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The effect of competition on tax compliance: The role of audit rules and shame[☆]

Alberto Casagrande[a], Daniela Di Cagno[b], Alessandro Pandimiglio[c], Marco Spallone[c,*]

[a] CASMEF Luiss Guido Carli, Rome, Italy
[b] Luiss Guido Carli University of Rome, Italy
[c] G. d'Annunzio University of Chieti and Pescara, Italy

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ABSTRACT

Traditional models of tax enforcement assume that the decision to be tax compliant is the result of an interaction between individual taxpayers and a dedicated tax agency. Evidence shows that tax compliance is the result of a far more complex decision rule, involving both individual and group motivations, along with non-monetary components. In this paper, we consider a game in which the individual decision to be tax compliant is affected both by strategic competition between taxpayers and the psychological cost of being detected (i.e., shame). We ran a laboratory experiment using a sample of 138 students at the Centro di Economia Sperimentale A Roma Est (CESARE) to evaluate the efficiency of random versus targeted audit rules and to verify the interaction between strategic competition and shame. The experimental results show that strategic competition between taxpayers plays a critical role in reducing tax evasion. In addition, shame reinforces this competition, but plays no significant role on its own (i.e., without competition).

1. Introduction

Tax administrations worldwide face great difficulties in collecting money from "hard to tax" taxpayers, mainly small firms and self-employed persons whose tax amounts theoretically due are quite low compared to the administrative costs of auditing them. Three different solutions have been developed to tackle this issue: (1) an increase in the resources available to tax administrations, (2) an improvement of the efficiency of audit procedures, and (3) an enhancement of the communication about the social costs of tax evasion.

An increase in the resources available to tax administrations entails a higher probability of detecting dishonest taxpayers and, in turn, a higher expected cost of evasion. Different audit procedures can imply either cost savings for the tax administrations (i.e., a relaxation of their resource constraints) or competition between the taxpayers (i.e., a change in the strategic interaction between the tax administration and the taxpayers). A strong communication about the social costs of tax evasion should induce dishonest taxpayers to feel guilty about the effects on others of their behavior, implying a reinforcement of social norms. Strict economic incentives (i.e., the probability of being apprehended and the size of the punishment for those apprehended), social norms, and audit procedures usually overlap in the attempt of tax administrations to fight tax evasion. However, the economic literature, both theoretical and experimental, has underestimated this complexity.

Since the seminal model of Allingham and Sandmo (1972), in which tax compliance is framed as the result of a pure gambling decision, the classical literature on tax enforcement has focused exclusively on the interaction between the taxpayers and the fiscal auditors (Reinganum and Wilde, 1988; Asilis and Juan-Ramon, 1994; Shleifer and Vishny, 1993): each taxpayer usually reports an income to the tax agency to maximize his/her after-tax expected payoff (which typically depends on the probability of being audited and on the fines to be paid if apprehended) and the tax agency audits a sample of taxpayers, given its resource constraint. In this basic framework, the interaction between the taxpayers and the tax agency is not affected by the individual behavior of other taxpayers.

More recent contributions have underlined the importance of audit rules (that depend on the objectives pursued by the tax administration, such as the maximization of net revenues from auditing activities or the maximization of the number of apprehended

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* Corresponding author at: G. d'Annunzio University of Chieti and Pescara, Department of Economics, Viale Pindaro 42, 65100, Pescara, Italy. Tel.: +39 3383812402.

E-mail address: mspallone@luiss.it (M. Spallone).

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dishonest taxpayers) and competition between taxpayers (which takes place whenever the sample of taxpayers to be audited is not selected randomly): in fact, if the sample is strategically targeted through an optimal audit rule, then the individual optimization problem becomes more complex and depends also on the behavior of others[1]. For example, if the tax agency chooses to audit the lowest reported incomes[2], then the probability of being audited perceived by each taxpayer crucially depends on the expected behavior of the others (Casagrande and Spallone, 1998; Glaeser, Sacerdote and Scheinkman, 1996; Macho-Stadler and Perez-Castrillo, 2006). We define as "strategic" all audit rules that induce competition between taxpayers.

Moreover, beginning with Allingham and Sandmo (1972), many authors have mentioned that tax evasion could be affected by social norms if individuals are scared of losing their reputation or are stigmatized when they behave dishonestly. The role of guilt and shame in individual decision making has been analyzed both by psychologists (for a review, see Seiter and Bruschke, 2007) and economists in many settings. In particular, Moffitt (1983), by commenting on the individual irrational rejection of an income deriving from the participation in a welfare program, conjectured that this was due to the fear of a "welfare stigma"; Gordon (1989), focusing on tax evasion, introduced the concepts of "private and social stigma" and asserted that tax evasion induces "psychic costs through anxiety and guilt". More recently, Coricelli, Rusconi and Villeval (2012) showed experimentally that shame, when triggered by individual responsibilities toward the welfare of other group members, may affect tax compliance.

The aim of this paper is to consider the role of audit rules together with the role of social norms. In particular, this paper evaluates the performance of two different audit rules, both with and without public exposure (used as a device to induce "shame"). More precisely, we try to answer the following questions:

1. Is a strategic audit rule able to induce higher compliance than a random one?
2. What is the effect, under different audit rules, of the "shame" induced by public exposure of tax evasion?

To this end we ran an experiment on a sample of 138 undergraduate students, implementing two different audit rules: under the "random" audit rule, all subjects faced an equal probability of being audited; under the "strategic" audit rule, only subjects with the lowest reported incomes were audited. In both cases, we assumed that dishonest taxpayers were apprehended if audited, i.e., we excluded the possibility that the tax agency could be unable to detect evasion or could be corrupted by a taxpayer through bribes.

Under both audit rules, we induced shame by forcing the apprehended taxpayers to publicly reveal their identity to the others. The introduction of shame into our framework induces many changes: it increases the cost of getting apprehended and the equilibrium level of compliance; moreover, it is an extra source of heterogeneity, since the cost of shame may be perceived differently across taxpayers[3]; finally, if shame is triggered by public revelation of dishonest behavior, it modifies the basic informational settings.

We show that competition between taxpayers, triggered by strategic audit rules, can increase the compliance rates for a large set of parameters[4]. Moreover, we provide robust evidence that public shame favors compliance under audit rules that are capable of inducing competition, while it is ineffective otherwise. We suggest that this occurs because experimental subjects (even those who do not fear public exposure) anticipate that shame will induce higher compliance rates from the others, and so adjust their optimal behavior by increasing their reported incomes so as not to be apprehended.

Our experimental results have relevant policy implications in terms of both saving public resources devoted to fighting tax evasion, and using them more efficiently. In fact, we found that tax revenues can be increased by implementing efficient audit rules: in particular, it is convenient to employ a targeted rule if the sample of taxpayers to be audited is homogeneous in terms of income[5]. Moreover, by coupling efficient audit rules with bold communication policies (aimed at reinforcing social norms and inducing shame), it is possible to increase compliance without dramatically increasing the budget of the tax administration.

This paper is organized as follows. In Section 2, we describe the experimental design; in Section 3, we comment on the experimental results; Section 4 summarizes our main findings. Appendix A contains tables and figures; Appendix B briefly describes the theoretical model from which we derived our experimental setup; Appendix C contains an English translation of the instructions handed to the experimental subjects.

2. The experiment

In order to answer our research questions, we ran a computerized experiment, in which we implemented two different audit rules:

(A) A strategic audit rule (hereafter STRATEGIC), in which the computer audits the lowest reported incomes.
(B) A random audit rule (hereafter RANDOM), in which the computer randomly audits reported incomes.

We implemented each audit rule under two different settings:

(a) Public shame (hereafter SHAME), in which apprehended subjects are exhibited to all the other participants through an alarm sound lasting one minute. The indicated subjects are obliged to stand up in order to be visible to the others until the alarm stops.
(b) Private shame (hereafter NO SHAME), in which apprehended subjects are privately informed about the audit and privately made aware of the fines that they have to pay.

The choice of auditing the lowest reported incomes is consistent with the actual behavior of tax auditors willing to apprehend the maximum number of evaders belonging to homogeneous groups of self-employed people. Moreover, this choice is optimal if reported incomes are interpreted as signals by tax auditors and their conditional distribution is assumed to be monotonic. A formal proof of this result can be found in Appendix B.

The combination of audit rules and settings defines a four treatment experiment, as shown in Table 1, where the acronyms in the cells represent the labels assigned to the treatments:

(1) *SS*: Strategic audit rule with shame.
(2) *SNS*: Strategic audit rule without shame.

[1] For empirical references about audit patterns, rules, and the enforcement behavior of tax agencies, see Kastlunger et al. (2009), Alm and McKee (2004), Sanchez-Villalba (2010).

[2] In Italy, for instance, the so called "studi di settore", audit procedures aimed at apprehending self-employed persons who evade income taxes, are implemented by monitoring the lowest reported incomes within homogeneous groups of agents, for instance "all the lawyers whose premises are located in the same neighborhood".

[3] The cost of shame is a non-monetary cost that depends on education, family history, and other individual specific factors.

[4] We experimentally treated tax compliance in a way that resembles the experimental analysis of peer effects and within-team competition. Some scholars have shown that within-team competition is able to increase effort levels and voluntary rates of contributions to public goods (Fatas, Neugebauer and Perote, 2006; Croson et al., 2015).

[5] Targeted audit rules may induce equity issues, especially those targeted at low reported incomes. In case incomes are assumed to be almost homogeneous, as in the case of the Italian "studi di settore" cited above, equity issues are less relevant.