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Enlisting Consumers in Tax Enforcement: A Policy Review --Manuscript Draft--

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Enlisting Consumers in Tax Enforcement: A Policy Review *

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Abstract

Over the past decade, governments worldwide have introduced incentive programs - often in the form of lottery prizes - to encourage consumers to help combat tax evasion. While similar programs date back to the 1950s, the rapid expansion of Value Added Tax (VAT) systems in developing countries, combined with the Information Technology revolution, has reshaped the tax enforcement policy toolbox, leading to a recent surge in enforcement policies through consumer incentives. This paper reviews the rationale behind these policies, documents variations in their design, and examines the conditions under which they can enhance compliance and raise revenue.

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1 Introduction

The vast majority of countries have adopted a Value Added Tax (VAT) on consumption over the past decades, largely due to its revenue-raising potential (Brockmeyer *et al.* 2024; Keen 2007). The key enforcement advantage of a VAT compared to a Retail Sales Tax (RST) is its built-in compliance incentive along the supply chain (Kopczuk & Slemrod 2006). In business-to-business transactions, firms must obtain receipts from their suppliers to claim tax credits and reduce their VAT liability. Since a tax credit for one firm corresponds to a tax debit for an upstream firm, this "seller-buyer conflict" and the paper trail from receipts can improve the reporting of tax liabilities across the supply chain (Pomeranz 2015).

However, at the final consumer stage, the VAT offers no enforcement advantage over the RST. The self-enforcing mechanism of the VAT breaks down because consumers typically lack incentives to ensure that firms issue receipts, enabling firms to under-report sales and evade taxes. This "last mile" problem has been documented in the empirical literature, which finds greater levels of tax evasion in business-to-consumer transactions compared to business-to-business transactions (e.g., Pomeranz 2015). A significant concern is that this issue may represent more than a "last mile" problem; it could function as an "Achilles' heel," potentially undermining VAT's self-enforcement incentives if firms collude to evade taxes (Slemrod 2007).

While governments could address this problem through audits, it can be costly. Final sales transactions are a textbook example of a hard-to-tax sector, characterized by a large number of small taxpayers and limited third-party reporting. The problem is exacerbated by the fact that these downstream businesses are often aware that it is not worth the investment in time and resources required by the tax authorities to monitor and enforce compliance (Alm *et al.* 2004). An alternative solution that many countries have adopted involves policies that enlist citizens in the tax enforcement effort through monetary incentives designed to ensure that business-to-consumer sales are reported to tax authorities (Naritomi 2019). These incentives typically take the form of monetary incentives for con-

sumers who collect receipts. This type of policy actually pre-dates the VAT and has existed since at least the 1950s for RST. Notable examples include Taiwan's "Uniform Invoice Lottery" and Brazil's "Your Receipt is Worth 1 Million." In some countries, instead of incentivizing receipt collection, the policy rewards consumers that use electronic payments as it automatically generates a paper trail (Brockmeyer & Sáenz Somarriba 2025).

We begin this paper by describing key features of policies that enlist consumers to curb tax evasion, based on data collected from 44 countries that have adopted targeted monetary incentives for consumer participation in tax enforcement over the past 40 years (see Table 1). Figure 1 shows the number of countries with such policies since 1980, with a clear boom after digital receipts became more prevalent in the mid-2000s. The information technology revolution has facilitated the adoption of digital receipts and online platforms (Okunogbe & Santoro 2023), making this form of crowd-sourced enforcement more feasible and arguably more effective, as we discuss in this paper. The figure also shows that the adoption of these policies followed the surge in VAT across countries and is mainly driven by low- and middle-income countries (LMIC).

The incentives used in such policies are usually reward-driven. Figure 2 shows that while lottery schemes are the most common (e.g., China and India), tax rebates (e.g., Brazil and Mongolia) — where part of the tax collected is given back to consumers — as well as allowing citizens who pay Personal Income Tax to deduct expenses taxed by the VAT (e.g., Portugal and South Korea) are also common. The exact design and generosity of the "carrot" varies across contexts. A smaller set of policies use a sanction-based "stick", where consumers become legally liable for transactions that are not covered by paper trail. For example, in the 1980s in Italy, consumers that left a shop without a receipt could receive a fine. Some countries also create dedicated whistle-blower channels, where consumers can share information on tax evasion with the tax authority. In some cases, there are additional financial rewards for whistle-blowing (e.g., Greece and Pakistan). Since 2010,

¹Hemels & Fabbri 2013 discusses some of these early policies in Taiwan. For Brazil, multiple examples exist across states, and these policies became part of popular culture in the 1950s and 1960s (see news link).

about a quarter of countries combine two or more of these policy features, often including lotteries as one of them. Table 1 displays the details country by country.

The empirical literature has shown that some of these consumer incentive policies can lead to higher firm compliance with VAT in different contexts (e.g., Nyamdavaa 2025, Naritomi 2019, Wan 2010). However, there is also evidence that these policies may have no effect on tax compliance (Brockmeyer & Sáenz Somarriba 2025). It is not clear a priori that these policies should improve tax compliance. Their effectiveness hinges on preventing collusion between consumers and firms - i.e., the infamous discount to forgo receipts - and generating sufficient consumer engagement to ensure that the policy induces a change in firm compliance (Naritomi 2019).²

Thus, in the second part of the paper, we take a step back to consider under what circumstances we should expect these policies to affect tax compliance and revenue collection. We discuss two key mechanisms through which firm behavior can be influenced by a consumer incentive policy: an increase in concealment costs and the enforcement effect generated by crowd-sourced monitoring.

The vast majority of these policies clearly focus on ensuring that receipts are issued. Similar to the rest of the VAT chain, receipts play a key role as verifiable proof of a taxable transaction in sales to final consumers. The fact that receipts could, in principle, be destroyed is not cost-free — the "the dog ate my receipt" strategy. Depending on the technology used to issue receipts, the cost can be high, as receipts may have serial numbers and can be transmitted to the tax authority in real time with electronic billing machines.

However, the paper trail alone may not lead to higher compliance. It is crucial that there is a credible threat that the paper trail will be used to measure the tax base during an audit (Pomeranz 2015). In fact, Almunia *et al.* 2024 found evidence of substantial (and often strategic) mismatches in transaction values reported in the VAT returns of buyers

²It is worth noting that consumer rewards are typically a small fraction of the tax paid by the firm, as we explain in Section 2, whereas firms in the VAT chain can deduct the entire tax paid in previous transactions. Thus, the potential for collusion between firms and consumers is much stronger than in the usual VAT buyer-seller incentive.

and sellers in Uganda. Although this information was available to the tax authority for cross-checking, it was not systematically utilized during their study period. As a result, firms behaved as if they were not constrained by third-party information reporting.

The monitoring effect of consumer engagement can be helpful in posing a credible threat. With these policies, consumers not only become an incentivized third party to ensure that transactions are recorded, but also an informed third party who can identify potential tax evasion if firms refuse to issue receipts or propose a collusive deal, such as offering discounts in exchange for forgoing the receipt. In such cases, the government can devise mechanisms to elicit this information through whistle-blower channels (Naritomi 2019). Some countries that have adopted these policies — such as Brazil, South Korea and Slovakia — have created dedicated hot-lines or online channels to enable consumers to act as whistle-blowers. Ultimately, the government must act on the information gathered to sustain the credibility of consumers' efforts. But the additional data from consumers can support routine audits or help target them more effectively, potentially enhancing enforcement even if the tax authority's capacity remains unchanged.

We end by discussing the challenges of program implementation and the conditions under which these policies can generate net revenue. Arguably, this is the main policy question, as the additional revenue from successfully reducing tax evasion may not always be sufficient to cover the rewards paid to consumers. Crucially, governments must reward all transactions because they cannot distinguish between marginal and inframarginal sales, making the policy's cost-effectiveness dependent on the magnitude of the compliance effect and the baseline level of evasion. We also explore short versus long run effects and whether these policies can play a role in a future dominated by digital payments.

2 Enlisting consumers in tax enforcement across countries

Policies that incentivize consumers to ask for receipts take different forms across countries and over time (Table 1).³ Many of these policies effectively aim to replicate the VAT "buyer-seller conflict" by giving consumers rewards that are proportional to the tax paid in the transaction. However, this is not always the case and there is a wide variation in how countries design these policies, with implications for the margin of reporting that these policies can affect. This section highlights key features of these policies based on data collected across countries, and we discuss what margins of firm behavior can be affected by these policies.⁴

2.1 Consumer incentives: various carrots (and some sticks)

2.1.1 Lotteries

A lottery scheme is a common type of incentive used by governments when they enlist consumers to ask for receipts. Figure 2 shows that the majority of countries that have adopted these policies had a lottery component. The essence of lottery programs is that consumers are given an opportunity to enter a lottery if they make sure that receipts are issued by the firms.

The exact mechanics of how receipts translate into a lottery ticket and what prizes are at stake varies widely. It is often the case that consumers need to send the transaction information on the receipts to tax authorities to be eligible for the lottery or are given the opportunity to verify that a receipt was transmitted correctly to the government if receipts are electronic. The information on the submitted receipts, in turn, is used to verify firms' declared sales. This generates a third-party reporting element as a verification mechanism of reported sales that was not present without these incentives. Lottery prizes offered in

³See Appendix for the sources of information for each country.

⁴The goal of this paper is to focus on key features and motivations for these policies rather than providing details on individual policies. For other VAT lotteries policy reviews see, for instance, Hemels & Fabbri 2013; Fooken *et al.* 2015.

such programs vary — a common option is the provision of cash prizes as in Taiwan's Uniform Invoice lottery, the Philippines Raffle System or Malta's receipt lottery. Some lotteries offer a combination of prizes of differing amounts and immediacy—for example, the Chinese lottery receipt experiment includes a receipt providing a number for lottery entry as well as a "scratch and win" component to giving a chance to win a small cash prize on the spot (Marchese 2009). A common alternative to cash prizes is in-kind goods such as electronic devices, cars, or even apartments—for example, the Polish receipt lottery offers prizes, including tablets, laptops, and cars (Fooken *et al.* 2015). The "Fatura da Sorte" in Portugal, offers government bonds instead of cash or in-kind prizes.

Beyond the nature of the prize, lottery schemes vary by the method used to calculate winning probabilities. Often, a lottery ticket generated by the issuance of each receipt, tying the probability of winning to the number of transactions rather than the purchase value (e.g., the E-receipt program in Mongolia). Policies that tie the probability of winning to the value of the purchase, make the number of transactions irrelevant (e.g., Nota Fiscal Paulista program in São Paulo, Brazil). Some lottery programs specify the minimum value of a receipt to be valid for the lottery (e.g., Italy, Philippines, Portugal), which could help mitigate fraud where a purchase is partitioned into multiple receipts if the lottery odds only depend on the number of receipts rather than on the receipt value. Interestingly, Romania sets a maximum value of the receipt to be eligible for the draw. The receipt must be of a value between 1 lei and 999.99 lei. This could be due to the fact that larger purchases are more likely to be covered by receipts irrespective of incentives due to warranties or option value of returning the good.

Most lottery programs cover all sectors of the economy. However, a few countries focus on specific sectors that are harder to tax, particularly service sectors (e.g., Latvia, Lithuania, Poland, Rwanda). For example, Latvia introduced a lottery program covering all service sectors in 2019 but modified it in 2021 to focus on one service sector per quarter. The selected sectors are announced on the lottery website one month before the

start of each thematic quarter. In Lithuania, only receipts from marketplaces and certain services — such as hairdressers, collective catering establishments, and car workshops — are eligible to participate in the lottery. This sectoral rotation may have an ambiguous effect on consumer participation. On one hand, it can increase salience with official announcements, but on the other, it may create confusion about when consumers can receive rewards.

There are some lottery programs that also reward firms. For example, in the Philippines, firms can enter the lottery through receipts they issue. The prize is shared between the consumer and the business if the receipt wins. In Italy, firms can also participate in the lottery program and prizes are smaller than that of the consumers. In Poland, firms whose receipts are selected in the consumers' monthly lottery receive an iPad as a reward. Rewarding firms could have a relevant effect, as there is evidence from property taxation that rewarding compliant taxpayers affects tax collection (Carrillo *et al.* 2021).

Part of the appeal of the lotteries is to leverage the fact that individuals may have a taste for gambling or behavioral biases in assessing the odds of winning prizes that could inflate the perceived value of lottery rewards (Naritomi 2019). It is worth noting that governments' use of lotteries to raise revenue has a long historical precedent. For example, lotteries were used in Great Britain from 1694 to 1826 as a revenue-raising method and have similarly been employed by France, the United States, Mexico, Spain, and Russia, which included a lottery feature on its publicly-sold government bonds (Friedman & Savage 1948). Consumer-incentivizing lottery receipt programs have a different policy objective, as they are not designed to raise additional tax revenue via alternative means but to enforce existing taxes. Lottery-type mechanisms have also been used for other objectives: encourage savings with accounts that are linked to prizes (Kearney et al. 2010) or even to encourage COVID-19 vaccination (Sehgal 2021).

2.1.2 Tax rebates and tax deductions

Another frequently used reward for consumers to generate a paper trail — by requesting receipts or encouraging electronic payments — is to give back them some portion of the tax levied on the reported sales. In Mongolia, consumers get back 20 percent of the VAT paid on their submitted receipts (VAT rate is 10 percent). A policy in the state of São Paulo in Brazil offered 30 percent tax rebate from revenue levied on retail firms, which corresponded to around 1 percent of the total value of the purchase (Naritomi 2019).

In these cases, consumers receive a direct transfer from the government that can be deposited in their bank account or, in some cases, used to pay other taxes (e.g., Mongolia) or donate to charity (e.g., in Brazil). Tax rebates have an important advantage of rewarding with certainty every single transaction, which can be crucial for consumer engagement. However, it is quite expensive for the government compared to lotteries. Even if the fraction of the tax received is quite small, this type of reward can be very costly as every transaction is rewarded and the government must make transfers to all individual consumers. More recently, Pakistan introduced a policy that reduces the VAT rate applied to electronic payments directly.

Another type of tax incentive that has been used to incentivize consumers to ask for receipts is tax deductions for individuals that pay personal income tax (e.g., Guatemala and South Korea). In these cases, the VAT paid can be deducted from the personal income (PIT) tax bill. This approach has the advantage of not requiring the government to transfer any money to consumers, they just have to manage the tax deduction claims. The disadvantage is that it restricts incentives to the set of consumers that are in the PIT tax base. In developed countries, the PIT base includes most of the population, but that is not the case in developing countries (Jensen 2019). Moreover these policies can have large administrative costs and be prone to frauds if receipts are not well managed. Some individuals submit receipts equal to their total salaries even though it is very unlikely that a person would spend all of his or her income each month on taxable items (Berhan &

Jenkins 2005).

Some countries have more targeted incentives allowing purchases from specific sectors — typically household services — to be deducted in the PIT declarations. Such policies exist in many European countries (e.g., Germany, Finland, France, Italy, the Netherlands, and Belgium), and according to evidence from Germany they can contribute to VAT compliance (Buettner *et al.* 2023).⁵

2.1.3 Fines

An alternative and less common approach than offering rewards has been to adopt a "stick" policy to incentivize consumers via the threat of a fine if they do not collect receipts. Recently, Turkey and Slovenia adopted such policies. Although fines also generate financial incentives to ask for receipts, it may not work as effectively as rewards as it requires the government to monitor whether consumers are leaving a shop without a receipt. It is worth noting that, in other contexts, fines have been shown to work better than rewards. Homonoff 2018 finds that a tax is far more effective than a bonus for policies aimed at reducing disposable bag use due to loss aversion. There is no evidence comparing fines versus rewards in the context of consumer incentives to ask for receipts.

However, it is possible that rewards generate a stronger engagement with the anti-tax evasion effort and reciprocity with the government, which can be particularly useful for whistle-blower threats as we discuss in the next subsection. Italy imposed sanctions on consumers who did not demand a receipt (as well as vendors) in the 1980s but abolished these sanction in 2003 due to their unpopularity and a perception that it was having a counterproductive effect (Hemels & Fabbri 2013, Brockmann *et al.* 2016; Fooken *et al.* 2015).

⁵In our data collection in Table 1, we focused on broader-based policies that incentivize consumers to reduce tax evasion across the VAT base. We excluded policies with narrow aims such as formalizing household services, even though they may operate through similar mechanisms.

2.1.4 Whistle-blowing channels

Consumer reward programs often include a whistle-blowing component. In at least 12 of the 44 countries in our dataset, there is a dedicated whistle-blower channel where consumers can report vendors who fail to provide a receipt or whom they suspect of evading taxes. In some cases, there are no direct incentives for collecting receipts, only whistle-blower rewards (e.g., Egypt and Turkey). In other cases, there is a dedicated whistle-blower channel alongside an incentive to collect receipts (e.g., Slovenia, the Philippines, and Brazil). Countries have adopted various methods to make it easier for consumers to report tax-evading vendors. For example, in Mongolia's E-receipt program, consumers can report violations through hot-lines and online channels (Nyamdavaa 2025).

Through these channels, the government aims to tap into local information about tax evasion that they would not otherwise have access to. In the Philippines, for example, whistle-blowers can contact the Bureau of Internal Revenue through email or SMS (going to a tax branch is also possible) and get up to 10 percent of the penalties imposed on the non-complying business. Under South Korea's Watchdog Rewards Program, consumers are eligible for up to a 50,000 Won reward (approx. USD 34.5)⁶ for each verified report of a transaction in which vendors refused to issue a receipt or accept a credit card, or provide a false receipt (Jeon 2013).

It is more common, however, to create a whistle-blower channel or enhance the visibility of an existing one alongside policies that encourage consumers to request receipts, without necessarily offering rewards beyond what they would receive if the business correctly issued a receipt. For example, the São Paulo government facilitated whistle-blowing by allowing citizens to register complaints about violations of program requirements by vendors (e.g., refusing to issue a receipt, failing to register a citizen's social security number, or providing inaccurate receipts; Naritomi 2019). These channels can play a significant role in policy implementation. Beyond leveraging local knowledge, whistle-blower pro-

⁶We use conversion to US dollars via xe.com as of 7th February 2025.

grams have a crucial deterrent effect: they reduce the likelihood of vendors colluding with consumers to evade taxes due to the threat of being reported as consumer cannot commit not to blow the whistle later on. This threat intensifies as more consumers participate in the incentive program, requiring vendors to collude with a larger number of consumers, thereby increasing their exposure to the risk of detection through whistle-blowing as we discuss in Section 3.

2.2 Policy objectives

The incentive design choices have important implications for the type of tax evasion that is targeted, and the response of consumers and firms. Many countries adopt a policy bundle by combining rewards (e.g., lotteries, tax rebates and whistle-blower channels), and tie them to tax morale campaigns. In this section we discuss different policy objectives that these policies aim to achieve.

More receipts. All types of incentives discussed in the previous section aim to increase the probability that a transaction is reported. The simplest version of consumer rewards is one in which the receipt itself is rewarded, such as in China and earlier versions of receipt lotteries in Brazil and Taiwan where each receipt becomes a lottery ticket. In these cases, the policy incentivizes the issuance of receipts, and rewards do not depend on the transaction amount. Thus, it does not replicate VAT incentives, as they reward receipts of low and high value equally. Although this approach may offer some implementation advantages, it can create distortions by incentivizing attempts to break purchases into multiple receipts and does not encourage accuracy in the amounts reported. Therefore, such incentives can support the extensive margin of tax compliance – whether or not a transaction is reported at all – but not the intensive margin– ensuring the accuracy of the reported amount– allowing firms to continue under-reporting the value of their sales.

More accurate receipts: Many policies create incentives for both the extensive and intensive margins of receipt reporting by making rewards proportional to the amount re-

ported. This type of incentive aligns more closely with the typical VAT incentives along the supply chain. For instance, in the São Paulo program, the number of lottery tickets increases with the value of the transaction. This approach requires a more sophisticated information system to incorporate purchase value data into the calculation of lottery tickets. Tax rebates and tax deductions are also proportional to the value of the purchase. One concern with this type of incentives is that it results in a policy where richer consumers receive higher rewards, which may be perceived as unfair, even if the rewards are proportional to their purchases.

Higher tax morale: Many governments run educational campaigns alongside reward programs (e.g., Croatia, Poland, Mongolia, Brazil, among others). Beyond informing the population about what a formal receipt looks like, these programs encourage citizens to view receipts as important for the government budget, fair competition, and consumer rights. Thus, they also work as tax morale campaigns that serve as a complementary strategy to engage citizens in tax enforcement. The goal is to tap into intrinsic motivation, encouraging participation based on civic duty rather than solely on extrinsic rewards. In fact, rewards can be seen as a nudge to foster a new culture of asking for and issuing receipts. Luttmer & Singhal 2014 argue that tax morale is an important component of compliance decisions and Antinyan & Asatryan 2024 find that government nudges can have non-trivial effects on tax compliance. There is also evidence that consumer information campaigns can be quite effective in other contexts, such as enforcement of fishing regulation (Gonzalez-Lira & Mobarak 2021). Thus, it is possible that this component is a key objective for the longer-term effect of these policies.

Technology adoption: Several governments have introduced these policies specifically to support intermediary goals, such as boosting the adoption of Electronic Billing Machines (EBMs). Despite being legally mandated, EBMs often face imperfect uptake. For instance, in Mongolia, the adoption of EBMs was imperfect, even though it is required by law (Nyamdavaa 2025). Many developing countries – particularly in Africa –

are adopting IT-based systems for receipts while simultaneously promoting a tax-paying culture. In certain cases, such as Rwanda, discussions around lotteries primarily focused on encouraging the use of EBMs (Eissa *et al.* 2014). These technologies are important for increasing concealment costs for tax-evading firms, as paper-based receipts are much easier to evade. Many policies also incentivize electronic payments (e.g., Mexico and Netherlands; see Table 1), which can also force firms to accept payment methods that are harder to under-report.

Formalization: Another intermediate goal, particularly relevant in low-income countries, is registering citizens and firms with taxpayer identification numbers (TINs) – a key requirement for implementing other policies by making them "legible" to the state. Such policies can incentivize individuals to obtain a personal TIN if one is required on receipts to claim rewards. Similarly, firms may choose to formalize by acquiring a TIN. These consumer reward policies provide incentives only for formal purchases, which can create a wedge between the formal and informal cost of consumption, encouraging consumers to shop in formal establishments. As a result, some firms may decide to formalize to issue receipts and meet customer demand.

3 Should these policies work?

Typically, the theory of change of these policy interventions is that: (i) rewards will lead to more receipts, (ii) more receipts will lead to more accurate sales reporting by firms, and (iii) firms will pay more taxes as a result. Despite the popularity of these policies, it is not conceptually obvious a priori that they can achieve all three steps. In this section, we outline key factors that help determine the conditions under which consumer reward policies are likely to enhance tax compliance.

3.1 Can consumer rewards lead to more receipts?

How much consumer behavior changes in response to the policy depends on the value of rewards and the take-up costs. For these policies to be financially viable for governments, the rewards are often a small fraction of the tax revenue. Therefore, take-up costs must also be quite small to ensure consumer engagement. This has become increasingly feasible with the advent of electronic invoicing. As discussed in Section 3.4, earlier versions of these policies incurred significant participation costs, as they required the collection of paper-based receipts, often involving the additional step of mailing them to the tax authority. In contrast, electronic receipts have introduced more convenient options, enabling consumers to submit and verify receipts digitally with ease.

Making these policies attractive to consumers is key because these programs arguably must mobilize a critical mass of consumers to affect firm behavior. If only a handful of consumers take up the policy, all receipts they ask could be infra-marginal. For example, in a context of high evasion where firms under-report 80 percent of their sales, they are still reporting 20 percent. In this case, if consumer take-up covers less than 20 percent of firms' sales, the policy could have no effect on compliance as consumers would not push firms to report more than they would have in the absence of the policy. Evidence from Uruguay (Brockmeyer & Sáenz Somarriba 2025) — where tax rebates for electronic payments varied between 1 percent and 4 percent of VAT — suggests that these policies were not effective in increasing tax compliance due to the selection of more compliant firms into card machine adoption for electronic payments and the low proportion of electronic sales within total reported sales.

Even in a scenario where all consumers respond to the policy, it is not necessarily guaranteed that the policy will improve compliance. To illustrate, let's assume that all consumers request receipts once the policy is implemented. The policy may still fail to generate additional receipts if firms collude successfully with consumers, for instance, by offering them discounts in exchange for not issuing a receipt. Since the rewards provided

to consumers typically represent only a fraction of the tax firms are required to pay to the government, there is room for collusion gains. In fact, the effectiveness of any third-party information enforcement relies critically on preventing collusion between the involved parties (Kleven *et al.* 2016), whether it is between employers and employees or, as in this case, between firms and consumers.

We highlight two key mechanisms through which consumer-enlisting policies can enhance compliance despite the potential for collusion: an increase in concealment costs and an increase in the detection risk faced by evading firms. Building on the conceptual framework in Naritomi 2019, we outline how consumer reward policies can influence firm compliance even in the presence of collusion opportunities.

These policies introduce consumer monitoring of final sales as an additional enforcement tool by rewarding consumers for ensuring firms report sales transactions and empowering them to act as whistle-blowers. While firms may still attempt to evade taxes through collusion with consumers, the benefits of evasion are diminished due to higher concealment costs. Specifically, firms must share part of the evasion gains with consumers, and there are additional costs associated with negotiating collusive deals. Moreover, collusion inherently increases the risk of detection, as firms disclose details of their evasion to multiple third parties (consumers), who may report this information through whistle-blower channels. As noted by Kleven *et al.* 2011, the risk of whistle-blowing should grow exponentially with the number of informed third parties. Consequently, firms are more likely to comply depending on: (i) the extent to which consumers value rewards, (ii) the number of consumers the firm interacts with, and (iii) the perceived risk of consumers blowing the whistle.⁷

Value of Rewards: In a collusive deal, firms attempt to match the value of rewards provided by the government through discounts. However, such discounts reduce the gains from evasion. Lotteries can be particularly effective in this context in contrast to

⁷The conceptual framework in Naritomi 2019 has an extension in its Appendix that discusses the relevance of consumer take-up as well in line with the discussion above.

other types of rewards, such as tax rebates and deductions: not only might there be a preference for gambling, but behavioral biases in assessing the odds of winning prizes could inflate the perceived value of lottery rewards. These perceived values may vary across the population, making it particularly costly for firms to replicate the government's reward through discounts. Consequently, the rewards could influence compliance even without relying on a whistle-blower channel (i.e., with the government's detection ability remaining unchanged).

Number of consumers and foot traffic: The enforcement effect of these policies should grow with the volume of consumers, as it exposes firms to greater whistle-blower threats. Additionally, the number of transactions could influence compliance through a slightly different mechanism than the number of consumers. Specifically, as the number of transactions increases, the policy's impact grows if there are fixed costs associated with arranging collusive deals, which disproportionately affect firms needing to collude repeatedly. For instance, two firms with the same turnover and levels of evasion could be affected differently if one sells many low-value items while the other sells a few high-value items as shops facing higher foot traffic may be more impacted. Also, smaller vendors who maintain long-term relationships with their clients – common among many small service providers – may face lower collusion costs, reducing the policy's impact on their compliance behavior. These sources of heterogeneity highlight that the effectiveness of such policies likely varies across sectors and firms, underscoring the importance of understanding sector-specific barriers to collusion.

Whistle-blower risk: these policies can also have a direct enforcement effect through whistle-blower threats as many consumers are now informed third parties, as discussed above. However, for these threats to influence firms' behavior, they must be credible. This requires whistle-blower channels that are both easy to use and salient. Policies with a credible whistle-blower mechanisms are likely to have a stronger compliance effect for a given number of consumers, as they can more effectively deter firms from attempting

to collude with consumers. Naritomi 2019 finds that in the case of *Nota Fiscal Paulista* in Brazil (NFP) firms increase the number of receipts they issue by 7 percent and reported revenue by 3 percent after they receive their first complaint through the whistle-blower channel, which could be driven by an increase in credibility of the complaints system.

Recent advancements in information technology have made it significantly easier for consumers to report instances of non-compliance and for governments to administer whistle-blower reports. Still, one may argue that even if whistle-blowing costs are low, consumers may still refrain from using it unless there is an additional payoff. Table 1 shows that very few policies attach additional rewards to whistle-blowing. However, even if only a small share of consumers engage with it, whistle-blowing can have a meaningful deterrence effect. According to Naritomi 2019, in the case of NFP, 1 percent of consumers filed complaints about 20 percent of firms. Since consumers vastly outnumber firms, this diffuse monitoring mechanism can enhance enforcement even if most consumers do not actively file complaints. Firms do not know which consumers among many who request receipts are willing to act as whistle-blowers, allowing the government to leverage this information asymmetry to create a deterrence effect.

3.2 Can more receipts lead to more accurate sales reporting?

An underlying assumption in the above discussion is that once firms issue a receipt, they will report that sale to the tax authority. In the context of business-to-business transactions, in Chile, Pomeranz 2015 argues that indeed the paper trail of VAT receipts has a deterrence effect on firms because the Chilean Tax Authority is highly respected, i.e., it poses a credible threat that this information could be used to verify firms' tax returns. However, the link between the paper trail and compliance is not necessarily straightforward in other contexts. Almunia *et al.* 2024 find evidence of substantial (and often strategic) mismatches in transaction values reported in the VAT returns of buyers and sellers along the supply chain. This data is available to the tax authority for cross-checking but was not utilized

for enforcement during their study period.

In contrast, with consumer rewards, consumers act as incentivized third parties to ensure that firms accurately report their receipts of business-to-consumer transactions, as the rewards are tied to the information reported by the firms. This approach closely resembles VAT invoice matching, used in some countries to ensure that a VAT credit claimed by a firm is approved only if it matches the VAT debit declared by a supplier. This method is arguably the most reliable way to ensure that the asymmetric VAT self-enforcing incentives function more automatically in practice (Slemrod & Velayudhan 2022), making consumer rewards potentially more effective than traditional VAT incentives where invoice matching is not systematic.

3.3 Can these policies increase tax collection?

Even if these consumer incentive policies push firms to report their sales more accurately, the effect of the policy on tax revenue depends on the extent to which firms can adjust other margins of reporting. Empirical research shows that initiatives to improve compliance with sales reporting are often accompanied by increases in cost reporting (Carrillo *et al.* 2017). There is also evidence of significant bunching at zero VAT liability, driven by a discontinuous rise in evasion costs as tax authorities are more likely to audit firms reporting negative liability (Waseem 2022). If firms reporting zero liabilities still have unused tax credit, they could easily increase their reported costs when required to report more sales, resulting in no change in their tax liabilities.

Naritomi 2019 indeed finds evidence of adjustments in firm expenditures following the increase in reported revenue by firms as a response to the consumer reward policies in São Paulo. These adjustments, however, were not large enough to completely offset the increase in sales. As a result, the consumer reward policy in Brazil lead to an overall increase in total tax liability reported by firms.

3.4 Challenges in program implementation

Beyond revenue effects, it is important to consider that these policies impose a cost on the government, on consumers, and on firms.

For governments, implementing these large-scale programs requires a significant level of state capacity. These costs include operational expenses to establish a system capable of managing individual rewards for consumers and processing complaints or whistle-blower reports. Additionally, it may open avenues for fraud, such as consumers claiming illegitimate receipts or engaging in phishing activities to exploit whistle-blower rewards.

For consumers, take up costs depend a lot on how the program is implemented. These costs are particularly relevant as they can affect consumer take up, which is crucial for the impact of the policy as discussed in the previous section.⁸ Before the 2000s, citizen incentive policies were mainly paper-based. Consumers needed to collect paper receipts and submit them to relevant government bodies by post or in person (such as the lottery programs in Argentina, Croatia, and Malta). These time-consuming processes could undermine the policy's incentives.

With the adoption of digital receipts and electronic payments, governments can now more easily register consumer participation and manage rewards, making take-up much more attractive. The Mongolian E-receipt program uses EBMs to transmit sales information as soon as the receipts are issued. In this case, it is not essential for consumers to register the receipts, as long as businesses issue them using EBMs. The same is true for various policies in Brazil. In the case of the Amazonas state government, consumers can scan a QR code from their phones to verify that a receipt was correctly transmitted to the tax authority. This technological change likely explains the increase in the number of countries adopting consumer reward policies since the mid-2000s.

⁸Arbex & Mattos 2015 models the monetary rewards as a compensation for the cost of consumer enforcement efforts in their analysis of optimal sales tax rebates and enforcement using consumers.

⁹The VAT in Brazil is a state level tax and there is a service tax at the municipal level, therefore there are many different sub-national governments that have adopted these consumer-reward policies over the years.

For firms, these policies could be costly depending on the requirements to participate in the program. As discussed before, some countries use these policies to ensure that firms adopt EBM-like machines. While these machines can be helpful in reducing participation costs for consumers, as they transmit receipts directly to the government, they can impose costs on firms in contexts where digital invoices are not the norm. The cost of installing such devices is not negligible, especially for small vendors. This financial burden could reduce firm participation in the policy even if it is mandatory as it was the case in Mongolia (Nyamdavaa 2025). Some governments offer these machines for free (Bangladesh) or develop free mobile applications or other free web-based platforms that issue electronic receipts (Mongolia) to mitigate these costs.

4 Conclusion: taking stock

This paper studies citizen-enlisting policies that aim to reduce tax evasion by incentivizing consumers to request receipts and, in some cases, blow the whistle on tax evasion. Table 1 shows that many different policy bundles have been adopted across countries and over time. However, not all policies implemented worldwide have been rigorously evaluated to determine how various policy components affect tax revenues or change social norms.

Despite many contextual differences, both Brazil and Mongolia have created incentives for consumers to request receipts through tax rebates and lottery schemes, utilized whistle-blower channels, and relied on electronic invoicing. The evidence suggests that this policy bundle can successfully increase tax revenues (Naritomi 2019; Nyamdavaa 2025). The results also indicate that all these components - lotteries, rebates, and whistle-blower channels - play a relevant role.

It is possible, however, that different policy combinations adopted by various countries may lead to different outcomes, including more detailed choices such as the frequency of lotteries and the types of prizes. Overall, we still know little about the relative importance of different policy design choices for the success of these programs and what the optimal policy bundle would be in different contexts. The choice of rewards must balance consumer engagement with the cost of these incentives.

Arguably the key question is whether these policies can generate enough additional revenue to cover their costs. As Naritomi 2019 argues, it is important to note that governments cannot distinguish between marginal and infra-marginal sales. In other words, some sales would be reported regardless of consumer reward policies, but governments still reward these infra-marginal sales since they cannot identify which sales are being reported solely due to the policy.

As a result, government revenue will only increase if the expansion of the tax base outweighs the tax revenue forgone in rewards. When baseline compliance is very low, such programs are particularly appealing as the potential for increasing the tax base is substantial. However, if baseline compliance is already high, the benefits of the program diminish relative to its costs. In such cases, it may make sense to gradually reduce the generosity of the rewards as compliance improves.

It is also important to consider spillover effects. For example, in Mongolia, evidence shows that these programs had substantial indirect effects beyond the firms directly targeted by consumer receipt requests. The policy's effects propagated up the supply chain due to preexisting vertical collusion among firms. Additionally, the program influenced other tax bases, such as corporate income tax, as firms began reporting higher sales (Nyamdavaa 2025). Furthermore, if these policies foster a shift in tax morale and broader societal norms, they could lead to wider and more sustained improvements in tax compliance. As a result, it is possible that the aggregate tax revenue impact exceeds the direct effect on VAT compliance among firms targeted by the policy.

It is worth noting that these policies require a significant level of state capacity to effectively impact tax compliance. Information gathered through receipts and whistle-blowing will only influence firm compliance if the government presents a credible threat of acting

on the information it collects. Therefore, this crowd-sourcing approach to monitoring taxpayers can be ineffective without robust government enforcement to leverage enhanced detection capabilities, which could make audits potentially more effective.

In addition, these policies can have unintended effects on social cohesion. A cautionary example is the "Your receipt is worth 1 million" campaign in Brazil that was implemented during the 1960s. It sparked a conflict between a consumer and vendor over the latter's refusal to issue a receipt for a purchase of low value (a comb), ultimately escalating into ethnic tensions and riots referred to as the "comb war". Similarly, a policy in Greece allowing consumers to leave stores without paying if a receipt is not issued has received criticism for potentially causing consumer-vendor conflict during a particularly tense time for the country in the context of austerity measures. ¹⁰. Moreover, the "surveillance state" aspect of these policies can also be concerning in contexts that are more politically fragile.

Another open question is whether these policies should be short-term interventions and whether they can have long-term effects when they are no longer in place. If these policies succeed in shifting social norms, a temporary intervention might change habits and raise awareness about the importance of issuing receipts with longer run effects, changing the cost-effectiveness of these policies (e.g., Costa & Gerard 2021).

Finally, it is arguably uncertain whether such policies will remain relevant in a future where most payments are digital (e.g., mobile money, credit cards). However, governments often have limited access to firms' financial information due to legal restrictions, so digital payments alone may not be sufficient to ensure tax compliance. In such cases, consumers may still have a role to play as tax enforcers.

 $^{^{10}}$ For example, see this link for the "comb war" and this link for the discussion on the Greece policy.

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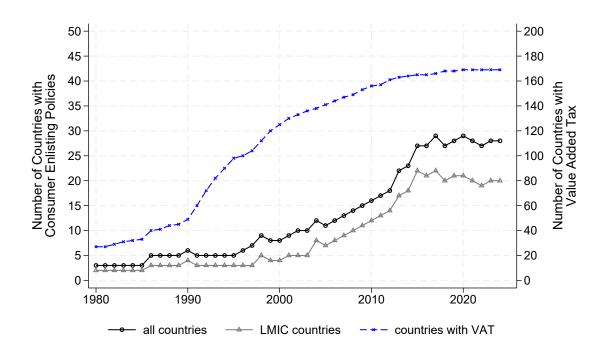
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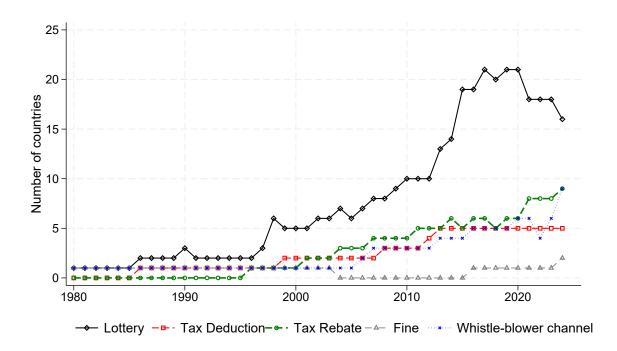
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FIGURE 1: POLICIES ENLISTING CONSUMERS IN TAX ENFORCEMENT AND THE VALUE ADDED TAX



Note: The figure displays the number of countries that have adopted policies enlisting citizens to aid sales reporting enforcement based on our own data collection (see Table 1 for details). The black line indicates the number of countries with any such policy in each year, while the gray line displays the number of low- and middle-income countries (LMIC) with such policies (according to the World Bank country income classification in 2000). The blue dashed line shows the number of countries with a Value Added Tax (VAT) each year, as indicated on the right y-axis (data from OECD 2018).

FIGURE 2: POLICY DESIGN ACROSS COUNTRIES



Note: The figure displays the number of countries that adopted the most common types of financial incentives to consumers to ask for receipts: Lotteries, Personal Income Tax Deductions, Tax Rebates, and Fines. It also displays the number of countries with a dedicated whistle-blower channel through which consumers can share information on tax evasion with the government.

TABLE 1: POLICIES ENLISTING CONSUMERS IN TAX ENFORCEMENT

Country	Start	End year	Lottery	Tax Rebate	Tax Deduction	Whistle- blow	Customer Fine	Main goal	Electronic payments only
Albania	2015	Ongoing	Cash prizes	-	-	-	-	VAT compliance	-
Argentina	1990	1998	Cash prizes	-	-	-	-	Overall retail/service sales reporting	-
Argentina	2001	2017	-	Yes	-	-	-	Overall retail/service sales reporting	Yes
Argentina	2019	2019	Cash prizes	Yes	-	-	-	Overall retail/service sales reporting	-
Armenia	2009	2011	Cash and in -kind prizes	-	-	-	-	Overall retail/service sales reporting	-
Bangladesh	2020	Ongoing	Cash prizes	-	-	-	-	VAT compliance	-
Bolivia	1986	Ongoing	-	-	Deduct VAT paid from PIT	-	-	VAT compliance	-
Bolivia	2020	Ongoing	-	Yes	-	-	-	VAT compliance	-
Brazil	2007	Ongoing	Cash prizes	Yes	-	Yes	-	VAT compliance	-
Bulgaria	2015	2016	Cash and in -kind prizes	-	-	-	-	Overall retail/service sales reporting	-
Chile	1980s	1990	Cash and in -kind prizes	-	-	-	-	VAT compliance	-
China	1998	Ongoing	Cash prizes	-	30 -	-	-	Overall retail/service sales reporting	-
								Overall	

(CONTINUED) POLICIES ENLISTING CONSUMERS IN TAX ENFORCEMENT

Country	Start	End year	Lottery	Tax Rebate	Tax Deduction	Whistle- blow	Customer Fine	Main goal	Electronic payments only							
						Yes,		Overall								
Egypt	2023	Ongoing	-	-	-	with	-	retail/service	-							
						reward		sales reporting								
Georgia	2012	2013	Cash prizes	_	_	_	_	VAT	_							
Georgia	2012	2013	Casii piizes	-	-	_	-	compliance	_							
Greece	2017	Ongoing	Cash prizes	_	_	_	_	VAT	Yes							
Greece	2017	Origonig	Casii piizes	_	_	_		compliance	165							
						Yes,		Overall								
Greece	2023	Ongoing	-	-	-	with	-	retail/service	-							
						reward		sales reporting								
					Deduct			VAT	-							
Guatemala	2012	Ongoing	-	-	VAT paid	-	-	compliance								
					from PIT			compliance								
															Overall	
Honduras	2011	Ongoing	-	Yes	-	-	-	retail/service	Yes							
								sales reporting								
								Overall								
India	2023	Ongoing	Cash prizes	-	-	-	-	retail/service	-							
								sales reporting								
			Cash and in					Overall								
India	2022	2022	-kind prizes	-	-	-	-	retail/service	-							
			-kind prizes					sales reporting								
								Overall								
Italy	1980s	2003	-	-	-	-	Yes	retail/service	-							
								sales reporting								
								Overall								
Italy	2020	Ongoing	Cash prizes	-	-	-	-	retail/service	Yes							
								sales reporting								
								Overall								
Italy	2021	Ongoing	-	Yes	31 -	_	-	retail/service	Yes							
								sales reporting								
								Overall								

(CONTINUED) POLICIES ENLISTING CONSUMERS IN TAX ENFORCEMENT

Country	Start year	End year	Lottery	Tax Rebate	Tax Deduction	Whistle- blow	Customer Fine	Main goal	Electronic payments only
Mauritius	2020	Ongoing	-	-	-	Yes	-	VAT compliance	-
Mexico	2004	Ongoing	In-kind prizes	-	-	-	-	Overall retail/service sales reporting	Yes
Mongolia	2016	Ongoing	Cash prizes	Yes	-	Yes	-	Overall retail/service sales reporting	-
Netherlands	2002	Ongoing	Cash prizes	-	-	-	-	Overall retail/service sales reporting	Yes
Northern Cyprus	1996	Ongoing	-	Yes	-	-	-	VAT compliance	-
Pakistan	2021	2024	Cash prizes	-	-	-	-	Overall retail/service sales reporting	-
Pakistan	2024	Ongoing	-	-	-	Yes, with reward	-	Overall retail/service sales reporting	-
Pakistan	2021	Ongoing	-	Yes*	-	-	-	Overall retail/service sales reporting	Yes
Philippines	1998	2004	Cash prizes	-	-	-	-	Overall retail/service sales reporting	-
Philippines	2006	2014	Cash and in -kind prizes	-	-	Yes	-	Overall retail/service sales reporting	-
Philippines	2014	Ongoing	Cash prizes	-	32 -	Yes	-	Overall retail/service sales reporting	-
	•	2015	In -kind					VAT	

(CONTINUED) POLICIES ENLISTING CONSUMERS IN TAX ENFORCEMENT

Country	Start year	End year	Lottery	Tax Rebate	Tax Deduction	Whistle-	Customer Fine	Main goal	Electronic payments only
Slovakia	2013	2021	Cash and in -kind prizes	-	-	Yes	-	VAT compliance	-
Slovenia	2016	2020	Cash prizes	-	-	Yes	Yes	Overall retail/service sales reporting	-
Slovenia	2020	Ongoing	-	-	-	-	Yes	Overall retail/service sales reporting	-
South Korea	1951	Ongoing	-	-	-	Yes	-	Overall retail/service sales reporting	-
South Korea	1998	2003	Cash prizes	-	-	-	-	Overall retail/service sales reporting	-
South Korea	1999	Ongoing	-	-	Deduct VAT paid from PIT	-	-	Overall retail/service sales reporting	Yes
South Korea	2005	Ongoing	-	-	Deduct VAT paid from PIT	-	-	Overall retail/service sales reporting	-
Taiwan	1986	Ongoing	Cash prizes	-	-	-	-	Overall retail/service sales reporting	-
Turkey	2024	Ongoing	-	-	-	Yes, with reward	Yes	Overall retail/service sales reporting	-
Uruguay	2014	Ongoing	-	Yes	-	-	-	Overall retail/service sales reporting	Yes

Notes: See the Data Appendix for information sources for each country. 'Lottery' indicates whether the reward policy includes a lottery ticket for cash and/or in-kind prizes. 'Tax rebate' indicates whether consumers are rewarded with a portion of the tax collected in the transaction. 'Tax deduction' indicates whether consumers can

Appendix: Data consumer-enlisting policies

This appendix provides an overview of the data collection process and a detailed description of the data used in our analysis of tax policies aimed at combating tax evasion (Table 1 and Figures 1 and 2). The primary focus of this study is on policies that involve citizen participation in tax enforcement. These include tax lottery programs, tax rebates, tax deductions, whistle-blowing initiatives, and consumer fines. For the details of information sources for each country, see replication files.

To compile this dataset, six research assistants gathered comprehensive information on various tax policies worldwide. The specific data points collected include the name and objective of the policy, its geographic scope (nationwide or regional), start and end dates, types of incentives employed, and mechanisms of policy implementation. The sources included academic research papers, books, government websites, research centers websites, multilateral organizations and reputable news outlets.

The dataset includes policies that are implemented on both national and regional scales. While most policies are implemented nationwide, some begin at the city or regional level and later expand to a national level, such as the tax lottery program in China. In our data, we classify countries that have at least one policy at any level as having a policy. With the exception of Brazil and India, all the policies are nation-wide. In Brazil and India, policies are sub-national and more than one state or province have such policies. We aggregated these cases by considering the earliest and latest policies as well as the presence of any of the policy components across the sub-national policies.

The duration of these policies varies. In some cases, it was not clear whether the policy was still on-going. In 'end date' we considered as 'ongoing' as long as we could find references to the policy in the news or government website until 2022. In some cases, where it was clear that the policy had ended, but no specific end date was found (e.g., Armenia, Albania and Bulgaria), we considered as end date the last year we could find information related to the policy on publicly available data.

Disclosures

The authors have no financial arrangements that might give rise to conflicts of interest with respect to the research reported in this paper.