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THE GEORGIAN TAX LOTTERY OF 2012. A MULTI-METHODOLOGICAL ASSESSMENT

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Key words: Tax Lottery, Tax Evasion, Interdisciplinary Tax Study

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THE GEORGIAN TAX LOTTERY OF 2012. A MULTI-METHODOLOGICAL ASSESSMENT

Abstract

Tax lotteries are seen as ways to relatively easily augment public revenue while also increasing compliance. Tax lotteries are constructed so that consumers are nudged to ask for a receipt when making a purchase. This receipt contains information so that it can also be used as a lottery ticket with the possibility of winning prizes. Such tickets also leave traces of transaction records so that revenue authorities can audit vendors. Given this background, the aim of this paper is to provide a broad, multi-methodological and socio-economic assessment of Georgia's tax lottery experience in 2012. Our assessment aims to describe the design of the lottery and its functioning in practice, to evaluate how the introduction of the tax lottery influenced the effectiveness of tax administration in Georgia at the country, regional, and firm level and to investigate Georgian citizens' views of the Georgian Revenue Service (GRS) and if tax compliance was improved by the tax lottery. Economic assessment, based on data from 2012 and 2013 on weekly transactions per cash register, using three econometric specifications show that during the lottery weeks, there is a significant increase in the aggregate weekly sales compared to the non-lottery weeks. The number of cash registers reporting their income and the average weekly sales are also higher in lottery weeks. Thus, there are proper foundations to argue that the lottery propelled the increase in reported income. But this tax lottery also aimed to popularize the cash registers as well as to improve citizens' attitude towards the GRS. Following our qualitative investigation and assessment into the Georgian Tax Lottery we would like to add the following points. GRS achieved its purpose, at least in the short term. More revenue was collected and vendors became very conscious and aware of printing and giving receipts to customers. However, what the impact became in the long run, is harder to say. Strategies of "love and fear" are difficult to make work in combination, and we find it hard to say that citizens' views of the GRS improved. Perhaps even the contrary could be proposed.

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INTRODUCTION AND STRUCTURE OF PAPER

Tax lotteries are seen as ways to relatively easily augment public revenue while also increasing compliance. Tax lotteries are constructed so that consumers are nudged to ask for a receipt when making a purchase. This receipt contains information so that it can also be used as a lottery ticket with the possibility of winning prizes. Such tickets also leave traces of transaction records so that revenue authorities can audit vendors.

Tax lotteries thus have a dual function. They motivate consumers to ask for a receipt and in so doing also ensure that those who issued the ticket pay VAT and other taxes due. Tax lotteries thus take on both the role of carrot and stick. As "the "carrot" of rewards is often more effective in encouraging compliance than the "stick" of (equal expected value) enforcement" (Alm 2012: 21) tax lotteries can be positive for tax compliance.

Although tax lotteries are increasingly popular, experience of them is "extremely mixed" (cf. Awasthi & Engelschalk 2018: 38). Lotteries need to be carefully designed and administered, not the least in how they award prizes, but also in how they fit in with other measures that are instigated to fight tax evasion and encourage tax compliance (Fooken et al 2014). Importantly, tax lotteries can never be a substitute for efficient administrative tax collection (Bird 2015); they need to complement existing revenue collecting laws and procedures.

Given this background, the aim of this paper is to provide a broad, multi-methodological and socio-economic assessment of Georgia's tax lottery experience in 2012. Our assessment aims to:

- Describe the design of the lottery and its functioning in practice (which had some unfortunate implications)
- Evaluate how the introduction of the tax lottery influenced the effectiveness of tax administration in Georgia at the country, regional, and firm level
- Investigate Georgian citizens' views of the Georgian Revenue Service (GRS) and if tax compliance was improved by the tax lottery.

The paper is organized as follows:
First, we present the case of the Georgian lottery that took place for seven months in 2012: its design, its functioning, and why it ended. This includes a description of the stakeholders involved in it.

The second section provides a literature review of the various assessments of tax lotteries around the globe. We describe various analytical approaches and results. The overview is supplemented with an appendix that describes the design of six national lotteries in detail.

The third section presents our multi-methodological assessment of the Georgian tax lottery and is split into two subsections. The first subsection is entitled "Economic Impact", where our quantitative analysis looks at the effects of the lottery's introduction on registered aggregate weekly sales of business entities, average weekly sales per register, and the number of registers reporting

their income. An increase in the abovementioned variables will indicate an increase in tax revenue from vendors, and therefore improvement in the effectiveness of tax administration. The second subsection is entitled "Citizens' Views" and is based on an ethnographic approach. We have collected media articles, reports, and other materials expressing views on the Georgian tax lottery. We have interviewed various stakeholders: those who designed and worked with the lottery at the GRS, participating and non-participating businesses, consumers, and other stakeholders in various places in Tbilisi and also in rural Georgia.

The fourth section of the paper is a discussion about what to consider when designing a tax lottery. Based on our research, we propose some causal effects between the specific design of a tax lottery and its economic impact as well as its impact on tax compliance issues. We ask why the Georgian experience was seen as inefficient: Did the Georgian tax lottery actually change consumer behavior? Could it have done otherwise with a different design? One important lesson that emerges from our study is that in order to understand the success of a given tax lottery, it is important to see it as part of a larger whole and how it fits into existing taxation practices. Another insight was that a small and supposedly contained tax project like this Georgian tax lottery provides a window into a society (Schumpeter 1954). The fifth and final section enumerates our conclusions.

Tax lotteries have many names. As they often address VAT issues, they have sometimes been called VAT lotteries. But they also go by names such as receipt lotteries, invoice lotteries, lucky draw schedule or lucky tax lottery —most of which are boring translations into English from more colorful names. The increasingly digitalized tax administration makes other control activities possible. In this paper, we collectively describe this type of lottery as **tax lotteries.**

The same proliferation of description exists regarding revenue services. Their names are often different combinations of tax or revenue followed by administration, authority, agency, bureaucracy, etc. In the following, we call them **Revenue Services** following the Georgian designation.

1 THE GEORGIAN TAX LOTTERY

The Georgian Revenue Service introduced a tax lottery starting in spring 2012, which was planned to run until January 1, 2013. The lottery ended prematurely on November 12, 2012 after a new government was elected and a new Director General for the GRS was introduced. The lottery only ran for 209 days.

The aim of the lottery was to popularize the already-introduced GPRS[1]-certified cash registers and make sure that they were used by vendors. Such registers would allow the GRS to gather information about business activities online daily. This, in turn, was due to an effort to fight the shadow economy and be able to audit business revenue, when payments were made by cash. The lottery would thus motivate consumers to ask for receipts. As a communicative resource, the lottery aimed to increase awareness of asking for receipts, as well as to develop a positive attitude in Georgian society towards GRS.

In order to participate, customers had to buy goods or services from a vendor who had a GPRS-certified cash register. The receipt could be checked immediately by mobile phone, online, or using PayBoxes.[2] The Georgian Tax Lottery was a chance to win money for every customer purchasing anything from groceries, to shoes, to haircare. Although all businesses are said to be required to issue receipts, there are exemptions. According to the law, some commercial activities are exempt from being subjected to tax. These are registered individual entrepreneurs running a small business with a turnover not exceeding 100,000 GEL.[3] A gallery-owner making his own art claimed that he did not have to pay tax and shops owned by the church do not have to issue receipts and are thus exempt from tax.

DESIGN

There were many stakeholders: GRS; Georgian Lottery Company (GLC), which administered the design part of the lottery; Ministry of Internal Affairs (MIA) IT group which was in charge of IT issues regarding the tax lottery and for the GLC; Georgian Mobile Operators Magticom and Geocell for providing the means to check receipts via SMS, while online checking was available on the GRS website; and business owners of fast payment machines called PayBoxes, which provided an additional way to check receipts. Four Georgian banks administered prize payments. There was at least one advertising company promoting the lottery, and the GRS set up a call center to resolve any outstanding questions.

PROMOTION

[1] GPRS: **General Packet Radio Service** (**GPRS**) is a mobile data standard on the 2G and 3G cellular communication network's global system for mobile communications (GSM).
[2] A PayBox is an ATM-type machine, very popular in Georgia, where people pay every type of fee, including electricity, gas, water, public transport, education, phone credit, bank credit, police fines, etc.
[3] BHL "Who's an individual entrepreneur?" retrieved from: https://blh.com.ge/%E1%83%95%E1%83%98%E1%83%9C-%E1%83%90%E1%83%A0%E1%83%98%E1%83%A1-%E1%83%98%E1%83%9C%E1%83%93-%E1%83%9B%E1%83%94%E1%83%AC%E1%83%90%E1%83%A0%E1%83%9B%E1%83%94-blh/

The tax lottery was promoted using three different tools: TV commercials, posters, and flyers.

- The first tool was advertising the tax lottery on television. The Revenue Service hired a production company that prepared two video commercials. The first video begins with sad music when a man comes out from the supermarket and throws away a receipt, and a girl sits in a café thinking and crumpling a paper, while another receipt is left on a bar and another washes down the drain in the rain. Suddenly, the sad music becomes happy and a new receipt comes out of the cash register showing young and old people checking their receipts on their phones in a pharmacy, at the cinema, at an ice-cream stand, in a café, etc. being excited to have a receipt and being happy after winning. Throughout the video the text follows, saying: "There was a time when no one paid attention to receipts; no one saw their existence; forgotten by everyone, they were given up for eternal loneliness but one day everything changed. Receipts got a new meaning, each one of them brought joy to people. The Revenue Service offers you a new lottery, ask for a receipt on every purchase and win from 10 up to 50,000 GEL. The Tax Lottery, everything's winning". Thus, the first video[4] told the story of how receipts were worthless before the introduction of the lottery and how meaningful they became afterward. The second video[5] was rather technical. It started with a cash register printing out a receipt and all the information printed out slowly with a voice reading everything out. It showed where the codes are written on the receipt, explained how and where to check the codes, and where, when, and at what time to get the money in case of winning. At the end, there was a hotline number written. It ended with the same slogan "The Tax Lottery, everything's winning". Both videos circulated on almost every Georgian TV channel.

- The second tool was printed posters given to vendors so that they could inform their customers on shop doors and windows. The aim was to raise awareness and remind customers to demand receipts. Shops were even said to compete with each other[6] and put up a poster to show that in their specific shop receipts had won the lottery, as if in the other they had not. It was used in a similar manner as a certificate or a diploma on the wall.

- The third tool was flyers. The information they contained was on one side mimicking 10, 20, 50, and 100 GEL notes and on the other side, they provided information about the lottery. The Revenue Service distributed them on the metro and in other gathering places.

Around 50,000 GEL was spent on advertising,[7] including shooting the commercial, running it on TV channels, and printing posters and flyers.

There was not an actual lottery drawing of prizes in the sense of randomness selecting the winners. From the outset, the GRS decided to make the lottery as simple a solution as possible. The winning numbers were decided by a sampling technique and were hardcoded into the software from the start. The winning numbers were based on the combination of the cash register number followed by a unique sequential number. This information was already available on receipts.

[4] https://www.youtube.com/watch?v=-sfxhvD_4zU
[5] https://www.youtube.com/watch?v=7N8iLAPX7RA
[6] Jaba Ebanoidze, Chairman of the Revenue Service in 2011-2012 in an interview March 15, 2019
[7] Jaba Ebanoidze, Chairman of the Revenue Service in 2011-2012 in an interview March 15, 2019

The simplicity of the design was due to the haste of implementing the lottery, but also had unfortunate implications. Vendors who figured out how winning numbers were selected could "cheat" the system. Receipts from any cash register are issued in sequential order and the combination of these gives each receipt a unique number. When people figured out how the lottery worked, any vendor looking at the most recent receipt knew the number of the next receipt to be printed. Idle vendors could try registering the next 100 receipt numbers via SMS. If there was a win, s/he could then make a purchase when it was the winning receipt number's turn. However, the Revenue Service worked against cheaters and blocked numbers who were checking repeatedly. The simplicity of the design meant that wins could be known directly, either by checking online or via text message.

The winners of the Tax Lottery could cash out the money they won in four different banks on the market in 2012: Liberty Bank, BasisBank, PrivatBank and Kor Standard Bank (KSB).[8] Within 30 days after the receipts were printed, winners could go to any branch of those four banks throughout Georgia, present an ID and the winning receipt and get their money. Parallel to this process, the banks checked the validity of the winning receipt with the Revenue Service and the Georgian Lottery Company, who provided the banks with the winning number of the receipt and the cash register number of the receipt; both numbers had to match one another to prevent fraud. After proving that a specific receipt won with the particular number, they gave the money to the winner and kept the receipt themselves.

PRIZES AND PROBABILITY OF WINNING

Each receipt printed by a GPRS cash register has a unique number, consisting of six digits, representing the vendor issuing the receipts and a sequential eight-digit number. Every customer had to check both numbers. There were three ways to check the receipts:

1. With a mobile phone by sending an SMS to *200#, if your mobile provider was Magticom or Geocell;

2. With a PayBox;

3. With a computer on the Revenue Service website: www.rs.ge

If a receipt was proven valid, wins could be cashed out within 30 days after being issued.

The winning prizes were 10, 20, 50, 100, 10,000 and 50,000 GEL.[9] The 10,000 GEL prizes were awarded once a month while 50,000 GEL prizes were given quarterly. A customer had to collect a receipt after a purchase, check the receipt in any of the three possible ways, and in case of winning go to any branch of four different banks of Georgia to cash out the money.

Due to the design of the lottery, the possibility of winning was very small. The Georgian Tax Lottery, according to data provided by the Revenue Service, had in its short life 252,455 winners, winning a total of 4,060,270 GEL. This makes on average 16 GEL per winning ticket. Even though it was said that 10,000 GEL was awarded once a month, in August and September of 2012 there

[8] In 2016 the bank officially changed its name to TeraBank
[9] The exchange rate for a Georgian Lari, GEL, is about 3.0 GEL to 1 EUR.

were no 10,000 GEL winners. The reason for this could be that the winning receipts were never printed, or they were printed but not checked. 10,000 GEL should have been awarded seven times but was only awarded six times and 50,000 GEL was awarded twice.[10]

Georgian media portals and the Revenue Service official website published articles about the big winners. The lucky 10,000 GEL winners were from Lagodekhi, Mtskheta and four from Tbilisi and the 50,000 GEL winners were from Tbilisi and Zugdidi winning in May and August.

PARTICIPATION

At the beginning of the lottery, 2-2.5 mln receipts were printed every day and the promotion of the Tax Lottery contributed to the fact that customers started requesting receipts and checking them.[11] The lottery was believed to have achieved 2 mln receipts being checked every day. Looking into the actual numbers reported, we see a slightly more modest verification of receipts.

The lottery ran for 209 days, from April 18, 2012, to November 11, 2012. In total it was active for less than 7 months. Even though the Revenue Service says that it does not have the full data of how many receipts were checked daily, there is data available for only 32 days showing that on the first day documented (May 3rd), 1,591,012[12] receipts were checked. Since then, the number of people checking receipts is constantly decreasing, except for a couple of exceptions. The peak was 1,591,012 checks on May 3rd when the last day and also the lowest point of checking receipts was 97,916. According to the documented data for the randomly chosen 32 days, it makes around 826,000 receipts checked daily. But it is essential to take into account what was proven to our knowledge from various sources: that customers actively checked receipts in the first three months of the lottery. After a couple of months, most of them lost interest, some naming that the probability of winning was very low, or they started doubting the feasibility and tangibility of the lottery.

According to research published by the Analysis and Consulting Team (ACT) in May 2012, just one month after the introduction of the lottery, 56 percent of the Tbilisi population said that they checked their receipts (Ambebi.ge, 2012).[13] While the number substantially decreased for July, when Marketer research published its results showing that 29 percent of respondents checked receipts less, and 21 percent of them did not check them anymore; only 10 percent of the respondents replied that they always checked the receipts and 21 percent answered sometimes (Marketer.ge, 2012).[14] Consistent with these two research reports, it is proven that the interest in the lottery from customers decreased over the course of time.

The GRS tried to activate further participation by making more winners in the regions where summer vacationers were going, e.g. to the Black Sea, but to no avail. Such changes did not have any impact on overall participation in the lottery. Due to the design of the lottery, such activation

[10] Statistics were provided by the Revenue Service, public access is denied.
[11] Jaba Ebanoidze, Chairman of the Revenue Service in 2011-2012 in an interview March 15, 2019
[12] Statistics were provided by the Revenue Service, public access is denied.
[13] https://www.ambebi.ge/article/52763-chekebis-gatamashebis-mimart-mosaxleobam-interesi-dakarga/#ixzz1tpq7StW5
[14] https://www.marketer.ge/რამდენად-წარმატებულია-ჩე/

needed a change to the software as numbers of winning tickets were hard-coded.

2 LITERATURE REVIEW: HOW TO ASSESS A TAX LOTTERY

In this section we will discuss the literature we find important for our approach and especially that concerning the understanding of tax lotteries. However, we will start out broadly.

Why we pay tax is a complicated issue that demands interdisciplinary approaches (Peters 2014, Ring 2010). A well-designed tax system facilitates economic growth, improves social welfare and economic efficiency (Besley & Persson, 2013) and simple and equitable tax laws encourage tax compliance (Lodin, 2007), but we argue that we also have to consider how taxation is carried out in practice. Tax compliance happens "in the real world" when tax rules and regulations are interpreted and applied (Oats 2012, Boll 2014). We have to include the relational, institutional, organizational, and cultural aspects of taxation (e.g. Mumford 2002, Boden, Killian, Mulligan, & Oats 2010, Oats 2012, Björklund Larsen 2017) if we are to understand why people comply.

As such, tax evasion remains one of the key challenges for policy makers. Designing the optimal tax code and implementing it in practice require assessment of taxpayers' compliance behavior. Prominent questions asked in tax evasion literature include how changes in fiscal policy parameters affect evasion and how the government can facilitate tax compliance behavior.

Tax compliance as an economic decision problem was first studied by Allingham and Sandmo (1972). In their model, a taxpayer pays taxes on her declared income. The tax authority does not observe the true income of the taxpayer unless an audit is carried out, in which case the true income is learned with certainty. If the taxpayer is caught underreporting her income, she has to pay the evaded taxes and a penalty. Tax evasion is successful if an audit does not occur. Therefore, the taxpayer decides what amount of income to declare given the tax environment that is characterized by the tax rate, the penalty rate, and the probability of an audit. A simple and tractable setup of their model has clear-cut predictions of tax evasion behavior under expected utility (EU) theory. For instance, an increase in the probability of an audit and the penalty rate has deterrent effects on evasion. Given the structure of the penalty that is proportional to the concealed income in the model, an increase in the tax rate has an ambiguous effect on evasion. Yitzhaki (1974) notes that in practice, the penalty is proportional to the evaded taxes rather than the concealed income. Using EU under the empirically plausible assumption of decreasing absolute risk aversion, an increase in the tax rate reduces evasion at an interior optimum. This counter-intuitive result, known as the Yitzhaki puzzle, is not supported by the majority of empirical works (e.g., Friedland et al., 1978; Clotfelter, 1983). In addition, by considering only monetary (dis)incentives for compliance, the Allingham-Sandmo-Yitzhaki model predicts too much evasion relative to empirically observed levels[15] and generates a puzzling question—why do people pay taxes? (Alm et al., 1992; Alm and

[15] Coefficient of relative risk aversion must exceed 30 to explain compliance larger than 90%, while the value of the coefficient suggested by field experiments is between 1 and 2 (Alm, 2012).

Torgler, 2011)[16] The model fails to explain why some people never evade taxes.

There are many other issues at play if we are to understand why people pay their taxes. For example, is taxpayers' willingness to pay closely connected to ideas about fair taxation? 'The complexity of taxation can often mean the system is judged as unfair' (Wales 2008) which provides a means to avoid taxes. Thus, people's views on fairness have to be included as part of a broader discussion of tax justice (cf. Smith 1776, Sheffrin 2013). We embrace cultural and social explanations in order to understand if and why perceptions about tax fairness differ in various contexts and across countries. This makes for several methodological points: the importance of distinguishing between perceived fairness in tax laws, the interpretation of such laws, and the practice of carrying out the law in practice (e.g. Björklund Larsen 2017). Such distinctions are increasingly embraced and adapted by stakeholders in the tax arena. Taxpayers' willingness to comply is thus closely connected to fair taxation.

Individuals as members of social groups look at the behavior of others and care about what is acceptable in a social context while making their decisions (Cullis and Lewis, 1997). The relevance of social norms has been documented in the tax compliance context. Alm et al., (1999) provide experimental evidence for the central role of social norms in tax compliance behavior. Taxpayers are found to identify themselves with a social group and then internalize the social norms that are attributed to that group (Wenzel, 2004). Others' tax compliance behavior is found to be normative for a taxpayer when others are regarded as a reference group. Casal and Mittone (2016) provide experimental evidence of the effectiveness of non-monetary (dis)incentives in increasing tax compliance. In their experiment, non-monetary (dis)incentives are generated by publicly announcing audited taxpayers' tax compliance behavior. The results show that a negative non-monetary incentive, such as publicizing tax evaders' identities, is more effective in increasing tax compliance than a positive non-monetary incentive, such as publicizing identities of fully compliant taxpayers. The authors argue that the negative non-monetary incentive should be more effective in a community with widespread compliance and the positive non-monetary incentive should be more effective in a community with widespread evasion.[17] The literature that analyzes the interplay between economic incentives and social norms in the context of tax compliance (e.g., Gordon, 1989 and Traxler, 2010), can explain why some people never evade taxes.

Compared to the literature on tax compliance in case of direct taxes, theoretical treatment of indirect-tax compliance is scarce. VAT or sales tax systems require businesses to issue invoices. An invoice enables tax authorities to correctly identify taxable turnover of the business. The tax credit and debit system of VAT ensures issuance of invoices in the intermediary phases of the supply chain. Though, at the final consumer stage self-enforcing incentives disappear as long as customers have no direct benefit from requesting receipts (Naritomi, 2015), whereas requesting receipts might be morally costly if tax evasion is widespread (Fabbri & Hemels, 2013). Self-

[16] The empirical estimates of the probability of an audit take values from 0.01 to 0.03, while the penalty rate that is paid in addition to the reimbursement of the evaded taxes, ranges from 0.5 to 2 (see e.g., Dhami and al-Nowaihi, 2007). For these parameter values, the model predicts that virtually all taxpayers evade some taxes as long as the expected return on evasion is positive.

[17] Some US states practice 'name and shame' programs in which the names of top debtors are publicly revealed, whereas some developing countries have programs in which the names of compliant taxpayers are publicized (Luttmer and Singhal, 2014).

enforcement of issuing receipts becomes more problematic if customers engage in collaborative tax evasion with sellers by getting price discounts in return for sellers not issuing the receipt (Chang & Lai, 2004).

In addition to the traditional audit-sanctioning mechanism, the literature emphasizes the role of consumers in facilitating businesses' tax compliance. The government can create direct monetary incentives for consumers for requesting receipts. Turning a receipt into a lottery ticket with a chance of winning a pre-determined prize is an example of such an incentive. The tax lottery motivates and rewards those consumers who become part of the efforts to fight tax evasion by requesting receipts while making purchases. Given that audit-sanctioning mechanisms are highly costly for the government, clever usage of a "zero cost policy", such as a tax lottery, might be advisable (Fabbri & Hemels, 2013). In addition, research shows that tax compliance increases if rewards and prizes are given for complying. Experiments on people's willingness to comply have, for example, shown "that rewards operate through the innate desire of human beings for recognition and status" (cf. Frey and Neckermann 2006). Other research shows that "completely honest tax reports were more often observed in the reward conditions" (Kastlunger, Muehlbacher, Kirchler and Mittone 2011) than in enforced and controlled environments.

Even though tax lotteries have been used extensively by various countries[18] (see also Appendix 1), theoretical and empirical research evaluating the effects of the lotteries is still lacking. Morgan (2000) considers a lottery as a fundraising mechanism for financing public goods provision without taxation. He shows that such mechanisms are not highly efficient, although they work better than voluntary contributions for public goods.

"A successful lottery scheme achieves two objectives: (i) an increased percentage of transactions supported by correct issuance of invoices to customers, and (ii) provision to the tax administration of an additional tool for verifying declared business turnover by comparing the declared turnover with data from invoices submitted by lottery participants. Similar to the tax incentive schemes discussed above, tax lotteries incur costs; the tax administration must offer prizes sufficiently attractive to stimulate consumer participation" (Awasthi & Engelschalk 2018: 34).

Giebe & Schweinzer (2014) provide a theoretical framework for analyzing tax lotteries in the existence of sales tax. The setup of the model is as follows. There is a set of identical individuals, each of them deriving utility from consuming a numeraire good (having a price of 1 and not subject to taxation), a private good, and a public good. Private good consumption is subject to taxation with sales tax. Provision of the public good is costly for the government. The public good-private good consumption bundle is socially efficient if it yields the maximum possible social welfare at the minimum possible cost. The authors show that providing the public good using only sales tax results in an inefficient outcome, given that the sales tax is a distortionary tax. The authors consider the possibility of fundraising using a sales tax in accordance with a tax lottery, which translates an individual's expenditure on a private good into a probability of winning a certain share of the total tax proceeds. Under this setup, the authors show that "simple" lotteries, such as lotteries in which the probability of winning is equal to the share an individual owns of all tickets, cannot correct the

[18] See, e.g., Fooken et al. (2014) for a brief discussion of tax lotteries in Malta, Slovakia, Portugal, and Georgia. Ungureanu & Dascălu (2015) discuss tax lotteries in Romania, Malta, Slovakia, and Portugal.

distorting effect of sales tax, and hence do not provide the efficient outcome. Whereas, more complex lotteries under which the probability of winning is an increasing function of private good expenditure prove to be efficient. Therefore, when the sales tax is in place it is possible to come up with an optimal tax lottery scheme that results in the socially efficient outcome.

Fabbri (2015) shows that a 'simple' lottery cannot incentivize a rational expected-utility maximizing individual to contribute to the public good. Though, the bulk of the evidence shows that 'simple' lotteries can be a successful motivator and work fairly well in some countries, for instance in China (Wan, 2008) and in Taiwan (Lin, 1992). Fabbri (2015) uses the cumulative prospect theory (CP) of Tversky & Kahneman (1992) to explain why 'simple' lotteries might work. Specifically, the author relies on the probability weighting feature of CP that captures the behavioral regularity that people overweigh small probabilities and underweigh large ones. Moreover, Fabbri & Hemels (2013) criticize Wan (2008) in explaining the success story of the Chinese tax lottery and suggest an alternative, CP-based explanation.

China introduced a tax lottery sequentially in different districts of the country from 1998-2003. Initially starting with food industries, by 2002 the Chinese government had enlarged the scope of the policy to include all services and industries. Wan (2008) studies the panel data of 37 districts in Beijing and Tianjinin for the period of 1998-2003. Referring to the history of China's tax policy and discussing the recent economic transformations the country went through, the author mentions that since the 1978 market reforms in China, the introduction of tax lottery receipts were the first attempt to give incentives to taxpayers to declare their taxes voluntarily, not because of the threat of punishment, but just thanks to the subsidies set up by the authorities. Hence, the lottery system helped to mitigate the information asymmetry between the government and the taxpayers. The author estimates that the tax lottery resulted in a 17% revenue increase from sales tax in the experimental districts, and the ratio between the monetary costs of the lottery incurred by the government and the increased tax revenue was between 1/30 and 1/40. The author explains the success of the lottery policy, arguing that the latter helped to save the transaction costs of cheating, such as hiring a lawyer, bribing tax officials, etc. Wan concludes that there is a social gain associated with the introduction of the tax lottery only if the transaction costs of cheating are higher than the individual costs of requesting the receipt.

Fabbri & Hemels (2013) note that if the lottery policy could only be successfully implemented in the presence of high transaction costs of cheating, it would exclude developing countries or countries where institutions are weak and where tax evasion is widespread and socially accepted. If that were true, the tax lottery in China should have failed. Alternatively, Fabbri & Hemels (2013) explain the success of the Chinese tax lottery using CP. According to CP, consumers overweigh the small probability of winning in the lottery. While for the rational expected-utility maximizing individual, the dominant strategy is not to request a receipt, the authors argue that under CP requesting a receipt becomes a dominant strategy.

The behavioral regularity of overweighing small probabilities facilitates participation in tax lotteries. For instance, in 2015, the Croatian Tax Administration launched the tax lottery "Can I have the receipt, please?" aimed at encouraging foreigners to ask for receipts. It offered foreigners a chance to win a paid summer vacation for two in 2016. To participate, they needed to present

20 receipts for purchases made in Croatia to the Tax Administration. The lottery was behaviorally inspired as it relied on the phenomenon that people overweigh small probabilities (Lourenco et al., 2016).

Perhaps one should be a bit careful when introducing lotteries. In lotteries, there is not only a tax compliance relationship between tax-collecting authorities and vendors as they involve third-party participants. Consumers can be seen to be policing on behalf of authorities but can also gain from it.

Yet the opposite has also been proposed. Fochmann and Kroll (2014: 25) conclude that "rewards have either no effect (for those who are rewarded) or a negative effect (for those who are not rewarded) on tax compliance behavior" (Bornman and Stack 2005: 802).

There are quite a few countries around the world that have initiated various types of tax lotteries. They can be on VAT or other sales tax; they can include all industrial sectors. The lotteries that are briefly described in Appendix 1 have been chosen due to their diversity, but also because they have existed for some time and therefore have been investigated to a certain extent.

The next section will try to assess the economic effect of the tax lottery policy's implementation in Georgia and its influence on the country's tax environment. Moreover, the qualitative analysis will evaluate the efficiency of the tax lottery policy in its aim to increase tax revenue locally and nationally. We also aim to provide conclusive answers to questions regarding the cease of the policy and its post-implementation period demonstrations.

3 ASSESSMENT OF THE GEORGIAN TAX LOTTERY

In this section we assess the lottery. We start by assessing the economic impact of the lottery applying econometric regression models. We were interested in seeing if the shadow economy shrunk and if revenue increased. The assessments are done on a national as well as on a regional level. Second, we were interested in seeing the impact winning tickets had on future sales.

3.1 ECONOMIC IMPACT

DATA DESCRIPTION AND METHODOLOGY

Although the issue of receipt lottery policy as part of tax policy has been analyzed regarding country case studies, for example in China, Taiwan, and Brazil, it is evident that there is a lack of relevant econometric analysis and proper models used to estimate the influence that tax lottery policies may exert on the economy of a country. Moreover, considering the specifics of the data this case study is based on, and the characteristics of Georgian tax policy in general, this quantitative assessment will suggest an econometric model which considers all the nuances of the data and the targets of interest.

The data for the quantitative analysis conducted in this paper was provided by GRS and was collected from GRS system daily reports. However, as daily analysis of data for 2 years would be technically difficult, daily data was aggregated on a weekly basis. As a result, a panel data of nearly 9 mln observations is used for this study throughout the 9 regions of Georgia and Tbilisi.

The data includes variables such as unique cash register number, year of purchase, week of purchase, address (city and municipality) and total turnover of the receipt. Here is a short description of each variable:

- **Cash-Num**: a unique cash register number which is registered under the name of the owner of the business entity. Receipts issued by cash registers are directly registered in the GRS database, specifying the date and amount of the purchase, the address of the vendor, and other indicators.
- **Year**: as mentioned above, the data includes information on variables starting four months before the lottery was launched: hereafter, the data is just for two years: from January 1, 2012 until December 31, 2013.
- **Week**: the information embodied in this variable shows the exact week of the purchase. Thus, for two years the data encompasses 106 weeks, 53 weeks for each year.
- **Address**: data contains 3 columns of information on the address of the purchase: the *address of the shop* with the exact street, postal code and so on; *city*—Tbilisi or other nine regions of the country; *RAI*, meaning the municipalities of Georgia.

Apart from the data with the variables described above, the GRS also provided a small dataset with detailed information on winning tickets. This dataset includes daily information on the

number of winning tickets and the aggregate daily monetary amount of prizes, which is further aggregated on a weekly basis for convenience of quantitative analysis.

As already mentioned, data provided by the GRS has two blocks: purchases from 2012 and 2013. As the launch and termination of the policy are in the same year (2012), the available data for 2013 gives the opportunity to control for lottery policy post-effects and to conduct a comparative analysis about the total turnover level reported in these two years. The information about the location of the cash register is a key component when doing a regional analysis with the aim of highlighting general trends of reactions towards the tax lottery in the nine regions of Georgia and Tbilisi. Three different regressions are conducted:

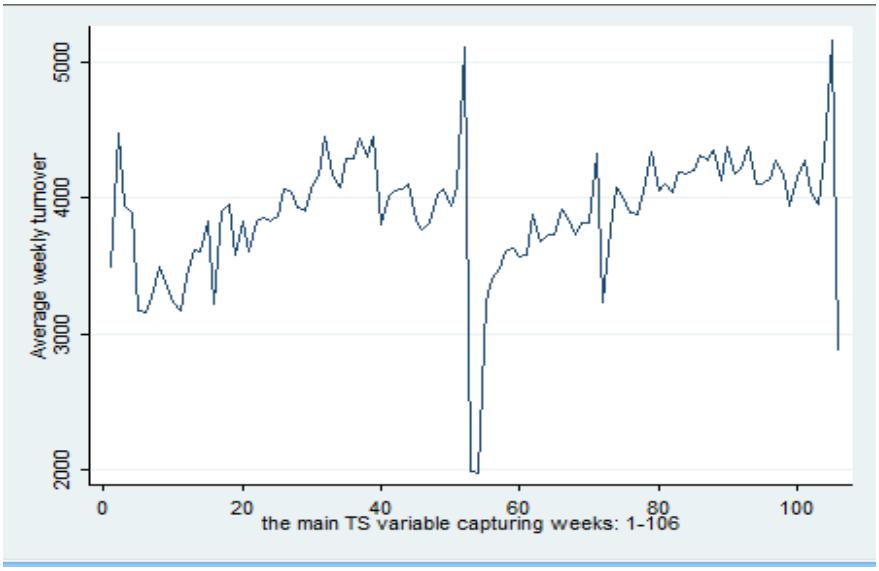
- Aggregated data-analysis to investigate the influence of the tax lottery on the Georgian economy as a whole;
- Regional analysis for each region separately to capture the differences in the influence level that lottery policy exerted in various regions of Georgia in terms of purchases and demand for receipts;
- Analysis based on the size of business entities to capture the influence of the lottery on vendors of different turnover size.

REGRESSION ANALYSIS WITH AGGREGATED DATA

The main analysis is conducted using the weekly aggregated dataset, which has three main dependent variables:

- Aggregate weekly sales: total weekly sales by all registers in a given week in thousands of GEL
- Average weekly sales per register: average turnover per register in a given week in GEL
- Number of registers: number of cash registers which reported their earnings for that week

Figure 1: Average weekly sales per register, 2012-2013



The graphical representations of these variables (see Figure 1, Figure 2, and Figure 3) capture the main trends of the lottery and the number of cash registers reporting their income to the Revenue Service. As may be inferred from Figure 1, the weekly trend of the average turnover is increasing with an upsurge during the first 4 weeks of each year and sharp declines at the end of the year. On one hand, the captured increase in average turnover for 2012 may be interpreted by the introduction of GPRS-based cash registers in the beginning of the year. On the other hand, this increase may have an economic reasoning dependent on seasonal trends of purchases after the holiday period. Consequently, the reported abrupt decline in the last week of both 2012 and 2013 is connected with seasonal purchasing trends in Georgia on New Year's Eve. Hence, some of the weeks with unusual trends were dropped from the analysis: specifically, the first four weeks and 53rd week of both 2012 and 2013.

Similarly, analyzing the graph capturing the fluctuation in the number of cash registers reporting their income per week, Figure 2, it is evident that thanks to the introduction of GPRS registers,

there was a very clear upward trend in the number of businesses which started providing a weekly overview of their turnover to the Revenue Service. After the first 5 weeks of 2012, the trend is mostly stable demonstrating an abrupt decline only at the end of the year, similar to what was observed for the average turnover. As for the graphical representation of the aggregate sales reported per week, the trend captured by Figure 3 preserves the patterns of the previous two graphs and illustrates the fluctuations in weekly turnover of all the reported cash registers.

Figure 2: Average number of cash registers reporting weekly income

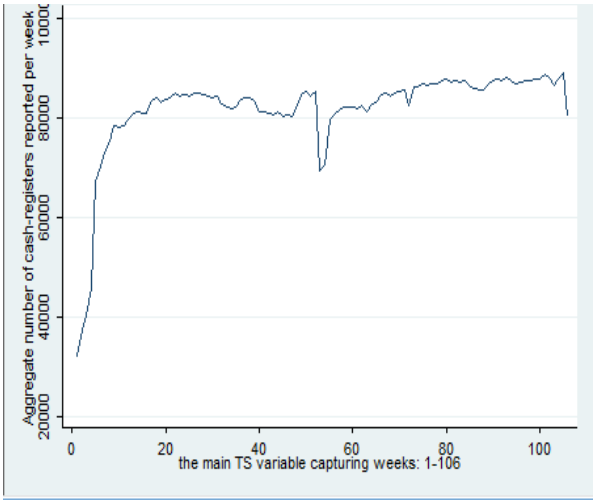
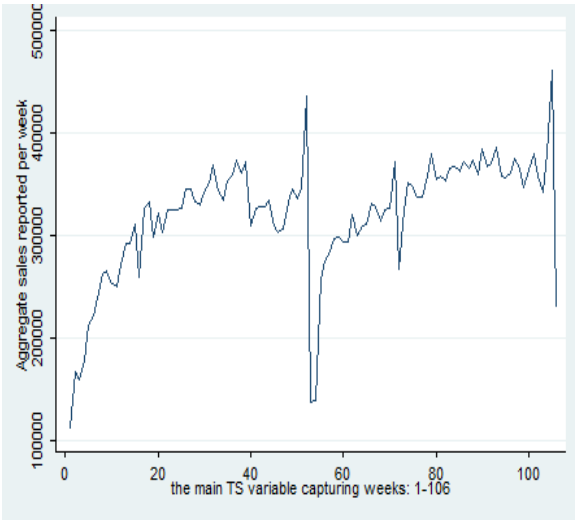


Figure 3: Aggregate sales reported per week



We aggregate the daily data into the weekly data over 106 weeks of 2012 and 2013 and compose three main variables: number of reporting cash registers, aggregate weekly sales, and average weekly sales per register. To record the effect of the lottery on the fluctuation in turnover and to analyze whether the lottery incentivized businesses to report their income more accurately, a dummy variable for the lottery weeks (weeks 16-46 of 2012) and a year dummy for 2012 are created. Hence, at the primary stage a simple regression is conducted based on the following model:

$$Y_t = \alpha + \beta Period_t + \gamma Lottery + \delta D2012 + \varepsilon_t \qquad (1)$$

where:

- Y_t can be one of the three outcome variables of interest: Aggregate weekly sales, Number of registers, and Average weekly sales per register,
- Period= weeks from 1 to 106 for the two years
- Lottery = dummy variable, such that Lottery=1 if 15<week<47 for 2012 and Lottery=0 otherwise
- D2012 = dummy variable, such that D2012=1 for the year 2012 and D2012=0 for 2013.

Table 1: Regression Results of the aggregated analysis on a country level

	Aggregate weekly sales	Average weekly sales per register	Number of registers
Time period	1697.5***	15.05***	120.3***
	(160.1)	(1.525)	(16.67)
Lottery dummy	33363.1***	281.8***	3199.0***
	(6695.1)	(63.78)	(696.8)
Year2012 dummy	38813.4***	457.9***	8.093
	(11098.5)	(105.7)	(1155.1)
Constant	206593.0***	2788.1***	76013.7***
	(13165.5)	(125.4)	(1370.3)
N	96	96	96
R^2	0.692	0.624	0.656

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

As may be inferred from the country level regression results reported in Table 1, for all the econometric specifications the 'lottery' variable is highly significant with a significance level of 0.05. The regression results show that during the weeks of the lottery (weeks 16-46) the aggregate weekly sales are on average 33,363 GEL higher than in the non-lottery weeks (11% more than in non-lottery weeks, based on the log linear model). When looking at the year effect of 2012 in non-lottery weeks, the effects are positive, significant, and, on average, amount to 38,813 GEL. This means that aggregate weekly sales in the non-lottery weeks of 2012, exceed aggregate weekly sales in 2013, on average, by 38,813 GEL.

When looking at the average sales per register as the dependent variable instead of aggregate weekly sales, the results are compatible with the results of the first model. There is on average a 282 GEL (7.7%) increase in average turnover during the lottery weeks compared to the non-lottery weeks; and average weekly sales in non-lottery weeks of 2012 exceed average weekly sales in 2013 by 458 GEL, on average.

A similar regression is done with the weekly number of cash registers reporting their income as dependent variable. The outcome illustrates that during the lottery weeks of 2012, the average number of reported cash registers is 3,199 units (4%) more than those in non-lottery weeks, which is quite compatible with the results reported by the first and second regressions.

Regressions incorporating information on winning tickets

The case studies of many countries incorporating different scenarios of tax lotteries show that beside many other factors, the social interaction and exchange of information regarding wins has a significant effect on people's behavior. In other words, hearing about a win in the neighborhood may motivate people to become even more engaged in tax surveillance activities and demand receipts with greater oversight.

Hereafter, having daily data on wins and the amount allocated for prizes and having the aim of capturing the real effect of the lottery, the specification of the econometric model can be expanded incorporating the information on winning tickets. Hence, the econometric model looks as follows:

$$Y_t = \alpha + \beta Period_t + \gamma Amount + \delta D2012 + \varepsilon_t \quad (2)$$

where, maintaining all other variables the same,

- Amount = monetary amount, measured in thousand GEL, allocated for prizes from the budget, which is 0 in all other weeks except the lottery weeks of 2012.

The regression by this econometric specification provides an interesting overview on the effect that the lottery had on the fluctuations in aggregate turnover. Hence, as the result presented in Table A1.1 (see the Appendix) shows, the difference in the aggregated weekly sales between the lottery and non-lottery weeks is the very coefficient of the amount variable $\gamma = 290$, which means that each extra 1,000 GEL allocated to weekly prizes will boost aggregate weekly sales on average by 290 GEL. As for the effect of the year 2012, besides the effect of the prizes, amounts to, on average, 40,115 GEL difference in aggregate weekly sales.

The above-described setup is also perfectly compatible with other econometric specifications, when instead of the aggregate weekly sales, average weekly sales per register and number of cash registers were taken as regressands. For both regressions (see Table A1.1) highly significant variables are detected and both models record R-square > 0.65. As seen, every extra 1,000 GEL allocated to prizes results in, on average, 2 GEL more average weekly sales per register and, on average, 27 more cash registers reporting their income.

Another similar specification of this model is with the number of winning tickets incorporated into the equation as an independent variable, such that the model looks as follows:

$$Y_t = \alpha + \beta Period_t + \gamma Number\_prizes + \delta D2012 + \varepsilon_t \quad (3)$$

where, maintaining the meaning of all other variables,

- Number_prizes = total number of winning tickets per week, measured in thousands, which is 0 in all other weeks except for the lottery weeks of 2012

As the results of the regression illustrate (see Table A1.2), each 1,000 more winning tickets result in 330 more cash registers reporting their income and 42 GEL more average weekly sales per register. As for the difference in aggregated weekly sales during the lottery and non-lottery weeks,

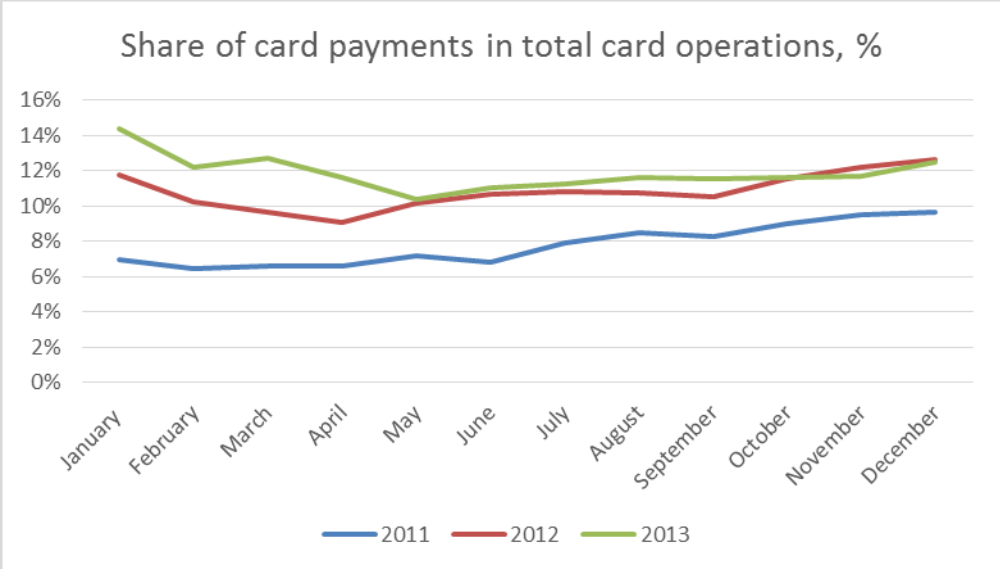
the latter amounts to 4,611 GEL. Moreover, in all three regressions conducted, the number of prizes is highly significant in explaining the fluctuations in the regressands.

Comparing effects of prize amount and number of winnings, it is interesting to notice that more winnings, no matter the prizes won, affects aggregate weekly sales much more than an increase in prize money awarded. More precisely, 1,000 more winning tickets a week, even if each ticket won 1 GEL, increases aggregate weekly sales by 4,611 GEL on average, while an additional 1,000 GEL allocated for prizes increases aggregate weekly sales on average by 290 GEL. It can be inferred that, when many customers win in the lottery, even a very small amount, and people become aware of that, it incentivizes them more to take part in the lottery.

Hence, summing up the results of all the regressions presented for the aggregated data, it is worth mentioning some important findings:

- The aggregate weekly sales in 2012 during the lottery weeks are significantly higher than the non-lottery weeks. The same effect is seen when looking at average weekly sales: the lottery variable is significant and positive, indicating higher average weekly sales per register in lottery weeks of 2012 compared to non-lottery weeks. However, some factors directly affecting the aggregate and average sales must not be excluded when explaining the fluctuations in total turnover. Here, another important factor needs to be considered as well: the data on sales included in regression analysis covers only purchases conducted in cash, so the recorded increase in aggregate and average weekly sales might be triggered by customers switching from card to cash payments to be able to participate in the lottery. However, we do not observe this in the monthly data on card payment shares during 2011-2013. Firstly, Figure 4 shows that during these three years, the share of card payments in total card operations (including card payments and cash withdrawals from a card) is significantly low. Moreover, comparing trends of 2011, 2012 and 2013, no compelling difference is seen. So, this data can negate the argument that people switched to cash transactions to participate in the lottery.

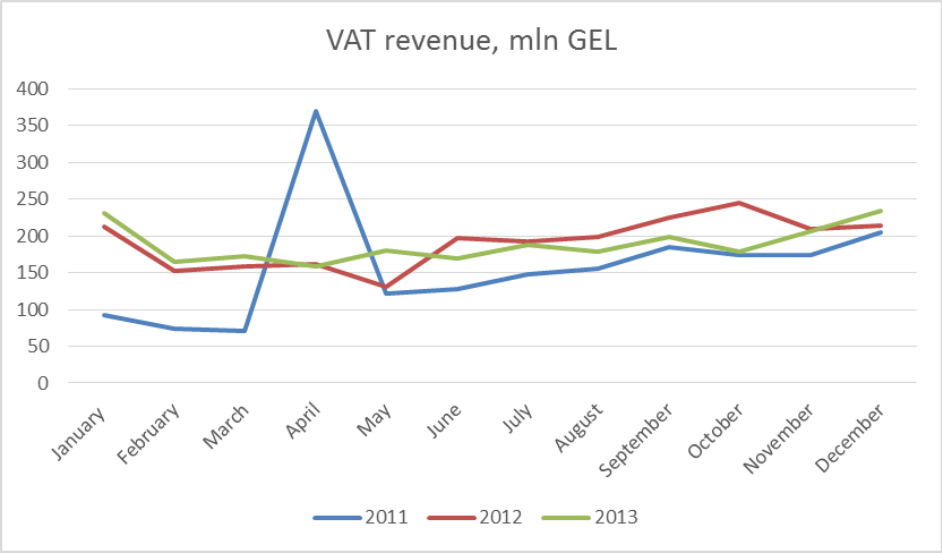
Figure 4: Monthly share of card payments, in total card operations



Hereafter, without a comprehensive analysis, which will consider other variables affecting the aggregate weekly sales, such as the inflation rate in Georgia and GDP per capita fluctuations, it is hard to distinguish the real effect of the lottery on these changes. However, as the World Bank data shows, the per capita income increased in 2013 compared to 2012 (The World Bank, 2019), which means that somehow people were more affluent in 2013 for more purchases. CPI does not show a significant change for these years (GeoStat, Consumer Price Index, 2019), signifying that the increase in turnover cannot be explained solely because of more purchases by consumers. All the above-mentioned just confirms that the existence of the lottery may be referred to when trying to explain the big difference in the reported turnover between these 2 years.

- During the lottery weeks, a significant increase in the number of cash registers, specifically 3,199 more income reports, is observed compared to non-lottery weeks. The latter implies that there is a tangible difference in the total number of businesses which reported their earnings during the two years.
- Considering the fact that the GRS had a long-term goal of forcing all business entities to pay taxes and uncover their earnings, higher aggregate and average sales, as well as the difference of 3,199 more income reports and the significance of the lottery variable in all three regressions may mean that the lottery somehow justified itself. However, it is hard to imply that the source of this increase is the lottery itself, since the GPRS-certified cash register system was introduced at the same time as the lottery and strict tax surveillance and audits were organized by the Revenue Service. More specifically, the observed upsurge in aggregate sales, average sales per register, and number of businesses reporting their income could be the result of consumers demanding receipts or volunteers in civilian clothes auditing vendors and giving fines. To settle the argument, it should be mentioned that tax surveillance from GRS continued beyond the lottery in 2013, therefore the impacts detected in dependent variables are the results of the lottery itself. In addition, the positive effect and significance of the year 2012 variable shows that controlling for the non-lottery weeks, something was still driving sales up. This could be the long-term effect of weeks 16 to 46 that continued even after the termination of the lottery. The lottery effect during weeks 16 to 46, and a long-term effect in the rest of the weeks of 2012, can be spotted in Figure 5, representing monthly VAT revenues during 2011-2013. Average VAT revenue during 2011-2013 was highest in 2012 and amounted to 191 mln GEL, compared to 158 mln GEL in 2011 and 188 mln GEL in 2013. Moreover, besides the fluctuations, after the decrease in the beginning of 2012, VAT revenue had an increasing trend from May 2012, after starting the lottery in April 2012, and this trend continued until the beginning of 2013.

Figure 5: Monthly VAT revenue, Year 2011-2013



- When looking at the effect of the monetary amount allocated for rewards each week and the number of winning tickets each week, it is evident, that during the lottery's implementation, the effect of these variables was also highly significant resulting in an upsurge in aggregate weekly sales, average weekly sales per register, and number of reporting cash registers. As the results of Table A1.1 show, an additional 1,000 GEL in weekly prizes generates 290 GEL aggregate weekly sales on average. Comparing these two values may infer that contribution to the prize budget does not result in substantial growth in aggregate weekly sales. However, as was already mentioned, in the beginning of the lottery people were more incentivized to ask for receipts, therefore, an additional 1,000 GEL allocated to prizes could show more than 290 GEL and maybe even an 1,000 GEL increase in aggregate weekly sales in the first several weeks of the lottery, and less than 290 GEL increase in the last weeks of the lottery. Hence, it would not be correct to assume that lottery prizes did not provide a substantial increase in aggregate weekly sales. Similar arguments work for the average weekly sales per register and the number of reporting registers, in the beginning weeks of the lottery these dependent variables could have been substantially higher.

REGIONAL ANALYSIS

As a developing country, after the Rose Revolution one of the main issues of Georgian governments has been the insurance of balanced development between the regions and Tbilisi. During 2012, 74.5% of Georgia's annual turnover was from Tbilisi, and the other 25.5% was generated from the 9 regions. As for 2013, Tbilisi constituted 72.1% of total turnover and 72.3% of the total value added (Statistical Yearbook of Georgia, 2013 & 2014). These factors are the best evidence of the existing imbalance in the country regarding the development level of the capital

and the regions. The disproportionate development between Tbilisi and rural areas in Georgia affects the economic behavior of people and could define their reaction to new undertakings such as a tax lottery. Thus, while considering the tax lottery experiment and its effect on the fluctuations in turnover, interesting observations might be made while looking at the lottery effect in each region separately and highlighting the regional trends.

The results of regression analysis presented in Table A2 (see the Appendix) show that the effect of the lottery is quite balanced in all regions, without any specific trends based on geographical and economic differences. In all the regions, the 'lottery' independent variable is statistically highly significant and positive. The comparison of the lottery weeks shows that in all regions, an increase in aggregate turnover and number of cash registers is observed in 2012 compared to 2013. The latter may imply that unlike big gaps in economic development levels, the overall impact of the lottery is solid in all the regions, leading to an increase in reported business earnings.

After integrating the available information on the number of wins and lucky tickets, it may be inferred from the results that there is a positive influence of these variables on the regressands. Moreover, the effect of these two variables is more tangible in Tbilisi than in other regions, which somehow implies that the availability of technology and higher rate of access to the Internet in the capital makes a difference in this regard.

REGRESSION ANALYSIS BASED ON TURNOVER SIZE

The businesses' reactions to the lottery may typically differ based on the amount of their earnings and total turnover reported. For instance, Christian (1994) introduced a report based on the 1988 Taxpayer Compliance Measurement Program (TCMP) study, arguing that people with higher incomes are less used to evading than those with lower incomes. In Georgia, however, on the one hand, big firms may have a higher incentive to cheat, because the fine of 500 GEL may constitute only a small part of their earnings, so that the benefit from cheating may exceed the cost of it. On the other hand, small firms may try to manipulate the tax regulations to minimize their tax payments and escape from providing receipts after a purchase. Hence, this section of the paper tries to depict the behavior of firms depending on their size.

For this analysis, business entities were classified into 5 main groups, based on the distribution of the reported total turnover. For the classification of firms, the following cut-off levels are used (see Table A3 in the Appendix):

- very small, with annual turnover<6,500 GEL
- small, with 6,500 GEL ≤ annual turnover<25,000 GEL
- medium, with 25,000 GEL ≤ annual turnover<70,000 GEL
- large, with 70,000 GEL ≤ annual turnover<200,000 GEL
- very large, with annual turnover ≥ 200,000 GEL

Regression analysis (see Table 4 in the Appendix) based on the size of the firms showed that the effect of the lottery on the aggregate weekly sales is significant only for very small and large firms. In all other cases although the effect is mostly positive, it is statistically not significant. As for the number of business entities reporting their incomes, it is seen that for all firms, except for very small firms, the effect of the lottery on the number of cash registers reporting their earnings is tangible, positive, and statistically significant.

The effect of the monetary amount of prizes on the aggregate weekly sales is significant mostly for medium and large firms. However, regardless of the size of the company, an increase in the amount of prizes would lead to an increase in the number of reporting businesses, with the biggest change depicted for small firms. As for the number of winning tickets, this variable leads to a significant positive change in the aggregate weekly sales only for medium and large firms.

3.2 CITIZENS' VIEWS

The purpose of the qualitative assessment is to understand how the lottery worked in practice and citizens' views of it in order to address the impact the lottery made on tax compliance writ large in Georgian society. Our approach is inspired by ethnography exploring a specific phenomenon, "a thing" (Marcus 1995), from the point of view of a group of stakeholders. We are interested in how people that engaged with the lottery in various ways see it; their subjective views, and opinions that might steer their decision-making. The "thing" we followed was the Georgian Tax Lottery of 2012. We aimed to take a holistic view of describing its design, its functioning in practice, and how it affected people. We collected opinions, experiences, and views on the tax lottery from the perspective of all stakeholders: participating corporations and vendors, non-participating vendors, consumers, and other stakeholders.

What were the opinions and views on the tax lottery from all those affected by the lottery? We aimed to assess the perspective of both participating and non-participating consumers. In this section, the aim is to provide a description of how the tax lottery worked in practice. We asked many questions: Why did the design of the lottery take this particular shape? Who participated in its adaptation and what were their views on it? How were businesses and consumers informed? What was the message? How did traditional media and social media respond to and discuss the lottery? How did vendors have to adapt to the lottery? Who participated and why did they choose to do so? Were there people who did not want to participate? What were their reasons? What were the reasons for ending the experiment prematurely? Why were not changes made to respond to shortcomings? How did the lottery have an impact on willingness to pay tax in Georgia?

We see our analysis as a puzzle but one where not all the pieces are available. Glitches and interruptions in the collection of material often provide additional information. The positive response to our initial question, "Do you have a few minutes to respond to some questions?", and the following negative statement of not knowing, not recollecting, not having time or being

allowed to speak with us, reveal much about the inherent suspicion about what took place during the lottery. The translation going on in the interviews allowed us to probe into issues more. As the researcher does not understand Georgian, she repeated some questions already posed in the interviews. The respondent did not repeat the previous answer but instead offered some additional views on specific issues, e.g. in the interview with experts.

This "thing" is also a thing of the past. Although we mostly ask about issues, phenomena, and things that have happened, the Georgian Tax Lottery took place seven years ago. We have to pay attention to the fact that people's views are retrospective. As will be seen, many people said that they had no recollection of the lottery, but *how* this denial was articulated also informs people's sensitivity towards tax issues.

In the following, we will first present the material we collected. From it, we applied an inductive approach. We were interested in which activities were deemed to be of importance for the premature ending of the Georgian Tax Lottery. What issues in those activities had implications on tax compliance, e.g. the willingness to report and pay tax in a timely manner? The discussions we had with people about the lottery made us see the various relationships Georgian citizens have with their state. In what follows, we briefly introduce a number of informants and their views and opinions which are representative of the material we collected.

ETHNOGRAPHIC MATERIAL

We collected the following material:

1. Media coverage nationally and internationally: newspapers, ads, public discussions, and social media.

   TV and billboard commercials are letting us know that, if a customer asks for a receipt, they will automatically be engaged in an encouraging lottery and will get 10, 20, 50, 100 GEL winnings from a total of 9 Million" (For.ge, 2012).[19]

   The campaign is successful. Even though it did not become a "lottery" and a way to gain money, it achieved its aim. According to the research conducted by Marketer*, vendors are printing receipts more actively* (Marketer.ge, 2012).[20]

   No one knows what mechanisms are used to make the lottery happen, what probabilities there are, etc. It is an absolutely non-transparent process, especially, most interesting is that it happens when there is no such need for it (For.ge, 2012)[21]

Georgian media covered the 2012 Georgian Tax Lottery extensively. The media assessed positive and negative aspects of the lottery, reported on surveys and polls, and interviewed experts in the economy. It proposed somewhat contradicting opinions on both its way of working as well as its success. It was also clear the tax lottery was a sensitive issue. This insight added to our

[19] https://for.ge/view/11381/salaro-aparatebis-Cekebis-gaTamaSeba-grandiozuli-afioraa.html
[20] https://www.marketer.ge/რამდენად-წარმატებულია-ჩე/
[21] https://for.ge/view/11381/salaro-aparatebis-Cekebis-gaTamaSeba-grandiozuli-afioraa.html

considerations when choosing material but even more so in the way we chose to approach informants.

2. Communication and promotion material produced by the GRS - We were interested in how the project was promoted.

3. We conducted semi-structured interviews with public officials, project managers and others who worked on the project.

We aimed to trace the background and origin for the idea of the tax lottery and why it took the shape it did. It was, however, difficult to find some central actors and there were others who declined to participate. We are most grateful to those who gave us their time and explained their participation in the lottery as well as offering their views on it.

4. Consumers who won at the lottery and those who did not (who greatly outnumbered the winners).

5. Vendors and businesses that participated and those who did not (more or less legitimately).

Originally, we thought of consumers and vendors as separate categories. However, the best way to approach people was in stores. Talking with shop-owners and store employees, we also asked them as consumers if they asked for receipts. It quickly became apparent that many who worked in shops also collected receipts that consumers had left and checked them. The imagined categories of consumers and vendors were thus greatly overlapping.

In the past decades, Georgia went through a range of major transformations which had major implications on the socio-economic well-being of the population. Independence from the Soviet Union, the civil war in the 90s, and wars with Russia over the regions of Abkhazia and South Ossetia[22] ravaged the economy and left the country with over 270,000 Internally Displaced Persons (IDPs)[23] and 20 percent of its territories occupied. Even though poverty declined from 32.5% in 2006 to 17.1% in 2016 (World Bank, 2018),[24] poverty and unemployment remain among the key challenges affecting 32% of the population. Therefore, the level of education and income level is at many times not proportional. For example, in Tbilisi, we spoke to a salesperson who had a medical degree and had previously worked as a doctor. In Akhalkalaki, a man in his 40s at a restaurant selling shawarma held a Ph.D. in Economics. We have thus spoken with vendors and customers at small and large shops, outdoor markets and supermarkets, chain stores and malls, in addition to beauty salons, art galleries, parks, bazaars, restaurants, cafes, and pubs, providing all sorts of goods: food, clothes, toys, accessories, etc. We have interviewed different service providers with a variety of educational and socio-economic backgrounds. We went to areas that would balance each other out since in the malls there is a younger working force than in bazaars where the employment age is much more mixed.

Attention has been paid to having a fair representation of gender, demography, ethnicity, and

[22] Samachablo, historic region of Georgia
[23] Statistics retrieved from the Ministry of Internally Displaced Persons from the Occupied Territories, Accommodation and Refugees of Georgia. http://mra.gov.ge/eng/static/47
[24] https://www.worldbank.org/en/country/georgia/overview#1

socio-economic status. In three weeks of March 2019, we engaged with a total of 145 people located in different parts of Georgia. Given the fact that we aimed to cover nearly every group in society, we carried out interviews in the central parts of Tbilisi and the suburbs, as well as in cities and villages outside the capital, with the purpose of representing people from various parts of society with a fair representation of gender, demography, and socio-economic status. Also, we aimed to incorporate minority views and went to Avlabari, a district located in old Tbilisi and to Akhalkalaki, a city in the southern part of Georgia. Both places are densely populated by the majority of Armenians living in Georgia.

Our interviews were conducted both in Georgian and in Armenian. Our initial aim of recording the interviews was thwarted as everybody then declined to be interviewed, instead we recorded their answers in English which were then subsequently transcribed. With the intention of protecting the interviewees, all interviewees are anonymized. Please see Appendix 2 for the complete questionnaire we used.

CAUTIOUS STAKEHOLDERS: DISTRUSTING RESEARCHERS, DISTRUSTING THE STATE

In order to fully comprehend the information and attain the aim of the fieldwork, we had conversations with people which allowed us to collect a variety of material from different angles and perspectives. Some stakeholders were very cautious, and some chose not to participate at all.

It is important to consider that a number of people did not want to speak to us, even though it was about "a thing" that happened seven years ago.

The reasons were various: "I do not remember", "I do not know anything about this", "I was not working here at the time", "I am not allowed to speak about such things when I am working". Although it should have been easier to speak about this because it was a long time ago, that did not matter. The issue seemed contaminated for many people. They were suspicious after hearing words like tax, receipt, and GRS, and perhaps even more so when they were approached in their shop and asked about something that can be seen as illegal behavior. Secondly, they were not comfortable speaking with foreigners/strangers. The combination of strangers asking about tax issues enforced the general suspicion towards authorities that seems to permeate Georgian society (cf. Georgia in WVS). As we learned more about the control that the GRS put in motion at the same time as the lottery, we suggest that memories of GRS plain-clothes officials giving fines came back to them.

Even though we could not gather explicit information from people who avoided talking to us, we still counted their responses. Their suspicious and skeptical views inform us of their relationship with tax and sometimes also with the Georgian state. Tax indeed provides a venue to understand a society's economy.

Although several informants said that "everybody" knew about the lottery—everybody spoke

about it and there were a lot of commercials on TV—there were quite a lot of people who declined to talk to us. As Schumpeter (1954) claimed: in order to understand any society and its political life, one of the best starting points is taxation. We, therefore, find their reactions interesting for various reasons.

Obviously, there are always a few people who are not interested at all in speaking with strangers. Yet almost all people showed some interest. Approaching people in stores, we first inquired if they had some time to spare for a few questions. That some young vendors did not remember was quite understandable, as they would hardly have been teenagers when the lottery took place. But there were many excuses. When they heard that the project was about the tax lottery, about a fourth of the people we asked more or less explicitly took a step backward. The explanations that followed their initial interest varied:

"No, I do not remember anything about *that,*" said a female shopkeeper and turned her back on us to watch a TV screen located above the shop entrance. "No, *we* do not know anything about this," said the self-appointed leader of three elderly men lingering in April 9th Park close to Rustaveli Avenue in Tbilisi. An elderly woman with a calm command of the small supermarket she clearly owned took the same self-assured attitude. "I remember it as a customer but never participated", and she added, "and they did not work here at the time" noting her female employees staring at us with blank faces. "I did not have the store at the time," said a man in the Tbilisi bazaar. Other excuses were that they, as employees, could not participate when working: "My manager does not allow me to talk about anything except work" said a few people working at a store in the glitzy Tbilisi Galleria mall with stores on four floors surrounding a big atrium.

"Yes, there was a lottery, but as I cannot recall correctly, I could not tell the truth," said another shopkeeper in a small amenity store. One woman in a small shoe shop in one of the underpasses on Rustaveli Avenue said: "I just remember, that's all".

On man bluntly said: "Not me".

There was clearly a wide-spread suspicion directed towards anyone inquiring about taxes. A woman in a fruit and vegetable stand is an example. She first said that she did not remember the lottery but then added: "But I give receipts now." Her comment hints at knowing that she was supposed to have issued receipts and thus declared taxes at the time when the lottery took place but did not.

Some vendors are exempt from paying tax and thus from issuing receipts. Stores owned by the Georgian church, like the stores that sell gold-plated icons, candles, and other "church" paraphernalia, do not have to issue receipts; the same goes for art galleries and other micro or small businesses that are registered as individual entrepreneurs. A gallerist displaying oil paintings in Mtskheta said they did not have to own a cash register since they are the makers of the art they sell.

A woman selling lamps at a small store at the bazaar "did not remember either" but kept talking to us while hanging up more lamps on the other side of the aisle from her store. When the interviewer reminded her about the lottery she added, "Anyway, this lottery was not for real."

Many opinions more or less explicitly articulated that the lottery was staged.

In other stores, they seemed to avoid the question, knowing that shop vendors and employees quite often collected receipts themselves. One example was in a telephone appliance store in the bazaar where there were four people in their mid-30's working. One woman claimed she did not remember anything. The two men working there were more hesitant and acknowledged a memory of it, quickly adding that they never played themselves. Quite a few people working in shops were hesitant to say that they had participated as there were many who told us that they had collected receipts that customers did not want.

One woman selling underwear in the bazaar said that she could not pay attention to such things as she works hard to sustain herself from one day to another. "You know, I almost forget my grandchild's name". A Russian-speaking man selling cheese in Avlabari, an Armenian neighborhood of Tbilisi, also pointed out the harsh economic reality that many Georgians live under. He did not remember anything as he does not issue receipts, besides he hardly buys anything anywhere himself. He survives on the items he has in his little "store".

Some of the Armenian minority we spoke to did not remember because they were never properly informed. One kebab restaurant owner in Akhalkalaki who spoke both Armenian and Georgian told us that there was no information about the lottery available in languages other than Georgian (despite the fact that Georgia has many minorities).

There were quite a handful of people who mixed the tax lottery up with other lotteries: *lotto* or the Carrefour lottery. One well-dressed woman waiting on a bench at the Youth Palace clearly remembered winning something when she paid her electricity bill once.

There were, thus, a variety of reasons for not wanting to share their views: sheer ignorance of participating in a survey, focus on other issues due to the hardship of life, not remembering or never being informed, suspicion of any stranger inquiring about taxes, and thus suspicion of governmental authorities at large.

CITIZENS' VIEWS OF THE TAX LOTTERY

The design of the Georgian tax lottery is described in detail in Section 1. In what follows, the emphasis is on how it worked out in practice and its social and cultural implications. We will first discuss various activities and then follow-up with how different groups of stakeholders related to the lottery.

RECEIPTS - FORMALIZING EXCHANGES

Most of the people who we talked to and remembered the lottery said that the reason for the lottery was to make consumers ask for receipts and for vendors to print them. Obviously, GRS wanted to collect more revenue; the objective of the lottery was to make customers ask for receipts. This they did, at least in the first month, after which the number of people checking receipts was constantly decreasing, except for a couple of exceptions. When the lottery was launched and the commercials started running on TV channels, people were curious and excited and wanted to try their luck. As we knew from the statistics provided by the GRS and according to the chairman of

the Revenue Service[25] around 1.5-2 mln people were checking receipts daily in the first few months of the lottery. Unfortunately, there is no daily data recorded but, in any case, after two months from the release date, the checks never reached a million.

A woman working in a shop in downtown Tbilisi close to Rustaveli Avenue told us that no one asked for receipts before the lottery, while at least 80% of her customers started asking for them when the lottery started. She thought it was a genius idea and she praised the lottery repeatedly. However, across the street another female shopkeeper pointed out that soon people stopped asking for receipts because they realized that winning something through the tax lottery was impossible.

Many vendors we spoke with mentioned that they always print out receipts, regardless of if there is a lottery or not. A man in Akhalkalaki working in a small kiosk said that he is happy to pay taxes and the lottery was good. If people do not pay taxes, his parents will not get their pension so even if the GRS does not come and check, he collects the receipts himself.

Yet, the printed receipts were questioned. A female entrepreneur said she always gave receipts but never played herself because she does not like the ink that the receipts are printed with as they leave stains on her clothes. The issue about receipts was also raised by the former chairman of the Revenue Service[26] who thought that printing out receipts and having cash registers is a rather old-fashioned and unnecessary system which is already outdated, and it is time to focus on more technologically developed ways to deal with the issue.

WINNING

A crucial issue for participating in a lottery is believing that you have a chance to win. This means believing that all participants have the same chance of winning, that the lottery is not rigged, and that prizes are paid out to the winners. This was questioned by several informants.

It was essential for us to speak with the winners, to learn about their experience and their attitudes. Speaking with people who actually had to live through being a winner of the tax lottery and know how it changed or did not change their life would have been important since in the published media articles one of the winners mentioned that with the money he wanted to improve his way of life and another one wanted to continue studying. However, tracking them down was impossible with only their name available. The Revenue Service did not provide us with the winners' contact details to protect their privacy.

There were a minority of people who thought it a very good idea in order to enforce taxpaying on behalf of the vendors. Some said, "why not" as there is always a chance of winning and these "lottery tickets" were free. Quite a few people believed it was a hoax on behalf of the state where the only aim was to enforce the issuance of receipts. Any winners promoted on the web or in a newspaper were just paid stooges.

TRICKING THE LOTTERY: VENDORS QUA CONSUMERS

[25] Jaba Ebanoidze, Chairman of the Revenue Service in 2011-2012 in an interview March 15, 2019
[26] Jaba Ebanoidze, Chairman of the Revenue Service in 2011-2012 in an interview March 15, 2019

Out of the 145 people we spoke to in shops, stores, supermarkets, etc. in and outside of Tbilisi, there were only 44 people who said they had played themselves and of those 44, only 13 of them had won, while 11 people said that they knew someone else who had won. Mostly, we spoke with vendors and according to the data we have gathered, there were two types of winners: vendors and customers. Vendors took home receipts left by customers and won, pretending to be customers. Customers really bought something and won.

The interesting fact about vendors who cheated on their receipts or pretended to be customers was that many of them did not want to admit that they won with someone else's ticket. There were vendors who won two or three times and to our questions about how they won "What was the experience? Where did they get the receipts? What did they buy?" the answer was unanimous: "I do not remember". Only two vendors admitted that they collected receipts left by customers, one said she never won anything, another won twice, 20 and 50 GEL.

Another problem with vendors that became apparent and was confirmed in online social media discussions as well as highlighted by the chairman of the Revenue Service[27] was that vendors guessed the principle of the lottery. The winning numbers of the lottery receipts were predetermined, meaning that the GRS was not playing the receipt itself, but the sequence, the actual printed number of the receipt. Soon vendors realized this and when they had nothing to do, they would send upcoming receipt numbers with their cell phone and in case there was a winning one coming, they remembered it and kept it for themselves.

"For example, the 105th was winning and then when it was the 105th receipt, he/she would not give it away and kept it for himself/herself", said the chairman of the Revenue Service.[28]

When the GRS realized that vendors were winning in this way, they changed their system and started blocking the IP addresses of those who sent too many SMSs in a short period of time. When someone sent 10-15 SMS from the same IP, they were automatically blocked from the GRS system for two days.[29]

The other way to win was to be a customer, who were fairly few, at least among those we talked with. They won 10 and 20 GEL most of the time and had a very positive opinion of the lottery.

AGE: PERCEPTIONS OF DEMOGRAPHIC REPRESENTATION

Our respondents provided a bewildering mass of opinions about *whom* the lottery was intended for. This mass of opinions underlines that fact that GRS targeted all consumers, yet citizens have very different opinions; perhaps because they are suspicious, but also due to flaws in the design of the lottery. We teased out five different categories of people: children, young people, old people, young and middle-aged adults, Tbilisi residents. We did not ask specifically for whom informants thought the lottery was intended or suitable; these opinions were offered voluntarily while remembering and reflecting on the lottery. In the following, we will discuss each of them in detail.

[27] Jaba Ebanoidze, Chairman of the Revenue Service in 2011-2012 in an interview March 15, 2019
[28] Jaba Ebanoidze, Chairman of the Revenue Service in 2011-2012 in an interview March 15, 2019
[29] Jaba Ebanoidze, Chairman of the Revenue Service in 2011-2012 in an interview March 15, 2019

The first age cluster is children. A couple of people mentioned that children were very happy with the tax lottery since they got to check receipts and if they won, in some cases, keep the money. A man in Avlabari, the Armenian district of Tbilisi, said that children were playing, running, collecting, and sending SMSs; a young girl in a shop close to a bazaar said that she was a child at the time of the lottery and was very happy collecting receipts; a woman in an underground kiosk at Liberty Square said her children asked her to bring receipts home; a woman in a shop close to Rustaveli Avenue said her son won a couple of times and a woman in a bazaar also mentioned that she always checked and her son collected the money. From those answers and some others, one trend is visible: that adults let kids either play with the receipts since they were curious and excited to check them, or if they were vendors, they tried receipts left by the customers themselves and let their children collect or have the money.

The second cluster is young people. They are seen as good with technology and know how things work. They can send an SMS or check receipts on their computers and so forth.

The third cluster consists of the elderly or retired people. Two young men sitting on a bench in Mtskheta mentioned that the lottery was something for old people. Even though they tried to play a couple of times, they enjoyed riskier gambling. According to them, old people have nothing to do; they can sit all day and send SMSs to check if they won something. Even though these young men did not consider the Tax Lottery their cup of tea, they assessed the lottery as a positive initiative since people live with hope. As one of them said: *"you must continue living with hope, if you win something it's good but if you don't, it's also ok. You will have hope of winning the next time"*.[30]

The fourth cluster was young and middle-aged adults, with the reasoning that goes in line with the second cluster. It was mentioned that the lottery was mostly for them, since the elderly did not know how to handle text messages; they are not as good with technology as people younger than them, which excludes them from the target group of the lottery.

The fifth and last cluster consisted of Tbilisians (people living in Tbilisi) which was somewhat connected to age and language. This was mentioned by the Armenians in Akhalkalaki. A woman who owned a curtain and blanket store mentioned that people like her who live in the countryside are not lucky enough to win while people in Tbilisi do. She tried to check receipts when the lottery was introduced, but stopped after some time because she did not believe in it. "People in Tbilisi are luckier to win", she said and continued telling a story when she was playing Lotto[31] and she got very close to winning which overwhelmed her so much that she fell down the stairs and injured herself. Since then, she has never played any type of lottery and did not believe in winning them, either. Another male resident of Akhalkalaki said that it was never announced because if they did, people outside of Tbilisi would take part in the lottery as well, and the probability of winning was 0 anyway. He brought up the language barrier that the older generation have, which created a problem for them not knowing about the lottery. This idea was strengthened by a man working in a shawarma shop who said that they mostly watch Armenian TV, therefore they get public information very late. He even mentioned that sometimes they might get fined by public

[30] Interview on March 25, 2019

[31] Georgian National Lottery's draw (jackpot) lotto 6/36 which is held regularly live on TV and allows Georgian citizens to win money.

authorities but do not know the reason for it since they have not been informed. Therefore, he wished that the Georgian government would put commercials on Armenian channels so they could access it in the language they know.

There were also those who felt excluded. Although the aim was to inform Georgian taxpayers broadly—as a woman in Tbilisi said "of course I knew about the lottery; information was everywhere"—this did not include minorities. A man we spoke to in Akhalkalaki, a city close to the Armenian border mainly populated by ethnic Armenians, said that the language barrier kept them in an informational vacuum as many only watch Armenian TV.

"In Akhalkalaki, the Tax Lottery is not advertised, how to check receipts is not televised by the local TV and most of the population do not watch national TV. As a result, many people have no information about the lottery, or if they do, they do not check receipts since they do not believe in winning or do not know how to check them" (sknews.ge, 2012).[32]

This fact mentioned by "sknews.ge" was confirmed by interviews with the Armenian minority in Akhalkalaki. Although many interviewees there also knew about the lottery, there was a lack of information for elderly people who have little or no knowledge of the Georgian language and mostly watch Armenian TV. Further details will be discussed in the following chapters.

It is an issue of fairness and transparency that the commercials were shown only on national (Georgian-language) television channels and not on regional or local ones. This centralizes the information and the regions, especially the ones where minorities live, risk being excluded.

It is interesting to see how the perception of categories of participants overlaps. Taking in all voices, the lottery seemed to be for all Georgians.

We can compare the above statements with a survey performed by the research and strategic consulting center ACT in 2012. The survey consisted of responses from 426 Tbilisians about lottery issues. The questions explored if people believed in the tax lottery and in their propensity to check receipts. According to ACT's results, people aged 30-44 checked receipts 74% of the time, people aged 44-59 checked them 70% of the time, and people over 60 checked receipts 54% of the time (Ambebi.ge, 2012).[33] This research is limited to Tbilisi residents only, which does not allow us to see the full picture of Georgian society. There is not categorization according to ethnicity, socio-economic status, income, etc. Unfortunately, there is no data available for children, teenagers, or people in their 20s, either. However, the chairman of the Revenue Service[34] remembered:

"Everyone was telling me that their kids were so exhausted from collecting receipts and not winning anything that they said that they wouldn't go to the store anymore. They said before you introduced the lottery, we couldn't send them to the store to get bread or something. Then after you started the lottery, they were begging us to let them go to the store and if we wanted 3 things from the store, they were buying them separately in order to get 3 receipts".

[32] http://sknews.ge/index.php?newsid=243
[33] Ambebi.ge, 2012. Retrieved from: https://www.ambebi.ge/article/52763-chekebis-gatamashebis-mimart-mosaxleobam-interesi-dakarga/#ixzz1tpq7StW5
[34] Jaba Ebanoidze, Chairman of the Revenue Service in 2011-2012 in an interview March 15, 2019

NON-OPINIONATED PARTICIPANTS

There were a number of people we spoke with who remembered the lottery, participated in it, and tried it themselves. Even though they never won anything, they do not consider it a negative experience or a positive one. They did not wish to express a distinct opinion about the tax lottery in 2012, but rather just played. After all they could have a chance of winning something. People who participated in the lottery yet have no particular opinions should also be included.

Was it the case when they did not want to talk a lot about a topic related to taxes and the Georgian Revenue Service (GRS), was it honestly not having an explicit opinion, or could they have forgotten? All varieties probably exist and the reasoning varies from person to person, from context to context, but also from day to day.

- Suspicious: People were suspicious of saying their honest opinions since they have experienced strict controls from the GRS and they do not trust strangers, especially after the 2012 individual inspector controls, which made them doubt every individual's intention entering their workplace, therefore it is difficult to gain their trust and know their feelings.

- Reminiscence: The lottery ran seven years ago, and many people cannot remember what it was about. If they do, they have no memory of how they felt about it which results in respondents having no views about it.

ENDORSERS

Out of the 145 people we spoke with, 27 expressed positive feelings towards the lottery, while 15 proposed rather negative views. The endorsers liked the lottery for a couple of reasons.

Those who thought positively of the lottery did not have much to say about it. They only assessed how positive it was to win something since people bought various products and paid money for them. People buy things anyway and getting something extra for free is great. People also asked or took the receipts when they knew they might win something; the potential to win made people happy. If the GRS initiated a lottery again, they would happily play it.

However, it is important to ask the question, what were the reasons they did not want to fully express themselves if they had positive thoughts about the lottery as they claimed to? The answers to this question can vary from not really having anything to say or not having information and pretending to know something since saying they have a positive attitude is an easy way out, or avoiding talking about it with strangers because in their experience and memory one can never be sure what their intentions really are, especially if the questions are about taxes, etc. Only a few people who had a positive experience with the lottery elaborated why they had such feelings and why they wished to have the lottery again, while the rest of them did not give any reason to clarify or to support their view. The way the latter spoke gave us the impression that they were trying to hide something, ducking the question by giving positive opinions or having a certain idea which

they avoided talking about. These conundrums raise the issue of fear and suspicion again.

SKEPTICS

We encountered widespread disbelief in the lottery. The disbelief rested on the conviction that there were very few winners, if any at all. Even though it was 'free' in the sense that a customer just had to ask for receipts at the time of purchase and then check them, there were some who were convinced that the entire lottery was staged with actors playing the part of winners in the few video and photo clips that exist. We find this disbelief, regardless of if people participated or not, important to untangle as they tell us about issues with Georgians' relationship to the GRS and sometimes more generally with the Georgian state.

"I do not know anyone who won, therefore I threw tickets away," said a kiosk attendant on Rustaveli. As there was such a little chance of winning, perhaps only 1 in 1,000 as a woman selling wedding dresses in Akhalkalaki proposed, it would be stupid to spend time on it. The government needs to incentivize people, she said, but as the chance for winning was so low, she did not see the point of participating. A woman in Akhalkalaki did not play because she said that no one won; she never saw anyone who won the big prizes. Such disbelief can easily be turned around, as she heard about a girl who won 50,000 GEL in the Aversi Pharmacy lottery; now she believes in this lottery.

If the lottery was a success, why did they end it? asked a woman standing outside her store in the bazaar, Kidobani. She was one of many who said that they always gave receipts, so if the point was that they wanted us to give receipts and for people to come and ask for a receipt to win something, there was no point. Besides, no one won anything, maybe some people said that somebody won 20 GEL, but she doubted that it was true.

"I am unlucky - I never win!" said a few. From this very personal opinion, there were some who even proposed an unfairness in life that went beyond the outcome of this lottery. The lottery was a "Tbilisi" thing, said people outside the capital, e.g. a lottery for the already privileged. The reasoning went that poor people buy little to begin with and with lower amounts spent on shopping, they have less chance of winning.

Or even worse, being Armenian meant that in the lottery there were only Georgians that won. In these statements, the lottery was used as a means of criticizing the government that is not perceived as treating all citizens equally. As a young man at a fruit stand in Avlabari, the Armenian neighborhood of Tbilisi, proposed: "whatever is state-owned cannot be fair because the elite have two to three times the probability of winning. Besides no one can win from a small fruit stand like ours." Two Russian-speaking men in a hardware store laughed heartily at the idea that the lottery was fair and one of them repeatedly gave the finger when he spoke about the lottery and the GRS.

"It is fake, it was a lie, a laughing thing," said a woman with a faux fur jacket with a stand at the flower market. At first, she was a bit confused when asked about the lottery, but then she recalled it. "I never won, and I do not know anyone who won either. No one ever won. I only saw someone winning on TV but I think it was fake, I do not trust the commercials." Another name for this type of activity was monkey business—stupid, not to be believed. Many people expressed similar

opinions. They wanted to believe it; a lottery after all provides hope for something extra, but as they never won and no one they knew did, either, they quickly lost interest (which was confirmed by the quickly diminishing number of participants). Such disappointment reconfirmed their distrust in the state. As a waiter in a posh cafe at the Tbilisi Galleria said, he didn't think the lottery was made for people but was a Revenue Service "kind of thing".

A man who owns a local supermarket on the roadside outside Mtskheta can sum up the variety of disbelief we encountered. He was in his late 30s and after serving a couple of customers, he came over to tell us his views on the lottery that he remembered well. His wife stood behind him and looked very supportive, but never uttered a word. While he spoke, a couple of customers joined us and listened in. According to the supermarket owner, the intention of the lottery was only to make customers ask for receipts. Customers were even aggressive about it, which was somehow strange as they did not like the lottery because nobody was winning. In his shop, they always offered receipts he said, but neighbors would not ask for them. The need for receipts between neighbors is a sign that people do not care for each other and the lottery made you ask for receipts from people you know which was not good. Probably those things do not happen in Europe, he said, as he saw Europeans as prone to sharing receipts on anything and thus being less social; here we run on traditions, he added. Finally, he could not see anything positive about the tax lottery for people, maybe the state and the project initiators even have regrets; it was clearly a bad, unsuccessful project, otherwise it would not have stopped. A male customer offered us his opinion: "regular stupidity it was, this is what I think".

FEARING THE GRS (AND THE STATE)

There were a couple of people who raised the topic of controls by the GRS at the time of the lottery. Each and every one of them was critical of the controls and expressed a very negative feeling while talking about it. Additionally, asking about the lottery brought up a lot of criticisms of the Georgian state. One response that was brought up by several people in different places was that the state is not for the people; it does not serve them. The first thing that comes up after hearing this sentence is what the former Minister of Finance of Georgia[35] told us in an interview:

"Public servants in Georgia consider themselves superior to ordinary citizens because they have power, etc. . . here it is that the citizen is serving the state and that is the concept and the philosophy we grew up with and our parents grew up with this philosophy and their parents grew up with this philosophy, etc. so, citizens serve the state, not the state serves the citizens".

According to these respondents, the interest of the elected government is not to work for people's well-being, but to fill the budget and give fines to the people. These were the views of four men working in souvenir stalls outside the parking lot in Mtskheta. We had started to speak with one of them and we were soon joined by three others. They were all critical of the state not being supportive of working people. For them, it seemed obvious that in such an obstructive environment people will "steal" from the state. One man said if the state supported the people,

[35] Minister of Finance of Georgia in 2005-2007, currently Chairman of the Board, Policy and Management Consulting Group, PMCG

giving them credits or grants to improve and develop their businesses, they would not steal a tetri (cent) from them. But in a situation where there are no (possibilities for) state support they have to think first of their families and how to survive during winter (when there are fewer tourists that buy the souvenirs they offer). Therefore, stealing from the state and not paying tax honestly is the only way. If the state was not constantly strangling and pressuring people, they would not steal a single tetri (cent).

Being critical of the state, meant being critical of the lottery as well. Some said they tried to win something themselves but only because customers did not take their receipts. Vendors wanted to try their luck, otherwise they were not in favor of the *"fine machinery",* like one man in a bazaar called GPRS cash register. Others never played themselves because they did not believe that anyone could win something; the overall attitude was that it was not for the people, but that *"the state uses various tools, including the lottery, so people pay more money".*

They also remembered how the controls were at the time of the lottery; controls were heavy, and fines were harsh. People remembered that they were monitored more frequently than now, especially during the holiday season. They would get 500 GEL fines and most of the time they were checked by "customers"—volunteer inspectors dressed as ordinary citizens. The monitoring program by private people was launched for one reason, to strengthen the purpose the lottery was aiming for—control by customers asking for receipts because trusting the lottery alone was not enough. As a result, the GRS modified their existing system and chose two ways at once to control vendors.[36] Parallel to the lottery, they hired people, equipped them with cameras and gave them one task; to go to shops, buy something and if they were not given a receipt, go back and fill out their inspection procurement form from the GRS, and give a 500 GEL fine to the vendor. Everything had to be recorded so that the GRS could check the authenticity of the 500 GEL fine, after which the private inspectors would get 100 GEL.

"The fear factor was when we hired those private people and they were checking as well; it was considered very acute from the small entrepreneurs and they were quite scared. Whenever a person entered the store to buy one bottle of water, it was already suspicious. Personally, I have had it a couple of times because in those local stores they recognize faces because mostly neighbors go . . . whenever they see someone took one bottle of water or sunflower seeds or a lighter, the person is already watched with suspicion and they gave a receipt. They say, take the receipt first and then your change and go (laughs). They look at them with a lot of suspicion and it is not because of the lottery, it is because of the private inspector institute", said a former head of the Revenue Service.[37]

"Obviously, people became scared. . . I believe the lottery was masking the growth (of receipts issued) and it tried to give a human character to this growth. So, if you ask people who worked with this lottery they say it was because of the lottery that the behavior changed, but if you ask me, I think it was in collaboration with the heavy fines. It was more fear than love", states a former minister of Finance of Georgia.[38]

The lottery was created to augment public revenue, but the private inspector institute encouraged it further by creating fear of fines. Both methods together increased the revenue for GRS and

[36] Jaba Ebanoidze, Chairman of the Revenue Service in 2011-2012 in an interview March 15, 2019
[37] Jaba Ebanoidze, Chairman of the Revenue Service in 2011-2012 in an interview March 15, 2019
[38] Nodar Khaduri, Minister of Finance of Georgia 2012-2016. Macroeconomist and Chairman of the Georgian Competition Agency

measuring or differentiating which method worked better was impossible.

IMPACT ON THE ECONOMY AS A WHOLE

Finally, there were a few vendors who saw the lottery as yet another attempt to squeeze out small vendors on behalf of larger chain stores. It was said that requiring cash registers from small vendors meant even more business to the large chain stores that are never checked by the GRS. This coincided with land being given away to large chain stores so that they could establish themselves and/or build large malls in the suburbs of Tbilisi. Business would thus be steered by the state from small vendors in central Tbilisi to big multinational firms in the suburbs.

4 LOTTERY DESIGN

Tax lotteries take on many different shapes, as the brief descriptions in Appendix 1[39] show. All in all, there seems to be a lack of encompassing evaluation and assessment of these lotteries, except for the fact that some of the lotteries have resulted in a revenue increase (Brazil, Romania, and China) whereas others have not been evaluated (Slovakia), at least not publicly. Perhaps assessments do exist and reside within tax authorities, but have not been made public.

The overall target for tax lotteries is increased tax revenue by providing customers with an incentive to ask for receipts. Yet, many of the lotteries have other stated goals: to foster a tax compliance culture, to raise awareness of tax evasion, to fight tax evasion by vendors, to get to know the tax base of retailers, to encourage a positive view of the tax administration, to increase efficiency in tax payments, or, as in the Georgian example, to make sure all vendors use an official GPRS cash register.

Although the goal of a tax lottery is straightforward, it is difficult to define a "best design" model (Fooken et al 2014), or be able to recommend one.

The intention of the following section is to discuss issues that we consider important in implementing a successful lottery. These issues arise from a combination of the quantitative and qualitative research we have conducted, the descriptions of the five national lotteries briefly described in Appendix 1 (Taiwan, Brazil, Slovakia, Romania, China), as well as from other research on tax lotteries. This section is thus meant to function as inspiration for "best practice". We start with explicit design issues and then proceed to values and norms that have to be paid attention to in such a design.

Regardless of design, it is a good idea to run a pilot and carefully assess flaws and advantages, costs and benefits, and most importantly, various stakeholders' views of the entire exercise. Yet beware of loud-voiced critiques; how important they are, how big a group of stakeholders they represent, and why they voice such criticism, etc.

PRIZES

Tax lotteries need to be carefully designed; there needs to be a 'lottery feel' so that consumers really aim to acquire tickets (Giebe and Schweinzer 2014). It has to be perceived as a lottery where prizes relate to the purchase amount. In order to win consumer interest, the value of the prize and the probability of winning are the two main strategies tax administrations can work with. Marginal winning probabilities need a specific design (2014: 3) as it cannot be just the total number of tickets bought over the total number of tickets available. The participating consumer needs to feel that

[39] Appendix 1 describes various national experiences and the outcomes they are said to have had. A select number of existing tax lotteries have been chosen, both for their national diversity but also in order to illustrate some different designs. The descriptions contain a number of issues we find important when aiming to understand why certain tax lotteries are successful and others are not. We address the aims for initiating them, their design, the mechanisms around prizes and the probability of winning, qualifications for participation, any evaluations, the economic effect they have had, and any opinions and views on them found in the literature.

there is an incentive to participate without distorting private consumption.

Prizes need to be of a sufficient amount that they will stimulate consumers to act according to the lottery's aims (Awasthi & Engelschalk 2018: 35). Prizes also interact with the probability of winning. There can be many small prizes which increase the probability and a few larger prizes to draw attention to the value of participation.

THE POSSIBILITY OF WINNING

There also needs to be a reasonable chance of winning. Individuals often overweigh the probability of winning a lottery (Lourenço et al. 2016: 13, 28), so in order to sustain their interest in asking for receipts (tickets) consumers need to know about winners. This could be friends and family, which means that the chance of winning has to be relatively large, but also could be knowing that a winning invoice has been obtained from a store in the neighborhood.

Research about large prize-winning tickets in *Lotto* has shown a substantial increase (12-38%) in sales of tickets in the store that sold the winning ticket (Guryan & Kearney 2008). The behavioral economic explanation of "the lucky store effect" is either a response to advertising or an estimate of increased probability for tickets from *that* store to be a winner (although statistically it seems an incoherent decision).

PROMOTION

The possibility of winning goes hand in hand with a good strategy for promoting the lottery in order to popularize it among taxpayers. There are several types of promotions:

- Information and advertisement in stores reminding consumers of the lottery.
- Public campaigns in newspapers, on television, and in social media.
- Public drawings of winning tickets—usually on television—and follow-up media campaigns announcing the winners.
- Underscoring the public good of tax income, thus promoting the aims of the lottery: raising awareness of tax evasion and the public need to fight tax evasion, encouraging a positive view of the tax administration, and increasing the efficiency of tax payments.

COSTS - FOR ALL STAKEHOLDERS

There are, of course, costs induced by initiating and administering a lottery in addition to prizes paid. Any tax administration should thus pay careful consideration to costs. GRS decided to cancel the lottery nearly 2 months earlier than the presumed deadline and the decision was justified by its 'inefficiency' (Ebanoidze, 2019). Trying to estimate the level of this 'inefficiency' and find evidence for it, this paper illustrates that, in general, the effect of the tax lottery on aggregate sales was

positive and significant. However, when analyzing the effect on total turnover of the amount allocated to prizes, the observed gain in aggregate weekly sales on average is less than the money contributed to prizes. Hence, not excluding the fact that ceasing the lottery could be a political decision, it may be argued that there was no clear gain or incentive for the authorities to continue the ongoing lottery.

Cost considerations also have to include if and how costs affected stakeholders in the lottery. The main actors are the tax administration, retailers (issuers of receipts), and consumers (recipients of receipts qua participants in the lottery). However, there are also other actors including PR and communication agencies, lottery organizers, banks administering payments, cash machine vendors, auditors, etc.

Other actions in lotteries inducing costs could include:

- Considerations as to project management overseeing the implementation of the lottery.

- The initiation cost of designing and implementing the lottery from the perspective of the tax administration and other actors involved.

- Costs of maintaining the lottery, including organizing draws and paying out prizes.

- Costs induced on vendors and consumers especially relating to time and effort administering receipts and tracking wins.

- GPRS issues or the equivalent in non-European contexts.

FAIRNESS

Fairness is crucial to increasing tax compliance in society, and thus also for making a tax lottery sustainable. Fairness is addressed in the design of the lottery, how it is administered at all levels, and who is seen to be able to participate.

Fairness in the design of the lottery means making it equally possible for all citizens to participate, which implies paying attention to the lottery's technical design. Are elderly people impaired from participating due to overly advanced technology? Is information communicated in minority languages or for people with disabilities? Is participation possible in a cheap way, so that all levels of society can participate? Our regional level regressions highlighted some other important findings. Thus, as the results show there were no specific differences in the way the observed regions reacted to the lottery. In all regions the "lottery" variable was statistically significant and positive. The comparison of the lottery weeks shows that in all the regions, an increase in aggregate turnover and number of cash registers was observed in 2012 compared to those weeks in 2013. After integrating the available information on the number of wins and the number of lucky tickets, it is seen that these variables have a positive impact on the regressands resulting in an increase in the number of reporting business entities everywhere. These issues were also repeatedly brought up by informants. A consistent result for who was most likely to participate is, however, lacking.

Fairness goes hand in hand with the prize structure and the probability of winning. If the prize is too large, it can be hard to argue that differences between winners and losers are "deserved" (Sheffrin 2017). If the prizes are minor or even petty, participation can be thwarted, which our research shows. The incentive to participate in a lottery vs. other actions can be explained by the "just desert" theory, e.g. how deserving a winner actually is from a lottery outcome. Shiffrin thus raises the question of how we can distinguish outcomes deriving from "luck" compared to other deserving actions (2017: 150). Tax lotteries might thus not be a good idea for all contexts or tax collecting regions. A comparison can be made to the Swedish Tax System where citizens have one of the largest tax burdens in the world. Sweden has never had a tax lottery and tax specialists argued against it when asked. From the perspective of the Swedish Tax Agency, a lottery would neither be seen as legitimate nor serious; at the Swedish Tax Agency, tax compliance has been built on the idea of taxpayers' willingness to do right.[40]

REDISTRIBUTION

Giebe and Schweinzer (2014) show that a lottery tax contest can provide consumption that is efficient both for the private and public good. Yet they raise questions for future research; they ask how lotteries should be designed in order to provide distribution of income/wealth. How would a lottery as a more day-to-day matter facilitate distribution of income? Higher income earners spend more on consumption. It follows that they will thus also have the opportunity to acquire more receipts and their propensity to win is bigger than that of people with lower incomes. A valid question is thus, how much of the share of private consumption should be subject to lotteries?

While we did not include the Chilean variety of tax lottery, *La Tomboleta,* research from this lottery raised the question of inclusion. *La Tomboleta* was a very pragmatic way to address indirect taxation concentrating on increasing VAT compliance. But it ignored both the cultural and the distributional aspects of tax compliance (Atria 2015).

TRANSPARENCY

Transparency rules have to be public and respected. In particular, does the administration regard the handling of participating receipts and the drawing of wins transparently? The drawing has to be public, and information about winners publicly available.

A lottery has to be designed so that vendors cannot keep the receipts themselves and claim the prize for themselves. We heard of many strategies in the Georgian version where vendors had understood the logic of winning. A vendor could test if a winning ticket belonged to "his store" and make sure to make a purchase when this receipt number was next. The lottery was thus *made* transparent but in the wrong way (cf. page 55).

In addition, there were many Georgians who doubted that there actually had been winners: "it is all staged" someone commented on the public announcement of winners.

[40] As proposed by the former strategist at the Swedish Tax Administration.

The lottery has to be perceived as transparent and thus fair.

EQUITABLE, SIMPLE, AND EFFICIENT

Tax lotteries should also serve the purpose of reminding taxpayers of the importance of complying with taxes. Such a lottery, therefore, has to be designed to respond to the principles of equity, efficiency, and simplicity (Ungureanu & Dascălu 2015). This is what Wilks, Cruz, and Sousa (2019) also find in a survey study of the Portuguese Tax Lottery. Their main conclusion is that rewarding citizens is clearly a factor to be considered in any policy to maximize citizens' cooperation in finding tax evaders. However, this is not enough. There is a need for other policies and design incentives that address citizens' concerns, nurture the public spirit, and promote good governance and justice.

Context and legal considerations are also important. Designers of tax lotteries have to make sure that it fits into current tax law structure, otherwise, amendments have to be put in place. The same goes for how current strategies of tax cultures are designed. Does a lottery and the chance of winning fit into the perception of why citizens should pay tax? (cf. With the Swedish example above).

IMPACT ON THE ECONOMY

The results from the economic analysis of the Georgian tax lottery case, show that the aggregate weekly sales in lottery weeks significantly exceeded sales in non-lottery weeks. Average weekly sales and number of cash registers reporting their income were also higher in lottery weeks. However, we cannot claim that growth in sales is solely triggered by the lottery, since economic analysis lacks important variables affecting sales.

WHISTLE-BLOWING CAPACITY?

There might also be a need to implement whistle-blowing capability, including audits for suspected non-compliers (Naritomi 2014). This overlaps with issues of fairness and transparency; if taxpayers find evasion possibilities towards the lottery or that there are possibilities to cheat it, their willingness to participate is seriously damaged and so is the reputation of the tax administration. Georgians who were convinced of the possibility for retailers to game the system, e.g. who had understood the design for winning and took advantage of it (see above), quickly lost interest in participating.

TENACITY AND ADAPTATION

In a survey of the Taiwanese lottery, the majority of consumers ask for a receipt, although just over half of them are enticed by the idea of winning a prize, and just a quarter of the consumers do so in order to reduce the VAT. The conclusion must be that they are used to asking for receipts;

it has become a habit (cf. Huang 2011). Revenue services have to have the tenacity and adaptive capabilities working with a tax lottery if the aim is to improve tax compliance. Tax compliance is steeped in tradition and, like Rome, is not built in a day.

Any new invention is seldom introduced effortlessly; there are always issues to be addressed that had not been considered in the design on the drawing board. This is especially the case if there are increased costs, efforts, or time involved adapting to the innovation. A tax lottery is a motivation for consumers to help Revenue Services increase tax compliance, "to police" (REF). Yet for vendors, issuers of receipts, and intermediaries that have to be involved, a tax lottery might entail increased burdens. In Georgia, banks paid out winning tickets/cash prizes which resulted in a large administrative burden. The lottery became a nuisance for them.

LOTTERIES FOR VENDORS

We can also turn the gambling activity around and propose a lottery directly aimed at vendors. Experimental research among South African SMEs shows that there could also be benefits for making lotteries aimed at vendors. The idea here was to provide a lottery ticket to all SME's that submitted a tax return on time. The winner would be subject to an audit before being awarded a prize. If found non-compliant, a second winner would be drawn. The prize would be of "substantial monetary value" and the award given at a public occasion covered by media and television (Bornman & Stack 2015). It is a carrot designed for compliance (cf. Alm 2012: 21).

Both supporters and opponents of such a lottery existed. Supporters of the scheme suggested the motivational as well as beneficial reasons for SME's. There would be a possibility to win additional money, which could be invested in the business or be paid for the efforts of making the tax return. There were also favorable views to being recognized publicly as a compliant business

Yet business owners who objected to the scheme said that paying tax is a civic duty that should not be rewarded. Others brought up unfairness as there would only be one winner. Such a lottery could also be seen as unfair to other people who do not own a business. Tax money ought not to be spent on a specific taxpayer; instead, it should be for collective means. Some opponents also imagined a risk of corruption prevailing in a lottery system. A final opinion was that such a lottery could give the wrong message from SARS: "luck is better than hard work" (Bornman & Stack 2015: 811).

5. CONCLUSION

While tax lotteries can be a good and fairly easy way to increase tax revenue within current tax legislation, it is important to remember that "[g]immicks or quick-fixes such as tax amnesties or lotteries in which tax invoices constitute lottery numbers are usually of little use in resolving the basic problems of good revenue administration" (Bird 2015). It is quite clear that a tax lottery has to be carefully designed: it has to fill a well-identified portion of the national tax gap; it has to be understood as part of a country's existing tax structure; it has to encourage tax compliance. A tax lottery is definitely unsuitable as an isolated measure to counteract tax evasion in the cash economy (Awasthi & Engelschalk 2018: 36). Tax lotteries are, as the name so rightly indicates, a combination of increasing tax compliance among vendors while also nudging people's gambling instincts. Lottery incentives have to be designed so that a public good is provided efficiently.

Economic assessment, based on data from 2012 and 2013 on weekly transactions per cash register, analyzed the effect of the lottery on the total business turnover of the country with the goal of analyzing the change in effectiveness of tax administration in Georgia. For this purpose, three econometric specifications were conducted at three different levels: aggregated level for the whole country, regional analysis, and firm-size based analysis.

The results from the first aggregated level regressions show that during the lottery weeks, there is a significant increase in the aggregate weekly sales compared to the non-lottery weeks. The number of cash registers reporting their income and the average weekly sales are also higher in lottery weeks. Thus, there are proper foundations to argue that the lottery propelled the increase in reported income. However, the lack of information on other variables on a weekly basis directly affecting the purchasing behavior of people, such as the inflation rate, household income, business activity, and so on, makes us refrain from asserting that the reported growth in turnover is solely triggered by the factor of the lottery.

Second, regional level regressions highlighted some other important findings. The results show there were no specific differences in the way the observed regions reacted to the lottery. In all the regions, the "lottery" variable was statistically significant and positive. Results show that in all the regions, an increase in the aggregate turnover and the number of cash registers was observed in lottery weeks compared to non-lottery weeks. After integrating the available information on the amount of wins and the number of lucky tickets, it is seen that these variables have a positive impact on the regressands resulting in an increase in the number of reporting business entities everywhere, as well.

Third, company size regression analysis showed that the effect of the lottery on aggregate turnover was significant only for very small and large firms. For very large firms there may be other external factors affecting the total sales which were not controlled by the presented model. As for the trends of changes in the number of cash registers, the output showed that for all firms, except very small ones, the lottery led to an increase in reported earnings.

As mentioned above, the GRS decision to cancel the lottery nearly 2 months earlier than the

presumed deadline was corroborated by the justification that it was "inefficient" (Ebanoidze, 2019). Trying to estimate the level of this "inefficiency" and find evidence for that, this paper illustrates, that, in general, the effect of the tax lottery on the fluctuations in aggregate sales is positive and significant. However, when analyzing the effect of the amount allocated to prizes on aggregate weekly sales, we only observe the changes in these variables on average. Therefore, since people were more incentivized in the early weeks of the lottery, this comparison of money dedicated to prizes and corresponding change in aggregate weekly sales lacks proper reasoning.

But this tax lottery also aimed to popularize the cash registers as well as to improve citizens' attitude towards the GRS. Following our qualitative investigation and assessment into the Georgian Tax Lottery we would like to add the following points. GRS achieved its purpose, at least in the short term. More revenue was collected and vendors became very conscious and aware of printing and giving receipts to customers.

However, what the impact became in the long run, is harder to say. Strategies of "love and fear" are difficult to make work in combination, and we find it hard to say that citizens' views of the GRS improved. Perhaps even the contrary could be proposed. The control effort by GRS "volunteers" giving draconian fees to businesses if not given a receipt was, to say the least, counterproductive in terms of improving positive attitudes towards the GRS.

This also underscores our methodological point that a tax lottery cannot be assessed as an isolated event. Previous and other activities that the revenue services engage in that have an impact on taxpayers and on societal tax compliance have to be taken into consideration. Fear and unjust treatment especially linger in people's perceptions.

A final point is to pay careful attention to design. In the Georgian context, we learned of the risk of regarding different taxpayers as separate categories. Due to the hasty design and construction of the Georgian Tax Lottery, customers and vendors overlapped to a large extent trying to get the best out of the winning possibilities.

Finally, taxation, as Schumpeter pointed out (1954), reveals a lot about people's relationship with the state. Asking about the contained issue of this short-lived tax lottery brought out an astonishing number of views of Georgian citizens' relationship with their state.

APPENDIX 1: EXAMPLES OF LOTTERIES AROUND THE WORLD

There are many countries around the world that have tax lotteries in place. Some are successful and others less so. Several countries have tried the idea and then abandoned it. We have so far identified more than 20 countries that have or have had tax lotteries in place. In the following, a select number of countries will be described which have been chosen for the variety of lotteries, but also for being subject to research and assessment and documented in English.

Taiwan is the icon for tax lotteries, and it appears that the idea of the tax lottery originated there. The country has a long experience and has recently added a digital version in addition to the original drawings on paper receipts. Brazil has tax lotteries on a regional level, but as Sao Paolo has 42 mln inhabitants, this lottery is larger than many national ones. The Sao Paolo version of the lottery seems successful, but Brazil was also chosen due to it being a well-documented case. The case of Slovakia is also relatively well-documented, but it is neither a success from a revenue perspective, nor from a participation point of view. Romania has recently started a lottery, the experience from it is thus quite short, yet is included due to its geographical proximity to Georgia and its unique design. Finally, a contained example of a tax lottery in China is included. This tax lottery differs in many aspects from the other countries', both in the actual lottery design but also in its targeting of a business sector deemed problematic from a tax compliance perspective. The case of China is also relatively well-documented.

In the following, we describe each of the above lotteries in turn.

TAIWAN

THE UNIFORM INVOICE LOTTERY or *Tǒngyī fāpiào* has been running in Taiwan since 1951. It is the oldest existing tax lottery in modern times, and is probably still in existence due to its success. The lottery was introduced during the first Kuomintang government in order to boost taxes and the first year's revenue increased 75% (although from a very low level). As the current VAT is only 5%, the lottery serves purposes other than just increasing VAT compliance.

Design

There are two types of lottery tickets: electronic and paper. The paper ticket has an 8-digit number, month of purchase, value of purchase, and the vendor's business code. Such receipts can be issued by a certain cash register or purchased in advance from specific banks.

Electronic receipts or cloud invoices were introduced in 2010 in order to decrease the paper waste caused by printed tickets. These are part of a larger e-invoice system where a link to the lottery is included. The invoice number is automatically checked if it is a winning number.

There are separate drawings for electronic and paper receipts. Both drawings are held every other month on the 25th, and participating lottery tickets are receipts issued for the previous two months. The drawing is a televised ceremony where four female models roll out winning tickets from hand-turned lottery machines.

Prizes and Probability of Winning

The bi-monthly prize draws three to ten sets of winning numbers, and a special prize might be drawn depending on the financial situation (UIAR 2018). The number of sets is announced prior to the beginning of the draw.

For the drawing on paper receipt tickets, the total prize value is 7 billion TWD (CHECK ANNUAL/PER DRAWING?). In 2018 the following requirements were needed for a win: the Special (10,000,000 TWD), the Grand (2,000,000 TWD) and the First Prize (200,000 TWD) demand all 8 digits drawn match the lottery ticket number. Following these prizes, there are receding winning amounts if the ticket matches 7 digits (40,000 TWD), 6 digits, etc. down to 3 digits. Individuals who collect 143 lottery receipts in two months are expected to win 200 TWD. Winning the sixth prize is thus reasonably achievable, as individuals on average only have to collect 4.76 lottery receipts daily.

In order to identify a winning ticket, participants have to manually check for winning numbers and compare them to their own receipts. If they have a winning receipt, additional information needs to be filled in on the back of the receipt. The receipt and a valid identity card are then presented to collect the prize.

For the drawing for cloud invoices, there is a million-dollar prize (1,000,000 TWD) for 1 to 30 sets of winning numbers. The million-dollar prize is paid in cash and awarded if the alphabetic letters and the 8-digit number on the cloud invoice match the drawn number. The thousand-dollar prize works according to the same logic (2,000 TWD) but is awarded from 1,000 to 16,000 sets of winning numbers.

A 20% withholding tax is levied on all prizes except for the two lowest prize levels.

Prizes are collected at post offices. Alternatively, the prize can be spent purchasing the amount at 7-11 stores, but then the entire amount has to be spent. 7-11 stores do not allow conversion of a winning ticket to money.

The prize can be donated to other beneficiaries. If the prize is not claimed, there is a long list of beneficiaries that will be identified.

Participation

In 2013 there were about 11.5 billion receipts issued. Collecting receipts seems to have become a Taiwanese habit, as more than 95% of consumers ask for receipts (CHECK!). Any foreigner or visitor to the country can participate.

Fines

Businesses who understate VAT pay a fine of 5% of the understated amount. Consumers can complain (website or phone call) and may then be awarded 20% of the fine amount.

Views and opinions

Almost all respondents in a telephone survey said they collected receipts (98%) and 60% of them did so in order to have the possibility of winning a prize. 25% said they collected receipts in order to reduce VAT evasion.

In response to the increased prize amount in 2012, 83% of Taiwanese said that it was not why they participated in the lottery.

An intermediate conclusion is that since the lottery has been in existence for so long, consumers have taken to the habit of requesting receipts. Even if the lottery were to be canceled, more than half of the public would still ask for receipts (Hsiang quoting Huang 2011; Public Opinion Analysis Centre of National Taipei University 2011).

Curiosities

Since the lottery numbers come per receipt rather than per dollar spent, there is an incentive for customers to pay for every single item separately in order to get more receipts: this is a scene which many Taiwanese are familiar with.

After a forgery was disclosed, the information available to participants was changed. Now, all the details of the winning lottery receipt are not posted online. This allows those who pay out the prize to check that the ticket is valid and not forged.

BRAZIL

The Brazilian tax on goods and services (ICMS) is organized on a regional level. The ICMS is a VAT and for the region of Sao Paolo it is the most important source of revenue (Naritomi 2014). The threshold for paying ICMS is 1,200,000 USD and thus most businesses pay the SIMPLES tax which is based on gross revenue.

Although revenue collection is deemed quite high in Brazil, there are many reasons to believe that the informal economy is large. "Firms" operating within the informal economy are thus invisible and no taxes can be levied from them.

Aim

Nota Fiscal Paulista (NFP), the Brazilian tax lottery in the region of Sao Paolo, was introduced in 2007 to reduce tax evasion on ICMS/VAT. An additional aim was to foster a culture of paying

tax. The NFP is an arrangement where consumers help the government monitor firms by asking for and getting receipts that can give monetary rewards on their final sales transactions.

Design

The design is meant to encourage both the reporting of purchases as well as that the reporting is correct. The lottery is organized through an online account system. When a consumer purchases something, s/he asks for a receipt while giving her Social Security Number (SSN) to the cashier. The cashier then registers the SSN together with the receipts. Establishments are required to send all receipts monthly to the tax authority regardless of if there are SSNs. If an SSN exists on a receipt, it is allocated to an account. Each SSN can register an account to which receipts are added and tax rebates calculated.

In the SSN account consumers can also verify the accumulated receipts. The verification feature means that the system allows consumers to act as whistle-blowers, as they can file complaints about vendors who do not behave, i.e. report, properly.

The lottery is more than a lottery, it is also a rewards system for consumers if they ask for receipts. The Nota Fiscal Paulista uses up to 30% of proceeds as a rebate, and, unrelated to that, 30% of proceeds in the form of cash prizes.

The drawing is held monthly and "[f]or every U.S. $50 a consumer spends in NFP receipts per month, she receives one lottery ticket. If the consumer opts in for these lotteries while enrolling online, lottery tickets are automatically generated based on the consumer's total expenditures in NFP receipts. Drawings are held around the 15th of each month, and each month 1.5 million prizes are distributed on average. Most prizes range from 5 to 25 dollars but there are usually 3 large prizes from 15,000 to 500,000 dollars" (Naritomi 2014: 7).

Prizes and probability of winning

The construction of the NFP makes it more than a sheer lottery. It can also partly be seen as a bonus system as consumers receive a payback totaling 30% of each relevant establishment's provision of tax revenue. The formula is black boxed and neither taxpaying establishment nor consumer can calculate the amount any consumer will receive back.

There are four options to collect a lottery prize. It can be paid into the consumer's bank account, used to pay other state taxes, transferred to someone else's account, or given to charity. The consumer can file complaints and there are fines for the establishment if it does not issue receipts properly.

Participation

Once consumers have established online accounts and thus become eligible to participate in the lottery, they increase their participation in the program. It is thus a behavioral response.

Even if prizes are small, winners ask for receipts more often relative to non-winners. Despite that, all have the same statistical possibility to win (Naritomi 2014).

Revenue

Reported revenue increased on average by 22% over a 4-year period.

Views and opinions

The conclusion is that 3rd party reporting or a paper trail is key for tax compliance which is in accordance with other research. Interestingly, Naritomi's results show that the tax compliance effect is higher for sectors with large-volume transactions, yet where each receipt is low-cost. The program is fairly cost-effective, costs could be further decreased by lowering participation costs as well as by increasing the lottery part of the program.

SLOVAKIA

The Slovak Revenue Service introduced a sales tax lottery in 2013. Revenue from sales tax had been decreasing since Slovakia's membership in the EU in 2005; levels were much lower than the EU average, and with an estimated sales tax gap of 40% in 2012, the government had to do something.

Authorities took several measures; the lottery was just one. They identified sectors where the sales tax gap seemed more prevalent: agriculture, construction, wholesale and retail trade, hotels and restaurants, and the professional services industry.

Aim

The aim of the lottery was to communicate to citizens the importance of tax compliance, to increase consumer surveillance by involving them in some sort of "mild policing", and to collect taxes in a more efficient way. "We see this as an opportunity to change people's perception. Asking for and receiving receipts should be regarded as standard business practice" said Finance Minister Peter Kažimír in an interview (Cunningham 2013). The idea was to change people's habits and to do away with the lottery once compliance had increased.

Design

Participation could be done in four ways: online via the internet, an SMS text message, through the National Lottery Company (the operator of the lottery), or through automatic registration by the retailer issuing the receipt. Lottery tickets contained the unique cash register number from the vendor, date and time of transaction, and the amount. Every receipt was a lottery ticket, regardless of the purchase amount.

Whistle-blowing was made part of the design. Complaints about merchants not giving receipts increased drastically after the introduction of the lottery (Daley & Minder 2014).

Prizes and probability of winning

There are three chances of winning:

1. A biweekly draw with cash prizes from 100-1,0000 EUR.

2. A monthly regional draw based on receipts from a certain type of cash register. The prizes were a car as well as a cash prize of 5,000 EUR for each winner.

3. Participation in the TV show "The Price is Right".

Participation

At least 10% of Slovakia's population has participated in the lottery at least once. However, most participation occurred in the capital region and most participants came from the main commercial chains. The problematic service industry (in terms of tax evasion) is only responsible for 2% of submitted receipts (Fooken et al 2014: 16). It is thus questioned how much extra policing was gained.

Revenue

Fiscal impact was deemed modest at 8 mln EUR (Ungureanu & Dascălu 2015: 271, Fooken et al 2014: 16). This makes for a huge difference compared to an official statement saying that they had collected 512 mln USD more in 2013 than the year before (Daley & Minder 2014). EGO Perhaps this was total tax revenue?

Views and opinions

The lottery was not popular mainly due to cumbersome registration. Vendors need to enter a number of codes that can easily be mistaken and demand patience (Ungureanu & Dascălu 2015: 271).

Allowing manual registration creates distortion in the entire tax lottery. Consumers, e.g. receipt owners, who do not register increase the possibility for vendors in the role of "registrars" to actually win. Other consumers can also collect receipts and register purchases that they have not themselves earned. One man spends every Sunday afternoon registering receipts given to him; even his neighbors bring him receipts: "We have huge plastic bags with receipts in the basement says his daughter" (Daley & Minder 2014). In addition, the possibility of avoiding to register a certain purchase is tempting when larger purchases and amounts are involved. A restaurant owner said she collects all receipts left by customers although a friend registers them. They will share any prize, she said.

One owner of a beauty salon said that she rarely issues receipts to friends and acquaintances. "The big players will sneak away anyway," said this owner and added that she did not believe that the lottery would have much of an impact on larger and more sophisticated fraud. Other citizens disagreed and welcomed the lottery as it would make everybody pay sales tax (Cunningham 2013).

ROMANIA

Lotteries bonurilor fiscal, the Romanian tax lottery was implemented in 2015 with the aim of creating a mechanism for consumers to ask for receipts. The lottery applies to both residents and non-residents who hold valid receipts from purchases within Romania.

Aim

Fight tax evasion by traders.

Design

The design is truly innovative compared to most other lotteries in the way that prizes are calculated. ANAF (The National Agency for Fiscal Administration) created a 'mechanism' to stimulate citizens to ask for a receipt at every transaction. Receipts that participate have to have a value between 1 and 999.99 LEI and be issued in the applicable period for each monthly drawing. In addition, all the mandatory information has to be 'readable'.

The National Lottery organizes the drawing.

The lottery is part of a larger effort to combat tax evasion. All establishments have to have a poster communicating issues like if the operator refuses to issue the receipt, customers are entitled to obtain the purchased good or service for free. In addition, the receipt is the only document to be issued to the customer when purchasing a product or a service. Restaurants, nightclubs, or cafes are obliged to make this notice visible to customers, for example on menus (Awasthi & Engelshalk 2018).

Prizes and probability of winning

Drawings are held monthly on a Sunday in the middle of the month, while participating tickets are derived from purchases made the previous month. Winning tickets are receipts with the value that corresponds to the winning amount for a given date. The drawing is thus for a specific amount, between 1 and 999 AND for a given date. Prizes are to be claimed within 30 days by sending in the receipt. If the amount of winning tickets exceeds 100, a new drawing is held from the group of 'winning' tickets. 100 receipts are then extracted from the larger group.

Prizes are claimed by any 'territorial unit' of ANAF by submitting the original receipt and a copy of the identity document of the receipt holder. The Ministry of Finance pays the winners within 60 days of when the prize is claimed. Lucky winners receive cash prizes transferred directly into their bank account.

Participation

In the beginning when all tickets were sent in, the number of tickets exceeded 300 million monthly which mirrored participation. Now only the winning tickets are sent in and they amount to up to 10,000.

Revenue

There has not been any evaluation so far, but management costs are very low.

Views and opinions

There seemed to be problems organizing the collection of receipts, as well as the claiming of prizes (REF). There have been several tests held in order to address problems with:

- The sheer number of paper tickets. That receipt holders have to bear the cost of sending in receipts and the ANAF has to deal with large numbers of physical tickets. That now only winning tickets are sent in has drastically reduced the number of tickets.

- Digital transmission of receipts was considered, but although mobile phones are widespread, entering a text message of more than 50 characters was seen as cumbersome and also easy to make errors. Although ANAF could see if a receipt had been sent twice (digitally), they had no means to identify and then invalidate the 'doubles.'

CHINA

The Chinese version of the tax lottery is yet another variety. The Chinese government mentioned in 1989 that a tax lottery was going to be implemented, but it took a decade of debating until a new receipt system came into effect in 1998. It started in Haikou City in Hainan Province, which was then considered one of the most open cities in China. The system, *You jiang fa piao* is referred to by Wan (2009) as a Lottery Receipt Experiment, LRE. It was implemented only in some Chinese districts, and at the end of 2002 was run by 12% of Chinese local tax bureaus (Wan 2009: 7).

China introduced a scratch lottery system in some districts of Beijing and Tianjin.

Aim

The Chinese tax system in the 1990s suffered from asymmetry of information. A way to get more information was not by increased policing, but rather by rewarding compliant taxpayers' behavior.

Design

Under this scheme, each receipt for restaurant consumption or entertainment expenditures is a lottery scratch card creating incentives for customers to ask for receipts and, in turn, obliging restaurants to pay VAT. Since 2002 the receipts have to be issued by a certain lottery receipt machine, which was invented by Haiping DAI and patented on February 21, 2001. The machine issues a receipt with a special number that is used for a random drawing. The transaction value stated on the receipt is reported to the consumer, the firm, and the tax bureau simultaneously. The special number on the lottery receipt can be used to investigate the status of the prize by telephone or via the internet.

The LRE first included only food services and restaurants but came later to include other service

industries such as beauty salons and real estate agents.

Prizes and probability of winning

There have been some discrepancies between the prizes promised and actually awarded. July 2002 reported the total amount of prize paid out in all China's experimental areas to be 30 mln Yuan. The additional increase in tax revenues brought about by lottery receipts was 900 mln Yuan for the first half of 2002.

Revenue

Research shows that sales tax revenue measured over a period of 6 years was considerably higher in districts that had the lottery than in those without (17%). Growth rates in both sales tax (21%) and in total tax revenue (10%) for the same period was also noted (Wan 2009:14).

Views and opinions

Wan concluded that the *You jiang fa piao* lottery helps diminish tax evasion from the underground economy. Such causality is however not easily proven. Fabbri & Hemels (2013) challenged Wan's conclusion and suggest that results can be different if risk preferences, social norms, and population size are considered and taken into account in the model. As risk preferences, social norms and population might vary, these authors suggest that instead of implementing lotteries "all over", regulatory bodies should instead carefully select districts where tax evasion is rampant. Otherwise, do they risk "crowding out" virtuous behavior?

Yet Wan also recommend raising the ratio of prize to tax.

GEORGIA

The Georgian Revenue Service introduced a tax lottery starting in spring 2012 which was planned until January 1, 2013. The lottery ended prematurely on November 12, 2012 when a new government was elected. Therefore, the lottery ran for 209 days.

Aim

The aim of the lottery was to popularize the already-introduced GPRS-based cash registers and make sure that they were used by vendors. Such registers would allow the GRS to gather information daily about business activities online. This, in turn, was due to an effort to fight the shadow economy and to be able to audit business revenue. The lottery would thus motivate consumers to ask for receipts. As a communicative resource, the lottery aimed to increase awareness of asking for receipts, as well as to make for a more positive attitude in Georgian society towards GRS.

Design

There were many stakeholders: GRS; Georgian Lottery Company (GLC) which administered the

design part of the lottery; Ministry of Internal Affairs (MIA) IT group which was in charge of the IT issues regarding the tax lottery and for the GLC, Georgian Mobile Operators Magticom and Geocell who provided the means to check receipts via SMS, while checking online was available on the GRS website; and business owners of fast payment machines called PayBoxes which provided an additional way to check receipts. Four Georgian banks administered prize payments. There was at least one advertising company promoting the lottery and the GRS set up a call center to resolve any outstanding questions.

In order to participate, customers had to buy a good or service from a vendor who had a GPRS-based machine. The receipt could be checked immediately by mobile phone, online or by the "fast payment machines".

There was not an actual lottery drawing of prizes in the sense that there was randomness selecting the winners. From the outset, GRS decided to make the lottery as simple a solution as possible. The winning numbers were decided by a sampling technique and were hardcoded into the software from the start. The winning numbers were based on the combination of the cash register number followed by a unique sequential number. This information was already available on receipts.

The simplicity of the design was due to the haste of implementing the lottery but it also had unfortunate implications. Vendors who figured out how winning numbers were selected could 'cheat' the system. Receipts from any cash register are issued in sequential order and a combination of these gives each receipt a unique number. When people figured out how the lottery worked, any vendor looking at the last receipt would know the number of the next receipt to be printed. Idle vendors could try registering the next 100 receipt numbers via SMS. If there was a win, s/he could then make a purchase when it was the winning receipt number's turn. However, the Revenue Service worked against cheaters and blocked numbers who were checking repeatedly. The simplicity of the design meant that wins could be known directly, either by checking online or via a text message.

The winners of the tax lottery could cash out the money they won in four different banks that were on the market in 2012: Liberty Bank, BasisBank, PrivatBank and Kor Standard Bank (KSB).[41] Within 30 days after the receipts were printed out, winners could go to any branch of those four banks throughout Georgia, present an ID and the winning receipt, and get their money. Parallel to this process, the banks were checking the validity of the winning receipt with the Revenue Service and the Georgian Lottery Company, who were the ones providing the banks with the winning cash register number of the receipt; both numbers had to match one another to prevent fraud. After proving that a specific receipt won with that particular number, they gave the money to the winner and kept the receipt themselves.

Prizes and probability of winning

There were daily drawings of receipts for small prizes (10, 20, 50 and 100 GEL[42]). In addition, a larger prize of 10,000 GEL was drawn monthly and a prize of 50,000 GEL every three months. Note that the handing out of prizes was called a drawing, yet there were no drawings; only an

[41] In 2016 this bank officially changed its name to TeraBank
[42] The exchange rate for a Georgian Lari, GEL, is about 3.0 GEL for 1 EUR.

immediate verification if the receipt was a win or not.

Participation

During the first month, there was high participation in the lottery. The GRS estimated that at the time there were 2.5-2.8 mln receipts printed daily throughout Georgia, and during the first month of the lottery, about 2 mln receipts were checked daily. Active participation continued for a couple of months and then the checking of receipts started to decline, to 600,000, then 500,000 and the last month of the lottery it was only 300,000.

The GRS tried to activate further participation by making more winners in the regions where summer vacationers were going, e.g. to the Black Sea, but to no avail. Such changes did not have any impact on the overall participation in the lottery. Due to the design of the lottery, such activation required a change to the software as the numbers of winning tickets were hard-coded.

Revenue

The lottery was prematurely terminated after parliamentary elections in 2012. There was a lack of financial resources for running the lottery, which had the implication that the chances of winning were considered too small and so were the prizes. Therefore, the lottery was deemed to have been effective only in the first stages of implementation.

It is difficult to assess the impact of the lottery in and of itself as it was introduced together with harsh controls for vendors issuing receipts. But the lottery itself was thought to have influenced social norms and also started a discussion about tax compliance.

Fines

Simultaneously with the lottery, there was an increased audit control directed towards small shops and vendors. GRS hired plain-clothes people, volunteers, as they were called. Their task was to visit shops, buy something, and if they did not get a receipt, they could issue a fine to the vendor. The fine structure was incremental. Vendors would get a 500 GEL fine for not immediately printing out a receipt.

The compensation for the hired volunteers was based on the number of fines they could issue; thus, it created an incentive to work hard and smart. They could identify shops that were easy to fine. When a volunteer issued a fine of 500 GEL, they would get compensation of 100 GEL.

Views and opinions

What quickly became apparent through the ethnographic approach was that the societal impact of the lottery could not be analyzed by itself. As the Minister of Finance of Georgia who ended the lottery said about the impact on Georgian tax behavior: "If you ask people who worked with this lottery they say it was because of the lottery that the behavior changed, but if you ask me, I think it was in collaboration with the heavy fines. It was more fear than love."

There were a minority of people who thought it a very good idea in order to enforce taxpaying on

behalf of the vendors. Some said, "why not?" as there is always a chance of winning and these "lottery tickets" are free. Quite a few people believed it was a hoax on behalf of the state where the only aim was to enforce the issuance of receipts. Any winners promoted on the web or in a newspaper were just paid stooges.

Curiosities

It was said that many children wanted to participate. Apparently, they made errands to the store on behalf of their parents and paid separately for each item on the shopping list in order to gather as many receipts as possible.

Vendors were also known to collect and check any receipts not taken by customers.

People sent text messages as a joke telling the recipient that "you have won 10,000 GEL".

APPENDIX 2: QUESTIONNAIRE

QUESTIONNAIRE

Basic info:

First name, occupation, age, place of residence

1. Do you have any recollection of the Tax Lottery **-** ***Chekebis gatamasheba*****?**

Describe it in your own words.
- How it worked
- What the purpose was

Do you know anyone who won? How much? How often?

Was it a good idea? Could it have been done in a better way?

Jokes about the lottery?

Did you PARTICIPATE? If YES, in what role?

2. As a VENDOR?
Describe how it worked?
Describe a typical transaction.

INFORMATION/COMMUNICATION
How did you communicate with customers about the lottery? Did you inform them or did they ask you?

What information about the lottery did you receive?

How was communication with GRS? How often and how did you communicate?
Written/oral?

What was the motivation for you to participate? Did you feel you had to participate?

What do you think about the GRS ending the lottery?

3. As a CONSUMER?

Describe how it worked.
Describe a typical transaction.
Was it easy/difficult to use?

How often did you ask for receipts? How many did you get/collect in all?

Did you win? How much? How often?

4. As a project initiator

What role did you have in creating the lottery?
Tell us about the lottery.

What was the purpose?

Origin of the idea? Who took the initiative? Where did instructions come from?

What issues were considered when designing the lottery?

- Fiscal income, technical, social, fairness, trust
- Whom did you take advice from/speak to? - Advisors? Research?

How was the lottery supposed to work? Did it change from the original plans? Why?
Why did it end?

- How were prizes designed?
- The possibility of winning
- How was it promoted?
- How did you budget? Who bore the cost? Did you consider any extra costs for the vendors?
- Who was targeted? Small/big businesses? Certain sectors of businesses?
- Fraud?

Fiscal impact? What were the plans? What was the outcome?

Who was involved? Could you recommend us someone else to speak to?

INFORMATION/COMMUNICATION
How did you communicate with customers about the lottery?

APPENDIX 3: REGRESSION TABLES

Table A1.1: Regression results of the aggregated analysis on a country level, incorporating information on winning tickets

	Aggregate weekly sales	Average weekly sales per register	Number of registers
Time period	1782.0***	15.78***	128.5***
	(140.9)	(1.391)	(15.01)
Lottery, number of winning tickets	290.5***	2.394***	27.55***
	(39.87)	(0.393)	(4.247)
Year 2012 dummy	40115.0***	474.9***	163.7
	(9211.9)	(90.92)	(981.2)
Constant	199834.9***	2729.6***	75358.8***
	(11599.4)	(114.5)	(1235.5)
N	96	96	96
R^2	0.752	0.675	0.710

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A1.2: Regression results of the aggregated analysis on a country level, incorporating information on winning tickets

	Aggregate weekly sales	Average weekly sales per register	Number of registers
Time period	1680.8***	14.75***	123.2***
	(143.9)	(1.339)	(16.68)
Number of prizes	4611.9***	42.91***	330.8***
	(646.5)	(6.018)	(74.94)
Year 2012 dummy	35179.5***	397.7***	490.4
	(9633.7)	(89.67)	(1116.8)
Constant	207926.5***	2812.0***	75784.3***
	(11834.5)	(110.2)	(1371.9)
N	96	96	96
R^2	0.748	0.707	0.651

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A2: Regression results of regional analysis

Dependent variable:	Aggregate weekly sales			Number of registers			Average weekly sales per register		
Variable:	Lottery (0/1)	Lottery amount	Number prizes	Lottery (0/1)	Lottery amount	Number prizes	Lottery (0/1)	Lottery amount	Number Prizes
Reg 1 (Tbilisi)	13453.3*** (3762.7)	123*** (23.36)	1993.1*** (375.1)	998.8** (368.3)	8.544*** (2.378)	84.61* (39.91)	247.2** (77.47)	2.239*** (0.489)	42.61*** (7.502)
Reg 2 (Imereti-Racha-Lechkhumi-Kv.Svaneti)	2916.6** (1003.9)	28.66*** (6.288)	434.6*** (102.4)	377.1*** (98.67)	3.551*** (0.600)	41.77*** (10.47)	203.1* (85.79)	1.948*** (0.550)	32.84*** (8.793)
Reg 3 (Adjara)	7444.2*** (1754.6)	61.58*** (10.99)	930.7*** (180.4)	679.3*** (129.7)	5.372*** (0.805)	80.10*** (13.39)	607.7*** (154.2)	5.056*** (0.973)	76.55*** (15.91)
Reg 4 (Kvemo Kartli)	1960.3** (632)	13.96** (4.160)	230.1*** (66.75)	311.6*** (48.78)	2.338*** (0.303)	29.38*** (5.458)	204.8* (98.80)	1.361* (0.656)	27.02* (10.42)
Reg 5 (Kakheti)	2179.2*** (434.3)	17.33*** (2.705)	262.9*** (44.59)	230.6*** (48.43)	1.981*** (0.293)	23.23*** (5.241)	396.7*** (79.42)	3.007*** (0.505)	49.30*** (8.063)
Reg 6 (Shida Kartli)	2641.9*** (624.2)	20.92*** (3.968)	330.8*** (64.17)	309.7*** (50.58)	2.589*** (0.293)	33.23*** (5.390)	388.5*** (107.7)	2.962*** (0.698)	51.15*** (11.07)
Reg 7 (Samegrelo-Z. Svaneti)	1819.1* (696.9)	15.15** (4.525)	275.1*** (71.60)	82.15 (44.80)	1.257*** (0.273)	11.88* (4.711)	321.8* (131.3)	2.345** (0.865)	47.95*** (13.58)
Reg 8 (Samtskhe-Javakheti)	749* (316.1)	7.002*** (2.034)	87.47* (33.55)	65.27** (24.58)	0.701*** (0.153)	8.528** (2.574)	261.7* (115.6)	2.310** (0.750)	29.40* (12.30)
Reg 9(Guria)	199.7 (396.8)	2.936 (2.619)	67.16 (41.85)	144.3*** (35.32)	1.218*** (0.221)	18.07*** (3.641)	-113.7 (252.5)	-0.0912 (1.677)	13.04 (26.96)

Note: All these regressions also included the time variable in terms of 'period' (1-106 weeks for two years) and dummy variable for year, 'D2012', the output for which are not reported just for the matter of convenience.
Standard Errors are in the parentheses
* p<0.05; ** p<0.01; *** p<0.001

Table 3: Descriptive statistics on each firm size

Size:		**Very small**	**Small**	**Medium**	**Large**	**Very Large**
Aggregated weekly sales	Mean	1336.7	7170.4	19526.3	38191.8	424943.3
	Standard Deviation	314.7	1627	4268.2	7702.1	877849.4
	Min	423.8	1719.6	4423.6	9753.3	95103.8
	Max	2791.6	14136.4	34765.6	61314.8	7534026
Number of registers	Mean	13180.6	1888.7	18843.8	14582.2	16257
	Standard	1721.2	2421	2384.2	1891.4	1726

	Deviation					
	Min	4473	6169	6557	5900	8853
	Max	15225	20668	20544	16354	17934
Average weekly sales per register	Mean	101.1	377.2	1028.4	2604.3	25205.7
	Standard Deviation	16.41	58.5	156.3	360.4	48907.9
	Min	72.5	222.7	536.3	1215.3	7178.6
	Max	184.9	685	1785.4	4071.7	420144.2

Table 4: Regression analysis based on turnover size

Dependent variable:	Aggregate weekly sales			Number of registers			Average weekly sales per register		
Variable:	Lottery (0/1)	Lottery amount	Number prizes	Lottery (0/1)	Lottery amount	Number prizes	Lottery (0/1)	Lottery amount	Number Prizes
Size 1 (very small)	-188.2** (63.16)	-0.115 (0.439)	-10.16 (6.983)	250.4 (249.7)	5.055** (1.581)	31.45 (26.61)	-15.23*** (3.261)	-0.0419 (0.0237)	-0.928* (0.375)
R-sq:	0.137	0.055	0.075	0.120	0.2	0.124	0.215	0.061	0.089
Size 2 (small)	-294.6 (256.8)	2.832 (1.691)	23.92 (27.51)	860.9*** (192.7)	7.580*** (1.169)	94.13*** (20.47)	-29.70** (10.98)	0.00928 (0.0757)	-0.448 (1.217)
R-sq:	0.363	0.373	0.359	0.574	0.644	0.578	0.274	0.217	0.218
Size 3 (medium)	363.7 (554.5)	12.09*** (3.466)	154.6** (57.12)	945.4*** (148.3)	6.992*** (0.930)	95.05*** (16.23)	-23.87 (25.29)	0.305 (0.166)	3.712 (2.686)
R-sq:	0.565	0.614	0.595	0.784	0.807	0.773	0.469	0.483	0.475
Size 4 (Large)	2191.1* (877)	27.19*** (5.304)	395.2*** (87.57)	601.5*** (92.90)	4.182*** (0.603)	58.89*** (10.27)	62.98 (52.56)	1.251*** (0.326)	18.77*** (5.307)
R-sq:	0.659	0.716	0.701	0.932	0.935	0.927	0.533	0.591	0.583
Size 5 (Very large)	60236.3 (287847.1)	370.2 (1910.3)	5539.7 (30740.3)	549.1*** (76.77)	3.807*** (0.496)	52.17*** (8.660)	3358.2 (16111.3)	20.22 (106.9)	307.8 (1720.6)
R-sq:	0.041	0.041	0.041	0.957	0.959	0.952	0.034	0.034	0.034

Note: All these regressions included also the time variable in terms of 'period' (1-106 weeks for two years) and dummy variable for year, 'D2012', the output for which are not reported just for the matter of convenience.
Standard Errors are in the parentheses
* p<0.05; ** p<0.01; *** p<0.001

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