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Tax revenues, fiscal corruption and "shame" costs

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ABSTRACT

In this paper we explore tax revenues in a regime of widespread fiscal corruption in a static framework. We prove that the relationship between the tax rate and tax revenues depends on the relevance of the "shame effect" of being detected in a corrupt transaction. In countries with a "low shame" effect, tax revenues grow as the tax rate increases. Moreover, there is a critical tax rate where the growth rate of tax revenues begins to reduce. In countries with a high "shame effect" tax revenues increase up to a threshold value and then decrease.

1. Introduction

Tax evasion and fiscal corruption have been a general and persistent problem throughout history with serious economic consequences, not only in transition economies, but also in countries with developed tax systems. Generally, corruption and evasion are two distinct phenomena, which can exist independently. But when tax authorities are dealing with the possibility of corruption they should consider the possibility of taxpayers who under-report their income bribing tax inspectors. It is widely agreed that tax evasion and corruption have several detrimental effects on the economy. The loss of tax revenues can, in fact, imply a reduction in public services; in addition, tax evasion and corruption can seriously harm economic growth (amongst others, Rose Ackerman, 1975, 1978; Shleifer and Vishny, 1993) and distort income distribution as individuals and firms may have different opportunities for evasion (Hindriks et al., 1999). Although there is extensive literature investigating the origins, effects and extent of evasion and corruption from both theoretical and empirical points of view, interaction between tax evasion and corruption has only been partially explored. It is, in fact, only recently that this relationship has been investigated in the literature (see Acconcia et al., 2003). Although tax evasion can exist without corruption and corruption can exist without tax evasion, since bribery agreements can reduce deterrence of violation, the interaction between evasion and fiscal corruption is a relevant economic phenomenon when analyzing the behaviour of tax revenues.

In the pioneering model of Allingham and Sandmo (1972), the relationship between tax rates and evasion is ambiguous and depends on the utility function. A broader review of the literature reports more generally, that theoretical predictions of the effect of tax rates on evasion are dependent on the assumptions of the model (Slemrod and Yitzhaki, 2000). Fisman and Wei (2001) present a case study of tax evasion in China: they find that, on average, a 1% increase in the tax rate leads to a 3% increase in evasion and, furthermore, this relationship is not linear: the evasion elasticity is larger at a high tax rate.

Chander and Wilde (1992) take into account the possibility of collusion between a tax evader and an official auditor whose cost of dishonesty is (relatively) low. Besley and Mclaren (1993), Chand and Moene (1999), Hindriks et al. (1999), and Mookherejee and Png (1995), deal with the issue of optimal remuneration of inspectors. Besley and Mclaren (1993) compare three distinct remuneration schemes, which provide different incentives to inspectors: efficiency wages, reservation wages and capitulation wages. They characterize the conditions under which each scheme generates the greatest amount of tax revenues, net of administration costs. They show that the efficiency wage strategy may not be a good idea most of the time. In contrast, in our model, we do not consider the issue of optimal remuneration of inspectors as we assume that the inspector is paid a fixed wage. Hindriks et al. (1999) consider a model where all the actors are dishonest. They allow, however, for general remuneration schemes and, more importantly, for extortion. They show that, as well as losses in tax collection, the more bribes are collected, the more a tax inspector can resort to extortion in order to collect even more. In this case, the authors show that distributional effects of evasion and corruption are regressive, because the richest taxpayers have most to gain from evading taxes and are least vulnerable to extortion (as it is

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harder to credibly over-report their income). Finally, Mookherejee and Png (1995) also consider only corruptible agents, although they remove the exogenous matching of the auditor and the evader, which is often-assumed in the literature. They consider it a moral hazard problem since the inspector has to exert a costly non-observable effort for evasion to be disclosed.

All the models described analyze the relationship between tax revenues and the tax rate, and some of them (see Chander and Wilde, 1992; Sanyal et al., 2000) show, as does our model, that there may be a possibility that an increase in the tax rate could actually decrease government revenues.

Our paper provides a study of the behaviour of fiscal revenues beyond where there is corruption, as we also consider the relevance of the "shame effect" linked to the possibility of the entrepreneur being detected and reported in a corrupt transaction. When bureaucracy is corrupt, a rise in tax rates starts off complicated strategic moves on the part of both taxpayers and inspectors. In a corrupt administration, in fact, a higher tax rate can represent the possibility of a higher negotiated bribe rate: this may increase the number of corrupt tax inspectors by overcoming the "shame" cost, while for taxpayers, a higher tax rate creates a greater incentive to pay bribes.

In our model, we demonstrate that the relationship between the tax rate and tax collection depends on the relevance of the "shame effect". In details, if the State wants to maximize tax revenues in a "low shame" country, it has to set a tax rate greater than a threshold value, because up to this value, the tax revenues increase – as the tax rate increases – at an increasing rate; in a "high shame" country, the State should set a tax rate equal to a threshold value because this value is a global maximum of tax revenues with respect to t. In both cases, there is fiscal corruption in the economy.

The paper is organized as follows. In Section 2 we present the model, describe the timing of the game and present the results. In Section 3 we discuss policy considerations. Section 4 concludes.

2. The model

Consider an economy producing a single homogeneous good y. The economy is composed of three players: controllers, tax inspectors and entrepreneurs. Tax inspectors cannot invest in the production activity and earn a fixed salary w. Entrepreneurs use their available capital in the production sector. The State monitors entrepreneurs' and tax inspectors' behavior through controllers, in order to weed out or reduce corruption, and fixes the level of the tax rate t on the product y. The State uses its tax revenues to pay the tax inspectors' wages, and there is no space for financing public productive expenditure. We assume that taxation is not distortive regarding input provision. Entrepreneurs produce y, with technology with constant returns to scale. Each entrepreneur is assumed below to have the same quantity of capital k. The production function of the good only depends on the capital and the natural state that may occur. Indeed with a probability $(1-\delta)$ production will be $y=ak$, while with a probability δ an adverse natural state will occur, production will not take place and the corresponding production will be $y=0$. The tax inspector, who checks whether the tax payment is correct, is able to tell which of the two natural states have occurred for each entrepreneur. It is common knowledge that the tax inspector[1] is corruptible, in the sense that he pursues his own interest and not necessarily that of the State; in other words, the tax inspector is open to bribery. The tax inspector, in the case of the "good" natural state and in exchange for a bribe b, can offer the entrepreneur the opportunity of reporting that the "bad" natural state has arisen. In this case, the entrepreneur could refuse to pay the bribe (b^d being the bribe requested by the tax inspector), or agree to pay the bribe and negotiate the amount with the inspector.

The State checks on the behavior of entrepreneurs and tax inspectors. Let $q\in[0,1]$ be the exogenous monitoring level implemented by the State; then q is the probability of being detected, given that corruption has taken place. The entrepreneurs incur a punishment equal to ck where $c\in[0,1]$.[2] We assume that the entrepreneurs are not homogeneous agents, and more precisely, the j-th entrepreneur attributes a subjective value c_jk to the objective punishment – depending on his own "shame effect" – when the corrupt transaction is detected. The entrepreneur, if detected, must pay taxes ty, reputation cost c_j, but he is refunded the cost of the bribe paid to the tax inspector.[3]

2.1. The game: description and solution

Given the model just described, the economic problem can be formalized by the following two-period game.

In what follows, we refer to the entrepreneur payoff by a superscript (1) and to the inspector payoff by a superscript (2): they represent respectively the first and the second element of the payoff vector $\underline{\pi}_i, i=1,2,3,4$.

At the outset of the game, Nature decides in which state the entrepreneurs find themselves with their consequent level of activity.

(1) In the first stage of the game, the tax inspector checks the entrepreneurs' production. If a "bad" natural state occurs, then the tax inspector reports that no tax is owed and in this case, the game ends. Otherwise, if there is a "good" natural state, the tax inspector decides whether to ask for the bribe b^d and to report that the "bad" natural state has arisen, and that the entrepreneur need not pay any tax.
  (1.1) If $b^d=0$ no bribe is asked for, the payoff vector for the entrepreneurs and tax inspectors is:

$$\underline{\pi}_2 = (ak(1-t), w) \tag{1}$$

  The game ends in the equilibrium without corruption.
  (1.2) Otherwise, let $b^d>0$ be the positive bribe asked for by the tax inspector, the game continues to stage two.

(2) At stage two the entrepreneur decides whether to negotiate the bribe or turn it down.
  (2.1) If the entrepreneur refuses the bribe, then the payoff vector is given by:

$$\underline{\pi}_3 = (ak(1-t), w) \tag{2}$$

  Then in this case, the game ends. There is no penalty for the tax inspector.
  (2.2) Otherwise the negotiation starts and the two parties will find the bribe corresponding to the Nash solution to a bargaining game (b^{NB}) so the game ends. This bribe is the outcome of a negotiation between the inspector and the entrepreneur, who will be assumed to share a given surplus. The payoffs will depend on whether the inspector and the entrepreneur are detected (with probability q) or not detected (with probability $(1-q)$). There is no

[1] The inspector is assumed to have monopolistic power, meaning that an entrepreneur is seen by only one inspector and cannot turn to other inspectors to be treated differently.

[2] The punishment for the entrepreneur is not a constant, but rather a function of the investment. In this case too, based on the statements of Rose-Ackerman (1999): "On the other side of the corrupt transaction, a fixed penalty levied on bribers will lower both the demand for corrupt services and the level of bribes. However, it will have no marginal impact once the briber passes the corruption threshold. To have a marginal effect, the penalties imposed on bribe payers should be tied to their gains (their excess profits, for example)". pp. 55.

[3] This assumption can be more easily understood when there is extortion by the tax inspector rather than corruption.