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GHOSTING THE TAX AUTHORITY:
FAKE FIRMS AND TAX FRAUD

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ABSTRACT

An important but poorly understood form of firm tax evasion arises from the use of "ghost firms"—fake firms that issue fraudulent receipts so that their clients can claim false deductions. We provide a unique window into this global phenomenon using transaction-level tax data from Ecuador. Ghost transactions are widespread, prevalent among large firms and firms with high-income owners, and exhibit suspicious patterns in comparison to ordinary transactions: bunching at round numbers, at the end of the fiscal year, and just below financial system thresholds. We go on to study an innovative enforcement intervention that targeted ghost clients rather than ghosts themselves, which led to substantial tax recovery.

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1 Introduction

Developing countries rely disproportionately on tax revenues collected from firms as they strive to build state capacity, fund public goods, and enable redistributive programs in an efficient manner. A widespread scourge on these efforts throughout the world arises when fake firms—often known as "ghost firms," "invoice mills," or "missing traders"—issue fraudulent receipts that allow their supposed clients to claim additional tax deductions on value-added and corporate income taxes.[1] Enforcement against ghosts has proven to be a challenging game of whack-a-mole since these ephemeral entities can disappear just as quickly as new ones can open up.

Despite the global prominence of ghost-enabled tax evasion, the existing economics research on this phenomenon (discussed below) is extremely limited. Basic questions remain largely unanswered: How extensive and quantitatively important is ghost evasion? Which types of firms and firm owners transact with ghost firms? How do firms strategically use ghost transactions to engage in tax evasion? And how can tax authorities effectively combat this form of evasion?

This paper provides a unique window into the ghost economy and the scope for interventions to recoup tax revenues that have been lost due to ghost deductions. Our empirical context is Ecuador, where we can identify ghost clients and transactions by combining firm-to-firm transaction-level tax data with a sample of over 800 firms identified as ghosts by the tax authority. These transaction-level data allow us to investigate how ghost transactions—ones for which the seller is a detected ghost firm—facilitate evasion of both VAT and corporate income taxes. We then supplement our analysis by drawing on a unique dataset documenting the owners of Ecuadorian firms in order to quantify the extent to which evasion via ghost transactions, and the government's ability to recoup evaded revenue, are regressive or progressive in nature.

Our first contribution is to document new facts about the ghost economy. We begin with the aggregate nature of this form of tax fraud, demonstrating that: evasion through the use of ghost deductions is indeed widespread and quantitatively important; ghost clients are not limited to small, semi-formal firms; and ghost evasion benefits those at the top of the income

[1] See, e.g., OECD (2017) and Keen and Smith (2006). We use the term "ghost firms," which corresponds to the name used by the tax authority in Ecuador ("*empresa fantasma*"). Appendix B provides documentation of the importance of this concern around the world.

distribution. In 2015, over $7,000$ firms (4.7% of potential clients) took deductions from an identified ghost firm (likely a subset of true ghosts). Among these ghost clients, average annual ghost deductions were 14.1% of the value of their purchase deductions. Larger firms are more likely to engage in ghost transactions and feature larger shares of such transactions in total input costs. Tax evasion via ghost firms has a regressive effect in the sense that ghost deductions are disproportionately used by firms owned by high-income individuals.

We next turn to opening the black box of ghost client behavior, exploiting disaggregated firm-to-firm-transaction data to compare transactions that ghost clients make with ghost firms to those they make with regular firms. The observed patterns indicate that ghost activity is a deliberate form of evasion on the part of many clients, with firms utilizing ghost transactions strategically and doing so in a way that avoids transacting through the formal financial sector. Ghost transactions are relatively concentrated at the end of the tax year, a time when firms can more easily determine the level of fake costs needed to offset annual revenues to reduce reported profits. They are more likely to bunch at round numbers, consistent with representing fake flows of non-existent goods. In addition, ghost transactions disproportionately bunch just below the $5,000 threshold at which firms are required to make payments via the formal financial system. Such behavior avoids the need for ghost firms to have a (traceable) bank account and makes it possible for ghost firms to issue receipts without the stated transaction amount actually changing hands.

From a policy perspective, utilizing information on the typical characteristics of ghost clients and transactions—such as those we describe here—could be used to help identify ghost firms. However, this leaves open the question of how to recoup lost tax revenue even when ghost firms are successfully identified.

Our second contribution is therefore to provide the first evaluation—to the best of our knowledge—of an enforcement policy against the use of ghost firms. Enforcement efforts targeted directly at ghost firms face unique obstacles. Ghosts are often part of criminal enterprises; "owners" may be shell companies, deceased individuals, or victims of identity theft; and ghosts are often transient, disappearing and re-emerging as new entities (see OECD, 2006; de La Feria, 2020). To deal with these challenges, the Ecuadorian Internal Revenue Service (SRI) began an innovative enforcement scheme in 2016 that targeted ghost *client* firms rather than chasing the ghosts themselves. Notifications were sent to over $1,500$ unique firms, informing them that SRI had detected ghost transactions on previously filed tax returns and requiring that they submit revised returns removing these deductions.

We use administrative records of firms' amendments to their corporate income tax filings to conduct an evaluation of this novel scheme for tackling ghost-enabled evasion. The policy was highly effective and resulted in a total increase in reported firm income tax of \$20.6 million within three months, despite the fact that a large fraction of firms did not respond to the notifications (consistent with the findings in Carrillo et al., 2017). Among responding firms, the average tax increase was over $\$44,000$ (81% of their original filings) while the administrative cost of issuing notifications—conditional on having identified ghost firms—was close to zero. We find that the tax increases stem mostly from firms owned by high-income individuals. For example, the amount of additional tax reported as a share of owners' income is 170 times higher in the top 1% than in the bottom 80% of the income distribution. Despite the large additional tax filings—which will presumably underestimate the full impact because we do not see firms' VAT amendments—we do not find evidence of client firms going out of business or becoming informal. This is consistent with ghost clients being large, established firms.

Our findings contribute to several strands of literature. First, we add to the extremely sparse literature on tax evasion via ghost firms. Waseem (2020) exploits a policy in which VAT rates were reduced to zero in Pakistan and demonstrates that this resulted in a reduction of ghost firms identified by the tax authority. He further shows that most ghost deductions are claimed by exporters and that these deductions comprise a large share of over-claimed refunds for these firms. Mittal et al. (2018) focus on the problem of identifying ghost firms, developing a machine learning algorithm to detect them. As argued in Slemrod and Velayudhan (2022), more evidence is needed on the topic of ghost firms to answer key tax policy questions such as the overall effectiveness of the VAT. We advance this literature in two ways. First, we provide the first detailed analysis of the characteristics of ghost client firms, their owners, and their patterns of reported transactions with ghost firms. Second, we provide the first analysis of an enforcement intervention aimed to close the tax gap arising from ghost firms.

More broadly, we contribute to economists' understanding of the underlying mechanics of firm tax evasion. While much recent work on tax compliance has focused on misreporting of firm revenues (see e.g., Slemrod, 2019; Pomeranz and Vila-Belda, 2019, for overviews), little research has focused on policies to combat firms' cost misreporting.[2] Cost misreporting can undermine self-enforcement in VAT systems and may force governments to rely on inefficient tax instruments (Best et al., 2015). While several recent studies have found that enforcement policies targeting revenue under-reporting led to firms increasing reported costs, we find almost no offsetting behavior in the form of a reduction in reported revenue in our intervention. This is consistent with third-party information providing a floor on reported revenues.[3]

Our finding that ghost clients' purchases tend to bunch at the \$5,000 threshold speaks to the role of the formal financial sector in hindering tax evasion. Forcing transactions to occur through the financial sector disincentivizes ghost transactions, consistent with existing evidence about ghost workers in public transfer programs (Niehaus and Sukhtankar, 2013; Banerjee et al., 2020). These results speak more generally to models in which transacting through the formal financial system limits evasion (Gordon and Li, 2009) and to the question of whether outlawing cash can foster tax compliance (Rogoff, 2016; Gadenne et al., 2022). To the best of our knowledge, this study provides the first direct evidence that firms avoid the formal financial system specifically when engaging in illegal activity.[4]

Finally, we provide novel insights into distributional links between corporate tax evasion, individuals and anti-evasion efforts. While recent work has examined distributional implications of individual-level income and wealth tax evasion (e.g., Alstadsæter et al., 2018, 2019; Brounstein, 2021; Guyton et al., 2021; Londoño-Vélez and Ávila-Mahecha, 2021), we are not aware of prior studies that have linked individual owners to their firms to examine individual-level consequences of corporate income tax evasion and enforcement efforts against such activities.

[2]For personal income taxes, policies to address over-reporting of charitable deductions or child allowances have been studied by LaLumia and Sallee (2013); Fack and Landais (2016); Tazhitdinova (2018).

[3]Interventions targeting revenue under-reporting are studied e.g. in Ali et al. (2015); Asatryan and Peichl (2017); Carrillo et al. (2017); Mittal and Mahajan (2017); Slemrod et al. (2017); Almunia and Lopez-Rodriguez (2018); Mascagni et al. (2018); Brockmeyer et al. (2019); Naritomi (2019); Fjeldstad et al. (2020); Li and Wang (2020); Okunogbe and Pouliquen (2022).

[4]Other studies have found bunching at tax cutoffs such as for VAT reporting thresholds (e.g., Onji, 2009; Asatryan and Peichl, 2017; Luksic and Mittal, 2019; Liu et al., 2021) or for being subject to different tax regimes and regulations (e.g., Hasegawa et al., 2013; Best et al., 2015; Almunia and Lopez-Rodriguez, 2018; Lopez-Luzuriaga, 2019; Chen et al., 2021; Clifford and Mavrokonstantis, 2021); see Kleven (2016) for an overview.

2 Institutional Background and Data

The fabrication and use of falsified invoices is commonly considered an intentional tax offence and regarded as a criminal activity. It is therefore more severe than other types of evasion such as simple revenue under-reporting (de La Feria, 2020; OECD, 2021).

Our data on these activities in Ecuador draws on SRI's 2016 anti-ghost initiative.[5] While the details of these efforts are deliberately secret, they are known to involve four steps. First, candidate ghost firms were identified based on information from audits, whistle-blowers, and tax records. This included, in particular, firms that filed no returns or reported very little income, yet were listed as suppliers for large amounts of purchases by other firms. Second, SRI made attempts to contact candidate ghost firms. Firms that were neither found at their registered address nor responsive to emails were taken forward as potential ghosts. Third, the list of potential ghosts was posted on SRI's website. Finally, firms that were wrongly on this list were given an opportunity to contact SRI, prove their real existence and be removed. After these steps, a list of 811 identified ghost firms remained. This list forms the basis for the policy intervention that we study in Section 4. Given the secretive nature of ghost firms, it is of course likely to be incomplete.[6]

We combine this list with rich administrative data from the universe of annual corporate and individual income tax filings in Ecuador (for 2010–2017) as well as monthly purchase annexes (for 2010–2015) detailing the amount and supplier identities of input costs that firms deduct.[7] Our sample focuses on firms that are economically active in a given year in that they file positive revenues or costs, appear as a seller or buyer in a purchase annex, or report payments to an employee. We restrict attention to active firms that are required to file purchase annexes: incorporated firms and large sole proprietorships (i.e., those with annual sales above \$100,000, annual costs above \$80,000, or capital above \$60,000).[8] This

[5] Appendix C provides further details on data construction.

[6] However, even if SRI misses some of the smaller ghost firms, the detected sample is likely to capture a large share of total ghost transactions, since our data show that the production of fake receipts is highly concentrated and it seems plausible that SRI's targeting would detect relatively large ghosts. For example, we find that just 10% of ghost firms account for over half of all ghost receipts in the sample (both in terms of number and amounts) and 10 ghost firms alone issue 25% of ghost receipts (or 14% of total value).

[7] Purchase annexes are required to enable cross-checking of cost deductions from VAT and firm income tax filings.

[8] Corporations file corporate income tax (form F101), whereas sole proprietorships file a combined business and individual income tax return (long form F102). Our sample also includes smaller sole proprietorships that file purchase annexes because they wish to deduct itemized costs. These make up less than 0.2% of total firm revenue in our sample.

sample comprises the universe of potential ghost clients, since these firms are required to file purchase annexes to support the claiming of non-labor cost deductions from the VAT and from business income taxes.[9] Corporations make up 88% of total firm revenue in our sample, and sole proprietorships 12%. In robustness checks we find that our results are qualitatively similar in both groups.

We define a firm as a ghost client for a given year if it reports at least one purchase from an identified ghost firm in that year. Our analysis focuses on the behavior of these client firms—their characteristics, the transactions they make with both ghost and non-ghost firms, and their amendments to past income tax filings in response to SRI's anti-ghost intervention.

Lastly, we link firms to administrative ownership records, which allows us to determine individual owners of each firm and their ownership shares. We also observe labor income components from tax and social security data for individuals employed at these firms. This allows us to construct individuals' income from the sum of their salaries (from social security filings), self-employment income, and capital income from firm ownership (computed from the annual profit of each firm in which they have a stake, multiplied by their ownership share).

3 New Facts About Ghost Clients and Transactions

Ecuador's transaction-level data allow us to shed new light on the nature of the ghost economy. Since these records form the tax authority's basis for cross-checking cost deductions from both VAT and firm income tax filings, our findings expose evasion of both forms of taxation.

We establish six novel descriptive facts, the first three of which describe overall magnitudes of ghost transactions as well as the types of firms (and owners) involved as clients. All statistics in this Section refer to pooled 2010–2015 data unless stated otherwise.

Fact 1: Tax deductions based on fake receipts from ghost firms are widespread and large. 10.4% of unique firms file deductions based on receipts from at least one identified ghost firm. Table 1 shows that, on average, 3.6% of all purchases registered by these ghost clients are from ghosts, amounting to 10.4% of the value of their purchase deductions. At 4.6% and 14.1%, respectively, these shares are higher for 2015, the last year before the list

[9] It is theoretically possible that some other taxpayers engage in unreported ghost transactions, retaining receipts to justify claiming of non-itemized deductions in case of an audit.

of ghost firms was established. This may reflect the potential for earlier ghosts to have disappeared by the time the list was established. In total, ghost clients reported ghost transactions amounting to $2.1 billion in value. This represents a substantial amount of tax evaded: 1.7% for corporations and 11.5% for sole proprietorships.

Fact 2: Evasion through ghost firms is more prevalent among relatively large firms. Table 1 shows that ghost clients are much bigger than other firms, with higher revenues, costs, and tax liabilities.[10] Looking at the full size distribution, Figure 1, Panel A shows that the probability of engaging in ghost transactions increases monotonically in firm revenue. While this may simply reflect the fact that larger firms have more transactions, Panel B shows that the share of ghost deductions out of total deductions also increases throughout much of the size distribution, except at the very top. The sharp drop at the top may be due to the possibility that very large corporations have stronger incentives to avoid illegal behavior or that they can use more sophisticated avenues of tax avoidance that do not require evasion using fake receipts (as in e.g., Bustos et al., 2022).

Fact 3: Ghost deductions are most prevalent in firms owned by high-income individuals. Involvement with ghost firms is increasing towards the top of the individual income distribution (Figure 1, Panels C–F). Not only does the probability of having ownership of a ghost client increase with individuals' income, but so does the amount of ghost purchases attributed to individuals relative to their income.[11] The ratio of ghost transactions over individuals' income is about 17 times higher in the top 5% of the income distribution than in the bottom 80%, and almost 36 times higher in the top 1%. Further, zooming in on only those individuals who have some capital income from firm ownership, we also see an increase throughout the income distribution.[12] These findings imply that the type of evasion that ghost firms enable tends to reduce the effective taxation of firms owned disproportionately by rich individuals.

Our next three facts draw on transaction-level data of ghost clients and show that trans-

[10] Consistent with Waseem (2020), their exporter share is higher (7%) than among regular firms (2%).

[11] We attribute ghost purchases to individuals by multiplying individuals' ownership shares by the corresponding firms' ghost purchases.

[12] These findings likely represent a lower bound on the true extent to which the use of ghost deductions increases with income. Since individuals' income includes reported profits of firms they own, their income mechanically looks smaller when firms take more fake deductions. As Figure A1 shows, when we calculate individuals' incomes without counting the deductions made with ghost receipts, the use of ghost deductions increases more monotonically and substantially more steeply with income.

actions with ghost firms differ in striking ways from those that these same ghost clients make with regular firms.

Fact 4: The number and value of ghost transactions are clustered towards the end of the tax year. Figure 2, Panels A and B show that both the number and value of transactions with ghost firms increase strongly towards the end of Ecuador's tax year (which is also the calendar year), while those from other firms do not. In December, there are over twice as many monthly ghost transactions as in the first six months of the year, while the number of non-ghost transactions (by the same client firms) is only about 6% higher in December. This is consistent with firms assessing their annual revenues at the end of the year and then utilizing ghost transactions to achieve a target reported profit level or rate for tax purposes.[13]

Fact 5: Round number bunching is more prevalent among transactions with ghosts than with non-ghost firms. Figure 2, Panels C and D illustrate the distribution of ghost clients' purchase transaction values (net-of-VAT) from ghosts and non-ghost firms. 6.5% of net-of-VAT transaction values for purchases from ghost firms are multiples of $500, far more than for purchases from regular firms (0.7%).[14] This type of bunching is also observed in Kleven and Waseem (2013) for self-employed individuals' reported taxable income and is consistent with ghost transactions representing false activity (e.g., Klimek et al., 2018; Nigrini, 2018).

Fact 6: Ghost transactions exhibit bunching below the financial system payments threshold. A common policy in many countries requires that firm-to-firm transactions greater than a cutoff value ($5,000 gross-of-VAT in Ecuador) be made through the formal financial sector (i.e., via electronic transfer, check, or credit card). Exceeding this threshold makes ghost transactions more costly, both because payments must be made to a valid—and traceable—bank account, and because real payments must actually take place, even if no goods or services are exchanged. While payments could be reimbursed by the ghost firm, doing so would require coordination and trust. Figure 2, Panel D shows strong bunching

[13] This is similar to how US firms have been found to spend more on capital investments towards the end of the fiscal year to reduce tax obligations (Xu and Zwick, 2022) and how public entities spend more at the end of the year to target spending to their budget (Liebman and Mahoney, 2017).

[14] This finding that bunching is at values net-of-VAT is consistent with the fact that in Ecuador's tax forms costs are recorded net-of-VAT. The above bunching statistics are calculated for the full range of transaction amounts. When we exclude transactions below $400 (which make up a sizeable number of transactions but by construction cannot bunch at multiples of $500) round-number shares are somewhat higher for both ghost and non-ghost transactions: 8.1% and 2.9%, respectively.

in ghost transactions just below the transaction value corresponding to $5,000 gross-of-VAT, and very little density above.[15] By contrast, the distribution of transactions with non-ghost firms (Panel C) is relatively smooth through the $5,000 gross-of-VAT threshold, suggesting the requirement does not create large economic distortions.

Supplementary analysis in Appendix A shows how Facts 1-6 are robust across two key subgroups of firms. First, our findings are qualitatively similar for incorporated firms and sole proprietorships (Figures A2, A3, A4, A5; Tables A1, A2). Second, we analyze results by firms' filing behavior. Even though firms are required to file purchase annexes to claim deductions, some of this filing is incomplete. However, Figures A6, A7 and Table A3 show that results look very similar among firms that file purchase annexes every month.[16]

Taken together, the previous six facts shed light on basic, unanswered questions about ghost-enabled tax evasion. One might have thought that ghost evasion would be utilized by small or semi-formal firms, with larger firms exploiting more sophisticated mechanisms of tax avoidance and evasion. Our findings reject this view—in fact, ghost deductions comprise an increasing share of purchases for larger firms, except at the very top of the firm size distribution. Over the entire income distribution, richer individuals benefit more from ghost evasion, not only because they are more likely to own firms or stakes in firms but also because, even within the set of firm owners, ghost deductions are disproportionately larger relative to income for richer individuals. While the sample of ghost firms detected by SRI may be incomplete, it is the relevant sample for determining the distributional implications of enforcement, since tax authorities can only target detected tax fraud. The within-client transaction-level patterns are strongly indicative of deliberate evasion by clients: Ghost transactions are highly concentrated at the end of the year, exhibit strong round number bunching, and avoid use of the formal financial sector. We would not expect to see these patterns if apparent ghost transactions simply reflected misclassification of real firms as ghosts by SRI or genuine transactions between ghost clients and informal firms who in turn

[15] In contrast to the round number bunching in Fact 5, which happens at net-of-VAT amounts (as this is the amount firms use for tax deductions), the $5,000 requirement is based on gross-of-VAT amounts. For this reason, this value does not correspond to one at which round number bunching occurs. For a small number of ghost clients (4%), we observe bunching of ghost transactions at $1,000 gross-of-VAT starting in May 2013. We are not aware of any relevant regulatory changes at that time that could explain bunching at this threshold.

[16] Purchase annex filing behavior is very similar for corporations and sole proprietorships (Table A4).

purchase fake receipts with supplier identification numbers from ghost firms.

4 Enforcement Against Ghost Clients

What can a tax authority do about the sort of widespread tax evasion via ghost firms we have documented above? Substantial obstacles arise when agencies pursue ghost firms via direct enforcement since, by their nature, these firms and their true owners are difficult to locate, and any success may only be fleeting because new ghost entities can easily reappear. To address these challenges, in 2016 SRI began an innovative enforcement alternative based on targeting *clients* of ghost firms rather than ghosts themselves. A potential advantage of targeting clients is that, unlike ghost firms, client firms have a genuine economic presence that makes them less able to disappear and re-emerge, potentially allowing for recovery of evaded taxes. In this section, we evaluate the effectiveness of this approach.

In their enforcement program, SRI sent notification emails to ghost clients, retroactively challenging their deductions from ghost firms on tax returns filed for fiscal years 2010–2015. The relevant portion of these notifications (with financial details provided as an example) translates as follows:[17]

> Dear taxpayer,
>
> Upon reviewing the information available in its registries, the Tax Authority detected that you registered transactions with firms that have been classified, for tax purposes, as non-existent, ghosts, or individuals and firms that undertake fictitious activities or transactions. [...]
>
> Therefore, you are given a deadline of 10 business days to submit your amended corporate income tax and VAT tax forms, in which you must modify the corresponding differences and pay resulting taxes as well as interests and fines:"

Fiscal year	Line item	Costs reported by taxpayer	Costs calculated by tax administration	Difference
20XX	799 - Total costs and expenditures	$ 1,023,686	$ 947,166	$ 76,520

We focus on notifications sent to incorporated firms in regards to their corporate income tax filings because this is the sample for which we have data on firms' amendments (discussed below). 2,382 such notifications were sent to 1,589 such ghost clients—10.8% of all

[17] Appendix D shows the full notification (Spanish and translated).

incorporated firms that made a detected ghost deduction in 2010–2015.[18] Notified clients were selected by SRI primarily on the basis of having made large deductions based on ghost receipts in 2010–2015. While SRI's specific methodology is deliberately confidential, the notified clients sample presumably represents the type of firms a tax authority desires to target.

Notified firms were larger than typical incorporated ghost clients, with a 2.4 times higher median tax liability (Table A5, Panel A). This is consistent with SRI targeting firms with higher potential tax recovery. The median amount of ghost deductions indicated in the notifications was around $\$181,000$ (mean $\$338,000$) and the median share of ghost deductions out of total purchases was 26% (mean 38%) among notified firms.

To estimate the causal effect of these notifications, we compare each firm's own post-notification filings—after potential amendments—with its original corporate income tax filings for that same tax year. This identification strategy is similar to that used in Carrillo et al. (2017) and is feasible because we observe the original returns as well as amended returns. We focus on firms that file an amendment within 90 days of receiving a notification which involves a reduction in at least one cost category that could potentially stem from a ghost transaction (i.e. any non-labor costs). We call this the "adjusting firms" sample. The identifying assumption is that, absent the notification, firms would not spontaneously file amendments at the time of the notification to lower their cost deductions on filings from previous years. In this sense, firms' own pre-notification filings serve as the counterfactual.

Figure 3 provides supporting evidence for the identifying assumption in terms of *timing* and *content* of the amendments. There is a stark increase in amendments involving a reduction in cost deductions after notification (Panel A).[19] Panel B shows amendments in calendar time, zero indicating the start of the campaign in July 2016.[20] Before the campaign, such amendments were rare. After the first notifications were sent, amendments began to increase. This accelerated each time after a large batch was sent out—indicated by blue dotted lines. There is no similar increase in amendment rates by non-ghost client firms (Figure A8).

The pattern of amendment content—Panel C of Figure 3—provides additional support for the identifying assumption. This figure compares the amount of ghost deductions mentioned

[18] SRI also sent $1,288$ notifications to sole proprietorships and 329 to incorporated firms about the VAT.

[19] The slight increase prior to notification stems from amendments made after the intervention started, but before the notification was sent to the specific firm. So these amendments appear to result from anticipatory spillover effects, as some firms learned that one of their suppliers was detected as a ghost.

[20] See Table A6 for notifications sent by month.

in a firm's notification (on the x-axis) to the reduction in reported cost in the amended filing within 90 days of notification (on the y-axis). The line of best fit shows that, on average, adjusting firms made reductions to their claimed non-labor costs of 98 cents per dollar in the notification. These patterns seem unlikely to have occurred without the intervention. While firms reduced their cost deductions overall, some firms also increased claimed deductions in some cost categories. Such increases appear designed to leave firms with less of an increase in their resulting tax liability. Consistent with this notion, the cost categories that were increased are labor, inventory, and financial costs while the cost categories that were reduced most strongly are domestic purchases, other production costs, and imports. Overall, total costs still decreased on average by 72 cents for every dollar contested in the notification (Panel D).

Unsurprisingly, many firms did not respond to the notifications. Within 90 days, 25.4% of notifications resulted in the filing of an amendment with a reduction in non-labor costs. Some firms may not have responded because of a failure of the email to reach the firm or the right person within the firm. In addition, as discussed in Carrillo et al. (2017), firms may choose not to amend, knowing that the tax authority has limited capacity for follow-up enforcement. Adjusting firms tend to be somewhat smaller than all notified firms (Table A5, Panel B).

The policy intervention had large effects on reported corporate income taxes of adjusting firms. Their tax liabilities increased by about $40,000 per notification for filings from 2015 and around $34,000 for the pooled sample across all years (Table 2).[21] Since some firms received notifications for multiple years, the tax increase per firm was over $44,000. The total amount of additional taxes filed was $20.6 million. This represents an 81% increase on the $25.4 million filed by adjusting firms in their pre-amendment returns. It also represents 13.7% of the total reported tax ($189 million) among all notified firms. We expect even these large effects to understate the total impact of SRI's program because we do not observe any potential amendments that firms make to their VAT filings and our definition of adjusting firms is conservative.[22]

These increases in tax liabilities are the result of large reductions in reported costs, as

[21] Table A7 presents results for each year separately and Table A8 for the full notification sample.

[22] 52 additional amendments (filed within 90 days of the notification) reported a change in taxes without updating underlying line items, so these are not included in our adjusting sample. Doing so would raise the total impact of the intervention by $2.2 million.

seen in Figure 3. On average, reported costs were reduced by $229,000 for 2015 and $182,000 in the pooled sample (2010-2015) (Table 2). These findings complement the results from a number of recent studies that have found that enforcement strategies aimed at pushing firms to more truthfully report their *revenues* lead many firms to make large offsetting adjustments by increasing reported costs (Asatryan and Peichl, 2017; Carrillo et al., 2017; Slemrod et al., 2017; Almunia and Lopez-Rodriguez, 2018; Mascagni et al., 2018; Naritomi, 2019; Li and Wang, 2020). In contrast, we find that this intervention, which pushes firms to reduce their reported costs, did not lead to systematic offsetting reductions in reported revenues (Table 2 and Figure A9). This points to an important advantage of enforcement focused on cost over-reporting. The third-party reporting system means that, in principle, a firm's sales to other firms can be cross-checked with their clients' purchase records. It is plausible that the fear of such actions constrains notified firms' willingness to reduce reported revenues as a way of offsetting cost reductions.

Looking at distributional considerations, the tax increases resulting from this intervention are even more strongly concentrated among firms owned by high-income individuals than is the overall use of ghost deductions (Figure A10). The amount of additional tax as a share of owners' income is over 56 times higher in the top 5% than in the bottom 80% of the income distribution, and almost 170 times higher in the top 1%.[23]

We find no evidence that the intervention was followed by firms going out of business or de-formalizing. Figure A11 shows these results. There is a natural decay rate over time, as some firms go out of business every period. However, at 13.1% between 2015 and 2017, this rate was extremely similar for both notified and non-notified ghost clients.[24] These findings are consistent with client firms being large and established.

5 Conclusion

The phenomenon of tax evasion through ghost firms highlights several broader challenges with building state capacity in the developing world. Third-party reporting is considered central to the ability of modern governments to raise revenue. Ghost firms exploit logistical

[23]Similarly to the distributional results in the overall cross-section shown above, the response to the notification is even more concentrated at the top of the income distribution when computing individuals' capital incomes without deducting their firms' ghost deductions (Figure A10, Panels E and F).

[24]Given the different pre-treatment evolution, this is of course merely suggestive and not a causally identified treatment effect.

limits in the ability to cross check information completely and in real time, thereby undermining self-enforcement mechanisms in the VAT and the legitimacy of apparently third-party reported firm deductions. While retroactively using information cross-checks can reveal discrepancies, allowing tax authorities to identify potential ghost firms, recovering revenue from these firms is often difficult, if not impossible.

Our results highlight the promise of retroactively targeting clients of ghost firms. The intervention was highly successful, and likely represents a lower bound on true revenue gains for two reasons. First, firms may also have filed amended VAT returns with reductions in ghost deductions that we do not observe. Second, the intervention may have disincentivized both targeted and non-targeted firms from using ghost firms in the future.

A trade-off governments often face when increasing tax enforcement against firms is that anti-evasion efforts may drive firms into the informal sector or out of business. We see no evidence of such responses in our context, consistent with our finding that the firms most aggressively using ghost deductions are large firms. An interesting future research avenue would be to investigate post-treatment impacts over a longer duration and for additional outcomes, such as for investments, employment, and the potential renewed use of fraudulent deductions from new ghost firms.

A final important consideration in tax enforcement is its distributional implications. Ghost clients—specifically those likely to be detected and targeted by the tax authority—have ownership that is concentrated at the top of the income distribution. To the extent that the economic incidence of reduced corporate profits falls on firm owners, tax enforcement against ghost clients is therefore likely to be quite progressive.

References

Adao, Rodrigo, Paul Carrillo, Arnaud Costinot, Dave Donaldson, and Dina Pomeranz, "Imports, Exports, and Earnings Inequality: Measures of Exposure and Estimates of Incidence," *The Quarterly Journal of Economics*, 2022.

Ali, Merima, Abdulaziz Shifa, Abebe Shimeles, and Firew B Woldeyes, "Information technology and fiscal capacity in a developing country: evidence from Ethiopia," ICTD working paper 31 2015.

Almunia, Miguel and David Lopez-Rodriguez, "Under the Radar: The Effects of Monitoring Firms on Tax Compliance," *American Economic Journal: Economic Policy*, 2018, *10* (1), 1–38.

Alstadsæter, Annette, Niels Johannesen, and Gabriel Zucman, "Who owns the wealth in tax havens? Macro evidence and implications for global inequality," *Journal of Public Economics*, 2018, *162*, 89–100.

_, _, and _, "Tax Evasion and Inequality," *American Economic Review*, 2019, *109* (6), 2073–2103.

Asatryan, Zareh and Andreas Peichl, "Responses of Firms to Tax, Administrative and Accounting Rules: Evidence from Armenia," CESifo Working Paper Series 2017.

Banerjee, Abhijit, Esther Duflo, Clement Imbert, Santhosh Mathew, and Rohini Pande, "E-Governance, Accountability, and Leakage in Public Programs: Experimental Evidence from a Financial Management Reform in India," *American Economic Journal: Applied Economics*, 2020, *12* (4), 39–72.

Barboza, David, "Coin of Realm in China Graft: Phony Receipts," *The New York Times*, 2013.

Best, Michael Carlos, Anne Brockmeyer, Henrik Jacobsen Kleven, Johannes Spinnewijn, and Mazhar Waseem, "Production versus Revenue Efficiency with Limited Tax Capacity: Theory and Evidence from Pakistan," *Journal of Political Economy*, 2015, *123* (6), 1311–1355.

Brain, Nick and Emeka Nwankwo, "Value Added Tax Technical Note on Missing Trader Fraud," African Tax Administration Forum 2018.

Brockmeyer, Anne, Spencer Smith, Marco Hernandez, and Stewart Kettle, "Casting a wider tax net: Experimental evidence from Costa Rica," *American Economic Journal: Economic Policy*, 2019, *11* (3), 55–87.

Brounstein, Jakob, "The Tax-Price Elasticity of Offshore Tax Avoidance: Evidence from Ecuadorian Transaction Data," WIDER Working Paper 187/2021, UNU-WIDER 2021.

Bustos, Sebastián, Dina Pomeranz, Juan Carlos Suárez Serrato, José Vila-Belda, and Gabriel Zucman, "The Race Between Tax Enforcement and Tax Planning: Evidence From a Natural Experiment in Chile," NBER Working Paper 30114, National Bureau of Economic Research 2022.

Carrillo, Paul, Dina Pomeranz, and Monica Singhal, "Dodging the Taxman: Firm Misreporting and Limits to Tax Enforcement," *American Economic Journal: Applied Economics*, 2017, *9* (2), 144–64.

Chen, Zhao, Zhikuo Liu, Juan Carlos Suárez Serrato, and Daniel Yi Xu, "Notching R&D investment with corporate income tax cuts in China," *American Economic Review*, 2021, *111* (7), 2065–2100.

CIAT, "Tax Evasion," Inter-American Center of Tax Administrations Thematic Tax Series 2008.

Clifford, Sarah and Panos Mavrokonstantis, "Tax enforcement using a hybrid between self- and third-party reporting," *Journal of Public Economics*, 2021, *203*, 104519.

de La Feria, Rita, "Tax Fraud and Selective Law Enforcement," *Journal of Law and Society*, 2020, *47* (2), 240–270.

_ **and Anculien Schoeman**, "Addressing VAT Fraud in Developing Countries: The Tax Policy-Administration Symbiosis," *Intertax*, 2019, *47* (11).

Fack, Gabrielle and Camille Landais, "The Effect of Tax Enforcement on Tax Elasticities: Evidence from Charitable Contributions in France," *Journal of Public Economics*, 2016, *133*, 23–40.

Fjeldstad, Odd-Helge, Cecilia Kagoma, Ephraim Mdee, Ingrid Hoem Sjursen, and Vincent Somville, "The customer is king: Evidence on VAT compliance in Tanzania," *World Development*, 2020, *128*, 104841.

Gadenne, Lucie, Tushar Nandi, Satadru Das, and Ross Warwick, "Does Going Cashless Make you Tax-Rich? Evidence from India's Demonetization Experiment," CEPR Discussion Paper No. 16891 2022.

González, Pamela Castellón and Juan D Velásquez, "Characterization and Detection of Taxpayers with False Invoices Using Data Mining Techniques," *Expert Systems with Applications*, 2013, *40* (5), 1427–1436.

Gordon, Roger and Wei Li, "Tax Structures in Developing Countries: Many Puzzles and a Possible Explanation," *Journal of Public Economics*, 2009, *93* (7-8), 855–866.

Guyton, John, Patrick Langetieg, Daniel Reck, Max Risch, and Gabriel Zucman, "Tax Evasion at the Top of the Income Distribution: Theory and Evidence," NBER Working Paper 28542, National Bureau of Economic Research 2021.

Hasegawa, Makoto, Jeffrey L Hoopes, Ryo Ishida, and Joel Slemrod, "The effect of public disclosure on reported taxable income: Evidence from individuals and corporations in Japan," *National Tax Journal*, 2013, *66* (3), 571–607.

Hashimzade, Nigar, Zhanyi Huang, and Gareth D Myles, "Tax Fraud by Firms and Optimal Auditing," *International Review of Law and Economics*, 2010, *30* (1), 10–17.

Jorrat, Michael, "The Instruments for the Measurement of Tax Evasion," Inter-American Center of Tax Administrations - CIAT General Assembly 2001.

Keen, Michael and Stephen Smith, "VAT Fraud and Evasion: What Do We Know and What Can Be Done?," *National Tax Journal*, 2006, pp. 861–887.

Kleven, Henrik J and Mazhar Waseem, "Using Notches to Uncover Optimization Frictions and Structural Elasticities: Theory and Evidence from Pakistan," *The Quarterly Journal of Economics*, 2013, *128* (2), 669–723.

Kleven, Henrik Jacobsen, "Bunching," *Annual Review of Economics*, 2016, *8*, 435–464.

Klimek, Peter, Raúl Jiménez, Manuel Hidalgo, Abraham Hinteregger, and Stefan Thurner, "Forensic Analysis of Turkish Elections in 2017–2018," *PloS one*, 2018, *13* (10), e0204975.

Krever, Richard, "Combating VAT Fraud: Lessons from Korea?," *British Tax Review*, 2014, pp. 303–315.

LaLumia, Sara and James M Sallee, "The Value of Honesty: Empirical Estimates from the Case of the Missing Children," *International Tax and Public Finance*, 2013, *20* (2), 192–224.

Li, Jianjun and Xuan Wang, "Does VAT Have Higher Tax Compliance than a Turnover Tax? Evidence from China," *International Tax and Public Finance*, 2020, *27* (2), 280–311.

Liebman, Jeffrey B. and Neale Mahoney, "Do Expiring Budgets Lead to Wasteful Year-End Spending? Evidence from Federal Procurement," *American Economic Review*, November 2017, *107* (11), 3510–49.

Liu, Li, Ben Lockwood, Miguel Almunia, and Eddy HF Tam, "VAT notches, voluntary registration, and bunching: Theory and UK evidence," *Review of Economics and Statistics*, 2021, *103* (1), 151–164.

Londoño-Vélez, Juliana and Javier Ávila-Mahecha, "Enforcing Wealth Taxes in the Developing World: Quasi-Experimental Evidence from Colombia," *American Economic Review: Insights*, 2021, *3* (2), 131–48.

Lopez-Luzuriaga, Andrea, "Less is More? Limits to Itemized Deductions and Tax Evasion," in "Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association," Vol. 112 National Tax Association 2019, pp. 1–1.

Luksic, Jan and Shekhar Mittal, "Red tape? The revenue impact of the VAT filing thresholds," Working Paper, May 2019.

Mak'Osewe, Florence, "Comprehensive Report on VAT/GST Fraud Investigations Training Program," Kenya Revenue Authority Internal Report 2019.

Mascagni, Giulia, Andualem Mengistu, and Firew B Boldeyes, "Can ICTs Increase Tax? Experimental Evidence from Ethiopia," *International Centre for Tax and Development (ICTD)*, 2018.

_ , Denis Mukama, and Fabrizio Santoro, "An Analysis of Discrepancies in Taxpayers' VAT Declarations in Rwanda," ICTD Working Paper 92, Institute of Development Studies 2019.

_ , Roel Dom, and Fabrizio Santoro, "The VAT in practice: equity, enforcement and complexity," ICTD Working Paper 117, Institute of Development Studies 2021.

Minister of Finance of Poland, "Supervision of the Minister of Finance over the Collection of Tax on Goods and Services," Post-audit Speech 2018.

Mittal, Shekhar and Aprajit Mahajan, "VAT in Emerging Economies: Does Third Party Verification Matter?," *Available at SSRN 3029963*, 2017.

_ , Ofir Reich, and Aprajit Mahajan, "Who Is Bogus? Using One-Sided Labels to Identify Fraudulent Firms from Tax Returns," in "Proceedings of the 1st ACM SIGCAS Conference on Computing and Sustainable Societies" 2018, pp. 1–11.

Naritomi, Joana, "Consumers as Tax Auditors," *American Economic Review*, 2019, *109* (9), 3031–72.

Niehaus, Paul and Sandip Sukhtankar, "Corruption Dynamics: The Golden Goose Effect," *American Economic Journal: Economic Policy*, 2013, *5* (4), 230–69.

Nigrini, Mark J., "Round Numbers: A Fingerprint of Fraud," *Journal of Accountancy*, 2018.

OECD, "Report on Identity Fraud: Tax Evasion and Money Laundering Vulnerabilities," Technical Report, OECD Centre for Tax Policy and Administration 2006.

_ , "Technology Tools to Tackle Tax Evasion and Tax Fraud," Technical Report, OECD Centre for Tax Policy and Administration 2017.

_ , *Fighting Tax Crime – The Ten Global Principles, Second Edition* 2021.

Okunogbe, Oyebola and Victor Pouliquen, "Technology, taxation, and corruption: evidence from the introduction of electronic tax filing," *American Economic Journal: Economic Policy*, 2022, *14* (1), 341–72.

Onji, Kazuki, "The response of firms to eligibility thresholds: Evidence from the Japanese value-added tax," *Journal of Public Economics*, 2009, *93* (5-6), 766–775.

Pomeranz, Dina and José Vila-Belda, "Taking State-Capacity Research to the Field: Insights from Collaborations with Tax Authorities," *Annual Review of Economics*, 2019, *11* (1), 755–781.

Portafolio, "'Cartel' del IVA evadio impuestos por $2.3 billones druante 12 años," *Portafolio*, 2019.

Rogoff, Kenneth, *The Curse of Cash: How Large-Denomination Bills Aid Crime and Tax Evasion and Constrain Monetary Policy*, Princeton, NJ: Princeton University Press, 2016.

Senado de la Republica, "Comisiones Unidas de Hacienda y Credito Publico; De Justicia, y de Estudios Legislativos, Primera," Decreto Senado de la Republica de los Estados Unidos Mexicanos 2019.

Slemrod, Joel, "Tax Compliance and Enforcement," *Journal of Economic Literature*, December 2019, *57* (4), 904–54.

_ and Tejaswi Velayudhan, "The VAT at 100: A Retrospective Survey and Agenda for Future Research," *Public Finance Review*, 2022, *50* (1), 4–32.

_ , Brett Collins, Jeffrey L Hoopes, Daniel Reck, and Michael Sebastiani, "Does Credit-Card Information Reporting Improve Small-Business Tax Compliance?," *Journal of Public Economics*, 2017, *149*, 1–19.

Tazhitdinova, Alisa, "Reducing Evasion Through Self-Reporting: Evidence from Charitable Contributions," *Journal of Public Economics*, 2018, *165*, 31–47.

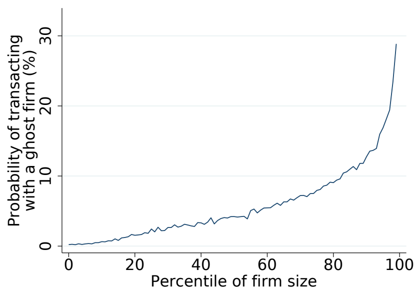
Waseem, Mazhar, "Overclaimed Refunds, Undeclared Sales, and Invoice Mills: Nature and Extent of Noncompliance in a Value-Added Tax," CESifo Working Paper No. 8231 2020.

Xu, Qiping and Eric Zwick, "Tax Policy and Abnormal Investment Behavior," *The Journal of Finance*, 2022.

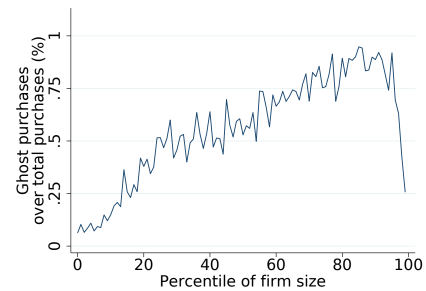
FIGURES

Figure 1: Distributional Results

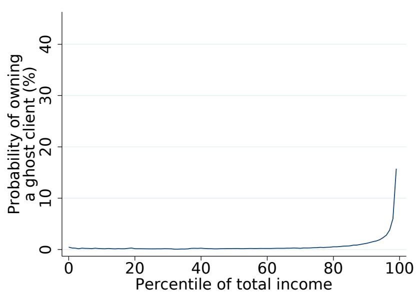
A) Probability of Being a Ghost Client,
by Firm Size



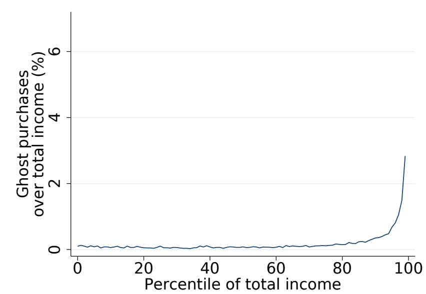
B) Value of Reported Ghost Purchases
Over Firm Total Purchases, by Firm Size



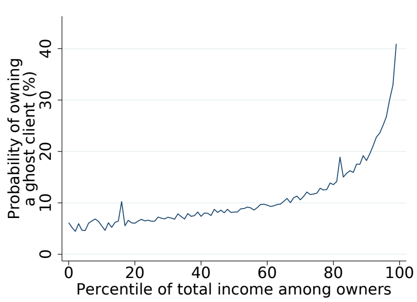
C) Probability of Owning a Ghost Client,
by Individual Total Income



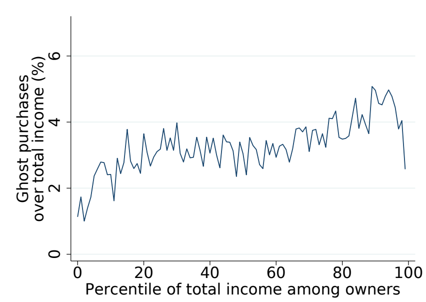
D) Value of Reported Ghost Purchases
Over Total Individual Income,
by Individual Total Income



E) Probability of Owning a Ghost Client,
by Owner Total Income
– Owners Only

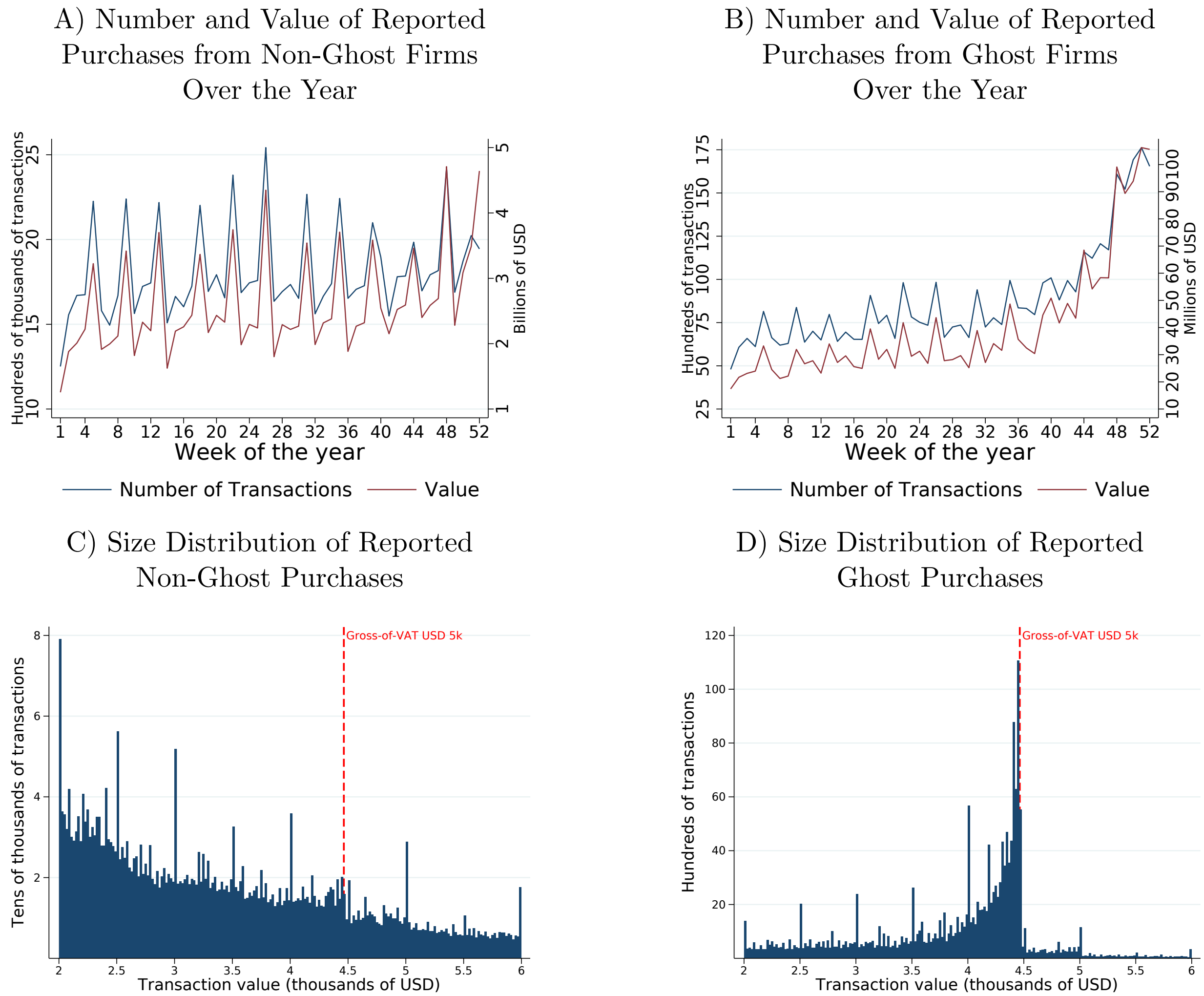


F) Value of Reported Ghost Purchases Over
Total Owner Income, by Owner Total
Income – Owners Only



Note: This figure provides descriptive results on the use of receipts from ghost firms across the distribution of firm size and individuals' incomes (pooled 2010–2015). Panels A and B show the probability of being a ghost client and the share of firms' reported purchases that are based on receipts from ghost firms, by percentile of firm revenue (for firms that are required to file a purchase annex and have positive revenues). Panels C and D look at individuals and their ownership in ghost client firms, by percentile of individuals' income (for individuals who earn at least \$1 a day and firms with up to 3,000 owners). Panel C shows the probability of having an ownership share in a ghost client. Panel D displays ghost purchases attributed to owners (i.e., individuals' ownership shares multiplied by the corresponding firms' ghost purchases) divided by individuals' total income. Panels E and F show the same as C and D, focusing only on firm owners (i.e., individuals with capital income from a firm in our sample). Outcome variables trimmed at the top 1% of positive values. This figure uses firms' reported profits to calculate their owners' incomes, which can make owners' income appear artificially lower the more ghost deductions a firm takes. Figure A1 shows results when using the profits firms would have without deducting the ghost transactions. Figures A4 and A5 show results separately for ghost purchases by incorporated firms and sole proprietorships, respectively. Figure A7 shows Panels A and B for firms that file a purchase annex every month.

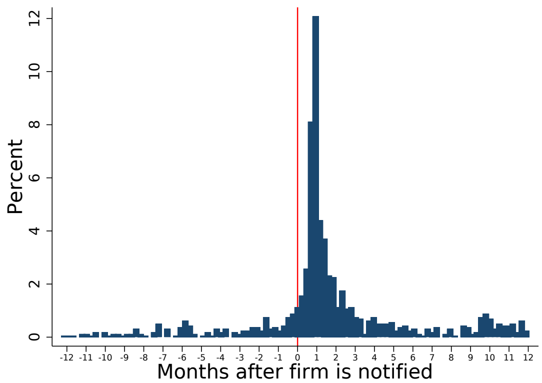
Figure 2: Patterns of Reported Purchases by Ghost Clients from Regular Firms versus Reported Purchases from Ghost Firms



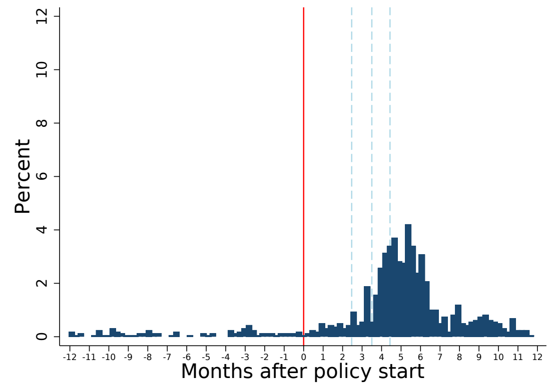
Note: Panels A and B show the weekly number and total value of reported purchases over the year, and Panels C and D the frequency of values, for reported purchases from non-ghost firms and ghost firms, respectively (for all years during 2010–2015) among economically active ghost clients that file a purchase annex. Transaction values are net-of-VAT. The red dashed lines in Panels C and D refer to the corresponding gross-of-VAT amount above which firms are required to make payments via the formal financial system. For ease of visibility, Panels C and D include only transactions that are fully subject to VAT. Figure A12 shows the same also including VAT-exempt transactions. Figures A2 and A3 show results separately for corporations and sole proprietorships. Figure A6 shows results for firm-year pairs that filed a purchase annex in all months of that year.

Figure 3: Amendment Patterns in Response to the Notifications

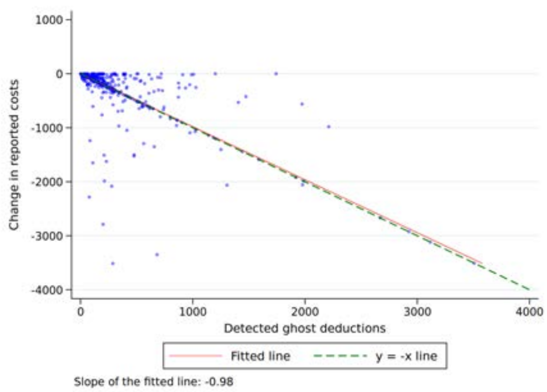
A) Amendment Rate of Notified Firms



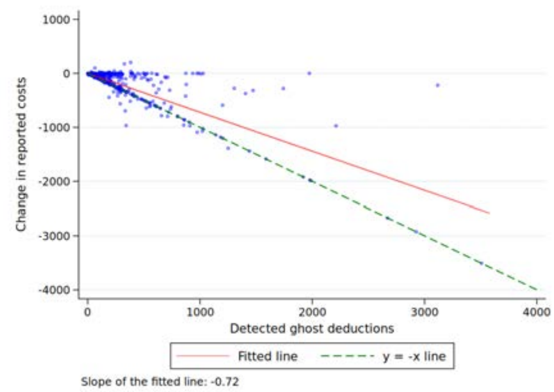
B) Amendment Rate of Notified Firms



C) Cost Reductions vs. Notified Amount (Adjusting Sample)



D) Total Cost Amendments vs. Notified Amount (Adjusting Sample)



Note: This figure shows amendment patterns following the notifications for tax filings from 2010–2015. Panels A and B show amendment rates for the universe of notified firms that include reductions to any non-labor costs. In Panel A zero indicates the date on which a given firm was sent its first notification, while in Panel B zero indicates the start of the notification intervention by SRI (July 18$^{\text{th}}$, 2016). The blue dashed lines in Panel B plot the dates on which SRI sent additional sizeable batches of notifications (see Table A6 for the number of notifications sent per month). Panels C and D show a firm's cost amendments compared to the amount of ghost deductions mentioned in the notification. Panel C only includes amendments of non-labor cost categories that involve a reduction in reported costs, while Panel D includes all amendments to any cost categories. The red solid line in Panels C and D plots the fitted line of a regression of the change in reported costs on the amount of detected ghost transactions mentioned in the notifications. The green dashed line plots the y = -x line. All monetary figures in thousands of USD.

TABLES

Table 1: Descriptive Statistics

	2015		2010-2015	
	(1) Ghost clients	(2) Non-Ghost clients	(3) Ghost clients	(4) Non-Ghost clients
Revenue ($000)	4,060	971	6,058	927
	(24,098)	(27,793)	(120,767)	(30,549)
	[568]	[97]	[568]	[101]
Cost ($000)	3,827	918	5,364	852
	(21,928)	(25,542)	(81,360)	(22,493)
	[538]	[94]	[536]	[96]
Tax liability ($000)	50.68	14.67	153	16.77
	(395)	(621)	(10,202)	(2,007)
	[3.68]	[0.00]	[3.91]	[0.01]
Number of unique ghost suppliers ($000)	2	0	2	0
	(2)	(0)	(2)	(0)
	[1]	[0]	[1]	[0]
Share exporting firms	0.07	0.02	0.07	0.02
Number of identified ghost purchases/ total number of purchases	0.05		0.04	
Value of identified ghost purchases/ value of total purchases	0.14		0.10	
Number of firms	7,118	143,486	22,630	215,197
Number of observations	7,118	143,486	39,982	756,127

Note: This table shows descriptive statistics by ghost-client status for the universe of economically active firms that are required to file a purchase annex for 2015 (Columns 1 and 2) and pooled for 2010–2015 (Columns 3 and 4). Ghost client status is defined at the firm-year level. All amounts are from filings prior to the start of the policy intervention. Means are reported along with standard deviations in parentheses and medians in brackets. All monetary figures in thousands of USD. Table A9 shows the statistics by year for 2010-2015. Tables A1 and A2 show robustness for incorporated firms and sole proprietorships only. Table A3 includes only firm-year pairs that filed purchase annexes in every month of that year.

Table 2: Impacts of Notifications on Reported Revenue, Cost, and Tax Liability of Adjusting Firms

	(1) 2015	(2) 2010-2015
Revenue	-17,733	-10,079
	(21,534)	(6,872)
Cost	-228,583	-181,626
	(51,238)	(28,680)
Tax liability	40,165	34,003
	(7,529)	(5,114)
Number of firms	172	460
Number of firm-year pairs	172	605

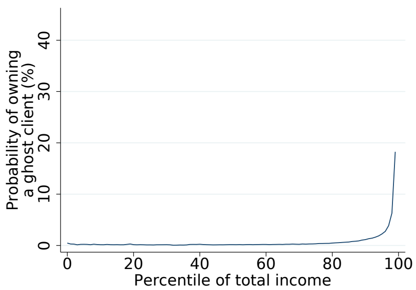
Note: This table shows changes to reported revenue, cost, and tax within 90 days after mailing of the notification from SRI, among the adjusting firms. Each coefficient stems from a separate regression showing the average difference in the reported outcome variable across notifications between the original filing from before the notification and the amendment filing after the notification. In Column (1) we regress the pre- and post-notification values for filings concerning the tax year 2015 on a post-notification dummy including firm fixed effects. In Column (2) we create a pooled sample of all filings (including amendments) for the 2010-2015 tax years. We then regress the reported values (separately for each outcome in question) on a firm-tax year fixed effect and a dummy variable indicating whether the filing was submitted in the 90 days following the firm was sent a notification about the filing from SRI. The coefficient reported here is that on the post-notification dummy variable. Each firm-tax year pair corresponds to a separate notification. Table A7 shows these results for each year separately. Table A8 shows results including all notified firms. Standard errors clustered at the firm level. All outcomes in USD.

Appendices (For Online Publication)

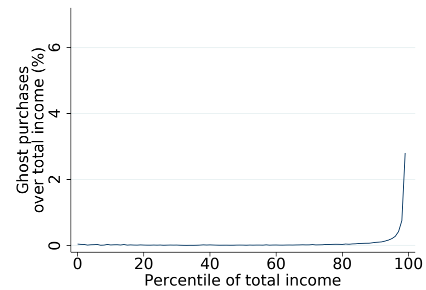
A Supplementary Results

Figure A1: Distributional Results
(Adjusted by Not Deducting Ghost Transactions from Firm Owners' Capital Income)

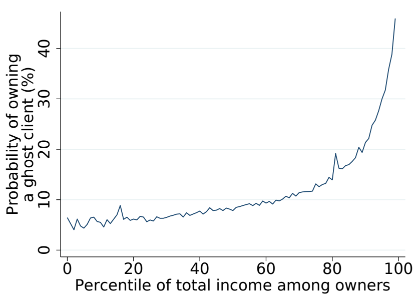
A) Probability of Owning a Ghost Client, by Individual Total Income



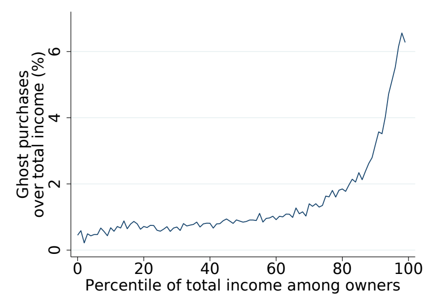
B) Value of Reported Ghost Purchases Over Total Individual Income, by Individual Total Income



C) Probability of Owning a Ghost Client, by Owner Total Income – Owners Only



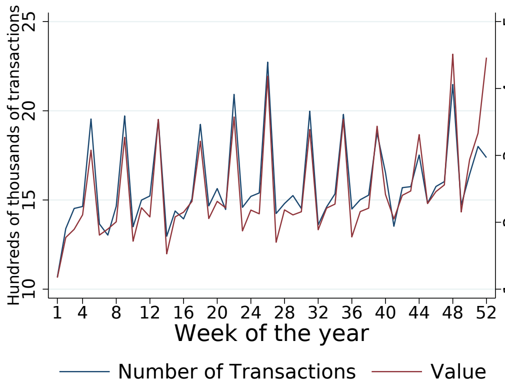
D) Value of Reported Ghost Purchases Over Total Owner Income, by Owner Total Income – Owners Only



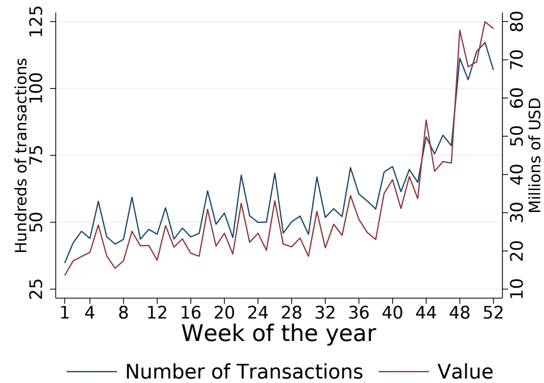
Note: This figure provides descriptive results on the use of receipts from ghost firms across the distribution of individuals' income (pooled 2010–2015), similar to Figure 1, Panels C–F. To calculate individuals' capital income, Figure 1 attributes firms' reported profits to their individual owners. This can make individuals' income look falsely lower the more fake ghost deductions the firms take. By contrast, this Figure calculates individuals' capital income based on the profits their firms would have without deducting the ghost transactions. Panels A and B look at individuals and their ownership in ghost client firms, by percentile of individuals' income (for individuals who earn at least \$1 a day and firms with up to 3,000 owners). Panel A shows the probability of having an ownership share in a ghost client. Panel B displays ghost purchases attributed to owners (i.e., individuals' ownership shares multiplied by the corresponding firms' ghost purchases) divided by individuals' total income. Panels C and D show the same as A and B, focusing only on firm owners (i.e., individuals with capital income from a firm in our sample). Outcome variables trimmed at the top 1% of positive values.

Figure A2: Patterns of Reported Purchases by Ghost Clients
from Regular Firms versus from Ghost Firms (Incorporated Firms Only)

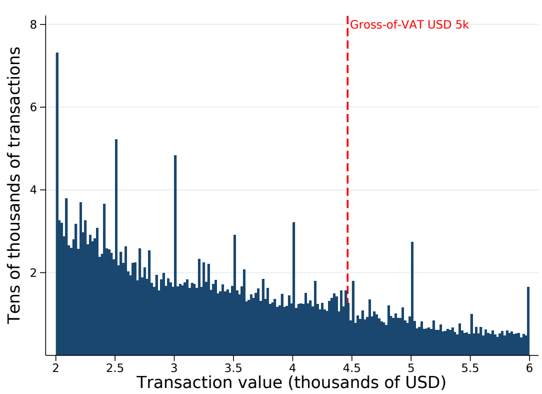
A) Number and Value of Reported
Purchases from Non-Ghost Firms
Over the Year



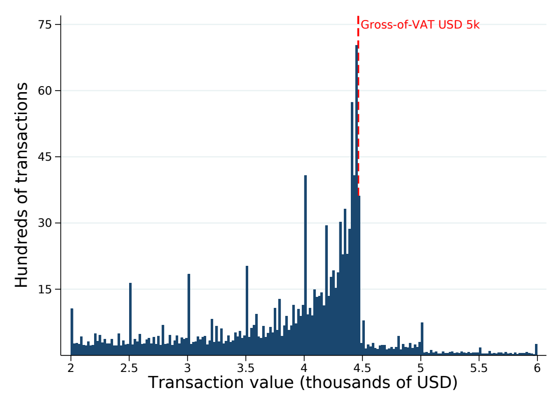
B) Number and Value of Reported
Purchases from Ghost Firms
Over the Year



C) Size Distribution of Reported
Non-Ghost Purchases



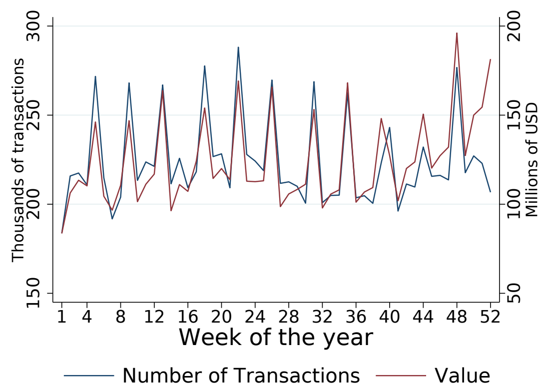
D) Size Distribution of Reported
Ghost Purchases



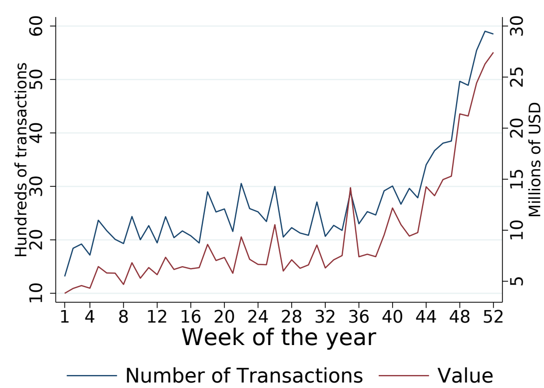
Note: Panels A and B show the weekly number and total value of reported purchases over the year, and Panels C and D the frequency of values for reported purchases, from non-ghost firms and ghost firms, respectively (for all years during 2010–2015) among economically active incorporated ghost clients that file a purchase annex. Transaction values are net-of-VAT. The red dashed lines in Panels C and D show the corresponding gross-of-VAT amount above which firms are required to make payments via the formal financial system. For ease of visibility, Panels C and D include only transactions that are fully subject to VAT. Figure 2 shows the same graphs for all economically active firms that file a purchase annex.

Figure A3: Patterns of Reported Purchases by Ghost Clients
from Regular Firms versus from Ghost Firms (Sole Proprietorships Only)

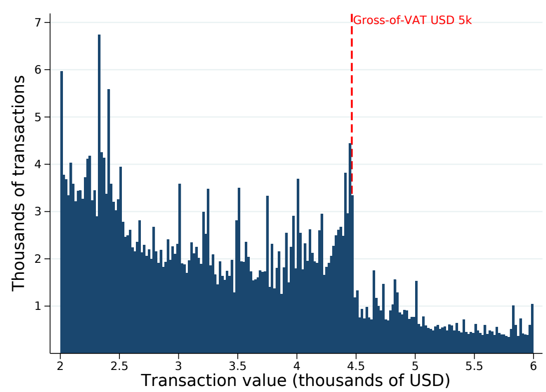
A) Number and Value of Reported
Purchases from Non-Ghost Firms
Over the Year



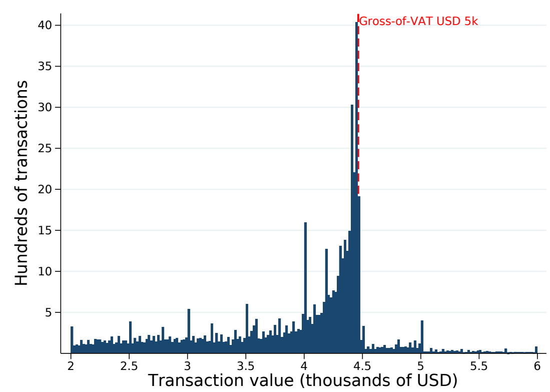
B) Number and Value of Reported
Purchases from Ghost Firms
Over the Year



C) Size Distribution of Reported
Non-Ghost Purchases



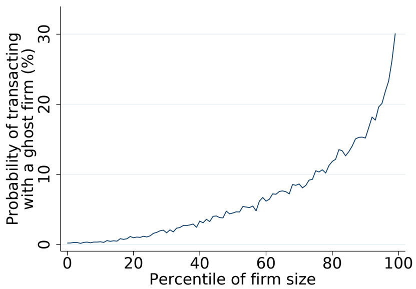
D) Size Distribution of Reported
Ghost Purchases



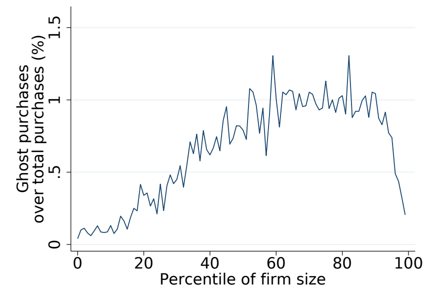
Note: Panels A and B show the weekly number and total value of reported purchases over the year, and Panels C and D the frequency of values for reported purchases, from non-ghost firms and ghost firms, respectively (for all years during 2010–2015) among economically active sole proprietorships that are ghost clients and file a purchase annex. Transaction values are net-of-VAT. The red dashed lines in Panels C and D show the corresponding gross-of-VAT amount above which firms are required to make payments via the formal financial system. For ease of visibility, Panels C and D include only transactions that are fully subject to VAT. Figure 2 shows the same graphs for all economically active firms that file a purchase annex.

Figure A4: Distributional Results
(Incorporated Firms Only)

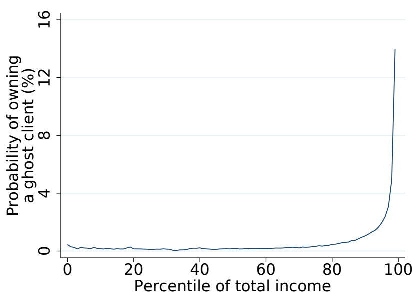
A) Probability of Being a Ghost Client, by Firm Size



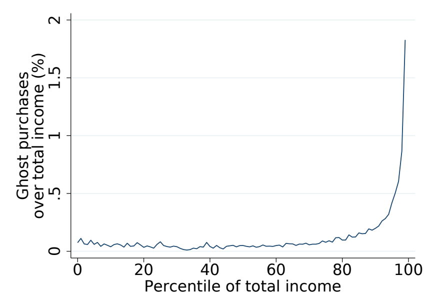
B) Value of Reported Ghost Purchases Over Firm Total Purchases, by Firm Size



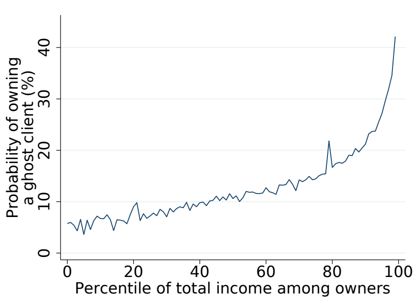
C) Probability of Owning a Ghost Client, by Individual Total Income



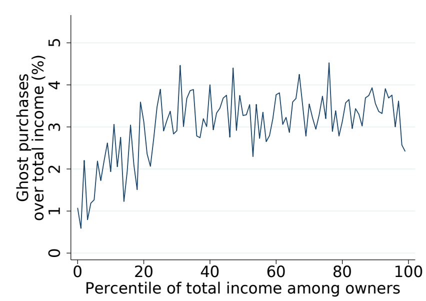
D) Value of Reported Ghost Purchases Over Total Individual Income, by Individual Total Income



E) Probability of Owning a Ghost Client, by Owner Total Income – Corporate Owners Only



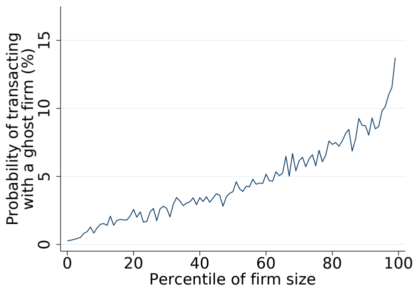
F) Value of Reported Ghost Purchases Over Total Owner Income, by Owner Total Income – Corporate Owners Only



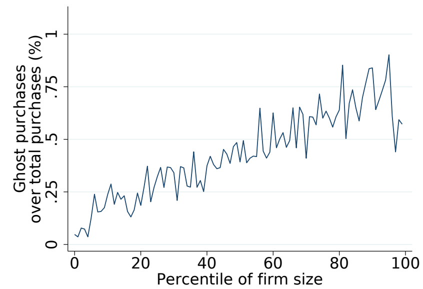
Note: This figure provides descriptive results on the use of receipts from ghost firms across the distribution of firm size and individuals' incomes (pooled 2010–2015) for incorporated firms. Panels A and B show the probability of being a ghost client and the share of firms' reported purchases that are based on receipts from ghost firms, by percentile of firm revenue (for incorporated firms that have positive revenues). Panels C and D look at individuals and their ownership in ghost client firms, by percentile of individuals' income (for individuals who earn at least \$1 a day and incorporated firms with up to 3,000 owners). Panel C shows the probability of having an ownership share in an incorporated ghost client. Panel D displays ghost purchases from incorporated firms attributed to owners (i.e., individuals' ownership shares multiplied by the corresponding firms' ghost purchases) divided by individuals' total income. Panels E and F show the same as C and D, focusing only on corporate owners (i.e., individuals who earn at least \$1 a day in capital income from an incorporated firm). Outcome variables trimmed at the top 1% of positive values. Figure 1 shows the same graphs including ghost purchases from all economically active firms that are required to file a purchase annex.

Figure A5: Distributional Results
(Sole Proprietorships Only)

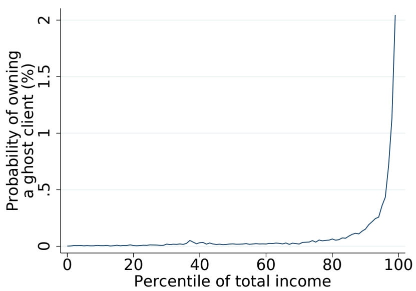
A) Probability of Being a Ghost Client, by Firm Size



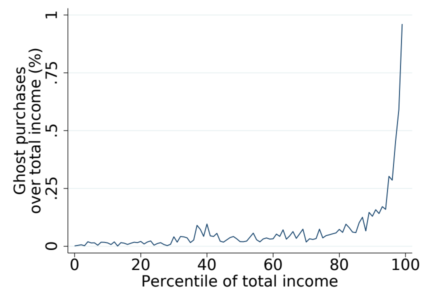
B) Value of Reported Ghost Purchases Over Firm Total Purchases, by Firm Size



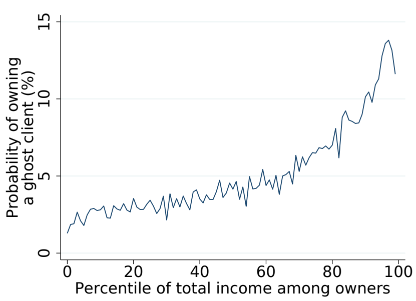
C) Probability of Owning a Ghost Client, by Individual Total Income



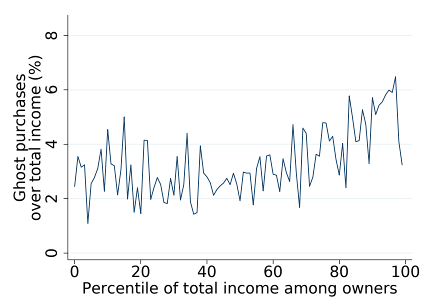
D) Value of Reported Ghost Purchases Over Total Individual Income, by Individual Total Income



E) Probability of Owning a Ghost Client, by Owner Total Income – Sole Proprietorship Owners Only

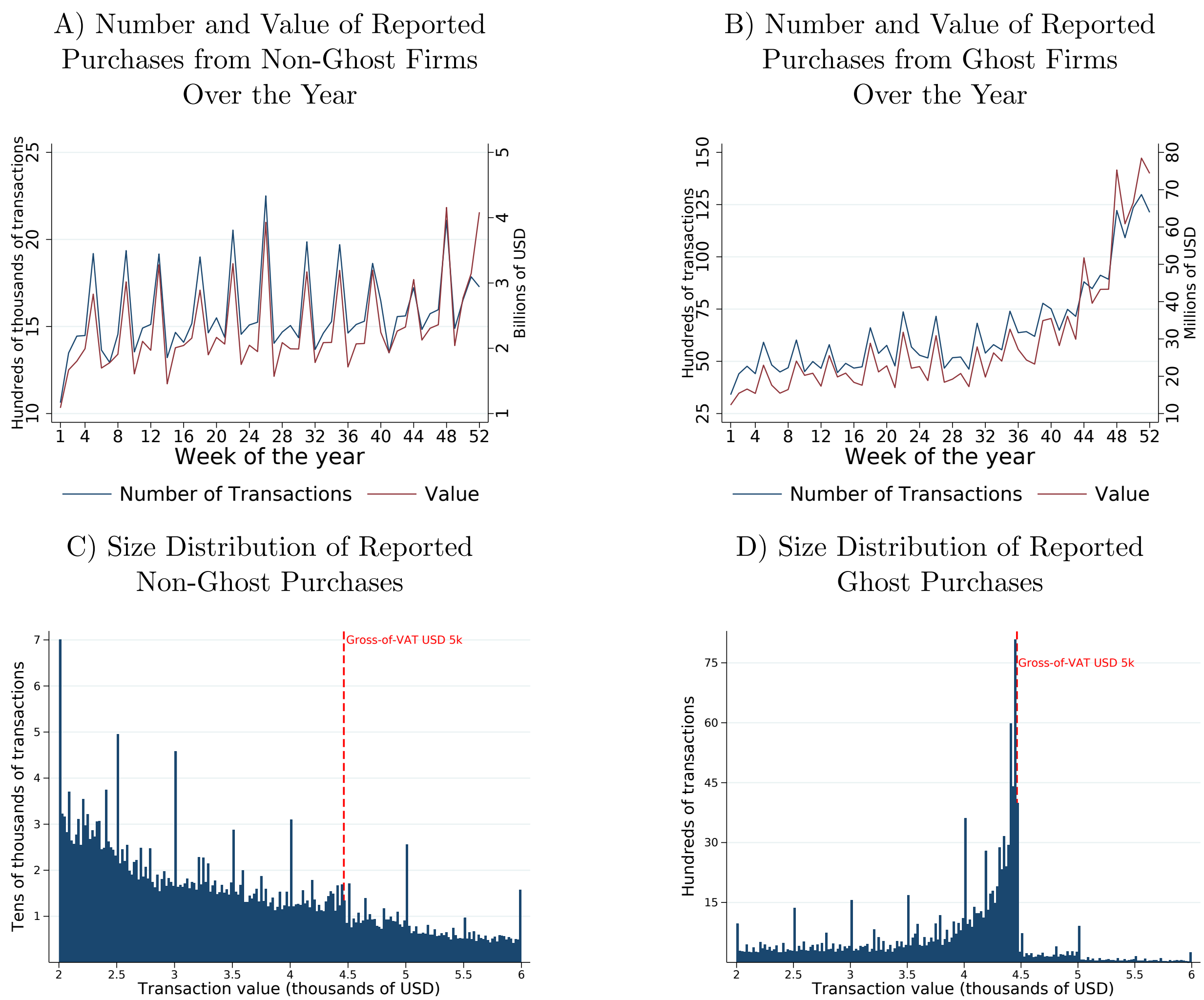


F) Value of Reported Ghost Purchases Over Total Owner Income, by Owner Total Income – Sole Proprietorship Owners Only



Note: This figure provides descriptive results on the use of receipts from ghost firms across the distribution of firm size and individuals' incomes (pooled 2010–2015) for sole proprietorships. Panels A and B show the probability of being a ghost client and the share of firms' reported purchases that are based on receipts from ghost firms, by percentile of firm revenue (for sole proprietorships that have positive revenues). Panels C and D look at individuals and their ownership in ghost client firms, by percentile of individuals' income (for individuals who earn at least \$1 a day and sole proprietorships). Panel C shows the probability of having a sole proprietorship that is a ghost client. Panel D displays ghost purchases attributed to owners (i.e., the corresponding sole proprietorships' ghost purchases) divided by individuals' total income. Panels E and F show the same as C and D, focusing only on individuals who earn at least \$1 a day in capital income from a sole proprietorship. Outcome variables trimmed at the top 1% of positive values. Figure 1 shows the same graphs including ghost purchases from all economically active firms that are required to file a purchase annex.

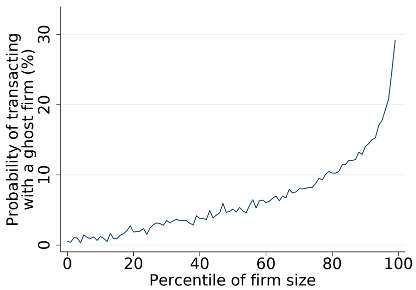
Figure A6: Patterns of Reported Purchases by Ghost Clients
from Regular Firms versus from Ghost Firms
(Robustness to Purchase Annex Filing Behavior)



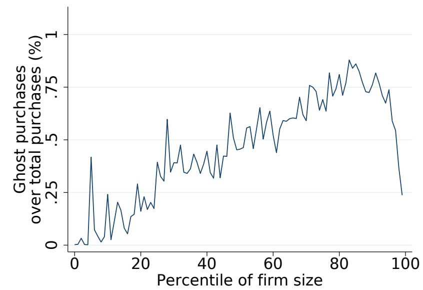
Note: Panels A and B show the weekly number and total value of reported purchases over the year, and Panels C and D the frequency of values for reported purchases, from non-ghost firms and ghost firms, respectively (for all years during 2010–2015) among economically active ghost clients that file a purchase annex. Transaction values are net-of-VAT. The red dashed lines in Panels C and D refer to the corresponding gross-of-VAT amount above which firms are required to make payments via the formal financial system. For ease of visibility, Panels C and D include only transactions that are fully subject to VAT. The sample is limited to firm-year pairs with purchase annex filings in every month in that year. Figure 2 shows the same graphs for all economically active firms that file a purchase annex independent of the firms' filing frequency. Table A4 provides descriptive statistics on firms' purchase annex filing behavior.

Figure A7: Distributional Results
(Robustness to Purchase Annex Filing Behavior)

A) Probability of Being a Ghost Client, by Firm Size — Firm-Year Pairs that Filed a PA Every Month

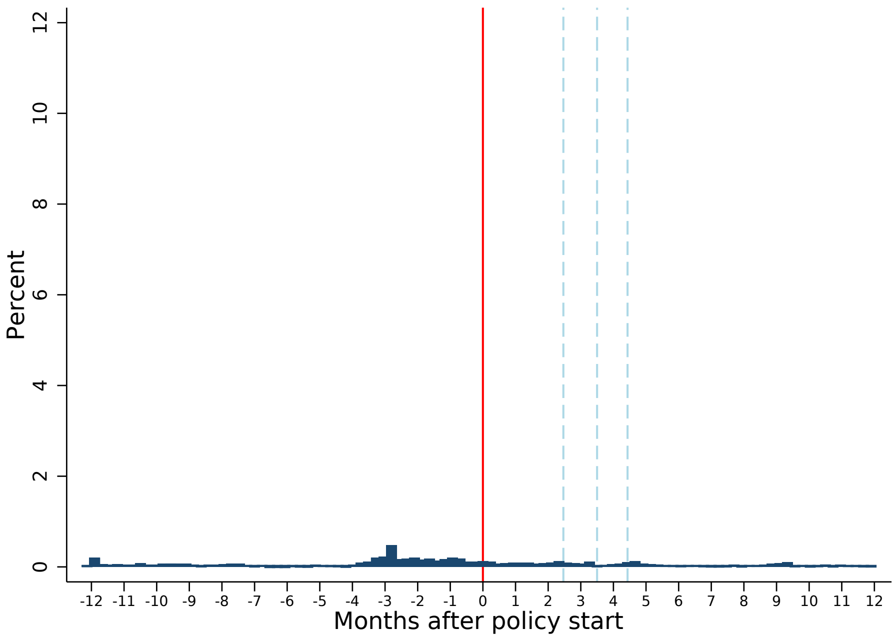


B) Value of Reported Ghost Purchases Over Firm Total Purchases, by Firm Size — Firm-Year Pairs that Filed a PA Every Month



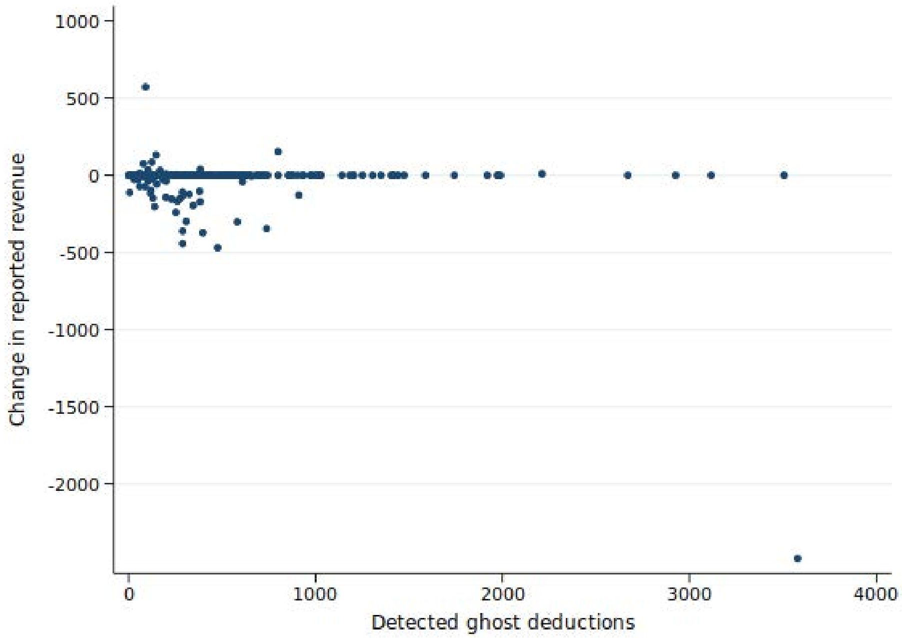
Note: This figure provides descriptive results on the use of receipts from ghost firms across the distribution of firm size (pooled 2010–2015). Compared to Figure 1, the sample is restricted to firm-year pairs with purchase annex filings in every month. Panel A shows the probability of being a ghost client. Panel B displays the share of firms' reported purchases that are based on receipts from ghost firms. Table A4 provides descriptive statistics on firms' purchase annex filing behavior.

Figure A8: Amendment Rates of Non-Ghost Clients



Note: This figure shows amendment rates for non-ghost clients for tax filings from 2010–2015. Zero indicates the start of the notification intervention by SRI (July 18$^{\text{th}}$ 2016). For comparison, Figure 3 Panel B shows the same for the sample of notified ghost clients. Blue dashed lines plot the dates in which SRI sent additional sizeable batches of notifications. We observe seasonal small amendment rates around the Ecuadorian tax day on April 15$^{\text{th}}$, which are unrelated to the intervention.

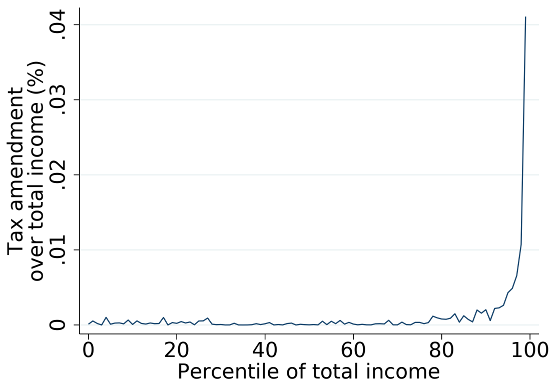
Figure A9: Revenue Adjustments Versus Notified Amounts
(Adjusting Sample)



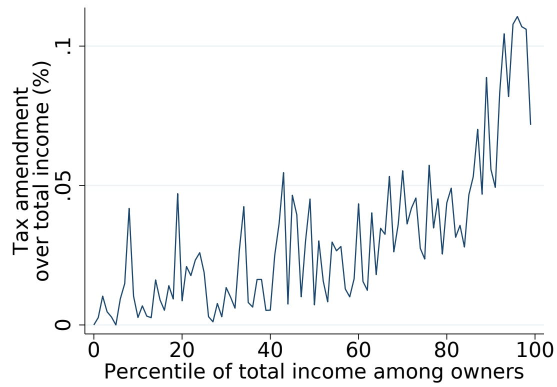
Note: This figure shows how a firm's revenue amendments compare to the amounts of ghost deductions mentioned in the notification for a given firm-year among the adjusting firms (2010–2015). Figure 3, Panels C and D show this relationship for cost amendments. All monetary figures in thousands of USD.

Figure A10: Distributional Effects – Response to Policy Intervention

A) Value of Tax Amendments Over Total Income, by Individual Total Income

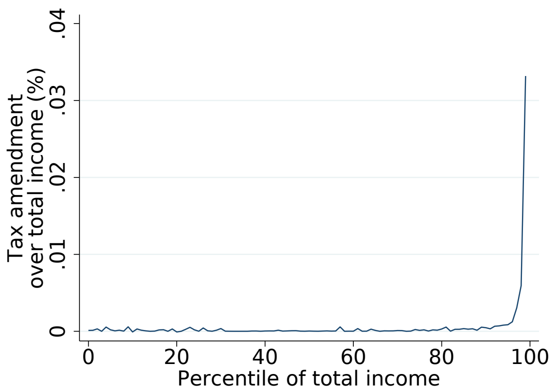


B) Value of Tax Amendments Over Total Income, by Owner Total Income - Corporate Owners Only

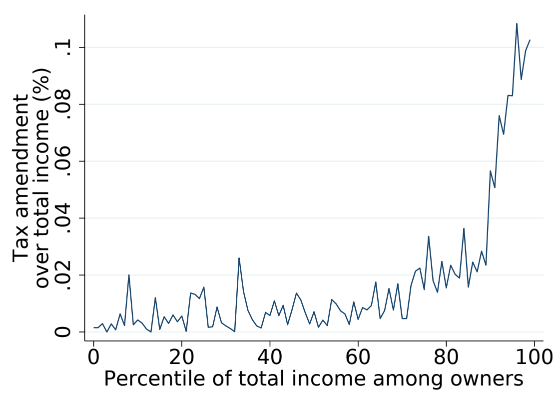


Adjusted by Not Deducting Ghost Transactions from Firm Owners' Capital Income

C) Value of Tax Amendments Over Total Income, by Individual Total Income



D) Value of Tax Amendments Over Total Income, by Owner Total Income – Corporate Owners Only



Note: This figure provides descriptive results on the value of tax amendments in response to the notifications across the distribution of individuals' incomes (pooled 2010–2015). Panel A shows results for all individuals, Panel B for corporate owners only (including firms with up to 3,000 owners). Panels A and B use firms' reported profits to calculate their owners' income, which can make owners' income look falsely lower the more ghost deductions a firm takes. Panels C and D show results when using the profits firms would have without deducting the ghost transactions. The value of tax amendments attributed to owners is their ownership share in a firm multiplied by the firm's change in reported tax, summed across firms. Panels A and C include individuals who receive a salary from an incorporated or non-incorporated firm or have an ownership stake in a firm, and earn at least \$1 a day. In Panels B and D, corporate owners are individuals holding stakes in incorporated firms with positive profits and who earn at least \$1 a day in capital income from incorporated firms. Outcome variables trimmed at the top 1% of positive values.

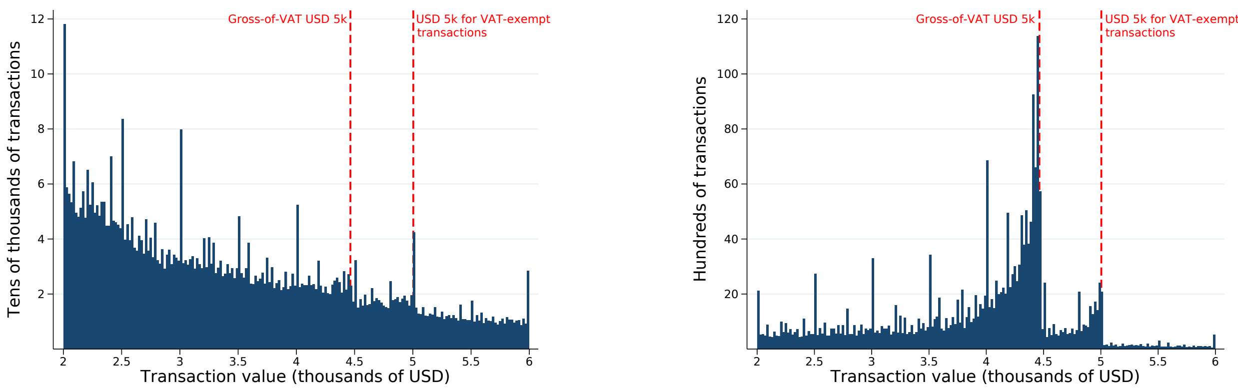
Figure A11: Probability of Filing Corporate Income Tax

Note: This figure plots the share of firms that file corporate income tax in 2014–2017 among the sample of incorporated firms that have been economically active at least once in our study period (2010–2015). Since corporate income taxes are filed in April of the following year, the filing for 2016 is the first one affected by the notification intervention.

Figure A12: Patterns of Reported Purchases by Ghost Clients
from Regular Firms versus from Ghost Firms

A) Size Distribution of Reported Non-Ghost Purchases

B) Size Distribution of Reported Ghost Purchases



Note: Panels A and B show the frequency of values for reported purchases, from non-ghost firms and ghost firms, respectively (for all years during 2010–2015) among economically active ghost clients that file a purchase annex. Includes transactions subject to VAT as well as those exempt from the tax. Transaction values of transactions subject to VAT are net-of-VAT. The legal requirement to make payments through the formal financial sector applies to transactions greater or equal than $5,000 gross-of-VAT, indicated by the red dashed lines for transactions subject to and exempt from the VAT, respectively. Figure 2, Panels C and D show the same graphs excluding transactions that are not subject to VAT.

Table A1: Descriptive Statistics
(Incorporated Firms Only)

	2015		2010-2015	
	(1) Ghost clients	(2) Non-Ghost clients	(3) Ghost clients	(4) Non-Ghost clients
Revenue ($000)	5,499	1,354	8,556	1,249
	(28,741)	(35,368)	(146,377)	(38,335)
	[750]	[42]	[803]	[41]
Cost ($000)	5,183	1,275	7,555	1,138
	(26,143)	(32,503)	(98,579)	(28,222)
	[716]	[45]	[765]	[43]
Tax liability ($000)	69.11	22.04	220	24.69
	(472)	(790)	(12,370)	(2,518)
	[5.30]	[0.01]	[5.97]	[0.00]
Number of unique ghost suppliers ($000)	2	0	2	0
	(2)	(0)	(2)	(0)
	[1]	[0]	[1]	[0]
Share exporting firms	0.10	0.03	0.10	0.03
Number of identified ghost purchases/ total number of purchases	0.05		0.04	
Value of identified ghost purchases/ value of total purchases	0.14		0.10	
Number of firms	4,959	88,552	14,742	132,252
Number of observations	4,959	88,552	27,190	479,993

Note: This table shows descriptive statistics by ghost-client status for the universe of economically active, incorporated firms for 2015 (Columns 1 and 2) and pooled for 2010–2015 (Columns 3 and 4). Ghost client status is defined at the firm-year level. All amounts are from filings prior to the start of the policy intervention. Means are reported along with standard deviations in parentheses and medians in brackets. All monetary figures in thousands of USD. Table 1 shows the same statistics for the universe of economically active firms that are required to file a purchase annex. Table A2 shows the same statistics for sole proprietorships that are required to file a purchase annex.

Table A2: Descriptive Statistics
(Sole Proprietorships Only)

	2015		2010-2015	
	(1) Ghost clients	(2) Non-Ghost clients	(3) Ghost clients	(4) Non-Ghost clients
Revenue ($000)	755	354	748	369
	(1,290)	(765)	(1,438)	(749)
	[390]	[164]	[362]	[173]
Cost ($000)	712	342	707	356
	(1,255)	(744)	(1,381)	(731)
	[358]	[157]	[331]	[164]
Tax liability ($000)	8.32	2.78	8.61	2.99
	(28.45)	(20.03)	(39.92)	(23.98)
	[1.46]	[0]	[1.61]	[0.03]
Number of unique ghost suppliers ($000)	2	0	2	0
	(2)	(0)	(2)	(0)
	[1]	[0]	[1]	[0]
Share exporting firms	0.01	0.01	0.01	0.01
Number of identified ghost purchases/ total number of purchases	0.03		0.03	
Value of identified ghost purchases/ value of total purchases	0.14		0.10	
Number of firms	2,159	54,934	7,894	83,811
Number of observations	2,159	54,934	12,792	276,134

Note: This table shows descriptive statistics by ghost-client status for the universe of economically active sole proprietorships that are required to file a purchase annex in 2015 (Columns 1 and 2) and pooled for 2010–2015 (Columns 3 and 4). Ghost client status is defined at the firm-year level. All amounts are from filings prior to the start of the policy intervention. Means are reported along with standard deviations in parentheses and medians in brackets. All monetary figures in thousands of USD. Table 1 shows these statistics for economically active firms that are required to file a purchase annex. Table A1 shows these statistics for economically active, incorporated firms.

Table A3: Descriptive Statistics
(Firm-Year Pairs that Filed a Purchase Annex Every Month)

	2015		2010-2015	
	(1) Ghost clients	(2) Non-Ghost clients	(3) Ghost clients	(4) Non-Ghost clients
Revenue ($000)	4,951	1,788	7,446	1,715
	(27,470)	(40,042)	(135,028)	(22,891)
	[728]	[230]	[766]	[246]
Cost ($000)	4,657	1,687	6,524	1,595
	(24,955)	(36,843)	(84,882)	(20,764)
	[695]	[222]	[726]	[236]
Tax liability ($000)	62.77	28.40	205	28.06
	(449)	(901)	(12,219)	(677)
	[4.82]	[0.30]	[5.48]	[0.49]
Number of unique ghost suppliers ($000)	2	0	2	0
	(2)	(0)	(2)	(0)
	[1]	[0]	[1]	[0]
Share exporting firms	0.08	0.04	0.08	0.04
Number of identified ghost purchases/ total number of purchases	0.02		0.02	
Value of identified ghost purchases/ value of total purchases	0.10		0.07	
Number of firms	5,318	65,303	16,585	108,919
Number of observations	5,318	65,303	27,786	307,132

Note: This table shows descriptive statistics by ghost-client status for the universe of economically active firms filed a purchase annex in every month of 2015 (Columns 1 and 2) and pooled for 2010–2015 (Columns 3 and 4). Ghost client status is defined at the firm-year level. All amounts are from filings prior to the start of the policy intervention. Means are reported along with standard deviations in parentheses and medians in brackets. All monetary figures in thousands of USD. Table 1 shows these statistics for all economically active firms that are required to file a purchase annex.

Table A4: Purchase Annex Filing Intensity — Firm-Year Level

	Pooled	F101	Long Form F102
Panel A: All firm-year pairs			
Average number of months in which the firm filed a PA in that year	7.4	6.9	8.5
Filed PA 1 month or more in that year	0.78	0.76	0.82
Filed PA 3 months or more in that year	0.72	0.68	0.79
Filed PA 6 months or more in that year	0.64	0.59	0.74
Filed PA 9 months or more in that year	0.56	0.50	0.67
Filed PA 12 months or more in that year	0.42	0.37	0.51
Number of unique firm-year pairs	796,109	507,183	288,926
Panel B: Only firm-year pairs with positive revenues			
Average number of months in which the firm filed a PA in that year	8.2	8.0	8.5
Filed PA 1 month or more in that year	0.84	0.84	0.82
Filed PA 3 months or more in that year	0.78	0.78	0.79
Filed PA 6 months or more in that year	0.71	0.69	0.74
Filed PA 9 months or more in that year	0.63	0.60	0.67
Filed PA 12 months or more in that year	0.47	0.45	0.51
Number of unique firm-year pairs	693,685	407,955	285,730

Note: This table shows descriptive results of purchase annex filing behavior for different levels of filing intensity on the firm-year level over 2010–2015. All numbers correspond to shares, except for Row 1. Panel A includes all firms that are required to file purchase annexes, while Panel B restricts the sample to firm-year pairs with positive revenues.

Table A5: Yearly Descriptive Statistics for Notified and Adjusting Firms

	(1) 2010	(2) 2011	(3) 2012	(4) 2013	(5) 2014	(6) 2015	(7) 2010-2015
Panel A: Notified firms							
Revenue ($000)	7,061	9,950	4,986	4,982	4,838	5,589	5,605
	(35,012)	(31,144)	(22,966)	(21,029)	(12,004)	(15,120)	(20,696)
	[1,323]	[2,060]	[1,330]	[1,191]	[1,317]	[1,305]	[1,326]
Cost ($000)	6,675	9,341	4,733	4,478	4,554	5,305	5,248
	(33,033)	(29,004)	(21,736)	(17,413)	(11,456)	(14,629)	(19,075)
	[1,286]	[1,992]	[1,236]	[1,091]	[1,233]	[1,236]	[1,258]
Tax liability ($000)	90.83	142	59.49	97.10	64.42	69.39	79.37
	(489)	(707)	(298)	(810)	(167)	(189)	(475)
	[18.00]	[23.33]	[12.77]	[13.73]	[14.52]	[12.94]	[14.27]
Detected ghost transactions ($000)	261	356	291	316	384	362	338
	(447)	(388)	(373)	(518)	(634)	(578)	(529)
	[145]	[210]	[168]	[165]	[204]	[191]	[181]
Observations	153	182	416	513	556	562	2,382
Panel B: Adjusting firms							
Revenue ($000)	2,757	4,217	2,959	2,925	4,047	3,706	3,486
	(4,774)	(4,453)	(9,508)	(7,596)	(9,371)	(8,130)	(8,360)
	[1,259]	[2,604]	[906]	[887]	[1,235]	[1,189]	[1,121]
Cost ($000)	2,707	4,202	2,878	2,755	3,862	3,510	3,328
	(4,743)	(4,920)	(9,342)	(7,182)	(8,938)	(7,679)	(8,004)
	[1,180]	[2,416]	[849]	[811]	[1,220]	[1,100]	[1,053]
Tax liability ($000)	20.34	64.15	26.35	37.99	44.16	52.05	41.99
	(17.97)	(85.85)	(66.87)	(115)	(111)	(141)	(114)
	[20.37]	[25.20]	[6.79]	[10.76]	[11.69]	[8.69]	[10.01]
Detected ghost transactions ($000)	216	350	205	214	297	316	268
	(407)	(462)	(230)	(307)	(405)	(508)	(402)
	[113]	[201]	[118]	[121]	[178]	[151]	[145]
Observations	27	20	89	136	161	172	605

Note: This table shows descriptive statistics for notified ghost clients in Panel A and for adjusting firms in Panel B by year (Columns 1 to 6) and pooled for 2010–2015 (Column 7). Amounts from filings prior to the start of the policy intervention. Means are reported along with standard deviations in parentheses and medians in brackets. All monetary figures in thousands of USD.

Table A6: Notification Dates by Month

Date	Number of notifications sent	Percent
January 2016	1	0.04
March 2016	1	0.04
July 2016	4	0.17
September 2016	78	3.27
October 2016	276	11.59
November 2016	567	23.80
December 2016	1,046	43.91
January 2017	111	4.66
February 2017	16	0.67
March 2017	84	3.53
April 2017	37	1.55
May 2017	56	2.35
June 2017	12	0.50
July 2017	9	0.38
August 2017	36	1.51
September 2017	18	0.76
October 2017	28	1.18
November 2017	1	0.04
December 2017	1	0.04
Total	2,382	100

Note: This table shows the number of notifications sent to economically active, incorporated ghost clients by SRI per month.

Table A7: Impacts of Notifications on Reported Revenue, Cost, and Tax Liability of Adjusting Firms – Yearly

	(1) 2010	(2) 2011	(3) 2012	(4) 2013	(5) 2014	(6) 2015	(7) 2010-2015
Revenue	-13,738	-5,223	-8,397	-10,441	-2,515	-17,733	-10,079
	(19,618)	(8,457)	(7,983)	(6,186)	(3,595)	(21,534)	(6,872)
Cost	-200,276	-160,760	-130,318	-155,134	-181,664	-228,583	-181,626
	(114,633)	(60,790)	(23,761)	(37,215)	(41,057)	(51,238)	(28,680)
Tax liability	40,599	26,236	21,135	29,192	38,457	40,165	34,003
	(24,481)	(11,308)	(4,228)	(6,823)	(7,861)	(7,529)	(5,114)
Number of firms	27	20	89	136	161	172	460
Number of firm-year pairs	27	20	89	136	161	172	605

Note: This table shows changes to reported revenue, cost and tax within 90 days after mailing of the notification from SRI, among the adjusting firms. Each coefficient stems from a separate regression showing the average difference in the reported outcome variable across notifications between the original filing from before the notification and the amendment filing after the notification. Separate for each tax year from 2010–2015, in Columns (1) to (6), we regress the pre- and post-notification values for filings concerning the respective tax year on a post-notification dummy including firm fixed effects. In Column (7) we create a pooled sample of all filings (including amendments) for the 2010–2015 tax years. We then regress the reported values (separately for each outcome in question) on a firm-tax year fixed effect and a dummy variable indicating whether the filing was submitted in the 90 days following the firm was sent a notification about the filing from SRI. The coefficient reported here is that on the post-notification dummy variable. Each firm-tax year pair corresponds to a separate notification. Table 2 shows these results for 2015 and from 2010–2015. Standard errors clustered at the firm level. All outcomes in USD.

Table A8: Impact of Notifications on Reported Revenue, Cost, and Tax Liability of All Notified Firms

	(1) 2015	(2) 2010-2015
Revenue	-4,338	-2,667
	(7,106)	(1,898)
Cost	-66,421	-44,748
	(16,971)	(8,060)
Tax liability	16,834	10,909
	(2,844)	(1,564)
Number of firms	562	1,589
Number of firm-year pairs	562	2,382

Note: This table shows changes to reported revenue, cost and tax within 90 days after mailing of the notification from SRI, among the notified firms. Each coefficient stems from a separate regression showing the average difference in the reported outcome variable across notifications between the original filing from before the notification and the amendment filing after the notification. If the notified firm did not file an amendment within 90 days following the notification, the post-notification value is the same as its reported pre-notification value. In Column (1) we regress the pre- and post-notification values for filings concerning the tax year 2015 on a post-notification dummy including firm fixed effects. In Column (2) we create a pooled sample of all filings (including amendments) for the 2010–2015 tax years. We then regress the reported values (separately for each outcome in question) on a firm-tax year fixed effect and a dummy variable indicating whether the filing was submitted in the 90 days following the firm was sent a notification about the filing from SRI. The coefficient reported here is that on the post-notification dummy variable. Each firm-tax year pair corresponds to a separate notification. Table 2 shows these results for adjusting firms. Standard errors clustered at the firm level. All outcomes in USD.

Table A9: Yearly Descriptive Statistics

	(1) 2010	(2) 2011	(3) 2012	(4) 2013	(5) 2014	(6) 2015	(7) 2010-2015
Panel A: Ghost clients							
Revenue ($000)	6,674	9,508	7,481	5,173	4,731	4,060	6,058
	(120,126)	(219,424)	(180,708)	(34,998)	(32,879)	(24,098)	(120,767)
	[494]	[696]	[544]	[563]	[592]	[568]	[568]
Cost ($000)	6,207	7,719	6,304	4,778	4,338	3,827	5,364
	(110,077)	(128,782)	(115,816)	(29,601)	(27,659)	(21,928)	(81,360)
	[466]	[670]	[517]	[529]	[548]	[538]	[536]
Tax liability ($000)	91.99	405	262	88.09	82.22	50.68	153
	(1,635)	(21,989)	(15,226)	(1,740)	(1,692)	(395)	(10,202)
	[3.35]	[4.09]	[3.47]	[4.44]	[4.56]	[3.68]	[3.91]
Number of identified ghost purchases/ total number of purchases	0.02	0.02	0.03	0.04	0.05	0.05	0.04
Value of identified ghost purchases/ value of total purchases	0.06	0.05	0.09	0.12	0.14	0.14	0.10
Observations	5,356	4,672	7,949	7,345	7,542	7,118	39,982
Panel B: Non-Ghost Clients							
Revenue ($000)	853	858	783	1,001	1,051	971	927
	(12,268)	(10,823)	(8,318)	(46,440)	(43,863)	(27,793)	(30,549)
	[92.84]	[101]	[100]	[105]	[106]	[97.09]	[101]
Cost ($000)	793	794	727	894	947	918	852
	(10,909)	(9,187)	(7,322)	(29,794)	(31,842)	(25,542)	(22,493)
	[87.67]	[96.90]	[95.83]	[99.82]	[99.63]	[94.38]	[96.12]
Tax liability ($000)	13.40	14.17	11.68	23.79	21.27	14.67	16.77
	(475)	(515)	(296)	(3,767)	(2,711)	(621)	(2,007)
	[0.0281]	[0.0249]	[0.0023]	[0.0031]	[0.0188]	[0.0016]	[0.0096]
Observations	99,830	113,843	125,188	133,444	140,336	143,486	756,127

Note: This table extends Table 1, showing descriptive statistics for ghost clients in Panel A and for non-ghost clients in Panel B by year (Columns 1 to 6) and pooled for 2010–2015 (Column 7). Ghost client status is defined at the firm-year level. Amounts from filings prior to the start of the policy intervention. Means are reported along with standard deviations in parentheses and medians in brackets. All monetary figures in thousands of USD.

B International Prevalence of Ghost Firms

The problem of tax fraud due to fake invoicing and ghost firms is not unique to the Ecuadorian context. A report by the OECD (2017) acknowledges the pervasiveness of false invoicing as a practice that firms employ in order to over-report deductions, and also to mask non-deductible personal expenses as legitimate deductions. They find that, between 2007 and 2009, Mexico lost around 3 billion EUR in tax revenue because of this problem[25]. Furthermore, according to the Federal Court of Administrative Justice and the country's tax authority (SAT), between 2014 and 2018, annual tax revenue lost due to ghost firms was about 5 billion MXN, which represents approximately 0.03% of the country's average GDP over the same period. Around 8,500 companies were identified as ghost firms in 2018 (Senado de la Republica, 2019).

Also in Latin America, González and Velásquez (2013) report that false invoices have historically represented between 15% and 25% of total VAT evasion in Chile, and that this percentage increased significantly in years of economic crisis. According to studies made by the Chilean tax authority (SII), between 1990 and 2003, evasion based on false invoices represented between 16% (in 1992) and 38% (in 1998) of total VAT evasion. In 2004, the share decreased to 15%. While the evasion based on false invoices amounted to 328 billion CLP in 1998, it was about one-third of this amount in 2004, namely 114 billion CLP (Jorrat, 2001; CIAT, 2008), which represents 0.2% of the Chilean GDP and 1.2% of the total tax revenue in 2004.

For Colombia, the tax authority (DIAN), using an analytics-based approach, identified 506 firms dedicated to the sale of fake invoices. In Bogotá the authority began investigating 850 firms that were notified about these transactions and did not voluntarily rectify them (DIAN, 2021). Moreover, in 2019, the authorities apprehended a group of people that had been using 15 ghost firms to sell fake invoices since 2005. The estimated tax revenue lost from this scheme was around 2,300 billion COP, which amounted to around 0.2% of the country's GDP for 2019 (Portafolio, 2019).

For Poland, between 2010 and 2016, the number and total value of fictitious invoices detected as a result of fiscal controls increased substantially. In 2010, 84,200 bogus invoices were detected, amounting to a total of 3,711.2 million PLN (0.26% of the country's GDP and 1.56% of the tax revenue). In 2016, the number of invoices increased to 421,300, with a total amount of 103,850 million PLN (5.6% of the country's GDP and 34.3% of the tax revenue). The average gross amount for which a fictitious invoice was issued, revealed in tax inspections/audits completed in 2010–2016, amounted to 246.5 thousand PLN in 2016 (Minister of Finance of Poland, 2018).

For Asian countries, Krever (2014) reports that in 2011, 1,410 out of 2,000 audited companies and individuals were charged with invoicing fraud in South Korea. He notes that this practice is adopted both by firms and individuals, but that it is harder to tackle in the latter case. Hashimzade et al. (2010) document the existence of tax fraud in claims for VAT rebates on exported products in China, a type of fraud for which a firm requires, among other things, a false VAT invoice. In this country, the National Audit Office found that

[25] For the Slovak Republic, they report that during 2014 and 2015, the amount of risky VAT detected in domestic invoicing fraud was more than 500 million EUR. This represents 0.64% of the country's average GDP for these two years, as well as 1.81% of the average total tax revenue for these two years.

central government departments were embezzling 21 million USD with fake invoices in 2010 (Barboza, 2013).

Finally, in the case of the African continent, a technical note from the African Tax Administration Forum (Brain and Nwankwo, 2018) describes the different forms that "missing trader" schemes can take. de La Feria and Schoeman (2019) acknowledge that these schemes are commonly employed to commit tax fraud, but hard to quantify. The Kenya Revenue Authority (KRA) highlights the case of a businessman who allegedly used fictitious invoices to illegally claim VAT refunds for more than 500,000 USD between 2015 and 2018 (Mak'Osewe, 2019). Furthermore, Mascagni et al. (2019) and Mascagni et al. (2021) document anecdotal evidence on taxpayers using fake receipts, and provide practical examples of how this happens in Rwanda.

C Data Appendix

This section provides further details on the data described in Section 2. For our analysis, we combine various administrative records from the Ecuadorian Tax Authority (SRI), such as lists of tax IDs identified as ghost firms, notification data, tax forms (F101 for corporations and F102 for sole proprietorships and individuals), purchase annex data, firm characteristics, ownership data, and employment records.

C1 Ghost Firms and Notifications Data

To classify firms as ghost suppliers, we use a list of tax IDs that were identified as being non-existent by SRI. These ghost firms were discovered between January 2016 and December 2017. In total, SRI detected 811 of them in this period.

A subset of client firms registering purchases from the aforementioned ghost firms received a notification from SRI. Specifically, we have data on notifications sent by the tax authority to firms referencing either their Corporate Income Tax (CIT) returns or their Value-Added Tax (VAT) returns. In total, 5,007 notification letters were sent to 2,825 firms. We only keep the notifications related to CIT.[26] We observe the notification date and the total value of ghost transactions that the firm registered during a given fiscal year. After keeping only CIT notifications sent to economically active firms that filed at least one ghost transaction in the purchase annex in the fiscal year which the notification concerns, we are left with 2,382 notifications which were sent to 1,589 corporate ghost clients for the fiscal years 2010–2015.[27]

C2 Purchase Annexes and Tax Returns

All incorporated firms in Ecuador are required to submit an annual tax form and monthly purchase annexes. For sole proprietorships, only those with annual sales above \$100,000, annual costs above \$80,000, or capital above \$60,000 are required to file purchase annexes. On the one hand, purchase annexes contain information about all transactions in which a firm was involved. For each transaction, we observe (anonymized versions of) the tax IDs of the buyer and the seller, the date on which it was registered, its value and the VAT paid. On the other hand, F101 and F102 data contains information on a variety of tax items, such as revenue, costs, tax liability, and profit. Importantly, our F101 and F102 records also include amendments, which are submissions in which corporations rectify information presented in previous tax returns. This data also allows us to compute the change in reported tax items

[26] We do not use the data on VAT notifications because we do not have access to VAT amendments, but only corporate tax amendments. Also, whenever a firm receives both types of notifications for a given fiscal year, we only keep the CIT notification.

[27] The total number of 5,007 notifications is composed of 4,176 notifications related to CIT and 831 related to VAT. Out of these, 668 notifications were sent to firms that are either not economically active or do not report a transaction from one of the 811 ghost firms in the purchase annex. Economically active incorporated ghost clients were sent 2,382 notifications related to CIT and 329 related to VAT, in total. Moreover, economically active sole proprietorship ghost clients received 1,288 notifications related to CIT and 340 related to VAT. Since we do not have data on amendments filed by sole proprietorships, they are not included in our analysis of the enforcement campaign.

between a firm's original submission and the post-notification amendment. Lastly, we only keep submissions covering fiscal years 2010 to 2015.

For the F101 and F102 data, in case a firm submitted multiple tax forms for the same fiscal year, we only keep the last (most recent) submission.[28] Additionally, for the subset of corporations that received a notification from SRI to amend their returns, we keep a maximum of two submissions for a given fiscal year: The last submission before notification, and the last amendment within 90 days of receiving the notification. In case they did not amend their tax returns after the notification date, we only keep their last pre-notification submission.

Then, to clean the purchase annex data, we restrict the sample to transactions in the period 2010–2015, and then ensure that the VAT paid is consistent with the transaction value. We discard any transactions with a negative value, purchases whose value is too large relative to the cost of the buyer and/or the revenue of the seller, and those in which the buyer and seller are actually the same firm.[29] This data allows us to calculate, for each buyer-year pair, the total number and value of purchases registered.

C3 Ownership, Employment, and Civil Registry Data

We have access to ownership records in which firms register their owners, including each owner's share. As this data is available from 2011 onwards, we impute the same data from this year to the previous one. This means that we assume that the ownership structure did not change between 2010 and 2011. This data allows us to calculate owner's capital income, and also to link ghost transactions of a firm to its owner.

In addition, for the employment records, we combine two rounds of employment data from SRI. The first round covers the period from 2007 to 2017, and the second round is available from 2009 to 2016. This constitutes the data we use to calculate labor income for the individuals in our dataset.

C4 Sample of Firms

In Ecuador, corporations file the corporate income tax form (F101), while sole proprietorships file a combined business and individual income tax return (long form F102). Our sample includes these, and also smaller sole proprietorships that file purchase annexes because they want to deduct itemized costs (short form F102). We define a firm as a tax ID that files an F101 or F102 tax form. Most of our analyses restrict the sample to F101 and F102-long-form filers, the only exception being part of the distributional analysis (Figures 1, A1, A4, A5 and A7), which also includes the short form F102 filers.

Furthermore, we restrict the sample to economically active firms. We define a firm-year pair as economically active if it satisfies at least one of the following criteria:

- It submitted an F10X with positive revenues or costs.

[28] Our data allows us to identify precisely the last submission, as we observe both the date and the exact time of each submission.

[29] For more details on the data and the cleaning process, see Adao et al. (2022).

- It appeared as a buyer or seller in the purchase annex.
- It had at least one employee.

This results in a list of 216,578 unique economically active firms for the entire 2010–2015 period.

C5 Combining the Data

To identify whether an amendment took place before or after receiving a notification, we merge the notifications data with the F101 records.[30] Additionally, to identify ghost clients, we merge the purchase annex data with the list of ghost firms provided by SRI. For each year, we define a buyer firm as a ghost client if it registered at least one transaction in which the seller is a ghost firm. For the entire period of our sample, we identified a total of 22,630 unique economically active ghost clients (14,742 F101 filers and 7,894 F102-long-form filers).[31]

Within ghost clients, we make other classifications that we use for certain calculations. Namely, we define a notified ghost client for a given year as a ghost client that received a notification from SRI referencing their corporate tax returns of that year. Furthermore, within notified ghost clients, we define adjusting ghost clients as those that submitted an amendment with a reduction in at least one non-labor cost line item within 90 days of receiving a notification from SRI.

Additionally, to incorporate the ownership data in our analysis, we merge it with the purchase annex and the ghost firm list to identify which firms/individuals are ghost client owners. We define an owner as a ghost client owner if they own shares in a ghost client, independent of the size of their share(s). We then merge this list of ghost client owners with employment and tax forms data to recover their labor and capital income.

C6 Other Calculations and Adjustments

Individuals' income: To create Figures 1, A1, A4, A5 and A7, we calculate each individual's total income in the following way. We define individual i's income in year t as the sum of their labor and capital income in that year:

$$Total\ Income_{it} = Labor\ Income_{it} + Capital\ Income_{it}. \tag{1}$$

Labor income is the sum of the annual salaries earned by individual i from the firms they were employed at in year t. Capital income is the sum of income obtained through firm ownership—obtained by multiplying their ownership share in a firm by the firm's profit—and

[30] We exclude from the analyses all observations associated with 3 firm IDs whose original filing dates take place after the notification date. These are likely the result of data entry mistakes.

[31] Note that a few firms file F101 in one year and F102 in another year. Thus, the sum of unique F101 clients and F102 clients over 2010–2015 does not add up to the number of unique ghost clients. Furthermore, if a firm filed both F101 and F102 in the same year, we only consider the F101 filing.

other rents:

$$Capital\ Income_{it} = \left(\sum_{n=1}^{N} Share\ Owned_{int} \times Profit_{nt} \right) + Other\ Rents_{it}, \tag{2}$$

where $n \in \{1, ..., N\}$ indexes the firms in our sample.[32] *Other Rents* include professional fees, dividends, financial rents and other forms of taxable income, all of which are reported in the individual income tax returns (F102).

Income percentiles: To compute percentiles across the distribution of individuals' total income, we add a random value between \$1 and \$5 to the total annual income of each individual. This ensures that all 100 percentile bins include the same number of observations.

Finally, note that we follow a procedure similar to equation (2) to attribute ghost purchases to individuals, namely:

$$Ghost\ Purchases_{it} = \sum_{n=1}^{N} Share\ Owned_{int} \times Value\ of\ Ghost\ Transactions_{nt}. \tag{3}$$

[32]For sole proprietorships (F102) that are not in the ownership data, but for which the tax ID of the owner is the same as that of the firm, we treat the ownership share as 1.

D Full Text of a Sample Notification

D1 Original (in Spanish)

Estimado Contribuyente:

En virtud de lo dispuesto en los numerales 2 y 9 del artículo 2 de la Ley de creación del Servicio de Rentas Internas, esta institución tiene la facultad de efectuar el control de los tributos internos del estado y la atribución de solicitar a los sujetos pasivos o a quien los represente cualquier tipo de documentación o información vinculada con la determinación de sus obligaciones tributarias o de terceros.

El artículo 9 de la Ley de Creación del Servicio de Rentas Internas, establece que los directores del Servicio de Rentas Internas ejercerán, dentro de su respectiva jurisdicción, las funciones que el Código Tributario asigna al Director General del Servicio de Rentas Internas.

Mediante la Resolución No NAC-DGERCGC14-00313, publicada en la edición especial del Registro Oficial No. 134 de 30 de mayo de 2014, se expidió el nuevo Estatuto Orgánico de Gestión Organizacional por Procesos del Servicio de Rentas Internas, mismo que es aplicable desde el 01 de noviembre de 2014, según lo dispuesto en la Resolución No. NAC-DGERCG14-00873.

Que, mediante Resolución No. PEO-JURRDRl15-00000009 publicada en el Registro Oficial No. 435 el 10 de Febrero de 2015, en ejercicio de la facultad que le confiere la ley, la Dirección Provincial de El Oro del Servicio de Rentas Internas resolvió delegar a quien desempeñe las funciones de Jefe Provincial de Gestión Tributaria, la facultad de expedir y suscribir el presente acto.

El artículo 94 del Código Tributario respecto a la caducidad de la facultad determinativa, señala:

> Art. 94.- Caducidad.- Caduca la facultad de la administración para determinar la obligación tributaria, sin que se requiera pronunciamiento previo:
>
> (..)
>
> 2. En seis años, contados desde la fecha en que venció el plazo para presentar la declaración, respecto de los mismos tributos, cuando no se hubieren declarado en todo o en parte;

El artículo 17 del Código Tributario sobre el hecho generador, señala:

> Art. 17. - Calificación del hecho generador. - Cuando el hecho generador consista en un acto jurídico, se calificará conforme a su verdadera esencia y naturaleza jurídica, cualquiera que sea la forma elegida o la denominación utilizada por los interesados.
>
> Cuando el hecho generador se delimite atendiendo a conceptos económicos el criterio para calificarlos tendrá en cuenta las situaciones o relaciones económicas que efectivamente existan o se establezcan por los interesados con independencia de las formas jurídicas que se utilicen. (El subrayado corresponde a la Administración Tributaria).

El artículo 10 de la Ley de Régimen Tributario Interno en el último inciso del numeral 16, en concordancia con el artículo 26 de su reglamento de aplicación, establecen:

> Art. 10.- Deducciones.- En general, para determinar la base imponible sujeta a este impuesto se deducirán los gastos que se efectúen con el propósito de obtener, mantener y mejorar los ingresos de fuente ecuatoriana que no estén exentos.
>
> (..)
>
> Sin perjuicio de las disposiciones de este artículo, no serán deducibles los costos o gastos que se respalden en comprobantes de venta falsos, contratos inexistentes o realizados en general con personas o sociedades inexistentes, fantasmas o supuestas.
>
> Art. 26.- No serán deducibles los costos o gastos que se respalden en comprobantes de venta emitidos por empresas inexistentes, fantasmas o supuestas, sin perjuicio de las acciones penales correspondientes.

En tal sentido, los artículos 24 y 25 del Reglamento para la Aplicación de la Ley de Régimen Tributario Interno, establecen las definiciones de empresas fantasmas o supuestas e inexistentes; señalando lo siguiente:

> Art. 24.- Definición de empresas inexistentes.- De manera general, se considerarán empresas inexistentes aquellas respecto de las cuales no sea posible verificar la ejecución real de un proceso productivo y comercial. En el caso de sociedades, y sin perjuicio de lo señalado, se considerarán como inexistentes a aquellas respecto de las cuales no se pueda verificar su constitución, sea a través de documentos tanto públicos como privados, según corresponda.
>
> Art. 25.- Definición de empresas fantasmas o supuestas.- Se considerarán empresas fantasmas o supuestas, aquellas que se han constituido mediante una declaración ficticia de voluntad o con ocultación deliberada de la verdad, quienes fundadas en el acuerdo simulado, aparentan la existencia de una sociedad, empresa o actividad económica, para justificar supuestas transacciones, ocultar beneficios, modificar ingresos, costos y gastos o evadir obligaciones. La realización de actos simulados, será sancionada de conformidad con las normas de defraudación, tipificadas en el Código Tributario.

El Servicio de Rentas Internas al revisar la información que dispone en sus bases de datos, ha identificado que registra operaciones con empresas que han sido consideradas para efectos tributarios como inexistentes, fantasmas o personas naturales y sociedades que realizan actividades supuestas y/o transacciones inexistentes, por lo cual deberá justificar la veracidad del hecho económico y por ende del gasto registrado en su (s) declaración (es) de las transacciones que se detallan a continuación:

Cuadro No. 1 Transacciones con empresas fantasmas o inexistentes, así como con personas naturales y sociedades con actividades supuestas y/o transacciones inexistentes

La Resolución No. NAC-DGERCGC16-00000356 publicada en el Segundo Suplemento del Registro Oficial 820 de 17 de agosto de 2016, dispone:

> Art. 7.- Corrección de declaraciones.- Los contribuyentes que hubiesen utilizado en sus declaraciones, los comprobantes de venta, documentos complementarios y/o compro-

> bantes de retención emitidos por empresas inexistentes, fantasmas o personas naturales y sociedades que realizan actividades supuestas y/o transacciones inexistentes, según corresponda, de no contar con documentación que respalde la realidad económica de la o las transacciones, deberán corregir sus declaraciones, cumpliendo para el efecto con lo establecido en la normativa tributaria vigente. En el caso del impuesto a la renta, la corrección a realizar afectará al estado de resultados del ejercicio fiscal respectivo; para el caso del impuesto al valor agregado, se realizará la corrección de la declaración a partir de la cual se genere un valor a pagar de impuesto por la disminución del crédito tributario. En caso de que esta Administración Tributaria detecte que un contribuyente no corrigió sus declaraciones, pese a encontrarse en el supuesto señalado en el inciso anterior, podrá ejercer su facultad determinadora para establecer el o los valores de impuesto que correspondan, con los respectivos intereses, multas y recargos que le sean aplicables, sin perjuicio de las acciones penales que se pudieren iniciar de conformidad con el Código Orgánico Integral Penal y demás normativa vigente.

Por consiguiente y de conformidad con lo señalado en la normativa vigente, las transacciones efectuadas con comprobantes de venta, documentos complementarios y/o comprobantes de retención emitidos por los sujetos pasivos anteriormente descritos en los cuales no se pueda probar la realidad económica de tales operaciones conforme lo dispuesto en el Art. 17 del Código Tributario; se deberá realizar la respectiva corrección de la o las declaraciones en función del siguiente detalle de diferencias establecidas por la Administración Tributaria, sin perjuicio que más adelante se pueda detectar diferencias adicionales:

Cuadro No. 2 Diferencias en la (s) declaración (es) de Impuesto a la Renta por transacciones con empresas fantasmas o Inexistentes, así como con personas naturales y sociedades con actividades supuestas y/o transacciones inexistentes

Con estos antecedentes, se le otorga el plazo de diez (10) días hábiles , para que presente sus declaraciones sustitutivas de Impuesto a la Renta y del Impuesto al Valor Agregado, modificando la (s) diferencia (s) correspondiente (s) a las transacciones realizadas con ese (esos) contribuyente (s), liquidando el impuesto más los intereses y multas correspondientes.

En el caso de que no se cumpla con lo solicitado en el plazo otorgado o no se justifique documentalmente, el Servicio de Rentas Internas, en ejercicio de las facultades establecidas en la ley, iniciará los procesos de control y aplicará las sanciones pertinentes, para garantizar el estricto y correcto cumplimiento de la normativa tributaria, sin perjuicio de impulsar las acciones penales a las que tuviere lugar.

De igual manera se hace conocer al contribuyente lo dispuesto en el quinto inciso del artículo 101 de la Ley de Régimen Tributario Interno, en su parte pertinente, señala:

> (...)
>
> Cuando la enmienda se origine en procesos de control de la propia administración tributaria y si así ésta lo requiere, la declaración sustitutiva se podrá efectuar hasta dentro de los seis años siguientes a la presentación de la declaración y solamente sobre los rubros requeridos por la Administración Tributaria. (Énfasis añadido).

En caso de requerir mayor información al respecto del presente oficio puede acercarse a las oficinas del Departamento de Gestión Tributaria de la Dirección Provincial El Oro, ubicadas en la Av. 25 de Junio, Km 1 $\frac{1}{2}$ vía a Pasaje.

El presente oficio no constituye un acto de determinación tributaria, sino una comunicación meramente informativa que tiene como finalidad poner al tanto al sujeto pasivo sobre las diferencias que la Administración Tributaria ha detectado como consecuencia del análisis y los cruces de información respectivos. La Administración Tributaria se reserva el derecho de ejercer la facultad determinadora en el caso en que el sujeto pasivo no regularice las diferencias detectadas de conformidad con lo previsto en el Código Tributario y la Ley de Régimen Tributario Interno.

Finalmente, se advierte que el numeral 20 del artículo 298 del Código Integral Penal, al referirse a la defraudación tributaria, establece que la persona que simule, oculte, omita, falsee o engañe a la Administración Tributaria con el fin de evadir el cumplimiento de las obligaciones tributarias o para dejar de pagar en todo o en parte los tributos realmente debidos, en provecho propio o de un tercero, valiéndose de personas naturales interpuestas, o personas jurídicas fantasmas o supuestas, residentes en el Ecuador o en cualquier otra jurisdicción, será sancionada con pena privativa de libertad de cinco a siete años.

Así mismo, los representantes legales y el contador, respecto de las declaraciones u otras actuaciones realizadas por ellos, serán responsables como autores en la defraudación tributaria en beneficio de la persona jurídica o natural, según corresponda, sin perjuicio de la responsabilidad de los socios, accionistas, empleados, trabajadores o profesionales que hayan participado deliberadamente en dicha defraudación, aunque no hayan actuado con mandato alguno.

D2 Translation

Dear Taxpayer:

Under the provisions of paragraphs 2 and 9 of Article 2 of the Law on the Creation of the Internal Revenue Service, this institution has the power to carry out the control of the internal taxes of the State and is entitled to request from the taxpayers or those who represent them any type of documentation or information related to the determination of their tax obligations or those of third parties.

Article 9 of the Law on the Creation of the Internal Revenue Service establishes that the directors of the Internal Revenue Service shall exercise, within their respective jurisdiction, the duties that the Tax Code assigns to the General Director of the Internal Revenue Service.

Through Resolution No NAC-DGERCGC14-00313, published in the special edition of Official Gazette No. 134 of May 30, 2014, the new Organic Statute of Organizational Management by the Internal Revenue Service Processes was issued. This statute is valid since November 1, 2014, as stated in Resolution No. NAC-DGERCG14-00873.

That, through Resolution No. PEO-JURRDRl15-00000009 published in Official Gazette No. 435 of February 10, 2015, in exercise of the power granted by law, the El Oro Provincial Office of the Internal Revenue Service decided to delegate the power to issue and subscribe the present act to whoever performs the functions of Provincial Head of Tax Management.

Article 94 of the Tax Code, regarding the expiration of the determinative faculty states:

> Art. 94.- Expiration.- The power of the administration to determine the tax obligation expires, without requiring prior pronouncement, if:
> (..)

> 2. In six years, counted from the date on which the period for filing the declaration expired, with respect to the same taxes, when they have not been declared in whole or in part;

Article 17 of the Tax Code on the tax-triggering event states:

> Art. 17. - Qualification of the tax-triggering event - When the triggering event consists of a legal act, it will be classified according to its true essence and legal nature, regardless of the chosen form or the denomination used by the interested parties.
>
> When the triggering event is defined according to economic concepts, the criteria to rate them will consider the situations or economic relationships that actually exist or are established by the interested parties, regardless of the legal forms used. (The underscore corresponds to the Tax Administration.)

Article 10 of the Internal Tax Regime Law in the last subsection of section 16, and in accordance with article 26 of its implementing regulations, establishes:

> Art. 10.- Deductions.- In general, to determine the taxable base subject to this tax, the expenses incurred in order to obtain, maintain and increase the income from Ecuadorian sources that are not exempt will be deducted.
>
> (..)
>
> Without prejudice to the provisions of this article, the costs or expenses that are supported by false sales receipts, non-existent contracts or those in which the counterpart is a non-existent, ghost, or alleged person or company, will not be deductible.
>
> Art. 26.- Costs or expenses that are supported by sales receipts issued by non-existent, ghost or alleged companies shall not be deductible, without prejudice to the corresponding criminal actions.

In this sense, Articles 24 and 25 of the Regulation for the Application of the Law of Internal Tax Regime establish the definitions of ghost, alleged or nonexistent companies, noting the following:

> Art. 24.- Definition of non-existent companies.- In general, nonexistent companies shall be defined as those for which it is not possible to verify the actual execution of a productive and commercial activity. In the case of the companies indicated, and without prejudice to this, those for which it is not possible to verify their incorporation, either through public or private documents, will be considered non-existent.
>
> Art. 25.- Definition of ghost or alleged companies- Ghost or alleged companies shall be considered as those that have been constituted through a fictitious declaration of will or with deliberate concealment of the truth. That is, those who, based on a simulated agreement, feign the existence of a company, business, or economic activity, to justify alleged transactions, hide profits, modify income, costs and expenses or evade tax obligations. Taking part of simulated actions will be sanctioned in accordance with the rules of fraud, which are described in the Tax Code.

The Internal Revenue Service, while reviewing its records, has identified that your firm registers transactions with companies that are considered non-existent, ghosts, or individuals and companies that perform alleged activities and/or non-existent transactions for tax purposes. Therefore, you must justify the veracity of the economic event and consequently of the expenses recorded in your tax form(s) for the transactions detailed below:

Table 1 Transactions with ghost/nonexistent companies, or with individuals and companies with alleged activities and/or nonexistent transactions

Resolution No. NAC-DGERCGC16-00000356, published in the Second Supplement to the Official Registry 820 of August 17, 2016, stipulates:

> Art. 7.- Amendment of tax returns.- The taxpayers that registered in their returns the sales receipts, complementary documents and/or withholding statements issued by nonexistent companies, ghosts or individuals and companies involved in alleged activities and/or non-existent transactions, in case of not having documentation that supports the economic reality of the transaction(s), must amend their returns, complying with the provisions of current tax regulations. Regarding income tax, the required amendment will affect the income statement of the respective fiscal year. In the case of the Value-Added Tax, the tax return amendment will be implemented in cases in which this leads to a tax payment for the reduction of the tax credit. In the event that this Tax Administration detects that a taxpayer did not amend their filings, despite being in the situation indicated in the preceding paragraph, it may exercise its assessment authority to determine the corresponding tax value or values, with the applicable interest, fines and surcharges, without prejudice to the criminal actions that may be initiated in accordance with the Comprehensive Organic Penal Code and other current regulations.

Therefore, and in accordance with the current regulation, transactions registered with sales receipts, supplementary documents and withholding statements issued by the aforementioned taxpayers for which the economic reality of the transaction cannot be verified in accordance with the provisions in Art. 17 of the Tax Code; the applicable amendment of the return (s) must be implemented, according to the following breakdown of differences established by the Tax Administration, without prejudice to the possibility that further differences may be detected in the future:

Table 2 Differences in Income Tax Return(s) for transactions with ghost or non-existent companies, as well as with individuals and companies involved in alleged activities and/or non-existent transactions

In this context, you are granted a period of ten (10) business days to submit your amended Income Tax and Value Added Tax returns, modifying the difference(s) corresponding to the transaction(s) registered with that (those) taxpayer(s), and paying the outstanding tax plus the applicable interest and fines.

In the event that the request is not complied with within the given term or that no documents are submitted to validate the transaction, the Internal Revenue Service, in exercise of the authority established by the law, will initiate the correspondent control processes and implement the applicable sanctions, to ensure the strict and correct compliance with the tax regulations, without prejudice to starting any applicable criminal actions.

Likewise, the taxpayer is informed of the provisions of the fifth paragraph of Article 101 of the Internal Tax Regime Law, which states, in its relevant part:

> (...)
>
> When the amendment originates in control processes undertaken by the Tax Administration itself and if the Administration requires it, the amendment may be submitted up to six years after the filing of the return and only on the items required by the Tax Administration. (Emphasis added).

If you need more information about this resolution, you can go to the offices of the Tax Management Department of the El Oro Provincial Office, located at Av. 25 de Junio, Km 1 $\frac{1}{2}$ road to Pasaje.

The present document does not constitute an act of tax determination, but a merely informative communication, whose purpose is to inform the taxpayer about the differences that the Tax Administration has detected as a result of analysis and cross-checking of information. The Tax Administration reserves the right to exercise the determinative power in the case in which the taxpayer does not rectify the detected differences in accordance with the provisions of the Tax Code and the Internal Tax Regime Law.

Finally, it is noted that paragraph 20 of Article 298 of the Comprehensive Criminal Code, when referring to tax fraud, states that any person who simulates, conceals, omits, misrepresents or deceives the Tax Administration to avoid complying with their tax obligations or to stop paying in whole or in part the taxes owed, for own benefit or for the benefit of a third party, using straw individuals, or ghost or alleged companies, residents in Ecuador or in any other jurisdiction, will be sanctioned with a custodial sentence of five to seven years.

Likewise, the legal representatives and the accountant, regarding their declarations or other actions they carry, will be responsible as authors in the tax fraud for the benefit of the individual or company, as applicable, without prejudice to the responsibility of the partners, shareholders, employees, workers, or professionals who deliberately participated in said fraud, even if they were not following orders.