Form 1099-K caused as many as 40 percent of these taxpayers to start filing Schedule C. For firms that had already been filing Schedule C, 1099-K caused increases in reported receipts of up to 24 percent, although these firms also increased their reported expenses by as much as 13 percent.

We conduct additional empirical analysis to deepen our understanding of the results. First, we examine different reasons a firm might bunch where reported receipts are equal to or just above the 1099-K amount. Bunching may occur because firms believe that reporting receipts above the 1099-K amount avoids triggering an audit by contradicting third-party information, or because all or virtually all of a firm's receipts are subjected to information reporting. The latter

² Firms could also stop accepting credit cards, incent cash payments by offering discounts for using cash or checks, or take action to avoid certain thresholds that trigger 1099-K reporting. We are limited by our data in our ability to detect these responses, but note that any such actions taken by firms would limit the impact of 1099-K.

³ Note that a more complete analysis of the initiative's impact would require a review of audit data, but such audit data will not be available in the near future. Note also that many non-Schedule C entities also receive the 1099-K, and these are absent from our analysis. In total, 34 percent of the 7.4 million valid, non-duplicate 1099-Ks (see Section 2.3) are matched to a Schedule C.

would be the case if, for example, the firm operates exclusively on the Internet. Based on their reported sectors, we conclude that many firms bunch due to a perceived audit threat from reporting receipts below the amount reported to the IRS, and not merely because these taxpayers receive all their receipts electronically. Nevertheless, we also find a much higher rate of bunching, 40 percent, where the 1099-K amount equals reported receipts for firms receiving a 1099-K only from third-party network vendors (such as PayPal). The bunching behavior of these taxpayers suggests that some firms do bunch because all of their true receipts are subject to information reporting. Thus, both of the theory-supported motivations for bunching in response to Form 1099-K are supported by the data.

We also examine heterogeneity in the impact of Form 1099-K. This impact was stronger for businesses that are likely to be online-only. Businesses that were previously subjected to information reporting under Form 1099-MISC were less likely to bunch where receipts approximately equal 1099-K amounts, but those that did bunch displayed similar increases in their reported receipts and expenses.⁴ We fail to find any substantive differences based on whether the taxpayer used a paid preparer, and no evidence that the Form 1099-K caused firms to begin using a paid preparer.

Taxpayers also bunch where reported receipts are exactly equal to reported expenses, and firms bunching at where receipts equal the gross 1099-K amount are disproportionately likely to do so. We also find that the subset of taxpayers that received Form 1099-K but did not file in previous years were much more likely to report expenses exactly equal to receipts. While there are several reasons firms might report receipts equal to expenses, we view the evidence that 1099-K made firms more likely to do so as additional support for our claim that increased reporting of receipts (on the intensive and extensive margin) was accompanied by offsetting

⁴ Form 1099-MISC requires that payments of \$600 or more for services provided in a given year be reported to the IRS by the entity purchasing the service.

increases in expenses. Finally, we examine the composition of expenses to see precisely where taxpayers increased expense reporting to offset increased receipts reporting. We find that increases in expenses occurred primarily in the “Other Expenses” line item

This paper contributes to the academic literature examining tax administration, enforcement and compliance, as detailed in Slemrod and Gillitzer (2013), and expands this literature to investigate the effects of information reporting on sole proprietors. The paper also contributes to a nascent, growing literature on tax systems (Dharmapala, Slemrod, and Wilson 2011; Pomeranz 2013; Almunia, Rodriguez, and David 2014; Carrillo, Pomeranz, and Singhal 2014; Naritomi 2014). Second, policymakers are likely to find these results useful when considering a further expansion of information reports or changing the requirements around existing returns. Finally, the results can be used by the IRS to better target audits toward taxpayers receiving 1099-K who are relatively unlikely to be reporting truthfully.

2. Background and Institutional Details

2.1 The tax compliance problem with small business

The tax authority’s lack of information is a ubiquitous problem in tax enforcement, and one that is especially pervasive for smaller businesses where formal records of financial transactions are not well maintained. Small businesses, especially those operating as sole proprietorships, frequently interact with few other entities, may collect receipts and pay expenses in cash, may have little interaction with the financial sector (especially as a result of seeking external financing), and have no external financial reporting obligations. They also frequently accept payments in difficult-to-monitor cash, exacerbating the tax enforcement problem (Gordon and Li 2009). Indeed, Morse et al. (2009, 39) assert, based on extensive interviews with small business owners and their accountants, that income source is “by far the most important determinant of tax compliance...Taxpayers report cash income less accurately than income subject to third party reporting.”

While cash is a common way to settle transactions for small business, businesses can also accept cash, checks, debit cards, or credit cards. Debit- and credit-card use has dramatically increased, decreasing the share of cash and check transactions (Humphrey 2004; Federal Reserve Bank of Kansas City 2010; Euromonitor Group 2014; Javelin Strategy and Research 2013). Indeed, Aite Group (2011) predicts that consumer use of cash will decline by about 4 percent per year from 2010 to 2015, or about 17 percent total over this period. Cash use has declined for at least three reasons: 1) access to credit cards has become more abundant, 2) more sales are done online,⁵ and 3) technologies like Square and Google Wallet facilitate the use of tablets or smartphones to process card payments and make payments directly.

Firms make active decisions about what payment methods to accept. Arango and Taylor (2008) show that businesses choose what payment methods to accept based on their perceptions of the reliability, risks, and costs of different payment methods. However, conditional on accepting a payment, they find that merchants have little ability to affect what payment methods their customers use. Firms also choose to accept payment methods in order to compete for customers (Jonker 2011).

2.2 Information Reporting and Form 1099-K

The introduction of Form 1099-K is part of a recent trend in the United States and elsewhere towards expanding third-party information reporting, providing the tax authority with relatively objective information from a third party that will enable them to increase the effectiveness of enforcement at low cost to the IRS (Lederman 2010).⁶ A number of informational returns are required to be furnished to the IRS, reporting income from, for example, dividends, stock sales, interest, and tuition reimbursement. There is a strong association between the amount of information reporting done on a type of income and the reporting

⁵ This growth of online commerce has also allowed online payment processors like PayPal to prosper. Businesses like PayPal allow vendors to accept credit cards or direct bank transfers securely, and cheaply through their websites.

⁶ Other options exist, such as expanding direct tax withholding and information reporting as was done in 1954 using Form W-2, or requiring increased information reporting directly from the taxpayer, as has recently been done on Schedule UTP (Towery 2014). Further, even more different approaches exist, such as the concept of “reverse withholding” explained in Soos (1990).

compliance associated with that income (Feldman and Slemrod 2007; Internal Revenue Service 2012). For example, based on a field experiment in Denmark, Kleven et al. (2011) report that tax evasion for income subject to third-party reporting is nearly zero.

Information reporting has a long history in the United States. For example, the Internal Revenue Code of 1954 required both information reporting for payments made to independent contractors for payments above a \$600 dollar threshold (the same dollar threshold is still used for 1099-MISC reporting), as well as information returns provided by employers regarding wage income (the Form W-2). In the late 1980s, cash payments to child care providers were made implicitly subject to information reporting: in order to claim a Dependent Care Credit, taxpayers had to provide the name, address and Social Security number of the child care provider being paid, resulting in a 31 percent decrease in credit claims from 1988 to 1989. Simultaneous with this dramatic reduction in claims on the credit, there were 252,582 new first time filers of child care Schedule C's in 1989—a 64.7 percent increase from 1988 (Szilagyi 1991).

We examine 1099-K information reporting. The Housing Assistance Act of 2008 requires payment settlement entities (PSEs) who make payments in settlement of payment card transactions and third-party-settlement entities (TPSEs, such as PayPal) to file a Form 1099-K on behalf of their customers, effective for payments made after December 31, 2010.⁷ The first information returns for tax year 2011 were provided in early 2012.⁸ The law mandates that the taxpayer, the IRS, and, in some cases, the state tax agency, receive a 1099-K containing the gross

⁷ The introduction of Form 1099-K led to some initial confusion among small businesses and tax professionals regarding how payers and payees should comply with the new reporting requirements. In response, in November 2011 the IRS issued a notice of penalty relief for failure to accurately report information required by the new form. The penalty relief only applied in the first year of the new program, 2011, and was designed to mitigate confusion rather than sanction deliberate noncompliance. Penalty relief required a “good faith effort” on the part of taxpayers to comply with new requirements. To the extent this was widely known, it might explain a delayed response until 2012 to the 1099-K initiative.

⁸ Throughout the paper, we assume that taxpayer's behavioral response to the 1099-K occurred, at the earliest, in 2011. It is possible that taxpayers may have anticipated the 1099-K and increased receipts in 2010. Such action by taxpayers would work against our finding a response to the 1099-K in 2011. Given the taxpayers we are examining (relatively unsophisticated Schedule C taxpayers), we consider it most likely that any response was a reporting response starting in 2011. Incidentally, Google-related 1099-K searches and searches on IRS.gov for the 1099-K increased dramatically starting in January of 2012. This attention to the 1099-K is mirrored in page view data provided by the IRS—indeed, there were over 850,000 page views on IRS.gov of 1099-K related web pages during the time period January-April, 2012 (see Hoopes, Reck and Slemrod (2013) for a discussion regarding inferring taxpayer information sets from Google Trends and IRS.gov data).

value of transactions, the value of transactions for each month of the tax year, the gross number of payment transactions, any federal income tax withheld, and any state income tax withheld. Figure 1 shows a Form 1099-K from tax year 2011.

2.3 The scope of the 1099-K program for sole proprietorships

Table 1 provides summary statistics on taxpayers that file Schedule C and the Form 1099-K reports on these taxpayers' receipts. We provide summary statistics for the year before and the year after the introduction of Form 1099-K. Of the 23 million Schedule C filers, about 1 million, or 5.1 percent, received at least one 1099-K. Those that received a Form 1099-K reported being roughly three times larger than those that did not, both before and after the introduction of the form. Between 60 and 84 percent of Schedule C filers e-file their return and about 70 percent of these taxpayers engage a paid preparer to assist with the filing of their return.

About 10.3 million 1099-Ks were filed in tax year 2011.⁹ We limit our analysis to 7.4 million 1099-Ks, due to duplicate filings and other issues.¹⁰ Of these 7.4 million information returns, 2.5 million (34 percent) were matched to Schedule C taxpayers appearing in our data, representing \$160 billion (3 percent) of the total \$5.3 trillion of receipts reported to the IRS on all 10.3 million 1099-Ks through this new information reporting program. Unmatched 1099-Ks report information for other types of business entities, such as partnerships, which tend to be larger. Table 1 also provides summary data for the group of taxpayers receiving 1099-K who filed in every year of 2004-2012. There are 6.6 million taxpayers in the balanced panel, 644

⁹ With some exceptions, any entity accepting payment via payment cards or TPSEs should receive a 1099-K. Some transactions are exempt from the 1099-K filing requirement, including payments to parties outside the United States. Payments made through third-party settlement organizations such as PayPal are only required to file Form 1099-K when the annual gross amount of transactions of a business is greater than \$20,000 and the total number of transactions is greater than 200. In this study, we focus on businesses whose income is reported on Schedule C of the individual tax return, Form 1040. Schedule C data cover both true sole proprietors (individual, unincorporated taxpayers), and single-member limited liability corporations (LLCs), which are taxed as sole proprietorships. We study this set of taxpayers because, as already discussed, small businesses operating as sole proprietorships represent a large compliance problem for the IRS, and they represent a large fraction of 1099-K recipients.

¹⁰ The 7.4 million figure excludes 1099-Ks with the same payer TIN-payee TIN combination, which usually occurs due to the presence of corrected or amended 1099s, but can also be due to a payee filing multiple Schedule Cs for different businesses. It also excludes returns filed with invalid payee TINs, which cannot be matched to Schedule Cs, as well as returns filed with an employer identification number (EIN) as the payee TIN for a non-sole proprietorship business, which should not be matched to Schedule C returns that are intended for sole proprietorships only. We apply these filters to the full population of 1099-Ks as part of the Schedule C matching process. Refer to the Appendix of this paper for further detail.

thousand of whom received a 1099-K. These taxpayers form the balanced panel used throughout in the paper to study intensive margin effects, and they tend to have slightly higher receipts than the typical 1099-K recipient.

Table 2 provides details on the different sectors represented by Schedule C taxpayers. The first column lists the percentage of all Schedule C taxpayers in a sector that receive a 1099-K at any time (i.e., in 2011 or 2012) during our sample period. For example, 3.2 percent of independent artists in our sample received a 1099-K sometime during our sample period. In sharp contrast, for grocery stores this figure is 38.8 percent. The second column tabulates the percentage of all taxpayers in the sector that receive the 1099-MISC any time in our sample period, where it is apparent that far more Schedule C taxpayers receive a 1099-MISC than received a 1099-K. The final column tabulates the percentage of all Schedule C taxpayers in each sector. In this table, the first 10 sectors (those above the bold line) represent the 10 highest populated NAICS codes among all Schedule C taxpayers. The second 10 sectors represent the 10 sectors with the highest percentage of 1099-K recipients, conditional upon having at least 0.10 percent of all Schedule C taxpayers in the sector.

3. A Model of the Taxpayer's Decision

In this section we develop a model of a firm's decision to report receipts and deductible expenses to a tax authority, based on the theoretical work of Allingham and Sandmo (1972) and Srinivasan (1973). We show how, under intuitive assumptions about taxpayers' perceptions of audit threats, (1) that taxpayers most affected by an increase in information reporting will report receipts approximately equal to the gross amount reported by third parties (even if not all the firm's receipts are subject to information reporting), and (2) when expenses are not subject to information reporting, any increases in receipts from an increase in information reporting will be offset by increases in expenses. These are the two main empirical predictions we test in Section 6. The model also generates predictions as to which firms are likely to be affected by an increase in information reporting, which we use to motivate additional empirical exercises. Specifically,

firms should be affected by an increase in information reporting if they experience a large change in the fraction of their reported receipts subject to information reporting, or if they have a low propensity to report truthfully in absence of information reporting. Several of these results are similar to those of Carrillo et al. (2014), who use a related model to motivate their analysis of the effects of information reporting in Ecuador.¹¹

3.1 Baseline model

We begin with a model of a risk-neutral business that has no deductible expenses. In the next section, we introduce expenses into the model. We consider only the firm's reporting of information to the tax authority in order to derive implications for the impact of increased information reporting that are testable with tax return data. We will not consider real but unobservable decisions, such as output responses or firms' attempts to influence the share of receipts subject to information reporting by, for example, offering discounts for cash payments.¹²

Firm i chooses the level of receipts R_i to report to the tax authority, given true receipts Q_i and the amount of receipts reported to the tax authority by third parties, K_i . The firm's problem is:

$$\max_{R_i} Q_i - tR_i - p_i(R_i, Q_i, K_i)s(Q_i - R_i), \quad (1)$$

where t is the income tax rate, assumed to be constant for simplicity, and $p_i(\cdot)$ is the probability of detection and punishment of evasion. In the event that the firm reports $R_i < Q_i$ and is detected, it must remit the fraction $s > t$ on its unreported receipts.¹³

We specify a probability of detection with two intuitive properties: first, the probability of detection is decreasing in the fraction of true receipts the firm reports to the IRS, and, second, the probability of detection increases discontinuously to one when the taxpayer reports receipts

¹¹ The two approaches were developed independently of one another.

¹² Although real responses are certainly of interest, our data do not provide a straightforward means of examining their importance.

¹³ The important predictions of the model discussed here would all obtain if we assumed the firm were risk-averse rather than risk-neutral.

below the amount reported to the tax authority.¹⁴ In other words, we suppose taxpayers believe that more compliant firms are less likely to be audited, and that reporting information that directly contradicts third-party information results in a certain audit.

Using a similar approach to Phillips (2014), we write the probability of detection as

$$p_i(R_i, Q_i, K_i) = \begin{cases} 1, & \text{if } R_i < K_i \\ \frac{\alpha_i}{2} \frac{Q_i - R_i}{Q_i}, & \text{if } R_i \geq K_i \end{cases} \quad (2)$$

where $\alpha_i \leq 1$ summarizes firm i 's *audit threat* from enforcement efforts other than information reporting.¹⁵ For example, a firm experiences a low audit threat if it believes that increasing its under-reporting is (1) unlikely to result in an audit in the absence of information reporting, or even (2) unlikely to be detected in the event of an audit. Factors causing firm-specific variation in audit threat include the size of the business, how much income the business owner has from other sources, the salience of tax enforcement to the taxpayer and, importantly, the share of transactions conducted in cash, which is more easily hidden from the tax authority than those received through credit cards. One could also add to this model a second parameter summarizing idiosyncratic preferences for tax compliance, which would multiply the last term in Equation (1). This parameter would have effects on compliance identical to the effects of α_i , so in an informal sense one can think of α_i as summarizing the taxpayers' *propensity to report truthfully* in the absence of information reporting, which could vary due to enforcement efforts targeting different kinds of taxpayers or varying taxpayer preferences for compliance (Erard and Feinstein 1994).

¹⁴ The specific functional form we specify here is an expository tool. The predictions of the model we discuss will hold in general, as long as the two assumptions about the probability of detection in the preceding sentence are satisfied. Additionally, the qualitative predictions do not require that the (subjective) probability of detection increases all the way to one when I_i reaches R_i , just that reporting receipts less than the information report results in a large, discontinuous increase in the probability of detection. In practice the probability of detection is also influenced by other factors, such as deviations from prior-year receipts and expenses, or deviations from industry norms.

¹⁵ In the more general model alluded to in the previous footnote, the parameter α_i captures variation in the first derivative of firm i 's probability of detection with respect to the share of receipt under-reporting, evaluated at the firm's optimal level of under-reporting when there is no third-party information reporting.

Another key parameter for the solution to the problem is $\gamma_i \equiv \frac{K_i}{Q_i} \leq 1$, the fraction of the firm's receipts subject to information reporting.

The solution to the firm's problem is given by the following:

$$R(\alpha_i, \gamma_i, K_i, s, t, Q_i) = \begin{cases} \left(1 - \frac{t}{s\alpha_i}\right) Q_i, & \text{if } t \leq s\alpha_i \text{ and } \left(1 - \frac{t}{s\alpha_i}\right) > \gamma_i \\ K_i, & \text{if } t > s\alpha_i \text{ or } \left(1 - \frac{t}{s\alpha_i}\right) \leq \gamma_i \end{cases}. \quad (3)$$

There are three distinct possibilities suggested by Equation (3), which we can characterize in terms of the two key parameters that vary across firms, the audit threat α_i and the share of true receipts reported to the tax authority, γ_i . Panel A of Figure 2 depicts these possibilities.

- Case 1: if α_i is large and γ_i is small, firms report some constant fraction of income that depends negatively on the tax rate and positively on the penalty rate and the propensity to report truthfully. These firms are unaffected by information reporting.
- Case 2: if α_i is small (but not so small so as to result in Case 3) and γ_i is large, the firm reports receipts exactly equal to the amount reported by third parties. These firms increase reported receipts on the intensive margin in response to information reporting.
- Case 3: if α_i is sufficiently small (or the difference between the penalty rate and the tax rate is small), the firm reports only receipts about which third parties inform the tax authority, regardless of the level of information reporting. These firms are affected on the extensive margin of receipts reporting by 1099-K.

Case 3 firms would not report anything in the absence of information reporting. For both Case 2 and Case 3 firms, the incentive to avoid the audit threat causes bunching where $R_i = K_i$, that is, where $K_i/R_i = 1$. Panel B of Figure 2 plots the firm's receipts with and without information reporting as a function of the fraction of receipts subject to information reporting, γ_i , for Cases 1 and 2. Note that when all a firm's receipts are subject to information reporting, so that $\gamma_i = 1$,

the firm reports truthfully.¹⁶ Panel C of Figure 2 shows the predicted value of K_i/R_i , as a function of γ_i . It illustrates a key insight from the model: any firm that responds to the 1099-K, either intensively or extensively, will report exactly the amount on the information reports: $R_i = K_i$. We examine the implications of this in our empirical analysis presented in Section 6.

The simple model we have outlined suggests that the effect of Form 1099-K is likely to be heterogeneous, depending primarily on (1) the fraction of true receipts subject to information reporting, and (2) the firm's propensity to report truthfully in the absence of information reporting. These two factors matter because they can cause the firm's counterfactual report—the report made in absence of Form 1099-K—to be well above the amount of receipts reported to the IRS, so much so that the audit threat introduced by 1099-K is negligible. The firms most likely to be affected have a large fraction of receipts subject to information reporting and/or a large degree of noncompliance in the absence of the form. The first criterion would apply primarily to businesses like online merchants who accept payment mostly through credit cards or third-party networks (such as PayPal), in sharp contrast with individuals receiving large amounts of cash, such as taxi drivers or convenience stores. Notably, these two criteria (whose importance was summarized in the model by α_i and γ_i) may be *positively correlated*: even without the Form 1099-K, the paper trail associated with payment card use increases audit threat. Tax underreporting by small businesses is empirically found to be correlated with cash use (Morse et al., 2009). However, firms with high rates of cash use could still be affected by 1099-K provided they had high rates of noncompliance prior to the form (i.e., very low α_i in the model). In Section 6 we will shed some empirical light on the possible causes of a response to 1099-K using

¹⁶ Formally, we can calculate the effect on reported receipts of an increase in information reporting (i.e., the introduction of the Form 1099-K) from zero to some level I_i , casewise. That effect is summarized by the following:

$$R(\alpha_i, \gamma_i, K_i, s, t, Q_i) - R(\alpha_i, 0, 0, s, t, Q_i) = \begin{cases} 0, & \text{if } \left(1 - \frac{t}{s\alpha_i}\right) > \gamma_i \\ K_i - \left(1 - \frac{t}{s\alpha_i}\right) Q_i, & \text{if } 0 \leq \left(1 - \frac{t}{s\alpha_i}\right) \leq \gamma_i \\ K_i, & \text{if } \left(1 - \frac{t}{s\alpha_i}\right) \leq 0 \end{cases}$$

The first, second, and third rows in Equation (4) corresponds to Cases 1, 2, and 3, respectively.

the sectoral composition of the 1099-K recipients that bunch where reported receipts are close to the gross 1099-K amount, and whether 1099-Ks came from payment card entities or TPSEs.

3.2 Expenses

Many small businesses have costs of doing business that are deductible from receipts in the calculation of income subject to tax (Internal Revenue Code (IRC) §162). We introduce deductible expenses into the model by allowing the firm to choose not only reported receipts, but reported expenses. Expenses are not subject to information reporting (in the model or in reality).¹⁷ The firm's problem becomes:

$$\max_{R_i} Q_i - D_i - t(R_i - E_i) - p_i(R_i, Q_i, E_i, D_i, K_i)s[(Q_i - D_i) - (R_i - E_i)], \quad (4)$$

where E_i are reported expenses and D_i are actual expenses, and all other variables are as defined above. We will focus on the case where the firm has positive true profits for simplicity, so $Q_i \geq D_i$, and we specify a probability of detection function with similar intuitive properties to before: the probability of detection is increasing in the share of net income underreported (which now depends on receipts and expenses) and equal to one whenever the firm's report contradicts third-party information:

$$p_i(R_i, E_i, K_i) = \begin{cases} 1, & \text{if } R_i < K_i \\ q(R_i, E_i), & \text{if } R_i \geq K_i \end{cases} \quad (5)$$

where $q_{iR} < 0$ and $q_{iE} > 0$. In words, contradicting third-party information results in immediate detection of any evasion, and otherwise reporting greater receipts and/or less expenses decreases the probability of detection. Note that when E_i is fixed this model nests the model in the previous section. Note also that this formulation allows for the possibility that expenses leave a paper trail that may be easier to discover upon audit than hidden receipts.

¹⁷ Note that, under a value-added tax, reported expenses can in principle be checked against the reported receipts of the supplier firm. Further, the Affordable Care Act of 2010 (ACA) included a provision (IRC §9006) that would have required expense reporting to the IRS via a Form 1099. This provision was eliminated with overwhelming Congressional support (314 to 112 in the House, 87 to 12 in the Senate) in the Comprehensive 1099 Taxpayer Protection and Repayment of Exchange Subsidy Overpayments Act of 2011 (CCH 2011).

We will assume the existence of an interior solution with positive receipts and expenses reported to the tax authority. The solution to the firm's problem is analytically more complex, but the model makes the following three predictions:

- All firms affected by an increase in third-party reported receipts K_i report $R_i = K_i$ after the increase.
- Firms propensity to report $R_i = K_i$ is increasing in γ_i and q_{iR} .
- When $q_{iER} \leq 0$, increases in receipts due to increases in K_i will be offset by non-zero increases in E_i .

The assumption that $q_{iER} \leq 0$ is satisfied when the marginal decrease in the probability of detection from reporting lower expenses is greater with higher reported receipts R_i . Intuitively, when the firm is pushed to a corner solution for R_i by information reporting, it increases expense reporting above what it would report with unconstrained R_i in order to satisfy the first-order marginal condition for expense reporting. The assumption that $q_{iER} \leq 0$ is satisfied when, for example, the probability of detection depends on the reported rate of profit, i.e. $q_{iER} = q\left(\frac{R_i - E_i}{R_i}\right)$, with $q' < 0$, $q'' > 0$, as in Carrillo et al (2014), or when the probability of detection depends only on reported profits i.e. $q_{iER} = q(R_i - E_i)$ with $q' < 0$, $q'' > 0$. In the latter case, receipts increases are offset by expense increases exactly one-for-one.¹⁸ Even if $q_{iER} > 0$, the model predicts that some offsetting will occur so long as q_{iER} is sufficiently small.

3.3 Other Extensions

Thus far, we have employed a sharp model in order to cleanly illustrate the intuition behind the main empirical analysis of the paper. Here we discuss how a few variations of the model would affect its predictions.

¹⁸ This is a prediction our research design does not allow us to test.

Several possible additions could yield the prediction that some firms report $R_i = E_i$, where the model in the previous section would suggest they would report $R_i < E_i$ despite having positive real profits. For example, we could model aspects of the tax code that limit businesses' ability to claim losses, such as hobby loss rules or restrictions on which expenses may be used to claim a loss. The $R_i = E_i$ prediction could also be obtained by assuming an increase in the perceived probability of audit where net income becomes negative in the presence of true profits, or by a model of reference dependence in income reporting similar to that employed by Rees-Jones (2014). In every case, these alterations would yield the prediction that an increase in information reporting increases firms' propensity to report receipts exactly equal to expenses.

We can also incorporate into the model the notion that a firm that does not submit a Schedule C may face a lower probability of detection than a firm filing a Schedule C and declaring arbitrarily small receipts and expenses. To examine how this changes the model, we can add an extensive margin filing choice variable $F \in \{0, 1\}$, such that $F = 0$ indicates non-filing, and write the probability of detection as

$$p_i(R_i, E_i, K_i) = \begin{cases} 1, & \text{if } R_i < K_i \\ q(R_i, E_i) - \beta_i(1 - F), & \text{if } R_i \geq K_i \end{cases} \quad (6)$$

where $\beta_i > 0$ summarizes how the firm's detection probability declines discretely when, in addition to reporting no receipts or expenses, it declines to file a Schedule C.

This addition changes the predictions of the model in two ways. First, information reporting intensifies the predicted extensive margin response. The receipts-only model in Section 3.1 predicted an extensive margin response to increased information reporting (due to the non-negativity constraint on R_i), but this possibility adds to the reasons a firm may not file a Schedule C. Second, this addition breaks the prediction that *every* firm affected by information reporting will end up reporting $R_i = K_i$, although the model does predict that some, perhaps many, affected firms will report $R_i = K_i$ when the distribution of α_i is sufficiently rich. Panel D of Figure 2 illustrates the case in which the firm starts filing Schedule C in response to the

introduction of information reporting, but it does not report $R_i = K_i$.¹⁹ When β_i is relatively small, this situation is unlikely to occur. Nevertheless, it is important to keep in mind that some firms caused to file Schedule C by 1099-K may not be visible in the analysis in Section 6, which focuses on firms reporting R_i near K_i .

In our theoretical discussion, we have ignored the possibility that γ_i may be influenced by the firm at some cost. Were the cost of doing so low enough, noncompliant firms would want to decrease γ_i , either by incentivizing cash payments or by declining to accept some payment methods subject to information reporting. Our data do not provide a credible means of examining whether firms respond to the Form 1099-K in this way. If they do, however, its effect would be smaller than predicted in the model presented here, but qualitatively similar: many firms affected by 1099-K should still bunch near the point where reported receipts equal the 1099-K amount, and firms reporting substantially below the 1099-K amount would have had little change in their receipts (but possibly some change in their payment methods) in response to 1099-K.²⁰

4. Data

We examine data from the population of tax returns and information reports filed with the Internal Revenue Service, accessed via the Compliance Data Warehouse (CDW), the IRS's research repository of tax return data. Specifically, we use data from taxpayers' Form 1040 Schedule C from 2004 to 2012, as well as Form 1099-K and Form 1099-MISC. Identifying information, including taxpayer identification numbers (TINs), are masked to the researchers to protect taxpayer privacy. The information reports from the credit card and other payment processing companies can be matched to the businesses whose income details are on the

¹⁹ The picture is drawn ignoring expenses. With expenses the intuition is complicated by the fact that the prediction that firms report receipts equal to the 1099-K amount requires a modification of the probability of detection alluded to at the beginning of this section (see also Equations (7) and (8)). Given such a modification—requiring that the firm believes its audit probability is increasing not just in the share of net income underreported but also the share of receipts underreported—the intuition illustrated in Figure 2 Panel D is unchanged by adding expenses to the model.

²⁰ We find no “hole” in the distribution of 1099-K amounts around the *de minimis* restrictions applying to third-party network vendors. This fact suggests that firms are not willing and/or able to decrease their receipts from third-party network transactions to avoid information reporting from third-party network vendors, at least along the intensive margin. This finding is consistent with the findings of Arango and Taylor (2008) and Jonker (2011), whose work suggests that many firms have limited capacity to manipulate the share of receipts from various transactions types.

Schedule C. Details on the matching and data gathering process are in the Appendix.²¹ While we have the contents of taxpayers’ tax returns, we do not have a direct measure of tax under-reporting, from IRS audits or any other source. Thus, we will have to infer the effect on under-reporting from the data on taxpayer reports, using a “traces-of-evasion” approach, as discussed in Slemrod and Weber (2012). For most of the analysis, we focus on the gross amount of receipts reported by Form 1099-K, added up over all the 1099-Ks received by a given taxpayer, along with a binary variable encoding whether the taxpayer received at least one Form 1099-K.

The implementation of the Form 1099-K program was not randomized, so that there is not an immediately available control group against which to compare the behavior of those affected. In our initial analyses, we construct comparison groups from (1) taxpayers filing Schedule C but not receiving Form 1099-K, (2) taxpayers receiving Form 1099-MISC in years prior to receiving 1099-K, and (3) in our preferred analysis, firms with a low fraction of reported receipts reported on Form 1099-K.²² The comparison of 1099-K recipients and non-recipients is straightforward. The 1099-MISC comparison group is motivated by the notion that firms already subject to some information reporting may be less affected by additional information reporting.²³ To construct a comparison group based on this idea, we compare firms receiving 1099-MISC consistently from 2004-2010 to firms who never received a Form 1099-MISC.

We also analyze extensive margin effects, to see if Form 1099-K caused individuals to start declaring their small-business receipts and expenses on Schedule C. Given that we cannot observe any business information for taxpayers who should have filed Schedule C but did not,

²¹ Note that the dollar figure on the 1099-K does not necessarily exactly match what should be reported as receipts, due to such item as fees, sales taxes, and merchandise returns; in some cases, the difference could be substantial. It is also possible that some firms truthfully report receipts below their 1099-K amount; for example, law firms sometimes process payment card transactions in the administration of trusts, which are not legally classified as receipts but may nevertheless be subject to 1099-K reporting.

²² We also performed comparisons based on whether firms declared wages or depreciation deductions in some or all years, based on the classification of Schedule C businesses used by Nelson (2008), and firms in the retail versus non-retail sectors. These results closely resemble the results for the comparison of firms based on whether they received 1099-Ks, so we omit them for brevity.

²³ In fact, some payments previously subjected to reporting under Form 1099-MISC—namely those transacted via payment card or TPSE—were subsumed by Form 1099-K, so that the payer was no longer required to file a 1099-MISC. Anecdotal evidence suggests that many people may not have understood this change in filing requirements, at least at first, so we do not attempt to use it directly to aid in identification.

we take the approach of comparing, for firms filing Schedule C in a given year, how likely that firm was to have filed in prior years, which sheds some light on how many would have filed in absence of information reporting. Motivated by the theory in Section 3, we also compare firms whose reported receipts are well above the gross amount from all Form 1099-Ks to those whose reported receipts are close to the 1099-K. Specifically, we examine the distribution of the ratio of the 1099-K receipts amount to total receipts reported on Schedule C, denoted K/R , and we use firms with low values of K/R as a control group for the estimation of the treatment effect of Form 1099-K on firms with high values of K/R . In this context, we examine trends in reporting of receipts, expenses, and net income, as well as filing rates for Schedule C.

To facilitate interpretation of our results, it is useful to have at least coarse proxies for the share of a firm's true receipts subject to information reporting, the parameter γ_i in our model. Doing so helps us distinguish between the possibility that (1) firms report close to the 1099-K amount because their true receipts are close to the amount reported to the tax authority from the possibility that (2) firms report close to the 1099-K amount in response to a perceived audit threat of reporting less receipts than receipts reported to the IRS. Because exact measures of γ_i are not available in the data, we take two indirect approaches, one based on the firm's self-reported sector and the other based on the nature of the entity issuing the 1099-K. First, we select firms in sectors that are likely to have a substantial fraction of receipts in cash. In one specification we restrict our analysis to firms that prior work by Frisch (2005) suggests have either an especially high or especially low rate of payment-card acceptance.²⁴ In another, we focus on firms in sectors where the overall share of firms receiving Form 1099-K is especially high or low. Second, we utilize additional information captured from 1099-Ks in 2012 only, which tell us whether the reporting entity was a payment card entity or a TPSE. We use this to compare firms receiving 1099-Ks from payment card entities only with those receiving 1099-K

²⁴ We thank Fumiko Hayashi for providing us this data.

from TPSEs only. The latter in particular are much more likely to be an electronic business with a high share of sales, perhaps 100 percent of sales, done via transactions subject to 1099-K reporting.

5. Aggregated Time-Series Analyses

5.1 Overall aggregates

As a first pass we examine the population micro-data in order to focus on the firms actually subject to 1099-K reporting. Figure 3 Panel A demonstrates that the reporting of net income by Schedule C taxpayers did not increase suddenly with the introduction of the form. Next we focus on receipts growth in more detail. We restrict our attention to taxpayers filing a Schedule C in each year of 2004-2012, and focus on receipts growth. We use the logarithmic transformation for receipts and expenses because these variables are distributed approximately log-normally in the data, and because it provides a simple way of calculating the mean growth rate, which equals the first difference of the mean of the log of receipts. We graph the mean growth rates over time in Figure 3 Panel B. Those receiving 1099-K in either 2011 or 2012, but not both years, are excluded from this graph.²⁵ It is evident that firms that received a 1099-K grew much more quickly than other firms, at least based on their reports in 2010 and 2011. However, they also grew faster between each pair of years from 2004 to 2010.²⁶ Figure 3 Panel B shows that, for 1099-K recipients, receipts grew at only a very slightly more rapid pace in the first year of the 1099-K initiative than in the prior year. In order to interpret any change in aggregates over time causally, we require a comparison group whose behavior yields a valid counterfactual for growth in the absence of 1099-K. Schedule C filers not receiving a 1099-K do

²⁵ There is a large negative growth rate from 2011 to 2012 for the 2011-only 1099-K recipients that is attributable to selection out of the 1099-K population. This negative growth rate obscures the more important patterns in Figure 3 when we include these firms in the analysis.

²⁶ An (untabulated) examination of expenses and net income reveals a similar trend. We observe qualitatively similar trends if we restrict our analysis to firms filing Schedule C in each year of 2008-2012 or even 2010-2012: pre-1099-K receipts growth is higher for proprietors receiving a 1099-K than others, and growth rates change little after a 1099-K is introduced. One difference we observe when we select on fewer years of prior Schedule C filing is that firms receiving a 1099-K and filing Schedule C in, say, 2008-2012 instead of 2004-2012, are growing more quickly. Mean growth rates of 5 to 6 percent are common for the 2008-2012 group. We attribute this to the relative maturity of firms which have been filing Schedule C for more years. None of these concerns influences our findings about the limited influence of Form 1099-K on the aggregate trends.

not convincingly qualify, as these firms were growing at slower rates prior to the introduction of the Form 1099-K in 2011, eliminating one potential comparison group for investigation into the effectiveness of the 1099-K (comparing 1099-K firms to non-1099-K firms).

The difference in the growth rate for the two populations may stem from differences in the nature of the economic activity undertaken by each. Schedule C filers are a heterogeneous group (Nelson 2008; Knittle et al. 2011). Taxpayers filing Schedule C but not receiving Form 1099-K may be more likely to be reporting the miscellaneous types of income reportable under Schedule C that do not constitute what one would normally think of as “small-business income,” such as secondary income from professional consulting. This income may grow very little from year to year or even decline, and one expects a high degree of movement in and out of the population of Schedule C filers from year to year. In contrast, those true small businesses that survive from one year to the next are likely to grow significantly. Below we pursue alternative strategies for constructing a control group.²⁷

5.2 Graphical examination of subsets of firms

We next look at aggregate time-series data for subsets of firms relatively more or less likely to be affected by the 1099-K, to see if a diverging trend begins in 2011. We might expect firms historically already subject to information reporting to be *less* affected by the introduction of 1099-K information reporting. The receipts of many independent contractors have been for many years subject to information reporting via the Form 1099-MISC. For independent contractors, Form 1099-K actually replaces some 1099-MISC information reporting, for reasons discussed in Section 4.²⁸ Theory suggests that if Form 1099-K has an effect in the aggregate, we

²⁷ One alternative for which we do not present results here is the *de minimis* restrictions suggested by Knittel et al. (2011), who recommend excluding firms with reported receipts and expenses below a set of cutoffs to analyze small businesses. The comparison of firms receiving a 1099-K to firms not receiving a 1099-K is similar if we implement this restriction; we do not present this analysis in this paper due to concerns about introducing selection bias by requiring reported receipts and/or expenses to exceed certain thresholds.

²⁸ Anecdotal evidence alluded to above suggests that there was some confusion over whether certain payments were reportable under 1099-MISC and/or 1099-K in the first years of the program. For this reason, in 2011 and 2012 receipts that should have been reported only on a Form 1099-K may have also been reported by 1099-MISC. For this reason we do not use 1099-MISC

should expect reported receipts to increase by more in the group subjected to information reporting for the first time than in the group subjected to information reporting in prior years. To test this hypothesis, we use as a control group only those who received a 1099-MISC in every year of 2004-2010, and compare to those who received a 1099-MISC in none of those years.²⁹ Panel C of Figure 3 depicts receipts growth rates based on whether the firm did or did not receive a 1099-MISC prior to 2011, and whether the firm received a 1099-K. The growth rates for 1099-MISC recipients and non-1099-MISC recipients co-move closely prior to the introduction of Form 1099-K especially for firms receiving 1099-K, so that growth rates are nearly identical. One exception occurs in tax year 2009, which we attribute to the possibility that 1099-MISC recipients were affected slightly more by macroeconomic shocks of the Great Recession, which we believe to be the source of the observed decline and resurgence of growth rates around 2009 in several figures in this paper.

Given that the common-trend assumption is satisfied, we can more confidently interpret any divergence in trends occurring in or after 2011 as rising from the differential impact of 1099-K on the two groups. However, no such divergence occurs: post-1099-K receipts growth is very similar between the two groups. The high levels of growth observed in Figure 3 Panel C occur in both groups, and the especially high rate of growth from 2010 to 2011 also occurs in both groups—as well as the low growth rates in 2012 for both groups. The group of taxpayers subjected to information reporting for the first time under 1099-K behave no differently, on average, than the group of taxpayers subject to information reporting prior to 1099-K due to 1099-MISC, suggesting that the overall initial deterrence effect of the form on reporting was

receipts or amounts in 2011 or 2012. Our identification strategy here only requires that 1099-MISC provide an accurate information report *prior* to the introduction of 1099-K.

²⁹ Many firms file Schedule C in every year but only receive 1099-MISC in some years. If we select on receiving a 1099-MISC continuously from some year t to 2010, we observe nearly identical trends after t , but, unsurprisingly, these firms tend to be much smaller on average prior to t . We report results only for the group receiving 1099-MISC in every year prior to 1099-K for simplicity.

minimal. In untabulated analysis, we observe very similar trends in expense and net income reporting.

6. Bunching in the Reporting of Receipts and Expenses

The model we developed earlier predicts that the 1099-K initiative should create an additional audit threat that causes firms to report receipts near the 1099-K amount for affected firms (see Figure 1). In this section, we take this prediction to data by analyzing taxpayers' tendency to report receipts exactly or nearly equal to the amount reported by Form 1099-K.³⁰ For taxpayers that bunch or report receipts near the bunching threshold, we examine changes in receipts, expenses, and Schedule C filing behavior to examine the differential impact of 1099-K on these specific groups. A secondary bunching analysis concerns taxpayers' tendency to report receipts exactly or nearly equal to expenses. Finally, we examine which specific expense line items may be increased as a result of the 1099-K initiative.

6.1 The cross-sectional relationship between receipts and 1099-K amounts

Figure 4 depicts the actual distribution of the ratio of 1099-K amounts scaled by reported receipts, in the top panel among all 1099-K recipients and then zooming in around where the ratio is equal to 1. The 1099-K amount is very close to reported receipts for a substantial share of firms. About 8 percent of the overall population bunches at a K/R value between 0.9975 and 1.0025 (the bin width in the lower panel of Figure 5 is equal to 0.005). The amount of bunching increased from 2011 to 2012: 9 percent of firms have a ratio between 0.95 and 1.05 in 2011, and the corresponding figure is 11 percent in 2012. That this type of bunching increased from 2011 to 2012 is notable because the IRS was presumed to be more heavily relying on 1099-K

³⁰ Some credit-card charges reported on 1099-K may not actually be taxable receipts. For example, if a customer returns an item purchased with a credit card, the charge-back is not deducted from the 1099-K receipt amount. One unexamined possibility is that while taxpayers understand that having 1099-K receipts equal to or less than total receipts is important, their total receipts may be less than 1099-K receipts for the reason stated above. Rather than truthfully allow 1099-K receipts to be more than total receipts, they may report total receipts exactly equal to 1099-K receipts, and then increase an expense line item, resulting in an equivalent net income as if receipts had been accurately reported.

reporting for audit allocation decisions in 2012 than in 2011, and therefore we might expect to see the behavioral responses to 1099-K reporting increase in 2012.

Recall that bunching may occur for two distinct reasons. First, the firm may not be reporting any of its cash receipts, but they are avoiding the audit threat from contradicting third party reports.. Alternatively, the firm may actually receive all—or nearly all—of its receipts through payment cards or TPSEs. To shed some light on the relative likelihood of these possibilities, we examine the rate of bunching in several subpopulations.³¹ Table 3 tabulates the rate of sharp bunching (bunching exactly at $R=K$) and diffuse bunching (reporting receipts within 5 percent of the 1099-K amount) for 2011 and 2012 in these subpopulations. For more details on the construction of the sub-populations, see Section 4 and the note to the table.

Column 1 of Table 3 indicates that 3 to 4 percent of firms report receipts exactly equal to the 1099-K amount, and 9 to 11 percent report receipts very close to the 1099-K amount. Columns 2 and 3 show that both types of bunching are significantly more pronounced for new filers than for firms filing Schedule C in every year. About 10 to 12 percent of Schedule C filers who did not file in the previous year report receipts exactly equal to their 1099-K amount, compared to just 1 percent of firms who filed in every year covered by our data. This finding foreshadows the results on extensive margin effects in the next section. In Columns 4 to 6 of Table 3, we select on whether firms are in sectors that have high or low rates of cash use according to the Frisch's (2005) data. A high degree of sharp bunching persists near where receipts equal the gross 1099-K amount. For firms in sectors that have lower-than-average credit card acceptance rates (Column 6), we observe slightly less sharp bunching (2-3 percent) and about the same amount of diffuse bunching (12-14 percent) compared to the population. Relatedly, the two most common sectors (according to the 6-digit NAICS classification system) in the bunching population are nail salons (5,756 sharp bunchers, 8,564 diffuse bunchers), and

³¹ In each population the shape of the histogram of the 1099-K amount-receipts ratio in that subpopulation is very similar to Figure 6, with the exception of the significantly different amounts of bunching reported in Table 3.

beauty salons (3,555 sharp bunchers, 6,296 diffuse bunchers). Firms in these sectors likely receive a substantial amount of cash.

Columns 7 and 8 present rates of bunching for firms receiving 1099-Ks from payment cards only or TPSEs only, respectively. Bunching is slightly less common for firms receiving 1099-K from payment-card-only firms. Strikingly, however, bunching is extremely common for firms receiving 1099-K from TPSEs only, with 17 percent reporting receipts exactly equal to the 1099-K amount and 42 percent reporting receipts very close to the 1099-K amount.³² We observe nearly identical results if we perform multivariate probit or logit regression on a binary dependent variable indicating whether a firm was a sharp or diffuse buncher.³³

Theory suggests that firms should bunch if (1) the fraction of true receipts subjected to information reporting is very high, or (2) the propensity to report truthfully in absence of information reporting is low. The results in Table 3 suggest that both factors matter. Were the first channel the sole driver of the effects, we should see much less bunching for firms in sectors with high rates of cash use; were the second channel irrelevant, we would not see large rates of bunching for firms receiving 1099-K from TPSEs only.

It thus appears that Form 1099-K induces some firms to change their reported receipts, although the effect we can detect is limited to the roughly 10 percent of Schedule C filers who receive Form 1099-K and report receipts very close to the amount reported on the 1099-K. Summary statistics for bunching firms are provided in Table 4. These firms tend to report being significantly smaller than the typical 1099-K recipient. In the next section we reconcile the observation that these firms were affected by Form 1099-K with a difficult-to-detect aggregate effect.

³² As we should expect given the construction of the variables, only 4 percent of the firms receiving a Form 1099-K from third-party-network entities only are in sectors we believe to be using primarily cash, compared to 13 percent of all 1099-K recipients in 2012. That there is very little overlap between these groups and high rates of bunching in both bolsters our interpretation of the results.

³³ We also examined the relationship between the marginal tax rate and bunching behavior. As the model in Section 3.1 would suggest, firms with a higher marginal tax rate are more likely to be sharp bunchers (excepting their Schedule C income from the calculation of the marginal tax rate, for identification).

6.2 Trends based on percent of reported receipts subject to 1099-K reporting

In the previous section, we documented a large amount of bunching of firms at or near where reported receipts exactly equal the gross dollar amount of receipts reported on Form 1099-K. This section analyzes differential post-2010 trends among 1099-K recipients based on the value of the ratio of the gross amount from a taxpayer's 1099-Ks and reported receipts, denoted K/R . If the observed bunching is an indication that firms respond to Form 1099-K by increasing their reported receipts, as suggested by the theoretical model in Section 3 and the evidence in the previous section, then firms with K/R close to one should be the most likely to have been affected by Form 1099-K.

Figure 5 depicts the trends in reported receipts, expenses, and net income, as well as Schedule C filing behavior, based on the value of K/R in 2011. Note that for firms not receiving a 1099-K, K/R equals zero. The top three panels analyze trends in reporting for taxpayers filing Schedule C in all years 2004-2012, and the bottom panel analyzes the extensive margin of Schedule C filing behavior.

For firms with a total 1099-K amount less than 75 percent of reported receipts we observe similar growth in receipts and expenses in Panels A and B to those documented in earlier sections: growth rates of 3 to 7 percent both before and after the introduction of 1099-K. In stark contrast, firms with K/R close to 1 report large increases in their receipts and expenses from 2010 to 2011. In Panel A, we observe 10 to 18 percent growth in reported receipts for firms with K/R between 0.8 and 1, and almost 30 percent receipts growth for firms with $K=R$ exactly. These increases are not plausibly attributable to differing pre-trends, which we should observe if, for example, the patterns in the 2010-2011 line in the figure were driven by the rapid growth of (compliant) credit-card only or TPSE-only firms. We plotted receipts growth rates prior to 2010-2011 for comparison; firms with K/R close to but less than 1 were growing slightly faster (about 7-11 percent) before the introduction of 1099-K, but the changes from 2010 to 2011 still represent an enormous deviation from trend. Firms with $K=R$ exactly actually had a *lower*

growth rate than other firms prior to the introduction of Form 1099-K. In untabulated regressions, we verify that these results are statistically significant by regressing logged receipts (and expenses) on the interaction of the vector of year dummies with a vector of indicators for K/R bins (see also the related regressions in the next section). We observe statistically significantly larger growth in the bins surrounding $K=R$ in 2011 and 2012, but not in any other year from 2005 to 2010, confirming that the graphed results in Figure 5 exhibit statistically significant differences in growth rates for $K=R$ firms.

Thus, the introduction of the Form 1099-K appears to have had a sizable impact on the subset of firms who reported receipts close to the amount reported on the new form. However, this finding is not the end of the story. While receipts growing especially quickly among the firms with K/R close to one suggest the possibility that the Form 1099-K increased tax compliance, Panel B of Figure 5 documents a markedly similar pattern in growth rates of reported expenses. Putting receipts and expenses together, in Panel C we observe little to no growth in median incomes attributable to Form 1099-K for firms with K/R close to 1.³⁴ We interpret these findings as support for the predictions of the theoretical model suggesting that, when induced to increase their reported receipts in response to new information reporting, many taxpayers also increased their reported expenses, leaving net income largely unaffected. In large part because of the increase in reported expenses, the percent change in median net income was only about 2.5 percent higher than the percent change from the previous year for firms with K/R close to one, and this is difficult to distinguish from idiosyncratic variation in median incomes.

We also find evidence of an extensive response among the same class of firms—those with K/R close to one—that is consistent with the theoretical model. Panel D of Figure 5 shows that firms with K/R close to one in 2011 were substantially less likely to have filed a Schedule C

³⁴ We report median income in Panel C because large outliers frequently occur in the level of net income. The logarithmic transformation largely eliminates this concern for receipts and expenses on their own, but we cannot use the logarithmic transformation for net income due to the presence of negative values of the variable. We observe a qualitatively similar pattern to the one in Panel C of Figure 6 if we instead plot the change in median income instead of the percent change.

in prior years. For most values of K/R significantly below 1, 90 percent of 1099-K recipients in 2011 filed in 2010, while only half of firms reporting $K=R$ filed in the earlier year. Among those with receipts within 5 percent of the 1099-K amount, 66 percent filed in the previous year. Put another way, up to 34 percent of this group were induced to file Schedule C in response to the introduction of Form 1099-K.³⁵

We next explore differences in this trend among subgroups of interest. Figure 6 reports patterns in receipts growth, as in Panel A of the previous figure based on characteristics of interest.³⁶ First, motivated by the reasoning in Section 5, we examine firms receiving 1099-MISC from 2004 to 2010 and compare them to firms never receiving a 1099-MISC. Firms receiving 1099-MISC were far less likely to report $K=R$ (the second graph in Panel A), but the few hundred firms that did report $K=R$ after receiving a 1099-MISC actually reported higher receipts growth from 2010 to 2011 than the firms that did not receive a 1099-MISC. These are likely firms for whom the 1099-MISC previously only reported some small fraction of their receipts, while 1099-K reports a larger fraction. Receipts growth for firms with K/R significantly less than one are very similar for 1099-MISC and non-1099-MISC firms, which we should expect given the results shown in Figure 3, Panel C.

Panels B and C of Figure 6 report the same estimates for payment-card-only and TPSE-only recipients of 1099-K, respectively. We plot these patterns using a coarser binning of K/R because the latter groups are smaller in the sample of firms filing Schedule C in all years. The qualitative pattern is the same as before for both groups: firms with $K/R=1$ (in 2012, when we have data on entities issuing 1099-K) experience large receipts growth when 1099-K is introduced in 2011. Other firms grow only very slightly faster from 2010-2011. Perhaps unsurprisingly given the stark differences in bunching rates between these groups, however,

³⁵ In an untabulated figure, we recreate this graph using predicted Schedule C filing in the previous year based on a probit estimation of whether the firm is predicted to file in the previous year. The pattern is the same: even controlling for other factors by including covariates in the prediction regression, $K/R=1$ firms are much less likely to have filed in the previous year.

³⁶ In all cases, the patterns in expenses resemble the pattern for receipts, and median income changes very little with the introduction of 1099-K, even for firms with K/R close to 1.

TPSE-only firms appear much more strongly affected by Form 1099-K than payment-card only firms.

We also examine the role of paid preparers in the response to Form 1099-K. Panel A of Figure 7 reports receipts growth by K/R bin separately for firms that do and do not use a paid preparer. We observe little difference in the impact of 1099-K by preparer use. We might expect differences along these lines if taxpayers with paid preparers were more or less likely to be compliant, but this appears not to have happened in this case. In Figure 7 Panel B we examine whether the increased complexity of preparing a tax return caused affected taxpayers to seek out a tax preparer; once again we obtain a null result, suggesting that Form 1099-K had little effect on preparer use.

6.3 Firms with reported receipts well in excess of 1099-K amount as a control group

The results in the previous section suggest that firms with low values of K/R behaved similarly to firms with high K/R prior to 1099-K, but were unaffected by the introduction of 1099-K. Here we report the results from analysis that explicitly uses firms with K/R below 0.5 as a control group. We divide “treated firms”—those Schedule C filers with K/R>0.5—further into bins based on K/R to reflect that treatment intensity should be expected to be weaker for firms with K/R just above 0.5 than for firms with K/R equal to or very close to one. Performing the analysis this way allows us to estimate explicitly the magnitudes of the causal effect of 1099-K on firms with high K/R, as suggested by Figures 5 through 7. We use a random growth model to estimate the impact of Form 1099-K (Heckman and Hotz 1989), and estimate the parameters of the following regression equation:

$$y_{it} = \sum_{b \in B} 1 \left\{ \frac{K_{i2011}}{R_{i2011}} \in b \right\} \alpha_{bt} + \eta_t + \gamma_i + \epsilon_{it}, \quad (7)$$

where y_{it} is one of three outcome variables (either logged receipts, logged expenses,³⁷ or (the level of) net income), b is a set of binned values of K/R and B is the set of bins with K/R>0.5. This model implies that we can estimate the effect of Form 1099-K on firms in group b on y_{it} as

$$\hat{D}_b = [(\alpha_{bt} - \alpha_{bt'}) - (t - t')(\alpha_{bt'} - \alpha_{bt'-1})], \quad (8)$$

where t is a post-treatment year (2011 or 2012) and t' is a pre-treatment year, which will be 2010 in our preferred specification. The first term of Equation (8) captures how receipts grew for firms in a given K/R bin before and after treatment, and the second term compares this growth to how much faster these firms were growing relative to the control group prior to treatment. The identifying assumption is that the counterfactual deviations from the group-specific trend—those occurring if 1099-K had not been introduced—were the same in the treatment and control group. To validate this assumption, we also report the results of several placebo tests, in which t is some pre-treatment year and $t' = t - 1$.³⁸ Importantly, this identification strategy does not require that firms in treatment and control groups grow at the same rate prior to the policy change—indeed, Figure 6 shows that they did not. Differing prior trends could arise, for example, due to Internet-based firms growing faster than others. They could also arise out of anticipation of 1099-K, as firms anticipating the policy might have increased their reported receipts (and expenses) in 2009 and/or 2010 to avoid a large (and suspicious) increase in 2011. If this anticipatory response occurred, our specification under-estimates the total effect of Form 1099-K.

Figure 8 illustrates the results of this analysis, reporting for several K/R bins the log deviation from trend relative to the control group in 2007 to 2012.³⁹ In Panel A we see that the effect of 1099-K on receipts is rapidly increasing as K/R moves close to 1, reaching 0.239 (i.e., a 23.9 percent increase in receipts) for firms with K=R in 2011. The increase in receipts due to

³⁷ Cases in which a firm filed in every year but did not report positive expenses in a given year were dropped from the estimation of Equation (8) when examining log expenses. This restriction eliminates just under 1 percent of the observations for the expenses specification of Equation (8).

³⁸ It is the results of these placebo tests that led us to prefer the random growth model specification to a differences-in-differences design (Heckman and Hotz 1989).

³⁹ We omit some bins with K/R only slightly above 0.5 for clarity; the estimated effect on these bins is very small. We also omit the results for firms with K/R>1.

1099-K for diffuse bunchers (those with $0.95 < K/R < 1$) was 13.2 percent in 2011. Panel B of Figure 8 depicts a very similar pattern for expenses, with slightly smaller effect sizes of 13.8 percent for the sharp bunchers and 12.7 percent for the diffuse bunchers. The placebo tests all result in a small estimated effect relative to the estimated effect of the policy change, as we should expect if the identifying assumption is satisfied to a reasonable approximation. In Panel C, we see there is little discernible effect on net income. None of the estimated effects in Panel C, placebo or otherwise, is statistically significant at the 5 percent level.

We performed several robustness checks for this analysis. First, this analysis was limited to firms filing Schedule C in every year from 2004-2012, like many other results above. We use this restriction to alleviate concerns about firms endogenously selecting into and out of the population of Schedule C filers during the sample period. If we ignore the selection issue and estimate Equation (7) on all firms filing Schedule C at least once in 2004-2012, we obtain similar results. Second, our estimate of Equation (7) included firms filing Schedule C and receiving 1099-K in 2011. A few firms receive 1099-K in 2011 but not 2012, and removing them from the analysis changes very little. Third, although our preferred specification includes all firms with $K/R < 0.5$ in the control group, we obtain very similar results when designating firms with $K/R < 0.3$ or $K/R < 0.7$ as the control group. Finally, we obtain similar results if for 2011 and the placebo years we let $t' = t - 2$ in Equation (8), instead of $t' = t - 1$.

6.4 Receipts and expenses

Schedule C filers have a tendency to report receipts exactly equal to expenses, compared to having reported receipts just above or below expenses. As discussed in Section 3.3, there are two potential reasons this may occur. First, taxpayers may target zero business tax liability when underreporting receipts and/or overstating expenses.⁴⁰ Second, for various reasons, taxpayers

⁴⁰ Overstating expenses may result in some expenses getting disallowed under audit. As a result, the response in new income we document may represent a lower bound given that, under audit, some improperly claimed expenses may be disallowed. Some taxpayers may also accelerate real expenses into a year with otherwise positive profits in order to zero out tax liability from the business.

may not claim legitimate expenses in excess of receipts, creating a situation in which expenses exactly equal receipts.⁴¹ If taxpayers fail to report valid expenses, preferring instead to merely report no (as opposed to negative) business income, then an increase in reported receipts induced by 1099-K may merely be met with an increase in the reporting of *valid* expenses.

Figure 9 shows that firms receiving a Form 1099-K in 2011 became substantially more likely to report receipts almost exactly equal to expenses ($R/E=1$) in 2011 than in 2010. Of all 1099-K recipients in 2011, 0.47 percent report receipts exactly equal to expenses in 2010, and 1 percent do so in 2011. Of 1099-K recipients in 2012, 0.45 percent report receipts exactly equal to expenses in 2010, 0.64 percent do so in 2011, and 1 percent do so in 2012. This finding corroborates the evidence in Sections 6.2 and 6.3 suggesting that those taxpayers whose reported receipts rose due to Form 1099-K also increased expense reporting, substantially diminishing its effect on overall tax revenues, and possibly diminishing the effect on reporting compliance by offsetting more accurate receipts reporting with less accurate expense reporting. It also corroborates the findings of Carrillo et al. (2014), who uncover evidence of a similar kind of evasion substitution in response to expanded information reporting in Ecuador (see also Pomeranz 2013; Morse, Karlinsky, and Bankman 2009)

Table 5 reports rates of expenses-equal-to-receipts bunching in several subpopulations.⁴² Of particular interest are the results related to new Schedule C filers. Overall new Schedule C filers are not disproportionately likely to report receipts equal to expenses: Column 1 indicates that about 1 percent of all Schedule C filers report receipts equal to expenses. This proportion is similar to the value for all 1099-K firms—in 2011, 1 percent of 1099-K recipients have $R=E$. This is not markedly different from the proportion of new Schedule C filers with $R=E$, 1.4

⁴¹ For example, taxpayers may not deduct expenses in order to meet the presumptive rule of IRC §183(d), which suggests that firms that show profit three out of five years are deemed not to be subject to the hobby loss rules (they can still deduct business losses against ordinary income). Further, some deductible expenses, such as the home office deduction, may not be deducted in excess of gross income (IRC §280A(c)(5)). Other expenses, such as the carrying forward or back of net operating losses, may also simply be too complex for unassisted taxpayers to understand and claim (Mahon and Zwick 2014).

⁴² For selection criteria appearing in Table 3 but not Table 5, such as whether the firm is in a high-cash sector or received 1099-K from TPSEs only, we do not observe any stark differences in the rate of bunching where receipts equal expenses between groups.

percent, in Column 3. However, in Column 4, we see that about *4.3 percent* of new filers receiving a Form 1099-K in 2011 report receipts equal to expenses. In contrast, firms filing Schedule C in every year of 2004-2012 were unlikely to report receipts equal to expenses, even if they got a 1099-K (Columns 4 and 5). This finding suggests that new filers induced to file by 1099-K were disproportionately likely to offset their receipts with expenses.

In the final two columns of Table 5, we focus specifically on firms reporting receipts exactly near the 1099-K amount, as we have seen in earlier sections that these firms appear especially likely to have been affected by increased information reporting. These firms are much more likely to bunch than any others we observe: about 7 percent of firms reporting receipts equal to the 1099-K amount *also* report expenses equal to receipts, while 4 percent of firms with receipts within 5 percent of the 1099-K amount report receipts equal to expenses. Much of this is driven by payment-card-only firms: 9 percent of payment-card-only 1099-K recipients with receipts equal to the 1099-K amount also report receipts equal to expenses, while only 4 percent of TPSE-only 1099-K recipients with receipts equal to the 1099-K amount do so. To summarize, when we focus on firms we believe to have been especially strongly affected by 1099-K, we see more bunching at where receipts equal expenses, which suggests that expense offsetting did occur in response to the form.

6.6 Which expenses increased?

Our analysis suggests that firms that increased their reported receipts as a result of 1099-K reporting may have simultaneously increased reported expenses. There are several reasons a taxpayer might increase reported expenses upon receiving a Form 1099-K. First, taxpayers may want to minimize their tax liability through any means necessary, and take expenses to which they are not legally entitled. As tax liabilities and marginal tax rates increase as a result of 1099-K, the marginal benefit of overstating expenses increases. Second, taxpayers may have

previously not reported all valid expenses.⁴³ The logic described in Section 3.2 suggests that higher reported receipts make reporting those expenses more desirable on the margin. Third, for certain expenses, such as Section 179 depreciation and home office expenses, expense deductions statutorily cannot be so large as to create negative net business income. Fourth, and finally, there is anecdotal evidence that in some instances the way 1099-K reports were created induced increased expenses. For example, an app developer may be compensated for sales on an app store net of a commission. Before the 1099-K program, she may have merely reported the net payment as part of receipts and deducted any other valid business expenses. Upon receiving a 1099-K for the gross amount, she may report total receipts (without netting commissions), leading her to report higher receipts and now claiming commission expenses that were previously netted out of receipts.

In this section we examine which expenses increased as a result of 1099-K reporting. In doing so, we are able to reject that the third explanation discussed above contributed substantially to the increase in expense reporting. Specifically, we examine the average ratio of particular expense line items on the Schedule C, as a fraction of total expenses, for firms in different binned values of K/R. We do this by year, and look for specific expenses that increased in 2011 and 2012 for K/R-close-to-one firms. We began by examining all expense line items available to us—wage expense, cost of goods sold, home office deduction, other expenses (line 27a on Form 1040 Schedule C), depreciation expense, insurance expense, legal expenses, meals and entertainment, mortgage expenses, office expenses, repairs and maintenance, travel expense, utilities, automobile expense, and the aggregate of all other expenses not individually examined. Of these, only “other expenses,” (Line 27a on Form 1040 Schedule C) increased as a percentage of total expenses in 2011 and 2012 for K/R-close-to-one firms.

Figure 10, Panel A, illustrates the share of income devoted to other expenses, averaged by K/R bin, and then differenced by year. Panel B depicts the share of taxpayers with reporting

⁴³ For example, the firm may wish to avoid reporting a suspiciously low rate of profit, as shown by Carrillo et al. (2014).

at least some other expenses. Panel C depicts the change over time in the ratio of expenses devoted to other expenses, from Panel A. In the graph, for $K/R=1$ firms, it is clear that the change in 2010-2011 was the most dramatic of all the other years. Panel B suggests that an increase in other expense reporting happened not only at the intensive margin, but, also at the extensive margin. For $K/R=1$ firms, the percentage of firms claiming other expenses increases dramatically in 2011 and 2012. In Panel D, we show that taxpayers' use of the home office deduction, the most likely candidate for the third explanation above, reveals no discernible trend from 2010-2011 for $K/R=1$ firms that is different from other years.

This analysis suggests that as taxpayers reported additional revenue in response to 1099-K reporting, they increased expenses to offset some of the increase, specifically opting to increase other expenses. As a share of total expenses, neither depreciation expenses (where Section 179 depreciation is reported) nor home office expenses increased in 2011 and 2012, suggesting that statutory limitations on expense deductions are likely not to blame for increased expense reporting due to 1099-K. We cannot rule out that some of the expense increases occur because some taxpayers are now forced to declare new expenses such as commissions to reconcile their receipts with the Form 1099-K—the fourth explanation above. Commissions could be claimed in the “other” category where the increases occurred. However, the pattern of reported sectors of bunching firms, which we discussed in Section 6.1, suggests that explanations involving commissions and the like are unlikely to account for most of the observed offsetting behavior: many bunching firms exist in sectors where commissions and the like should not be common. The remaining explanations for expense offsetting involve some degree of noncompliance by the taxpayer.

7. Conclusions

U.S. tax policy has made expanded third-party information reporting a centerpiece of its enforcement policy, with a prime example being the new Form 1099-K that applies to business receipts processed through credit cards and third-party payments. At first blush this would seem

to increase compliance, as the IRS would more easily learn when the reported receipts of a business fell short of now-known receipts. However, both because Form 1099-K does not apply to cash transactions and because business expenses are not currently subject to third-party information reporting, there could be leakage in the impact on revenue.

Because only a small share of the total net income of sole proprietors is reported by those that received a Form 1099-K, aggregate trends in receipts and expense reporting or Schedule C filing behavior do not reveal a sharp break in 2011, whether or not we condition on a variety of observable data about these sole proprietors.

We then focus on the type of firms that theory suggests are most likely to be affected by Form 1099-K: those reporting receipts close to the amount reported on 1099-Ks. The analysis shows clearly that taxpayers were disproportionately likely to self-report receipts very close to the amount reported to the IRS on 1099-K forms. Although some of this bunching undoubtedly occurs because some businesses deal only in payment methods subject to 1099-K reporting (i.e., online vendors), we also find bunching in sectors where substantial cash use should be typical, suggesting that many taxpayers responded to the 1099-K initiative by reporting receipts near the 1099-K amount even in cases when the true value of receipts did not equal reported receipts. We estimate that the introduction of the Form 1099-K prompted a 24 percent increase in reported receipts on average for firms reporting receipts exactly equal to the 1099-K amount. Strikingly, this group of firms also increased reported expenses of 13 percent. This offsetting moderated the impact of 1099-K on total tax payments, even in groups strongly affected by 1099-K. Finally, we document a sizable extensive margin effect for bunching firms. Of firms reporting receipts within 5 percent of the 1099-K amount, 66 percent did not file in the previous year, while half of firms reporting exactly the 1099-K amount did not file a Schedule C in the previous year. In sum, we find evidence suggesting that this group of firms increased their reporting of revenues dramatically, along both intensive (reporting compliance) and extensive margins (Schedule C filing compliance), in response to the introduction of Form 1099-K.

For information reporting to have a strong effect on tax compliance, it must target a noncompliant group of taxpayers and it must subject a large share of their income to information reporting. The subset of firms we identify as being affected by 1099-K constitutes at most 15 percent of all 1099-K recipients. After all, much noncompliance among small businesses is related to cash use, which the 1099-K initiative does not address. Even for affected firms, expenses are subject to no information reporting. As a result, the overall change in reported tax liability through this channel is small. At the same time, our analysis suggests that expanded information reporting can shrink the large amount of noncompliance in one segment of the small-business sector. Future research should examine the impact of the 1099-K initiative on small partnerships and corporations, and consider what other initiatives could consolidate its compliance gains. Further, as audit data from the National Research Program become available, the net effects from the 1099-K may be better understood.

References

- Aite Group. 2011. *The Less-Cash Society: Forecasting Cash Usage in the United States*. <http://www.aitegroup.com/report/less-cash-society-forecasting-cash-usage-united-states>.
- Allingham, Michael G., and Agnar Sandmo. 1972. "Income Tax Evasion: A Theoretical Analysis." *Journal of Public Economics* 1 (3–4): 323–38. doi:10.1016/0047-2727(72)90010-2.
- Almunia, Miguel, Lopez Rodriguez, and David. 2014. "Heterogeneous Responses to Effective Tax Enforcement: Evidence from Spanish Firms." *Working Paper*, July. <http://papers.ssrn.com/abstract=2469288>.
- Arango, Carlos A, and Varya Taylor. 2008. "Merchant Acceptance, Costs, and Perceptions of Retail Payments: A Canadian Survey." Bank of Canada.
- Carrillo, P, Dina Deborah Pomeranz, and M Singhal. 2014. "Tax Me If You Can: Evidence on Firm Misreporting Behavior and Evasion Substitution." *Working Paper, Harvard Kennedy School*.
- CCH. 2011. *1099 Taxpayer Protection Act of 2011*. CCH Tax Briefing.
- Dharmapala, Dhammika, Joel Slemrod, and John Douglas Wilson. 2011. "Tax Policy and the Missing Middle: Optimal Tax Remittance with Firm-Level Administrative Costs." *Journal of Public Economics*, Special Issue: The Role of Firms in Tax Systems, 95 (9–10): 1036–47. doi:10.1016/j.jpubeco.2010.10.013.
- Erard, Brian, and Jonathan S. Feinstein. 1994. "Honesty and Evasion in the Tax Compliance Game." *The RAND Journal of Economics* 25 (1): 1. doi:10.2307/2555850.
- Euromonitor Group. 2014. *Financial Cards and Payments in the US*. <http://www.euromonitor.com/financial-cards-and-payments-in-the-us/report>.
- Federal Reserve Bank of Kansas City. 2010. *The Changing Retail Payments Landscape: An Overview*. <http://www.kc.frb.org/publicat/pscp/2009/PDF/A1.completeproceedings.pdf>.
- Feldman, Naomi E, and Joel Slemrod. 2007. "Estimating Tax Noncompliance with Evidence from Unaudited Tax Returns." *The Economic Journal* 117 (518): 327–52.
- Frisch, Adam B. 2005. "Visa 101: Overview of a Payments Company." *UBS Investment Research*, June 15.
- Gordon, Roger, and Wei Li. 2009. "Tax Structures in Developing Countries: Many Puzzles and a Possible Explanation." *Journal of Public Economics* 93 (7): 855–66.
- Heckman, James J., and V. Joseph Hotz. 1989. "Choosing among Alternative Nonexperimental Methods for Estimating the Impact of Social Programs: The Case of Manpower Training." *Journal of the American Statistical Association* 84 (408): 862–74. doi:10.1080/01621459.1989.10478848.
- Hoopes, Jeffrey, Daniel Reck, and Joel Slemrod. 2013. "Taxpayer Search for Information: Implications for Rational Attention."
- Humphrey, David B. 2004. "Replacement of Cash by Cards in US Consumer Payments." *Journal of Economics and Business* 56 (3): 211–25. doi:10.1016/j.jeconbus.2003.09.001.
- Internal Revenue Service. 2012. *Tax Gap for Tax Year 2006: Overview*. http://www.irs.gov/pub/newsroom/overview_tax_gap_2006.pdf.
- Javelin Strategy and Research. 2013. *Retail Point of Sale Forecast 2012-2017: Cash Is No Longer King; Cards and Mobile Payments Likely to Rise*. <https://www.javelinstrategy.com/brochure/251>.
- Jonker, Nicole. 2011. "Card Acceptance and Surcharging: The Role of Costs and Competition." *Review of Network Economics* 10 (2).

- Kleven, Henrik Jacobsen, Martin B. Knudsen, Claus Thustrup Kreiner, Søren Pedersen, and Emmanuel Saez. 2011. "Unwilling or Unable to Cheat? Evidence From a Tax Audit Experiment in Denmark." *Econometrica* 79 (3): 651–92. doi:10.3982/ecta9113.
- Knittle, Matthew, Susan Nelson, Jason Matthew DeBacker, J Kitchen, J Pearce, and R Prisinzano. 2011. *Methodology to Identify Small Businesses and Their Owners*. Department of the Treasury Technical Paper 4. Office of Tax Analysis.
- Lederman, Leandra. 2010. "Reducing Information Gaps to Reduce the Tax Gap: When Is Information Reporting Warranted?" *Fordham Law Review* 78: 1733.
- Mahon, James, and Eric Zwick. 2014. "The Role of Experts in Fiscal Policy Transmission." *Working Paper*. http://scholar.harvard.edu/files/mahon/files/accountants_0.pdf.
- Morse, Susan Cleary, Stewart Karlinsky, and Joseph Bankman. 2009. "Cash Businesses and Tax Evasion." *Stanford Law & Policy Review* 20 (1): 37–68.
- Naritomi, J. 2014. "Consumers as Tax Auditors." *Working Paper, London School of Economics*.
- Nelson, Susan C. 2008. "Tax Policy and Sole Proprietorships: A Closer Look." *National Tax Journal* 61 (3): 421–43.
- Phillips, Mark D. 2014. "Deterrence vs. Gamesmanship: Taxpayer Response to Targeted Audits and Endogenous Penalties." *Journal of Economic Behavior & Organization* 100 (April): 81–98. doi:10.1016/j.jebo.2014.01.018.
- Pomeranz, Dina Deborah. 2013. "No Taxation without Information: Deterrence and Self-Enforcement in the Value Added Tax."
- Rees-Jones, Alex. 2014. "Loss Aversion Motivates Tax Sheltering: Evidence from U.S. Tax Returns." *Working Paper*, December. <http://papers.ssrn.com/abstract=2330980>.
- Slemrod, Joel, and Christian Gillitzer. 2013. *Tax Systems*. Cambridge, Massachusetts: The MIT Press.
- Slemrod, Joel, and Caroline Weber. 2012. "Evidence of the Invisible: Toward a Credibility Revolution in the Empirical Analysis of Tax Evasion and the Informal Economy." *International Tax and Public Finance* 19 (1): 25–53.
- Soos, Pirooska. 1990. "Self-Employed Evasion and Tax Withholding: A Comparative Study and Analysis of the Issues." *UC Davis L. Rev.* 24: 107.
- Srinivasan, T. N. 1973. "Tax Evasion: A Model." *Journal of Public Economics* 2 (4): 339–46.
- Szilagyi, John A. 1991. "Whatever Happened to Child Care in 1989?" *The IRS Research Bulletin*, 33.
- Towery, Erin M. 2014. "The Effect of Mandatory Disclosure Regulation on Voluntary Disclosure: Evidence from Schedule UTP."

Table 1. Descriptive Statistics on Sole Proprietorships and 1099-K Recipients, 2010-2011

	Tax Year 2010						Tax Year 2011					
	Mean	STD	p25	Median	p75	Obs	Mean	STD	p25	Median	p75	Obs
All taxpayers												
1099-K amounts by tax year							116126.17	3567810.1	6937	25769	73386	1192249
Gross receipts by tax year	49056.53	795774.5	2500	9891	29960	23238458	51209.62	955726.06	2500	10000	30030	23437174
Cost of Goods Sold Deduction	14718.44	626055.74	0	0	0	23238458	15270.47	578174.59	0	0	0	23437174
Total Deductions	38157.67	969252.84	681	4795	17640	23238458	38945.02	777722.62	681	4812	17837	23437174
Depreciation Deduction	1460.67	224389.78	0	0	45	23238458	1424.55	77355.24	0	0	0	23437174
1099-K amount / total reported receipts							250.61	102832.14	0.15	0.4	0.78	1181094
Percentage using a paid preparer	0.71	0.46	0	1	1	23238458	0.7	0.46	0	1	1	23437174
Wages Deduction	3029.96	81974.28	0	0	0	23238458	3071.34	86048.93	0	0	0	23437174
All taxpayers that ever got a 1099-K												
1099-K amounts by tax year							116126.17	3567810.1	6937	25769	73386	1192249
Gross receipts by tax year	203083.45	981348.82	21788	63372	184300	1252027	204141.69	1393254.3	21891	60862	176839	1423862
Cost of Goods Sold Deduction	87310.72	756542.68	0	2000	46469	1252027	90117.11	1104443.6	0	2261	45053	1423862
Total Deductions	180836.08	1502074.4	16078	50019	156362	1252027	181252.86	1486692	16725	48821	150797	1423862
Depreciation Deduction	5164.88	378829.8	0	99	2942	1252027	4709.16	106608.76	0	0	2503	1423862
1099-K amount / total reported receipts							250.61	102832.14	0.15	0.4	0.78	1181094
Percentage using a paid preparer	0.78	0.41	1	1	1	1252027	0.78	0.42	1	1	1	1423862
Wages Deduction	21593.13	131860.81	0	0	2300	1252027	20809.84	236982.74	0	0	0	1423862
All taxpayers that ever got a 1099-K and file Schedule C 2004-2012												
1099-K amounts by tax year							106666.97	1386932	9728	32054	90782.5	558280
Gross receipts by tax year	268848.9	1063049.3	38060	98846	265702	644307	285428.32	1213257.3	39773	102384	274590	644307
Cost of Goods Sold Deduction	113861.73	844632.39	0	7860	71438	644307	124050.59	908539.96	0	8700	74680	644307
Total Deductions	233028.94	1356843.6	27435	77973	218241	644307	246712.79	1212256.4	29233	81137	225460	644307
Depreciation Deduction	6605.45	527521.03	0	514	4000	644307	5984.23	76940.57	0	433	3864	644307
1099-K amount / total reported receipts							5.89	1037.62	0.12	0.33	0.63	555984
Percentage using a paid preparer	0.82	0.39	1	1	1	644307	0.82	0.39	1	1	1	644307
Wages Deduction	30578.15	164072.58	0	0	19960	644307	31519.85	141673.83	0	0	20580	644307

Table 2. Information Reporting of Schedule C Filers, by NAICS Code, for Common NAICS Codes

	Percentage of all taxpayers in sector that ever received a 1099-K	Percentage of all taxpayers in sector that ever received a 1099-MISC	Percentage of C filers in this sector
All Other Personal Services	4.00%	71.89%	6.87%
Independent Artists, Writers, & Performers	3.19%	85.67%	4.52%
Offices of Real Estate Agents & Brokers	1.12%	94.72%	4.08%
All Other Professional, Scientific, & Technical Services	2.85%	88.33%	4.35%
Other Direct Selling Establishments	5.11%	66.17%	4.33%
Educational Services	1.95%	85.61%	3.06%
Management, Scientific, & Technical Consulting Services	1.68%	88.89%	2.79%
Child Day Care Services	1.27%	57.02%	3.79%
Janitorial Services	0.80%	66.49%	3.04%
Legal Services	6.25%	90.40%	1.80%
Grocery Stores	38.78%	70.08%	0.22%
Offices of Chiropractors	36.61%	93.00%	0.21%
Offices of Optometrists	36.12%	95.59%	0.11%
Drycleaning & Laundry Services	35.04%	53.24%	0.13%
Florists	31.43%	60.11%	0.15%
Sporting Goods Stores	29.91%	58.28%	0.12%
Other Amusement & Recreation Industries	10.79%	70.55%	0.24%
Travel Accommodation	24.76%	71.66%	0.22%
Other Clothing Stores	24.55%	53.41%	0.14%
Jewelry Stores	24.44%	55.56%	0.18%

Notes: The first column lists the percentage of all Schedule C taxpayers in a sector that ever receive a 1099-K at any time during our sample period. The second column tabulates the percentage of all taxpayers in the sector that receive the 1099-MISC any time in our sample period. The final column tabulates the percentage of all Schedule C taxpayers in each sector. The first 10 sectors (those above the bold line) represent the 10 highest populated NAICS codes among all Schedule C taxpayers. The second 10 sectors represent the 10 sectors with the highest percentage of 1099-K recipients, conditional upon having at least 0.10 percent of all Schedule C taxpayers in the sector.

Table 3. Rates of Bunching Where Reported Receipts Equal the 1099-K Amount in Select Subpopulations

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Tax year	All 1099-K recipients in the given tax year	New Schedule C filers receiving Form 1099-K	1099-K recipients filing in every year of 2004-2008	1099-K recipients in sectors where we have Visa data on credit-card use	1099-K recipients in sectors with above-average credit card use	1099-K recipients in sectors with below-average credit card use	Firms receiving 1099-K from payment cards only	Firms receiving 1099-K from TPSEs only
Percent with R=K	2011	0.030	0.119	0.011	0.019	0.016	0.021	--	--
	2012	0.036	0.100	0.013	0.025	0.020	0.029	0.018	0.171
Percent with R within 5 percent of K	2011	0.094	0.260	0.052	0.093	0.063	0.118	--	--
	2012	0.109	0.223	0.060	0.110	0.072	0.140	0.063	0.423
Number of Taxpayers	2011	1184359	146182	546601	232600	104721	127979	--	--
	2012	1225694	139152	557299	232600	106019	137621	1008507	138585

Notes: we denote reported receipts by R and the gross amount from 1099-Ks by K. By R=K in the first row, we mean firms reporting a dollar amount of receipts *exactly* equal to the gross amount from Form 1099-K's. In column (2), "new filers" refers to firms not filing Schedule C in the previous tax year. Columns (4) through (6) are constructed with data on Visa acceptance rates by sector from Frisch (2005).

Table 4. Summary Statistics For Bunching Firms, 2010-2011

	Tax Year 2010						Tax Year 2011					
	Mean	STD	p25	Median	p75	Obs	Mean	STD	p25	Median	p75	Obs
All taxpayers in sample every year with R within 5 percent of K in 2011												
1099-K amounts by tax year							159272.5	599050	33068	159340	72798	29814
Gross receipts by tax year	137619.3	490323.8	25065	138431	59966	29814	160550.7	602977.2	33257	161125	73543	29814
Cost of Goods Sold Deduction	52719.37	361579	0	33596	4303	29814	61724.06	469768.7	0	42600	8777.5	29814
Total Deductions	120282	477741.8	19503	116186	48097.5	29814	140470	581929.6	27150	135058	59987.5	29814
Depreciation Deduction	2950.39	21646.68	0	1856	0	29814	3261.37	36048.65	0	1832	0	29814
1099-K amount / total reported receipts							0.99	0.02	0.98	1	1	29814
Percentage using a paid preparer	0.75	0.44	0	1	1	29814	0.75	0.43	0	1	1	29814
Wages Deduction	8779.8	53209.11	0	0	0	29814	9279.52	50817.93	0	0	0	29814
All taxpayers in sample every year that had R exactly equal to K in 2011												
1099-K amounts by tax year							79193.51	140422.8	22855	86655	41330	6058
Gross receipts by tax year	59708.47	106564.9	13000	67435	31129.5	6058	79193.51	140422.8	22855	86655	41330	6058
Cost of Goods Sold Deduction	20751.78	76035.43	0	14825	0	6058	29069.73	97662.53	0	24685	5045	6058
Total Deductions	50549.6	96439.18	10167	54622	24995.5	6058	68438.8	128571.9	18578	71901	34855	6058
Depreciation Deduction	1178.11	4186.09	0	639	0	6058	1169.12	3980.43	0	501	0	6058
1099-K amount / total reported receipts							1	0	1	1	1	6058
Percentage using a paid preparer	0.7	0.46	0	1	1	6058	0.71	0.45	0	1	1	6058
Wages Deduction	991.26	7486.91	0	0	0	6058	1076.97	8236.96	0	0	0	6058

Table 5. Rates of Bunching Where Reported Receipts Equal Reported Expenses in Select Subpopulations

		(1)	(2)	(3)	(3)	(4)	(5)	(6)	(7)
	Tax year	All firms	All 1099-K recipients in the given tax year	New Schedule C Filers	New Schedule C filers receiving 1099-K in the given tax year	Firms filing in every year of 2004-2012	1099-K recipients filing in every year of 2004-2012	Firms reporting R=K	Firms reporting R within 5 percent of K
Percent with R=E	2009	0.011	--	0.015	--	0.007	--	--	--
	2010	0.011	--	0.014	--	0.007	--	--	--
	2011	0.011	0.010	0.014	0.043	0.008	0.004	0.069	0.042
	2012	0.011	0.010	0.014	0.032	0.009	0.005	0.066	0.042
Number of Taxpayers*	2010	22896179	--	5645463	--	6454500	--	--	--
	2011	23083651	--	5717308	--	6454500	--	--	--
	2011	23181066	1184359	5785811	149152	6454500	546601	35720	111639
	2012	22622981	1225694	5598704	127242	6454500	557299	44508	133108

Notes: We denote receipts by R, expenses by E, and receipts by K. By R=E in the first row, we mean the fraction of firms reporting receipts exactly equal to expenses. The selection criteria in columns (6) and (7) are exactly the same as those used to calculate the percentages in Table 3. *Number of taxpayers here refers to taxpayers reporting either positive expenses or positive receipts. If we limit the study of R=E bunching to firms reporting both positive receipts and positive expenses, the percentages in the top half of the table all increase (because the denominator becomes smaller), but the qualitative patterns are unaffected.

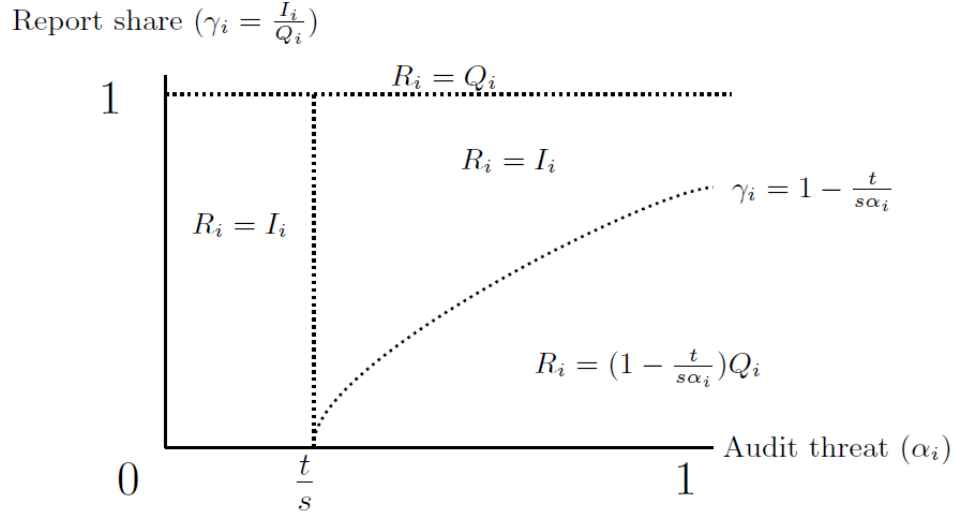
Figure 1. Form 1099-K

FILER'S name, street address, city, state, ZIP code, and telephone no.	FILER'S federal identification no.	OMB No. 1545-2205	Merchant Card and Third Party Network Payments 2011 Form 1099-K	
	PAYEE'S taxpayer identification no.			
If checked, FILER is Payment Settlement Entity (PSE) <input type="checkbox"/> OR If checked, FILER is Electronic Payment Facilitator (EPF)/ Third Party Payer (TPP) <input type="checkbox"/>	1 Gross amount of merchant card/third party network payments \$	2 Merchant category code	Copy B For Payee This is important tax information and is being furnished to the Internal Revenue Service. If you are required to file a return, a negligence penalty or other sanction may be imposed on you if taxable income results from this transaction and the IRS determines that it has not been reported.	
	3	4		
PAYEE'S name Street address (including apt. no.) City, state, and ZIP code	5a January \$	5b February \$		
	5c March \$	5d April \$		
	5e May \$	5f June \$		
	5g July \$	5h August \$		
PSE'S name and telephone number	5i September \$	5j October \$		
	5k November \$	5l December \$		
Account number (see instructions)				

Form **1099-K** (Keep for your records) IRS.gov/form1099k Department of the Treasury - Internal Revenue Service

Figure 2. Model Predictions of the Impact of Form 1099-K

Panel A. Reported receipts as a function of the share of receipts reported and audit threat in absence of information reporting



Panel B. Reported receipts as a function of the amount reported to the tax authority

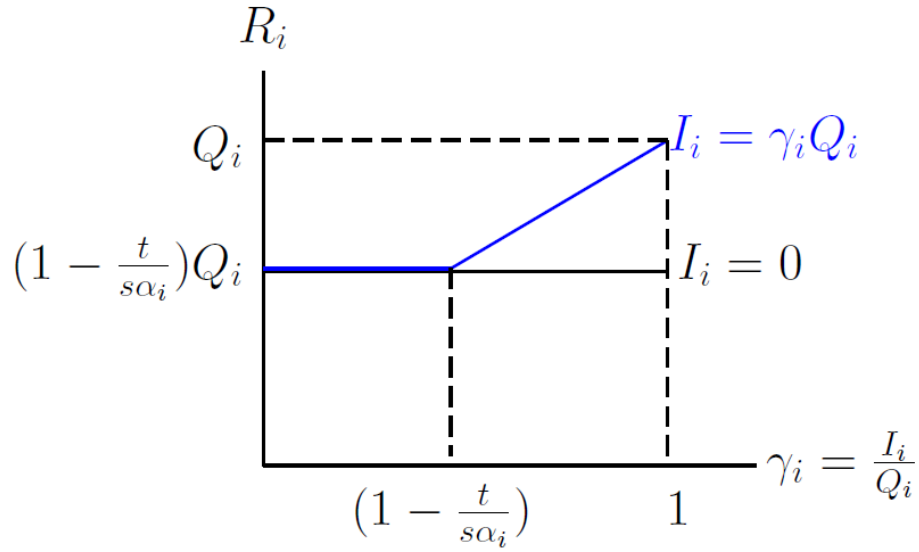
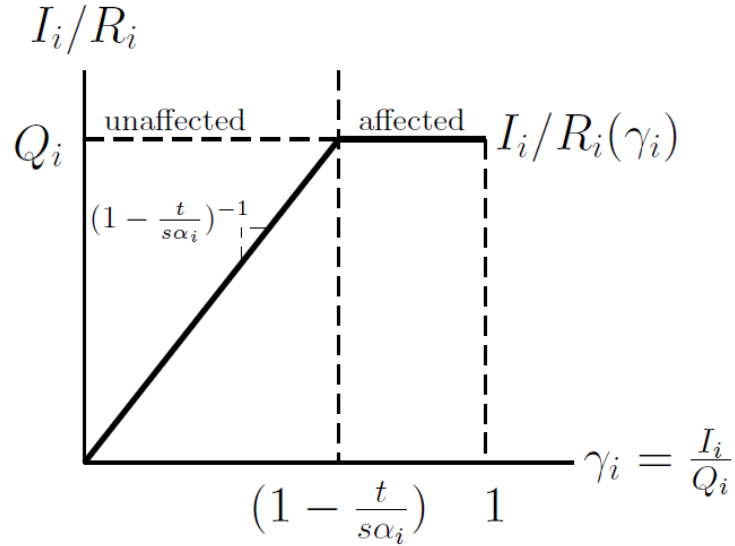
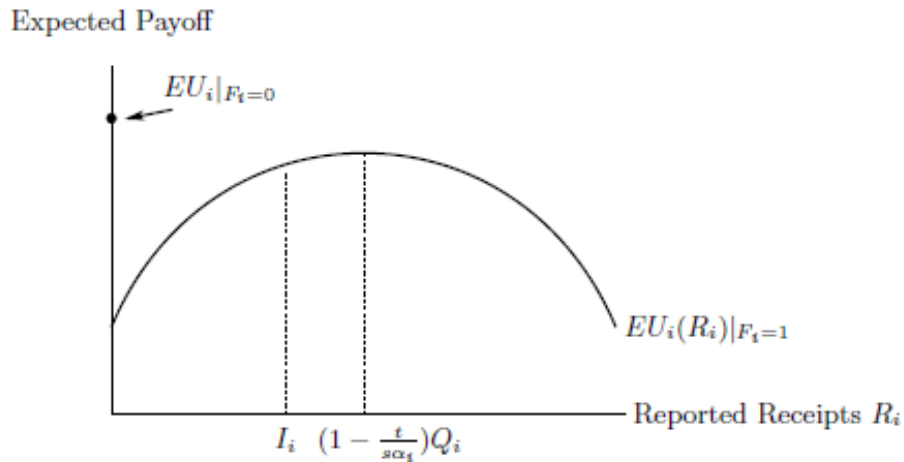


Figure 2. (continued) Theoretical Prediction of the Impact of Form 1099-K

Panel C. Predicted ratio of information report amounts and receipts amounts



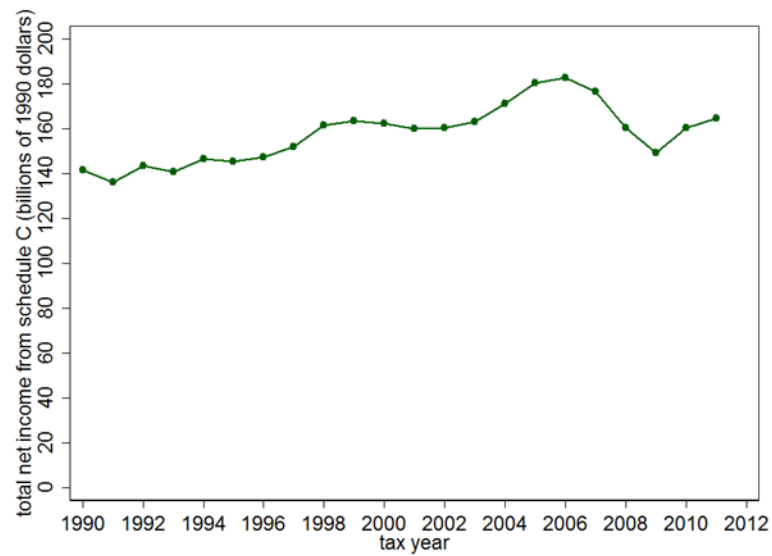
Panel D. Extensive margin effect if the detection probability decreases sharply under non-filing of Schedule C



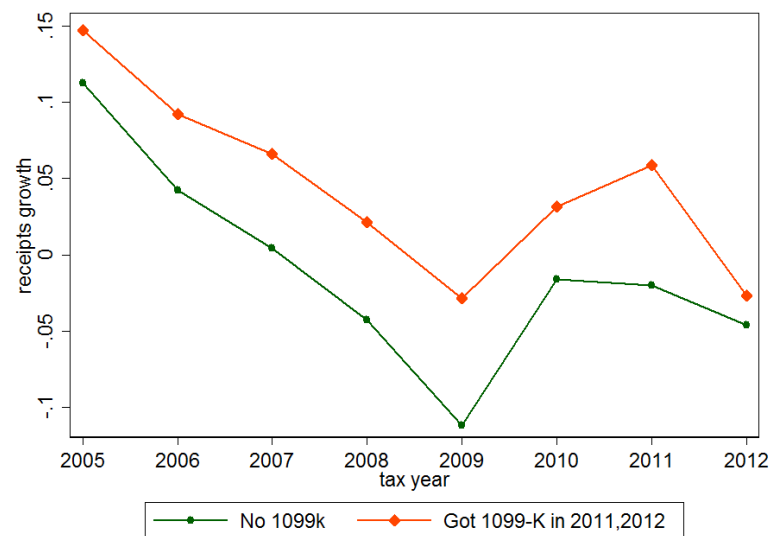
Note: Panels B and C are drawn for the case where the firm underreports in the absence of information reporting, rather than not reporting any receipts at all. Panel D illustrates the special case for a modification of the model discussed in Section 3.3: in absence of information reporting, the firm does not file Schedule C at all because not filing decreases the detection probability discretely. However, when information reporting is introduced, the firm does not report receipts greater than the 1099-K amount. The special case in Panel D stands in contrast to Panel A, where the additional change in the detection probability from declining to file Schedule C is assumed to be negligible, so that all firms affected by information reporting report receipts equal to the amount reported by third parties.

Figure 3. Aggregate Trends for Schedule C Taxpayers

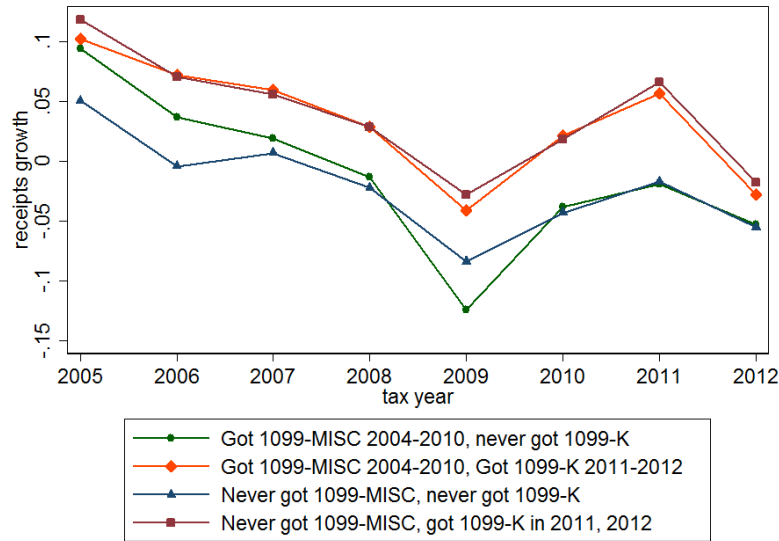
Panel A. Total net income reporting



Panel B. Aggregate receipts growth by whether the taxpayer received 1099-K



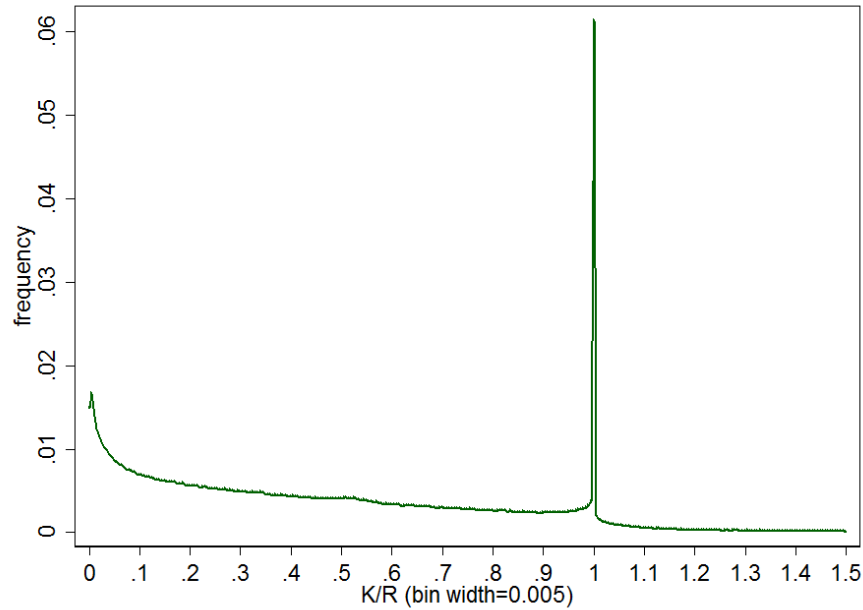
Panel C. Reported receipts growth by whether 1099-K recipients received 1099-MISC prior to 2011



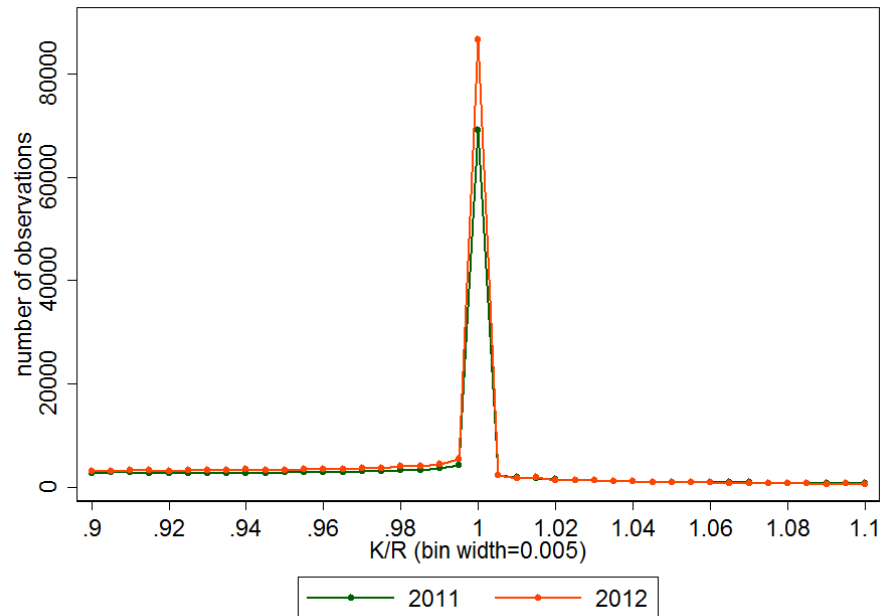
Notes. This figure presents aggregate comparisons suggesting that the aggregate impact of the Form 1099-K on sole proprietors was limited. Panel A depicts total income reported on Schedule C, using aggregate data from the IRS Statistics of Income Division. Panel B depicts the trends in receipts growth reported on Schedule C by whether the taxpayer received 1099-K in 2011 and 2012. We restrict our analysis in Panels B and C to firms filing in every year from 2004 to 2012, and we exclude firms receiving a 1099-K in 2011 but not 2012, or in 2012 but not 2011. Growth rates of a variable are calculated as the first difference of the mean of logged receipts within a group. Panel C shows trends in receipts growth for firms that did, or did not, receive a Form 1099-MISC prior to 2011. We restrict the comparison in Panel C to firms that received 1099-MISC continuously from 2004 to 2010 and firms that never received 1099-MISC in that period.

Figure 4: Distribution of 1099-K Amount Scaled by Reported Receipts

Panel A. Distribution of the ratio of 1099-K amounts and reported receipts in 2011



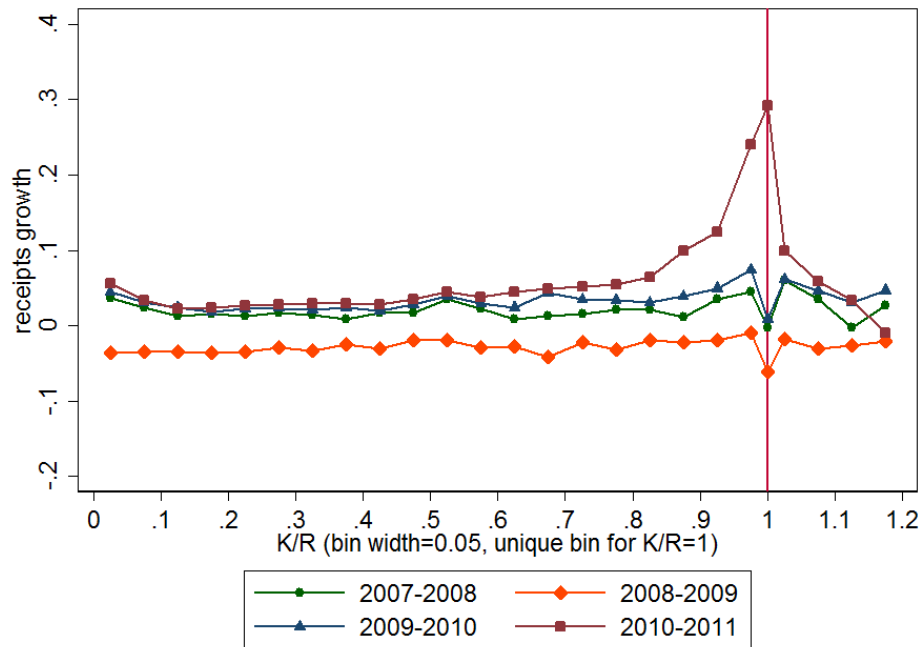
Panel B. Distribution of the ratio of 1099-K amounts and reported receipts around 1 in 2011 and 2012



Notes. This figure depicts, in Panel A, the logged 1099-K receipts less logged reported receipts, in 2011. The shape of this distribution in 2012 is very similar. Panel B focuses on bunching in this distribution around the point where receipts exactly equal the 1099-K amount, for both 2011 and 2012.

Figure 5. Trends in Reporting by Binned Values of the Ratio of Reported Receipts Subject to Reporting by Form 1099-K in 2011

Panel A. Receipts growth rates



Panel B. Expense growth rates

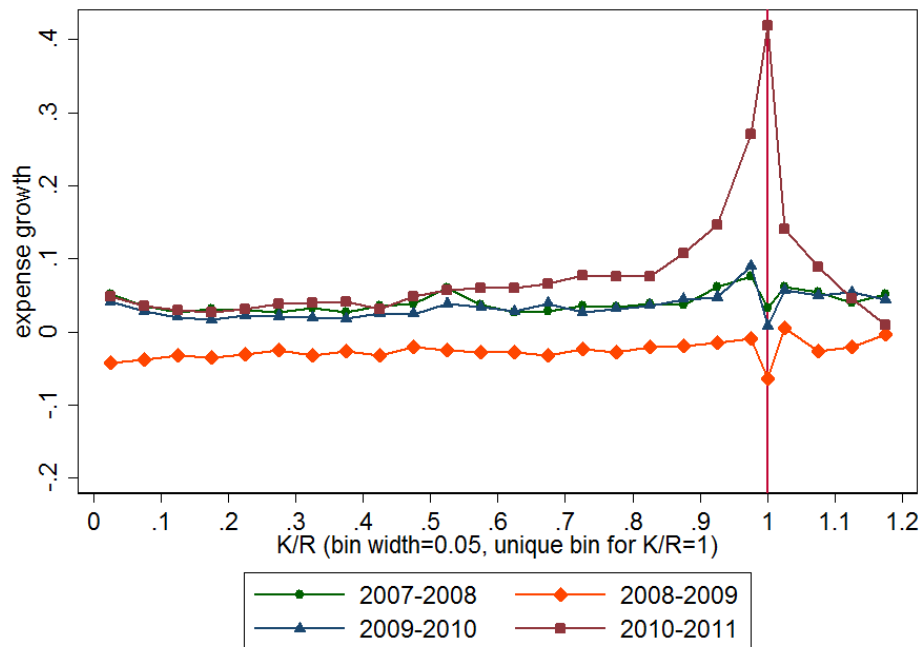
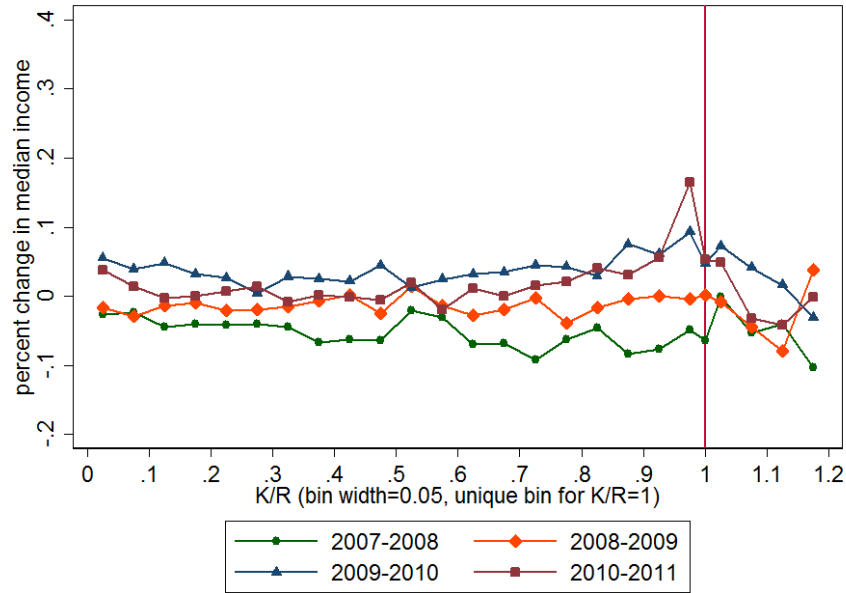
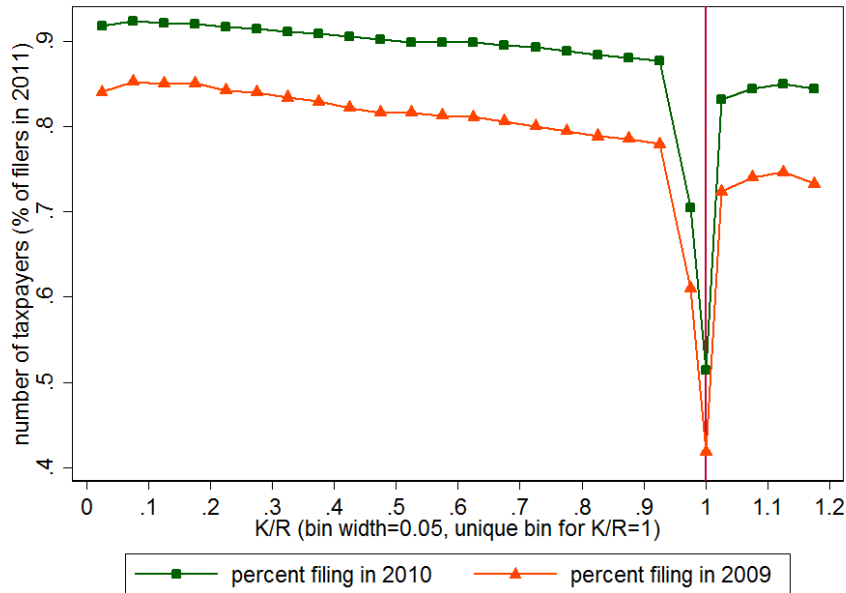


Figure 5. (continued) Trends in Reporting by Binned Values of the Ratio of Reported Receipts Subject to Reporting by Form 1099-K in 2011
Panel C. Percent change in median income



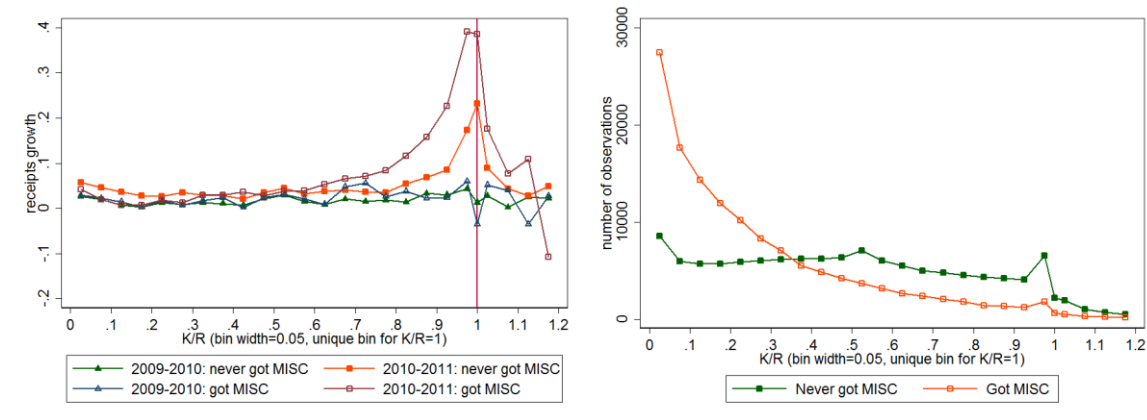
Panel D. Percent of taxpayers filing Schedule C in the previous year



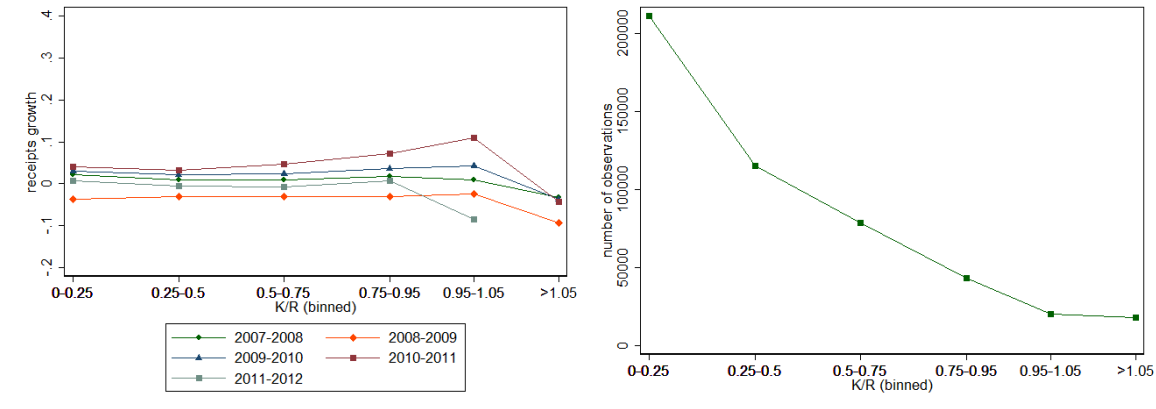
Notes: This figure shows how focusing on firms reporting their receipts near the 1099-K amount isolates a subset of firms affected by the introduction of Form 1099-K. Vertical red line in all figures highlights the bin where receipts exactly equal the 1099-K amount. The sample for Panels A-C consists of individuals filing Schedule C in every year of 2004-2012; the sample for Panel D consists of all individuals filing Schedule C in 2011. Growth rates of a variable are calculated as the first difference of the mean of the logged variable within a group.

Figure 6. Trends by the 1099-K-Amount-Receipts Ratio in Select Subpopulations

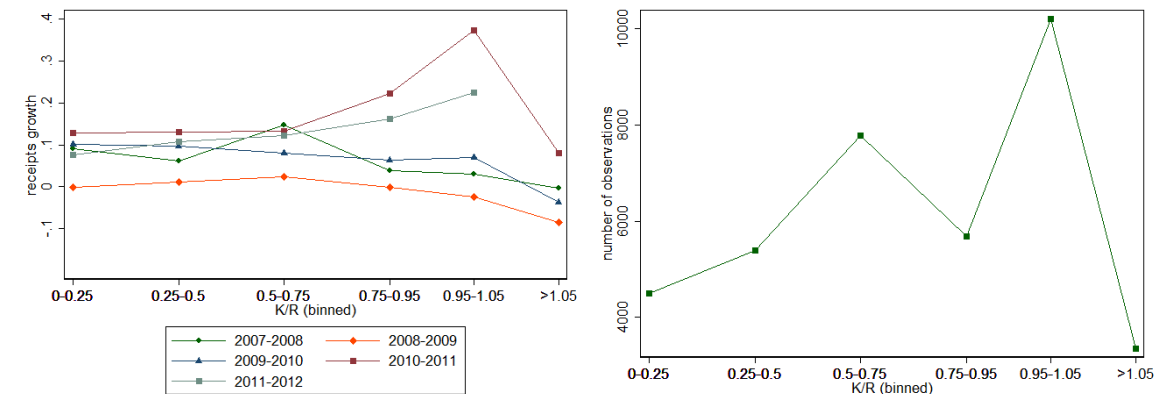
Panel A. 1099-MISC recipients in 2004-2010 compared to firms never receiving 1099-MISC



Panel B. Firms receiving 1099-K from payment-card entities only



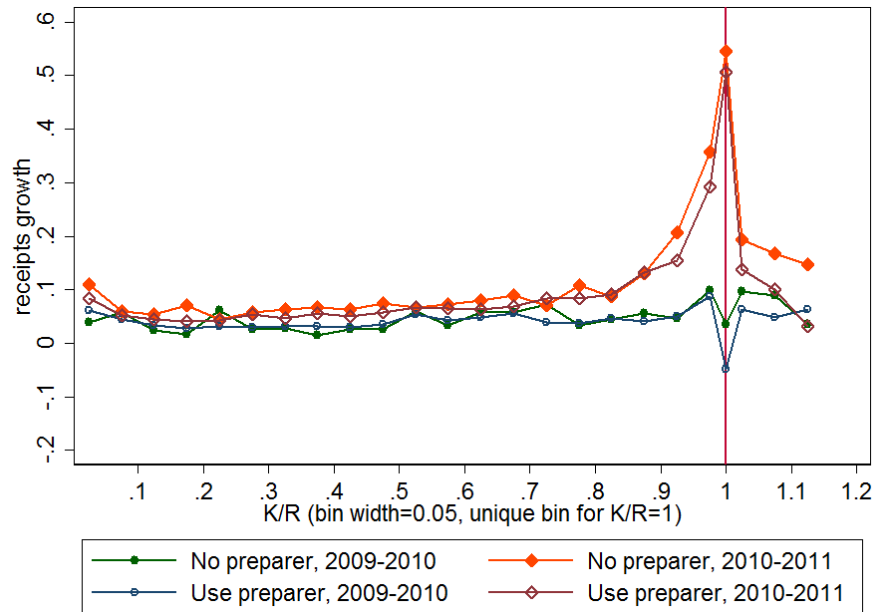
Panel C. Firms receiving 1099-K from third-party settlement entities only



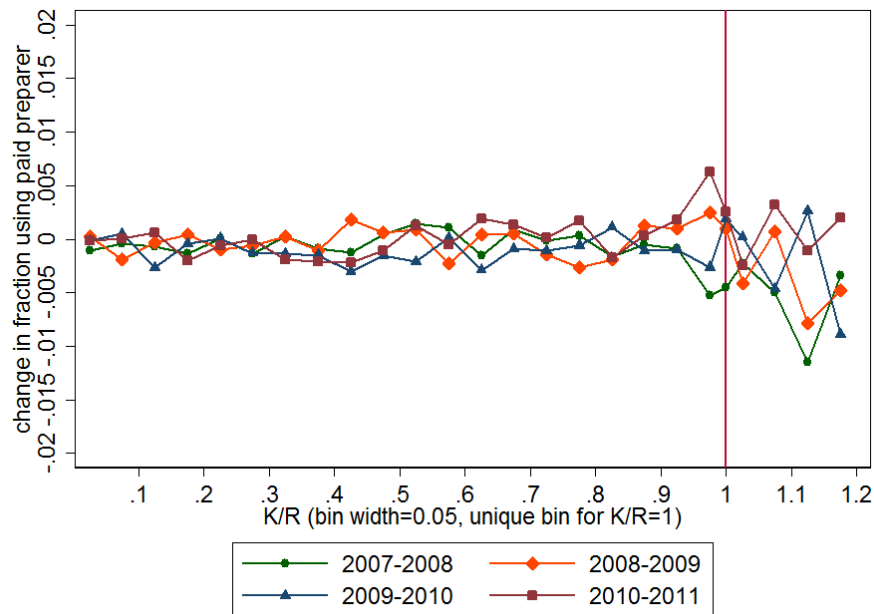
Notes: This Figure examines the impact of Form 1099-K within in three subgroups of interest. Growth rates of receipts are calculated as the first difference of the mean of logged receipts for different values of K/R. The sample consists of individuals filing Schedule C in every year of 2004-2012.

Figure 7. Preparer Use and the Form 1099-K

Panel A. Receipts growth rates by preparer use



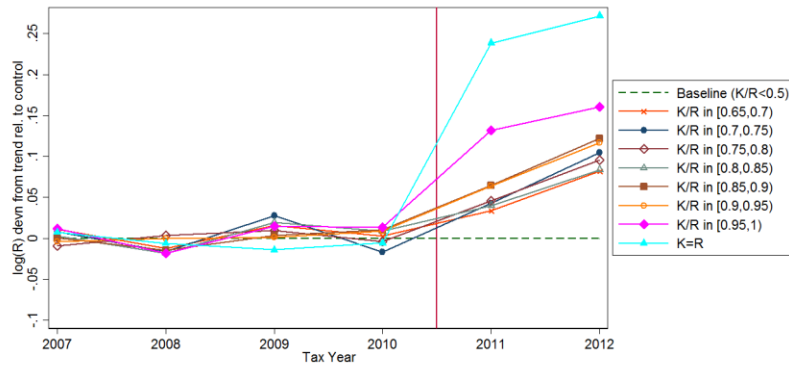
Panel B. Rates of preparer use



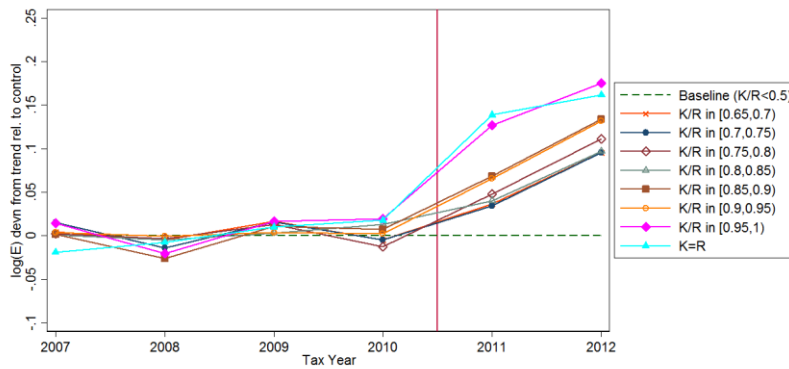
Notes: This figure examines whether Form 1099-K had a differential impact on firms that did or did not use a paid preparer, and whether it affected preparer use. Panel A graphs the average receipts growth, by bins of K/R, as in Figure 5, for firms that did not use, and did use, a paid preparer. Panel B graphs the changes in the proportion of firms using a paid preparer, by bins of K/R. The analysis is restricted to firms filing Schedule C in every year of 2004 to 2012.

Figure 8. Random Growth Model Estimates

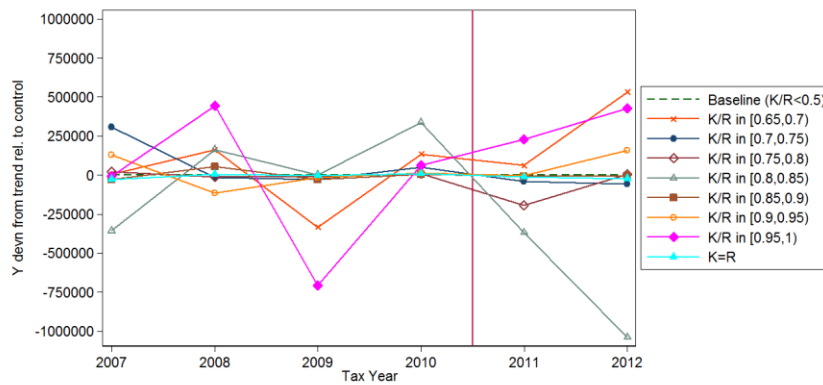
Panel A: Receipts



Panel B: Expenses



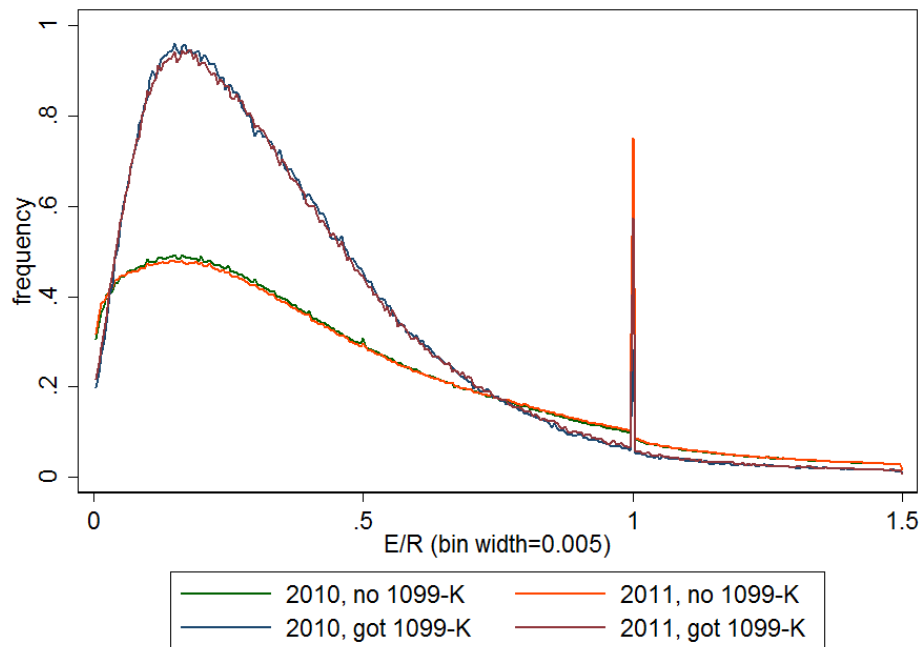
Panel C. Net income



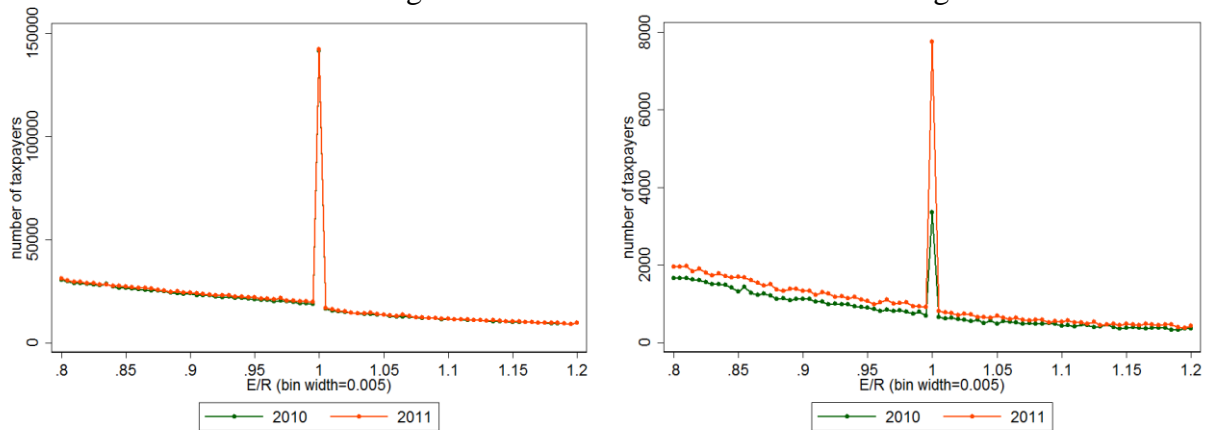
Notes: This figure presents estimates of the impact of Form 1099-K on reporting using a random growth model specification, as well as placebo tests of the identification strategy. The control group for this analysis consists of firms receiving 1099-K but with $K/R < 0.5$. We estimate a differential impact for binned values of K/R . The sample for this analysis consists of businesses filing Schedule C in every year of 2004-2012. Plotted is the estimated effect in 2011 and 2012 of Form 1099-K on firms with a given set of values of K/R in 2011, along with placebo results for pre-2011. The 2011 effect and placebo effects are calculated using a random growth specification with the pre-trend calculated using the one- and two-year lags of the variable. The pre-trend for the 2012 effect is calculated using the two- and three-year lags of the variable. See Section 6.3 of the paper for a description of how effect sizes are calculated.

Figure 9. Distribution of Reported Expenses Divided by Reported Receipts, by 1099-K Receipt in 2011

Panel A. Distribution of the ratio of expenses to receipts



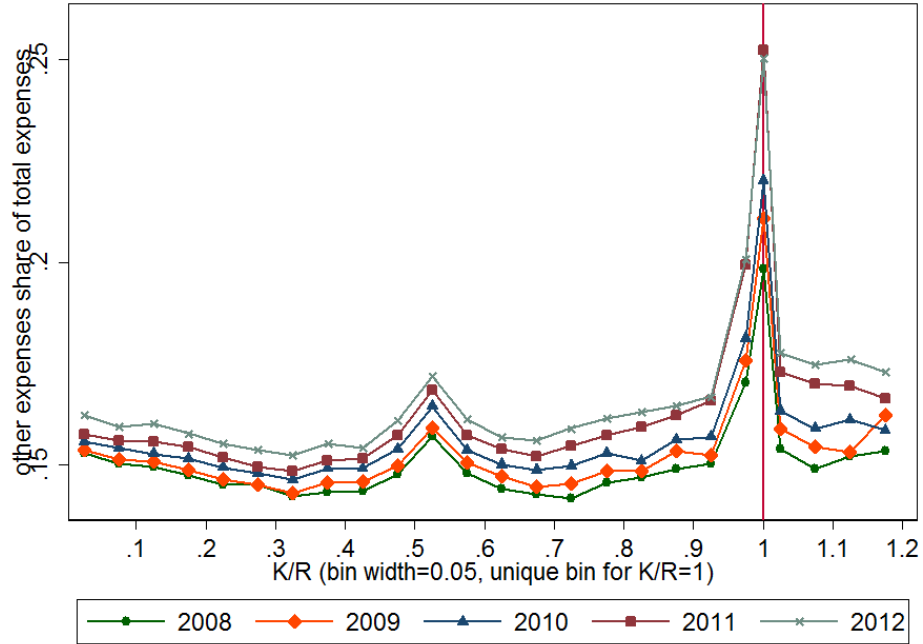
Panel B. Distribution of the ratio of expenses and receipts around unity
Firms not receiving 1099-K Firms receiving 1099-K



Note: This figure documents the large number of firms reporting receipts equal to expenses, and shows that firms receiving 1099-K in 2011 became more likely to do so in that year. The sample consists of anyone filing Schedule C in 2010 and 2011. Panel A depicts the distributions over a broad range, and Panel B focuses on firms reporting expenses very close to their reported receipts.

Figure 10. Examining Specific Expense Line Items

Panel A. Ratio of other expenses to total expenses by year and K/R



Panel B. Percentage of taxpayers claiming other expenses, by year and K/R bin

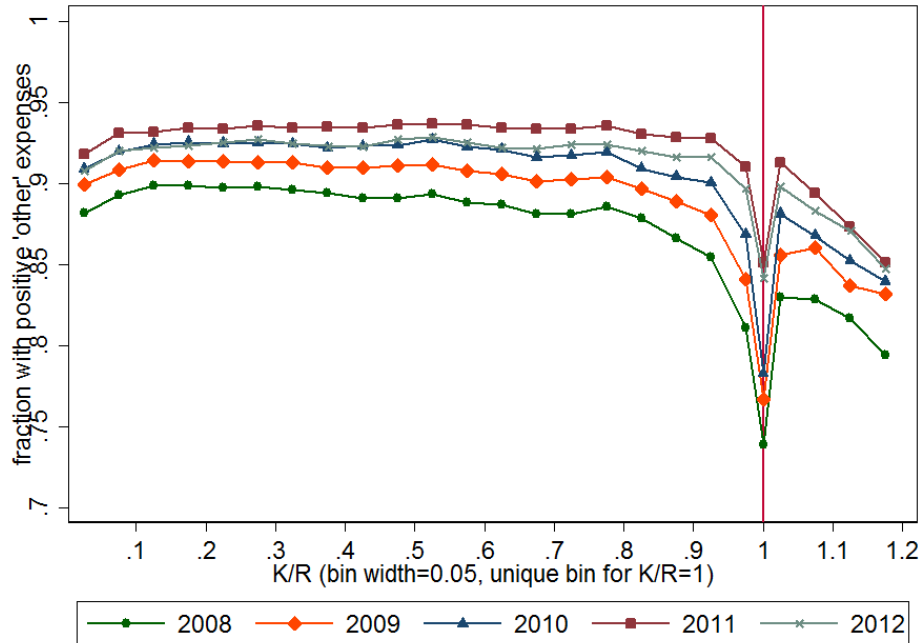
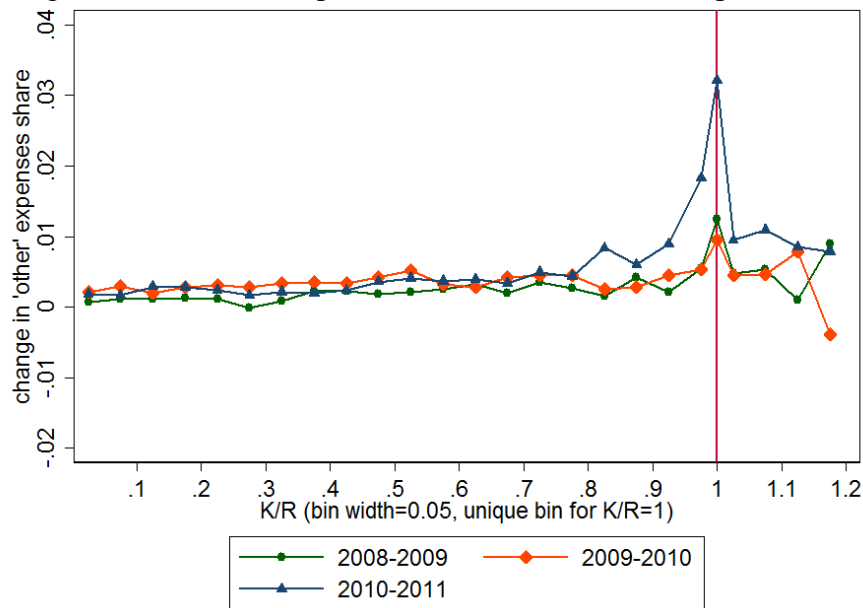
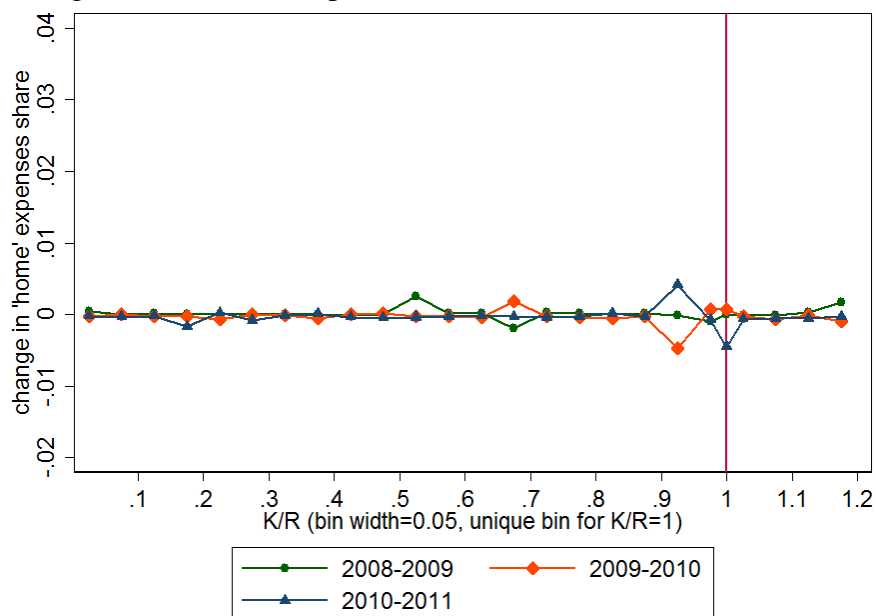


Figure 10. (continued) Examining Specific Expense Line Items

Panel C. Changes in the share of expenses devoted to the Other Expenses line by K/R bin



Panel D. Change in the share of expenses devoted to the business use of home expense



Notes. Panel A depicts the ratio of Other Expenses, line 27a of Schedule C, to total expenses, line 28 of Schedule C, by year and bins of the firms reported value of receipts on 1099-K in 2011 divided by reported receipts on Schedule C in 2011. Panel B depicts the percentage of firms in each bin of K/R that had a non-zero value of Other Expenses (line 27a) on their Schedule C. Panel C depicts the change in the average share of receipts appearing as Other Expenses, from one year to the next, by K/R. Panel D depicts first differences in the share of expenses appearing as business use of home expenses (line 30), calculated in the same way as Panel C.

Appendix - Data Construction

We rely on data from the Compliance Data Warehouse (CDW), the IRS's primary research database, and in particular on two CDW databases: the Individual Returns Transaction File (IRTF) and the Information Returns Master File (IRMF), which contain transcribed tax return data from key IRS forms, including Form 1040, Form 1040 Schedule C, Form 1099-MISC, and Form 1099-K. Because our analysis requires taxpayer level data and most CDW information is provided at the tax form level, a major part of constructing our analysis dataset involves converting form-level data to taxpayer-level data and addressing related problems, such as choosing which filing to use when a taxpayer has multiple filings of the same form for a single tax year. These duplicate filings are usually the result of a taxpayer filing an amended or corrected return, but they can also be caused by errors, for example by a taxpayer mistakenly mailing multiple copies of the same return to the IRS. In general, when duplicates exist, we attempt to select the most recently posted return for a given tax year, or the one that appears to reflect the greatest amount of business activity in the case of multiple returns processed in the same time period.

Schedule C data

Our dataset begins with all Form 1040 Schedule C filings from tax year 2004 through tax year 2012 from the CDW IRTF_SCHEDULE_C table. Most Schedule C filers only need to file one Schedule C for their primary business, but those running multiple businesses are required to file a separate Schedule C for each one. In order to simplify our analysis and allow for the use of return information that cannot easily be aggregated, such as industry codes, we target only the one primary Schedule C for each taxpayer identification number (TIN) for inclusion in our analysis dataset, rather than attempting to combine all Schedule C activity for each TIN by summing fields across primary, secondary, and any additional Schedule C filings. To select only the primary Schedule C for each taxpayer, we start by restricting the initial pool of Schedule C filings to include only those returns with the most recent posting date for each TIN in each tax year, since more recent postings are likely to reflect amended or corrected returns that are more accurate than the original, earlier filings. If multiple Schedule Cs remain after restricting the data to only the most recent filings, we select only the form with the highest reported gross receipts from line 1 of the Schedule C for each TIN and tax year as a method to identify the taxpayer's primary Schedule C business activity. At this point, any additional duplicates represent Schedule C filings for the same TIN in the same tax year posted at the same time with the same gross receipts, and with no further basis to prefer one duplicate over another, we aim for consistency, in most cases selecting the largest value available on any of the duplicates on a field-by-field basis (the exceptions are the categorical fields for accounting method and TIN type, for which we take the minimum value).

Form 1040 data

Once we have constructed observations for a single Schedule C for each TIN-tax year combination, we add additional taxpayer-level data from the IRTF_ENTITY table, which is already structured this way, with one observation per taxpayer per tax year. This table allows us to bring in fields for the TIN of the taxpayer's spouse in cases where the filing status of the taxpayer's Form 1040 is married filing jointly and the spouse's TIN is derived from a Social Security Number (SSN), rather than an Employer Identification Number (EIN), which can help match the taxpayer's primary returns to the relevant information returns. We also rely on the IRTF_ENTITY table for some filing information from the taxpayer's Form 1040 which can be assumed to also be true of the Schedule C, including whether or not the return was electronically filed and whether or not a professional tax preparer was involved in the preparation of the return, which we infer by the presence of a preparer TIN and/or a preparer EIN on the Form 1040.

Information returns, Form 1099-K and Form 1099-MISC

With primary return data in place, we follow a similar process with information returns, using data from both the IRMF_F1099MISC and IRMF_F1099K tables. Since we can only use information return records that can be matched to Schedule C filers, we eliminate all information returns with invalid payee TINs.

Because some payee TINs represent SSNs and some represent EINs, information returns must be matched to the primary returns in stages, and we ensure we capture all of a payee's returns whether the filer used an SSN or an EIN for the payee TIN by aggregating all payees' information returns across payers separately for returns with payee SSNs and payee EINs, only calculating the total across all information returns once each piece is matched to the primary returns. To help reduce the number of potential mismatches, we also take advantage of another CDW field, the TIN Association Key Code, to restrict the pool of information returns with an EIN payee TIN to those with the EIN of a sole proprietorship. Errors are common on the payee TINs of information returns, but, while common, they are also difficult to detect. However, since Schedule C is filed only by sole proprietorships, eliminating EINs associated with non-sole proprietorship businesses can prevent cases in which an information return that belongs to a large business but is incorrectly filed with the TIN of a small Schedule C business results in a large discrepancy between reported Schedule C income and information return income.

In aggregating Form 1099-K and 1099-MISC income, we allow one of each return for each payee TIN-tax year-payer TIN combination. As CDW IRMF tables code whether a return was filed as original, corrected, or amended, if we have multiple filings by the same payer for the same payee in the same tax year, we prioritize the amended return if available, then the corrected, then the original, assuming amended returns are more accurate than the original filings. If duplicates remain, we usually select the largest value available on a field-by-field basis, as we do with Schedule C, with the exception being the type of transaction reported field from Form 1099-K, for which we use the minimum value. For Form 1099-K, we calculate total 1099-K receipts from the gross payment amount in box 1 (see Figure 1), splitting payment card income and third-party-network payment income where possible. Form 1099-MISC income is calculated as the sum of rents (box 1), royalties (box 2), other income (box 3), fishing boat proceeds (box 5), medical and health care payments (box 6), nonemployee compensation (box 7), substitute payments in lieu of dividends or interest (box 8), crop insurance proceeds (box 10), and gross proceeds paid to an attorney (box 14).

Merging primary returns and information returns

Having calculated total 1099-MISC and 1099-K income for each taxpayer by TIN type (SSN or EIN), we use a multi-stage process to match the information return data to Schedule C data. Information returns with EIN payee TINs have these payee TINs matched to the EIN reported on the Schedule C if one is available. Schedule C EINs are reported in a separate field from the Schedule C TIN, which is always an SSN. For returns with an SSN payee TIN, we start with the full population of Schedule C returns and SSN TIN information returns, and match as many as possible with the primary TIN. Any returns that were matched are then removed from the pool of Schedule C returns and Forms 1099-K/1099-MISC, and an additional match is conducted on the remaining returns using the TIN of the spouse of the primary filer of the Schedule C, when available (from the taxpayer's Form 1040). This process allows us to match as many information returns as possible to each taxpayer's Schedule C, whether they are filed with an EIN, primary SSN, or spouse SSN as the payee TIN. Once all possible matches are made, we sum income fields derived from all payee TIN types for each TIN to calculate total 1099-K and 1099-MISC income for each Schedule C filer. Due to errors with filing, transcription, or incorrect TINs, we observe numerous cases where total income reported on information returns greatly exceeds that reported on the Schedule C, with extreme cases reporting over \$1 billion in receipts, which are unlikely to reflect the true income of a sole proprietorship filing a Schedule C. We attempt to reduce the impact of these extreme observations on our analysis by removing observations with dollar values over \$1 billion, applying this restriction not only to income reported on information returns, but also key variables from the Schedule C, such as receipts and expenses, for consistency.