Tax evasion and corruption in local governments in Tanzania: Alternative economic approaches
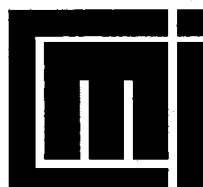
Odd-Helge Fjeldstad

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CHR. MICHELSEN INSTITUTE
Development Studies and Human Rights

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Summary:

The primary concern of the paper is to discuss the role of various economic factors in explaining the mechanisms and degree of fiscal corruption and tax evasion in local governments in Tanzania. The emphasis is on how the incentive structure of the tax system affects the decisions of taxpayers and tax collectors to engage in fraudulent behaviour. The paper starts with a set of research questions based on empirical observations, and examines the fundamental ideas, basic assumptions and limitations of possible theoretical approaches for answering these questions. The theory is presented in a "non-technical" way, emphasising the intuitive understanding of the arguments presented.

Indexing terms:

Corruption
Tax evasion
Tax collection
Tanzania

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1 Introduction[1]

Tax evasion and fiscal corruption have been universal and persistent problems throughout history with many-sided important economic consequences. Two thousand five hundred years ago, Plato was writing about tax evasion, and the Ducal Palace of Venice has a stone with a hole in it, through which people once informed the Republic about tax evaders (Tanzi and Shome, 1993:807).[2] The classic document of Hindu statecraft, the *Arthasastra*, advises kings of Mauryan India in the third century B.C. to maintain personal control of government finances in order to protect themselves from treachery.[3] The basic assumption, was that without control man, self-serving by nature, would appropriate more than his share of the king's revenue:[4]

> Just as it is impossible not to taste the honey or the poison that finds itself at the tip of the tongue, so it is impossible for a government servant not to eat up at least a bit of the king's revenue.

Today, corruption and tax evasion seem to take place in practically every country in the world, and should be considered a potential problem everywhere. Still, evasion and fraud in tax administration are phenomena which hit developing countries hardest (Galtung, 1995:1).[5] Studies in different developing countries indicate that it is not uncommon that half or more of the taxes that should be collected cannot be traced by the Treasury (Bird, 1990, 1992; Alm et al., 1991; Low, 1995). This tax base erosion has had a variety of fiscal effects and there are at least three reasons for concern. First, revenue losses from non-compliance and corruption become particularly significant at a time of substantial budget deficit. Second, horizontal and vertical equity suffer because the effective tax rates faced by individuals may differ because of different opportunities for tax evasion (Alm et al., 1991: 849). Third, there is a growing concern about the expanding underground economic activities, and how these activities affect economic policies (Tanzi and Shome, 1993:808). Acts of corruption by tax collectors often play a role in promoting or sustaining underground economic activities and in facilitating tax evasion (Tanzi, 1994:17; Tanzi, 1995). Tax evasion and fiscal corruption thus contribute to undermining the legitimacy of government. Furthermore, citizens' disrespect for the tax laws may expand disrespect for other laws.

We use local governments in Tanzania as our frame of reference. Few studies have been made of the actual functioning of local government tax administrations in developing countries. Most of the available literature focus on central government taxation (e.g.,

[1] I would like to thank Jens Andvig, Tor Skålnes, Hugo Stokke, Lars Sørgard, Ussif Rashid Sumaila, Arne Tostensen, Inge Tvedten and participants at the Research Council of Norway's conference for the research programme *Public administration in developing countries*, 5-6 November 1996, for helpful comments. The financial support from the Research Council of Norway is gratefully acknowledged. Errors and views are entirely mine.

[2] A modern version of this technology is found in Uganda: On a special telephone hot-line people can report corrupt tax officials or taxdodgers. They get a reward, usually around 10 %, of the tax recovered (*The Economist*, July 17th 1996, p. 38).

[3] Mauryan India was contemporary with the empire of Alexander the Great. After the Hellenistic armies invaded India there were periodic contact between India and the older monarchies to the north and west. Some scholars believe that the *Arthasastra* reflects the influence of Egyptian, Persian and Hellenistic ideas of the monarch's central authority and role in government (see Webber and Wildavsky, 1986:62).

[4] Cited in Webber and Wildavsky (1986:82). These rulers tried to devise a structure of incentives and a network of control to guard against fiscal corruption.

[5] Klitgaard (1994:1) asserts that corruption is "clearly one of the two or three major problems holding back economic and political advancement in most developing countries". Galtung (1995:1) argues that one of the areas of government where corruption looms largest is in the assessment and collection of taxes.

Klitgaard, 1988) and is essentially prescriptive (e.g., Kelley and Oldman, 1973; Mansfield, 1988; Goode, 1990; Bird, 1990 and 1992; and Bird and Oldman, 1990). Thus, there is limited knowledge about many of the key administrative issues: the mechanisms of tax enforcement, the extent and characteristics of tax evasion and fiscal corruption, incentives for tax collectors, tax audit selection and monitoring procedures, and so on. Local government taxation represents a unique opportunity to study some of these dimensions of the issue at hand.

The problems of fiscal corruption and tax evasion are caused by the aggregate effects of numerous decisions by taxpayers, tax collectors, administrators, and (local) government decision makers. Individuals respond to the natural, cultural, social, political, legal and economic environment that surrounds them. In this paper we will concentrate on economic explanations and mainly consider the economic consequences of these phenomena. The emphasis is on how incentives and disincentives in the tax system (which includes the tax administration) affect taxpayers' and tax collectors' decisions about whether to engage in fraudulent behaviour or not. We argue that imperfect information and uncertainty lie at the core of understanding these problems. Uncertainty opens up the door to strategic behaviour, particularly when the uncertainty or lack of information is asymmetric across agents. Such informational asymmetries may be significant in tax administration. Our focus on the economic forms and ways of explaining these phenomena does not imply that we believe that these are the only aspects of importance. Other aspects matter (e.g., social networks, family relations, norms, etc.), and may also be even more important than the economic ones in certain contexts. However, we consider this as mainly an issue of professional division of labour.

The paper is organised as follows. In section 2 we briefly describe some important characteristics of the local government tax system in Tanzania. Section 3 proceeds by defining the concepts of fiscal corruption and tax evasion, and presents a benchmark model which we will use as a frame of reference for the analysis. The remaining and main part of the paper is written around six central questions which refer to observed phenomena of fiscal corruption and tax evasion in local governments in Tanzania:

1. Which factors influence taxpayers' and tax collector's decisions?
Critical factors in this respect are how the tax law is administered, perceptions about tax enforcement, including the probability of being detected and punished, and the size of the potential gain of fraudulent behaviour. We also discuss the impacts of collusion among taxpayers and collectors on these parameters. These issues are considered in section 4.

2. What impacts have alternative wage incentives on the performance of tax collectors?
In section 5, we examine three alternative wage regimes: First, the *reservation wage* which is equal to the wage the tax collector could earn in alternative employment. Second, the *efficiency wage* which is strictly above the wage the tax collector could receive in his second-best alternative occupation. Third, the *capitulation wage* which is below the reservation wage. We discuss the efficiency of these wage regimes in relation to different institutional settings such as the sophistication of accounting procedures and information management in the tax administration, and the fraction of corruptible tax collectors in the administration.

3. What impacts do auditing and monitoring have on the tax collector's performance? The aim of the monitoring policy is to get the auditors to identify and report tax fraud. The wage contract between the local government and the tax collector will then include the

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probability of an audit. However, such contracts are very sensitive to strategic behaviour from the parties involved, including collusion. Section 6 examines possible incentive problems related to monitoring and auditing.

4. What impacts does the bureaucratic structure of local governments have on the incidence of corruption?

In section 7, we consider how the bureaucratic structure of local governments in Tanzania may itself affect the incidence of corruption. The governance structure is relatively complex. In addition, aid organisations are heavily involved in some councils. This agency structure, characterised with multiple principal's who simultaneously and independently try to influence local government revenue mobilisation and, thus, the actions of the tax collectors, may result in severe weakening of incentives for the collectors.

5. Why do tax evasion and corruption rates vary across tax bases, economic sectors and councils?

In section 8, we explore two theoretical approaches to explaining these phenomena, first multiple equilibria models, and second, a model which focuses on the impact of social interaction on the taxpayer's (or the collector's) perception of the probability of being detected.

6. How do we establish incentive structures which reduce the tendency of evading taxes and embezzling tax revenue?

Relevant issues in this respect are, for instance, the efficiency of tax collection, wage incentives for tax collectors, and credible sanctions against culprits. In section 9, we briefly sketch some (tentative) policy implications for fighting fiscal corruption and tax evasion.

2 Local government taxation in Tanzania

The four most important local government taxes in Tanzania are (1) development levy (poll tax), (2) crop cess, (3) business licenses and (4) sales taxes, market fees and charges (Semboja and Therkildsen, 1992; Semboja, 1995). Poor tax compliance is a major problem regarding these taxes. It is not uncommon that half or more of the taxes that should be collected are unaccounted for (Semboja and Therkildsen, 1992). However, there are significant variations in collection rates between these tax bases.[6] There are also significant variations between councils. For example, among the 82 district councils in Tanzania, the lowest collection rate, as a percentage of potential tax revenues, was estimated to 26.4 per cent in 1989, and the highest 89.4 per cent (Tax Commission, 1991).[7] According to Semboja and Therkildsen (1992), the councils with lowest tax collection rate seems to be concentrated in regions with a low agricultural potential (i.e., Mtwara and Lindi), while regions with extensive cash-crop production (i.e., Mwanza) have a much higher collection rate.

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[6] The collection rate is defined by actual revenue as percentage of potential revenue. For development levy potential revenue is estimated by applying tax rates to the number of taxable individuals in the councils, and for other tax bases by applying tax rates to the value of the tax base. In general, with the exception of development levy, the revenue potential of the individual tax bases is not fairly well documented.

[7] There is significant uncertainty connected to these figures. However, they probably give a reasonable good picture of the variations in collection rates between councils. The performance figures may reflect variations in tax evasion and corruption frequencies, as well as differences in capacity, competence, etc. between local administrations. These issues will be treated in the empirical part of the project.

The Indian Ocean Newsletter (no. 726, 6 July 1996:1) refers to corruption and tax evasion in Tanzania as the country's two major ills. Wastage, corruption and mismanagement in the public sector have grown significantly since the late 1970s. According to Mukandala (1983:261), the civil service is "increasingly riddled by corruption and embezzlement of public funds". The Auditor General's reports from the 1980s show that this trend continues (Semboja and Therkildsen, 1992:1103). The problem exists at all levels in the public sector. In the context of tax collection these issues are, however, particularly pressing, given the need to raise more tax revenues. A reduction in efficiency in this branch of government is likely to mean that fewer returns are processed and when individuals' living standards are squeezed, their incentive to accept bribes in lieu of collecting taxes is increased.

Apart from the factors discussed above, the way in which Tanzania has organised its local government tax system has contributed to increase the transaction costs of tax enforcement. For example, the local tax system is characterised by:

(1) An excessive number of different taxes with different rate structures which dilutes the expertise of tax administrators, since a small staff often have to administer most of the taxes.

(2) The tax law is written in a confusing way, and manuals to consult are often absent.

(3) Weakness of legal sanctions to enforce punishments on either taxpayers or collectors who do not comply with the law.

(4) The information available to tax administration to check and cross taxpayers is often scarce. Since populations are mobile, it may be problematic to trace many personal taxpayers. Since much trading is informal, there is often very little documentary evidence to provide a basis of investigations. Thus, tax inspectors may have few weapons with which to investigate non-compliance.

Each of these factors increase the costs of raising a given tax as well as limiting the array of taxes which can be profitably levied, i.e., yield positive net revenues (Besley, 1993). Traditional tax systems were often sustained by a combination of commitment to other individuals in the community, and the tangibility of benefits from taxation. Neither motive may be so strong for taxes levied by the present local and central administrations. Non-compliance may also have contagious effects, as some taxpayers regard it as unfair that they should have to pay taxes when others do not (see, e.g., Bordignon, 1993). It is similarly the case that dishonesty on the part of tax collectors may not be punished by cultural sanctions.

3 Tax evasion and fiscal corruption; the principal-agent-client framework

It is widely recognised that imperfect information and uncertainty lies at the core of the incentive problems in the public sector. Uncertainty opens up the door to strategic behaviour particularly when the uncertainty or lack of information is asymmetric across agents. Such asymmetrical information may be significant in tax administrations. For example, tax collectors are often better informed about the revenue potential of a tax base than is the management of the local government. Tax collectors may have incentives to

exploit these informational advantages, whereas the management have incentives to encourage tax collectors to reveal truthfully their knowledge of the revenue potential. By the same token, taxpayers may have informational advantages over tax collectors concerning their tax liability.

In this section, we first define the concepts of tax evasion and corruption in tax administration. Next, we present the benchmark theoretical model which we will use as a frame of reference. Finally, we present a typology of fiscal corruption.

3.1 Defining tax evasion and corruption

The term *corruption* comes from the Latin verb to break, *rumpere,* which implies that something is broken. This something might be a moral or social code of conduct, or more often an administrative rule. If it is the latter, a requirement must be that the rule that is broken is precise and transparent. Another is that the person who breaks it derives some recognisable benefit for himself, his family, his friends, his tribe or party, or some other relevant group. Additionally, the benefit derived must be seen as a direct return from the specific act of "corruption" (Tanzi, 1995:167-168).

The corruption literature has pursued a number of different strands, and no single definition of corruption is generally accepted. One definition of corruption in Webster's *New Collegiate Dictionary* is "inducement to wrong by bribery or other unlawful or improper means". This rather broad definition, incorporates both the tax collectors' and taxpayers' behaviour. For our purpose it may, however, be convenient to settle for a rather specific two-part definition, one for taxpayers and the other for collectors (see, Low, 1995):

1. Tax collectors are corrupt when they use conferred monopoly power to extort money from taxpayers, or to collude with taxpayers in defrauding the treasury, or to find some other means of embezzling money from the tax authorities.

2. Taxpayers evade taxes when they intentionally fail to declare taxable economic activity or use false declarations, with or without collusion from tax collectors.

In accordance with the definition above, tax evasion is an illegal activity, although the economic activity which may have generated the tax liability in the first place need not be illegal. Tax evasion should therefore be distinguished from *tax avoidance*, which is the legitimate use of tax loopholes to reduce or minimise tax liability. The boundaries between evasion and avoidance may, however, at times be vague (Pyle, 1993:59). To make a distinction between them for analytical purposes, Cowell (1985) has suggested that the essential difference is that avoidance implies certainty on the part of the taxpayer, whereas evasion involves risk.

3.2 The benchmark model

Following Klitgaard (1988), we will use a principal-agent-client (P-A-C) framework as a point of departure for the analysis.[8] This model focuses on the relationship between the *principal,* in this case the state or the top level of the local government, an *agent,* i.e., the tax administrator or collector, and a *client,* i.e., the taxpayer. The tax collector (inter)acts as

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[8]   This approach builds on Becker (1968) and Becker and Stigler (1974).

an agent (A) on behalf of the principal (P) with the taxpayer (C). Within this theoretical framework we assume that tax collectors (A) and taxpayers (C) are rational utility maximisers. Their decision to behave honestly or illicitly are based on calculations of costs and benefits of their behaviour.

As a starting point we will assume that the principal's objective is to raise a given amount of tax revenue while keeping the social cost of raising revenue at a minimum level.[9] Provision of public goods and any other services will be ignored. Also ignored are the motives of the principal in governing, which could be the maximisation of a social welfare function, the maximisation of the tax revenue (Levi, 1988), rent seeking, or acting ".... like a discriminating monopolist, separating each group of constituents and devising property rights so as to maximise revenue (North, 1981:23). All those targets are consistent with the aim of keeping the social cost of taxation as low as possible (Slemrod and Yitzhaki, 1996:176). Neither do we consider other targets of taxation, such as horizontal equity and the redistribution of income.

At the core of the principal-agent-client problem are divergent objectives and asymmetric information (see, e.g., Hirshleifer et al., 1992; Kreps, 1990). The principal understands this fundamental asymmetry of objectives and information. However, the information problem makes it difficult for the principal to control the agent, along two dimensions. First, is the problem of *moral hazard* where the agent takes *actions hidden* or unobserved by the principal. For instance, when the principal employs the agent to collect taxes, an action with an uncertain outcome, the agent will evidently be in a better position to know about any shirking or opportunistic behaviour he chooses to engage in. Since the agent's actions cannot be observed without costly monitoring, the agent may take bribes and/or embezzle funds, or he may put little effort into tax collection. Second, is the problem of *adverse selection* where the agent has *hidden knowledge* prior to contracting with the principal. The tax collector will, for instance, have more knowledge about his own competence and qualifications, including honesty, than will the principal who employs him. This problem arises because not all tax collectors *ex ante* can be identified as being honest or dishonest.

The principal's problem thus arises when, as is usually the case in the public sector, he has poor information about the agent's (and the client's) activities, either productive or corrupt, and/or poor knowledge about the agent's type, either honest or dishonest. In real life the principal cannot tell how much of the outcomes of tax collection he observes are due to the agent's activities on his behalf. After all, the agent has incentives to mislead the principal into thinking he is working only on productive activities, never on corrupt ones (Klitgaard, 1988:71). The tax administration like any other bureaucracy is not subject to competition and can set its own agenda, which (may) have nothing to do with local government's (the principal's) objective.

3.3 A typology of corruption

Within the principal-agent-client framework (P-A-C) it may be useful to make a distinction between (1) *external* corruption which is essentially an A-C relationship, and (2) *internal*

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[9] In the principal-agent literature which focuses on the public sector it is usually assumed that the principal embodies the public interest, in other words, it is a highly principled principal. In section 7, we discuss this assumption and argue that in the case of local governments in Tanzania there is probably several principals who try to influence the action of the agent (i.e., the tax collector).

corruption which basically is a P-A relation (see Klitgaard, 1988:50). Tentatively we assume that the following forms of corruption take place in the local government tax administration:

1. External corruption (A-C relation).
This takes two major forms:

1.1 Collusion.
Tax collectors and taxpayers collude to reduce tax liabilities.

1.2 Extortion.
Tax collectors (assessors) make individual judgements on tax liability, and threaten taxpayers with higher rates, preying on their ignorance or their unwillingness to subject their cases to costly litigation.

2. Internal corruption (P-A relation).
There are three major forms:

2.1 Embezzlement.
Tax collectors and/or employees of the tax administration make off with funds collected.

2.2. Fraud.
Overprinting of tax stamps and labels.

2.3 Collusive auditors.
The tax collector (A) may bribe the internal auditor into not revealing incriminating information.

The ways in which corruption and evasion are carried out in practice vary between the individual tax bases. This has partly to do with opportunities, e.g., due the tax collection method. In table 3.1, the four major local tax bases in Tanzania are (tentatively) categorised within the scheme presented above:

Table 3.1: *Typology of corruption and evasion of local tax bases in Tanzania* (tentative)

	Development levy (poll tax)	Business licenses	Crop cess tax	Fees and charges
Evasion with no collusion	x			x
Collusion	?		x	x
Extortion		x		x
Embezzlement		x	?	x
Fraud	x			x
Collusive auditors	?	?	?	?

Principal-agent analysis may help to identify some key ingredients and characteristics of the incentive problems in tax administration, including collector-related tax fraud, regardless of whether the fraudulent behaviour requires the collusion of taxpayers. In each case, the challenge facing the lesser-informed principal is to design an incentive scheme (a contract) aimed at mitigating the effects of informational asymmetry.[10] However, it may be expensive for the principal to overcome this asymmetry. Before proceeding to discuss alternative wage incentive schemes for tax collectors (section 5), we will discuss more specifically the incentive structures facing taxpayers (C) and tax collectors (A), respectively.

4 Factors influencing taxpayers' and tax collector's behaviour

An extensive literature on tax evasion has developed since the seminal contributions of Allingham and Sandmo (1972) and Srinivasan (1973).[11] In this "first generation" tax evasion literature a representative rational individual is viewed as weighing the expected utility of the benefits from successful tax evasion with the uncertain prospect of detection and punishment, and an individual pays taxes because he or he is afraid of getting caught. The problem typically addressed is how the (local) government should set the parameters of the tax and penalty system if it has to collect a fixed amount of revenue from taxpayers who are prone to evade.[12]

In recent years, the tax authorities' perspective has been taken into consideration, primarily the problem of devising efficient mechanisms to induce taxpayers to report their true liabilities. This approach now includes a number of principal-agent models (e.g. Reinganum and Wilde; 1985; Melamad and Mookherjee, 1989; Chander and Wilde, 1992a), and game-theoretic models (e.g. Graetz, Reinganum and Wilde, 1986; Beck and Jung, 1989; Beck, Davis and Jung; 1989).[13]

The literature referred to above, is based on a strong asymmetry assumption under which taxpayers are (potentially) dishonest, and tax collectors honest. More recently, a small literature which relaxes the asymmetry assumption mentioned above has developed (see, for instance, Virmani, 1987; Chander and Wilde, 1992b; and Besley and McLaren, 1993). In this approach it is the tax collectors or tax administration rather than just the taxpayers who

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[10] In this model, the principal is assumed to be a Stackelberg leader in the sense that it designs and offers the contract, taking into account that the agent (tax collector) will react according to his own interests, perceiving the terms of the contract as given (see, e.g., Kreps, 1990). The tax inspector is assumed to be competent in the sense that he knows what he wants and is able to obtain it (subject to a proper set of constraints). In a world without information asymmetries it is possible for the principal to design a first best contract in the sense that tax collection is increased at the lowest possible cost of the principal. In a world with such asymmetries the problem is to design a second best contract where the extra costs due to information problems are minimised.

[11] Much of the modelling has been concerned with income tax evasion (e.g. Mork, 1975; Christiansen, 1980; Sandmo, 1981; Clotfelder, 1983; Cowell, 1985). Cowell (1990) provides a readable and relatively comprehensive review of this literature.

[12] Later, the tax evasion literature has been further developed to incorporate other determinants of taxpayers (non-)compliance, such as the use to which tax revenues are put (see, for example, Cowell and Gordon, 1988; and Falkinger, 1989); stigma costs of tax evasion (e.g. Benjamini and Maital, 1985; Gordon, 1989; and Myles and Naylor; 1992); and taxpayers perceptions of social relationships (e.g., Cowell, 1992) and fairness (e.g. Bordignon, 1993). However, in general, these approaches continues within the Allingham-Sandmo (1972) framework.

[13] Several of the references on the principal-agent approach (for example, Reinganum and Wilde, 1985), are devoted specifically to optimal taxation in the presence of costly enforcement.

are dishonest. This makes tax evasion models much more complex, and involves strategic (game theoretic) approaches into the analysis.[14]

Depending on relative bargaining power, tax collectors will either participate in revenue fraud by splitting unpaid taxes with taxpayers (collusion), or will simply appropriate the full amount of the tax not handed over to the (local) government's treasury. The latter outcome arises in circumstances where the taxpayer has zero bargaining power. A related situation is one where tax collectors simply extort money from taxpayers, on some pretext that overstates the real liability of the taxpayer. The bargaining element is here based on the ignorance of the taxpayer, or on his being intimidated by the tax collector. A third case, involving no consideration of bargaining power, occurs when a tax collector embezzle tax revenues without any collusion on the part of the taxpayer. In this last case, the only requisite is that the tax collector is dishonest, and has direct access to tax proceeds. This situation only occurs when taxes are paid in cash or in some other easily negotiable financial instrument.[15]

4.1 The taxpayer's decision about whether to evade or not

Tax evasion is practised in different forms, with or without the collusion of tax collectors: Production and sales volume may not be declared or may be underreported; taxable goods may be sold in the informal sector; or the taxpayer may undertake other deceptions. The opportunity for tax evasion also varies between different tax bases and sectors. For instance, in the case of development levy (poll tax) public sector employees pay the levy through a tax withholding system (where they receive their salaries net of tax). Their opportunity for evading is thus limited compared to other groups of taxpayers. In general, tax evasion is easier for the self-employed contractors, professionals and those engaged in agricultural activities (Tanzi and Shome, 1993:809).

In the benchmark model (see section 3.2) the taxpayer's decision to evade or not is based on calculations of costs and benefits of his behaviour. This decision problem can be illustrated in a simple tax evasion model:[16]

Let T_r be the tax or charge that should be paid according to the tax law, and let T_e be the tax or charge paid when evading, subject to the condition that $T_r > T_e \geq 0$.

p_r is the (actual) probability of being detected if evading ($1 > p_r > 0$) and F is the size of the fine. The probability of detection can be interpreted as a parameter reflecting the resources the tax authority puts into auditing the taxpayers. This model typically assumes that all individuals have identical and exogenously given perceptions of the probability of being detected, and that these are the same as reality.[17]

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[14] Game theoretic analysis generally applies a Nash-type bargaining framework to determine when bribes will be paid and how they will be distributed between taxpayers and collectors.

[15] Low (1995) provides an interesting and thorough discussion of these issues related to customs. This section draws on Low's study.

[16] This model is a simplified version of the "standard" tax evasion model of Allingham and Sandmo (1972).

[17] This implies that individual taxpayers are as well informed as the tax authority about the probability of being audited and convicted. In section 8.2 we discuss the realism of this assumption, and suggest an alternative approach.

The taxpayer's gain if not detected in evasion:

(1) $\qquad (T_r - T_e)$

The taxpayer's liability if he is detected:

(2) $\qquad (T_r + F)$[18]

The expected net gain or loss per transaction is:

(3) $\qquad E = (1 - p_r)(T_r - T_e) - p_r(T_r + F)$

The taxpayer will try to evade taxes if:

(4) $\qquad (1 - p_r)(T_r - T_e) > p_r(T_r + F)$

In this simple and stylised model, the evasion gamble is based on the taxpayer weighing the benefits from successful evasion against the risky prospect of detection and punishment. The taxpayer's behaviour (equation (4)) is influenced by factors such as the difference between the amount of the tax that is to be paid without evasion and the tax payment with fraud (which determines the benefits of evasion), and the probability of detection and the penalties for fraud (which determine the costs). The model predicts that if detection is highly probable and penalties severe, people will become more compliant.

This formulation of a taxpayer's decision about whether or not to evade is of course over-simplified, and a number of criticisms have been levelled against it. One limitation has to do with the use of penalties applied to those evaders who get caught (Tanzi and Shome, 1993:811). Raising penalties is not a costless way of ensuring compliance. In the extreme, the penalty upon detection could be death. However, penalties cannot be credibly raised without limit. Anecdotal evidence from several countries also indicates that the judiciary system often is unwilling to apply the penalties fully under circumstances where only a few individuals are detected, when many more are committing the same offence but are not detected. This means that the penalties actually imposed may differ significantly from those in the tax law.

Another limitation is due to the fact that, according to the theory, the taxpayers know precisely the actual probability (p_r) of being detected and the penalties (F) they will endure, and that they make a cost-benefit calculation on this basis. However, the tax administration often keep this information highly confidential. For most taxpayers, the probability of being detected is only a subjective parameter. The taxpayer's decision to evade or not, is therefore not based on the actual probability, but on his perception of the probability (p_p) of being detected (which may vary significantly between individuals). We return to this problem in section 8.2.

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[18] The punishment function could, of course, have many other forms, and, in practice, it does. In Tanzania, for instance, the general penalty if caught and convicted in evasion is twice the amount of the tax amount evaded (Tax Commission, 1991).

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The decision rule in equation (4) is, however, a useful heuristic device, since it identifies key variables with which policy-makers must focus on if they want to address tax evasion. The value of T_r is crucial, as higher taxes will be associated with higher propensity for non-compliant behaviour. A policy question which should be considered, based on standard price elasticity assumptions and quantity effects aside, is if lower taxes may contribute toward higher revenue collections through reducing the incidence for evasion.

The variable T_e is also subject to policy influence. First, it is directly related to the size of T_r. Second, to the extent that tax evasion takes the form of misclassification of taxable goods (e.g., with respect to crop cess), the scope for such behaviour can be reduced by making tax rates more uniform. Third, investing in improved expertise and competence in tax administration may help guard against such misclassification and undervaluation.

The penalty if detected in evasion, F, should be high enough to deter fraud. However, penalty provisions are only useful if they represent credible threats, and such credibility cannot be maintained unless the tax authorities are willing to apply penalties in a consistent and transparent way.

Finally, the value of p_r is susceptible to policy intervention, since it is (among other factors) driven by the degree of effective monitoring or audits that occurs. This brings us back to the earlier observation that the standard tax evasion literature is based on the assumption that tax collectors are always honest, which, thus, gives greater scope for effective monitoring. However, if tax collectors are not intrinsically honest, what will influence their decision rules about when to act corrupt?

4.2 The tax collector's decision about whether to engage in corruption or not

In this model, we assume that the tax collector (agent) will be corrupt, with or without the collusion of taxpayers, when his expected net benefit from corruption exceeds the expected benefit from behaving honestly. Further, we assume that detection leads to dismissal, and that r is the (actual) probability that fraud will be detected. The value of the tax collector's loss if detected is the difference between the discounted value of his future earnings stream as a tax collector (Y_C), and the earnings stream he would expect in alternative employment (Y_A), plus the expected gain per transaction from fraudulent activities, i.e., the monetary value of the financial gain accruing from corruption (B).

The tax collector's expected loss per transaction is:

(5) $r(Y_C + B - Y_A)$

Similarly, the expected gain per transaction from corruption is:

(6) $(1-r)B$

Thus, there will be an incentive to behave dishonestly if:

(7) $(1 - r)B > r(Y_C + B - Y_A)$

Expression (7) suggests that with a given risk preference, a tax collector will engage in dishonest behaviour if the expected return from doing so is greater than any anticipated loss in income. In this stylised model, the variables driving the tax collector's decision are similar to those affecting the taxpayer, i.e., the size of the potential gain, the likelihood of detection, and the consequences of detection. According to this simple model, a high level of corruption in tax collection may (partly) be explained by poor and inefficient monitoring and tax auditing, resulting in low risk of being detected and punished.

4.3 Collusion between taxpayers and tax collectors

The interaction between taxpayers and tax collectors is clear from expressions (4) and (7). The probability that a taxpayer is detected for evasion (p_r) drops if he can count on collusion from the tax collector. On the other hand, if the taxpayer and collector fail to "reach an agreement", both run the risk that the other may reveal the attempted fraud. Thus, p_r could increase for the taxpayer and r could rise for the collector.

The value of T_e, i.e., the tax or charge paid when evading $(T_e \geq 0)$, may increase for the taxpayer if he has to collude with the collector and share the evaded taxes. On the other hand, if collusion reduces p_r, a taxpayer may be tempted to indulge in greater fraud than he would consider in the absence of cooperation with the collector. The size of the tax collector's B, i.e., the value of monetary gain accruing from corruption, will probably vary with the taxpayer's T_r. For example, it is reasonable to assume that evasion of higher taxes will require larger bribes.

On the other hand, the T_e variable for the taxpayer and the B variable for the collector contain independent elements that do not call for collusion. A taxpayer may, for instance, try to evade taxes without exercising the option of bribing a collector, and a collector may not need cooperation from the taxpayer if he can carry out an independent fraud, or can extort a bribe from the taxpayer (see the discussion in section 3.3 on different forms of fiscal corruption). Finally, while F is exogenous for the taxpayer, the higher the penalty faced by the taxpayer when detected in evasion, the better the opportunity for the collector to bargain away fraudulent gains from the taxpayer.

5 The impacts of alternative wage incentives on the performance of tax collectors

As noted above (section 3), the challenge facing the lesser-informed principal is to design an incentive scheme (a contract) aimed at mitigating the effects of informational asymmetry causing tax fraud. However, it may be expensive for the principal to overcome this asymmetry. In this section, we discuss alternative incentive schemes for the tax collectors which may ensure this.

An important policy variable controlled by the state (principal) is Y_C, and indirectly, its relationship with Y_A (see section 4.1). A common observation about the wages received by tax collectors is that they are so low as to invite corrupt behaviour (Low, 1995). In a survey carried out by the Tanzanian Corruption Commission (1996:24), a significant number of people questioned mentioned the low salaries of public service workers as being a major incentive to seeking and accepting bribes. During the 1970s and 1980s, there has been a severe erosion in the real wages and salaries of civil servants. Semboja and Therkildsen

(1992), based on Valentine (1983), estimate that real wages of civil servants in Tanzania in 1984 had fallen to around 40 per cent of the 1969 level for the lowest paid employees and to almost one-tenth for the highest paid. The decline continued up to 1988 when real minimum wages were only 25 per cent of the real minimum wage 20 years before. Average salaries in the late 1980s, for example, provided only one-fifth the purchasing power of the 1970s. According to Mans (1994:378), the average civil servant's package of wages and monetary allowances covers only about 40 percent of the expenses of a typical household.[19]

Many scholars, for example, Palmier (1983); Gould and Amaro-Reyes (1983), and Klitgaard (1988) seem to argue that increasing civil service wages will reduce corruption. The implication here is that corrupt behaviour is induced by poor pay, and would therefore reduce or disappear if incomes were to rise. The basic idea is that a rise in the tax collector's salary is like a rise in his fine for bribery, since that is what he will lose if he is caught and fired.

Besley and McLaren (1993), [B&S (1993)], challenges the view that raising pay will solve fraud in tax administration, focusing on the role of wage incentives as a determinant of fraudulent behaviour by tax collectors. B&S (1993) assume that the principal's (i.e., the state or the tax authorities) objective is to maximise tax revenues net of wage costs, monitoring costs and revenue fraud. Tax collectors are divided into two categories - the honest and the dishonest. Honest tax collectors are predisposed to honesty. They put an infinite value on their integrity, and are unwilling to accept a bribe at any price. Dishonest collectors seek to maximise their private income and can be induced to behave honestly. Dishonest collectors collude with taxpayers to defraud tax revenues, and the penalty if detected is dismissal. Ideally the (local) government or tax authority (the principal) would like to hire only the predisposed honest collectors, but *ex ante* it cannot distinguish between them and the corruptible ones. Thus the principal faces not only the moral hazard problem (hidden action), but also an adverse selection problem (hidden information). Let γ be the fraction of potential tax collectors who are corruptible in the pool from which tax administrators is recruited. This fraction, indicating the level of honesty among collectors, could be thought of as positively correlated with the degree of cynicism with the government, and negatively with a well-established ethic of loyalty and honesty within the civil service (see McLaren, 1996).

There is a probability q that an act of bribery will go undetected. However, if a collector is detected he is fired. The parameter q can be thought of as negatively correlated with the sophistication of accounting procedures and information management in the tax administration. Three different wage regimes are modelled. First, there is a *reservation wage* which is equal to the opportunity cost, or the wage the tax collector could earn in alternative employment. Second, is the *efficiency wage* which is strictly above the wage the tax collector could receive in his next-best alternative occupation, and thus embodies a rent component that is supposed to deter corruption. The efficiency wage premium must be an increasing function of q. Third, there is the *capitulation wage* which is below the opportunity cost, since at least the potential corruptible tax collectors would be willing to

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[19] Allowances differ, however, significantly between the different categories of civil servants. The upper echelon of the civil service, for instance, also enjoys several in-kind benefits, such as free housing, telephone and transport. The abundance of allowances has contributed to a remuneration structure that is non-transparent and inequitable (World Bank, 1994:v).

work for less than their opportunity wage, knowing that they will be able to make additional income from bribery. Besley and McLaren (1993) analyse each of these wage regimes in terms of their implications for government net tax revenue.

In the model, the *reservation wage* regime makes sense where monitoring is effective (a low q), and dishonest tax collectors are dismissed when detected. Moral hazard problems are present under this wage regime because of the mixture of honest and dishonest collectors. A dishonest collector will always accept a bribe if he is paid the reservation wage, since it is assumed this is the wage he can earn anyway in alternative employment. However, a fraction $(1 - q)$ of the time dishonest collectors are caught and replaced, with the evaded taxes recovered by the government. Over time, the dishonest fraction of tax collectors will therefore be weeded out, leading to increased tax revenues. If γ is small, the reservation wage is optimal (from a net revenue standpoint), since it would not be worth paying a premium to all tax collectors just to motivate honest behaviour in a tiny minority of them. Further, it is not worth economising on the wage by paying less than the reservation wage if that will convert an almost entirely honest tax administration into an entirely dishonest one.

If tax collectors are paid the *efficiency wage*, they all refuse bribes, and all taxes owed are collected. However, this regime is only effective from a net revenue standpoint (i.e., the objective function of the principal) if monitoring is strong enough (a low q) and wage incentives high enough to make corruption a rare occurrence. Thus, if γ is large and q is small (effective monitoring), the premium required for the efficiency wage is small, and with a largely corruptible workforce (high γ) it is worth paying. In this case, efficiency wages are optimal. However, if both monitoring is weak and the workforce is highly corrupt (γ and q are both large), efficiency wages are too expensive to be attractive, i.e., the wage that deters dishonesty will be so high that wage costs could exceed tax collections.

If the government pays *capitulation wages*, only dishonest collectors will be attracted to the tax administration. In this case, the government is giving in to the problem of corruption altogether, since it will be accepting an entirely dishonest workforce that will be accepting bribes all the time. However, in a situation where γ and q are both large, efficiency wages are too expensive to be attractive (as discussed above), and paying reservation wages would simply allow most of the tax collecting force to enjoy bribery most of the time at the government's expense. Under these circumstances, the government might as well lower their wages to reclaim those rents. Thus, capitulation wages become optimal. In this situation, the government will collect revenues only when it catches corruption in action, i.e., $(1-q)$ of the time.

Under efficiency wages, tax collectors are rewarded for not exploiting opportunities to behave dishonestly, and under capitulation wages, collectors are invited to supplement their incomes through corruption. While a reservation wage regime which seeks to augment honesty over time through monitoring and appropriate hiring and firing policies represents the most suitable long-term objective, it may make sense to pay tax collectors efficiency wages in the short and medium term, provided adequate monitoring can be guaranteed.[20]

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[20] In the newly (1 July 1996) established Tanzania Revenue Authority (TRA), the wage system seems to be based on efficiency wage considerations. The proposed minimum wage in TRA is more than 10 times the minimum wage in the public sector .

The model presented above may help explain some observations about tax administration in developing countries. Anecdotal evidence indicates the existence of pay structures resembling capitulation wage regimes (where the official salary is well below the opportunity incomes), however, where tax collectors receive incomes far in excess of the reservation (opportunity) wage level, and where there is strong demand for tax collector jobs. In the Tanzanian *Daily News* (April 27, 1996, p. 7) we find the following statement: "Some Tanzanians today are willing to take up any job for which they are paid below the not-so-honourable poor man's salary of 15,000,- [Tanzanian shillings] so long as there are (promises or) prospects of making side income through theft and bribes". In the same article the author refers to a story where he told his uncle that he had started to study journalism in college. The uncle looked "visibly disappointed and wondered why someone should waste three years learning only how to become a scribe. He asked why I hadn't become a policeman or an immigration officer or a customs official".

Under circumstances with sufficiently weak monitoring capacity and pervasive propensity for corruption, the present salary level may actually be too high, and that the wages may have to go negative before collectors are paid the reservation wage. Tanzi (1995:174) reports, for example, that in an African country, "...three years ago, the government reduced the wages of customs officials to zero for six months under the assumption that 'they could take care of themselves'." A probably extreme position taken in this context refers to President Mobuto Sese Seko who advised Zairian civil servants that: "if you want to steal, steal a little in a nice way".[21]

6 The impacts of auditing and monitoring on the tax collector's performance

One useful practical aspect of Besley and Mclaren (1993) is the precision their model gives to the question of monitoring. As long as the principal (i.e., the government or tax authority) cannot assume that honesty is a prevailing behavioural characteristic feature among tax collectors, or that honesty will be secured merely by increasing wages, monitoring is the most crucial short-term policy variable with which the principal should be concerned from a revenue perspective (Low, 1995:107).

The monitoring problem can also be thought of in terms of principal-agent relations. For instance, since the tax collector has private information about the revenue potential of the specific tax base, which also may depend on exogenous factors, he can report that the tax revenues collected are lower than what is the actual case. The tax collector could then claim that a low tax yield is due to exogenous factors, e.g., poor weather conditions, or low capacity in the tax administration, problems of transport, etc., when they really are due to embezzlement. In order to limit this asymmetry of information (and therefore the rent extracted by the tax collector), the principal can hire an auditor. The role of the auditor is to reveal the true level of taxes collected to the principal, i.e., to verify the tax collector's claims about his private information. Thus, the auditor may allow the principal to limit the rent of the tax inspector. An optimal wage contract between the principal and the tax collector will then include the probability of an audit.[22]

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[21] Quoted from Sandbrook (1986:95).

[22] In principle, financial control in local governments in Tanzania, is exercised through several mechanisms, generally grouped into internal and external. Internally, the finance department of the council is responsible for the "daily" accounting work, including control. External audit is to be done by the Auditor

A paper which carries a lot of insight into the problem of monitoring is Mookherjee and Png (1995). The paper studies the optimal incentive arrangement for a bureaucracy in which a pollution inspector must monitor a firm for compliance with pollution regulations. The insights of the model can, however, be applied directly to the monitoring (and auditing) problem in tax administration if the word "compliance" is taken to mean compliance with the tax law instead with pollution regulations.

The goal of the monitoring policy is to get the auditors to identify and report tax fraud. If culprits are caught they are fired. The problem for the government or the tax authorities (the principal) is that the auditor is difficult to control, along two dimensions. First, he may simply not work very hard to find violations (low effort). Second, he may, on revealing fraud, fail to report and offer to take a bribe instead (collusion). These are both problems of moral hazard (see section 3.2). The auditor can increase the probability of catching a violating tax collector by working harder at inspections, but this is costly to him. The principal may, with some probability, e.g., by engaging an external auditing firm, catch the auditor in the act of taking a bribe, and can fire him in that case, but the principal cannot observe how hard he is working, and so must structure his incentives to elicit the right amount of effort.

In this setting, the tax collector chooses his level of compliance, simultaneously, the auditor chooses his level of effort. If the auditor catches the collector's violation, the auditor reports, causing the collector to be fined and fired, and the auditor will receive a fraction of the fine as a commission or a bonus, unless it is more profitable to collude with the tax collector, reporting no fraud, and splitting the value of the financial gain accruing from corrupt behaviour. If collusion occurs, there is some probability that it will be discovered, a fine is charged to the tax collector and the auditor is fired. In this setting, a rise in the internal auditor's compensation can have a perverse effect on his performance, if corruption is occurring in equilibrium. A rise in the auditor's salary is like a rise in his fine for bribery, since that is what he will lose if he is caught and fired. Thus, a rise in his salary makes it less profitable, in expectation, to take a bribe. However, in an equilibrium with corruption, unless the salary goes up far enough to make the auditor give up bribery altogether, the bribe is his return to effort, and therefore, his auditing effort rationally drops. Paying a corrupt auditor high wages may thus actually induce "laziness" (low effort). It may either raise or lower the tax collector's incentive to behave fraudulent: (i) If the auditor does catch a corrupt collector, he will require a higher bribe to compensate him for the higher risk, but (ii) because he is not trying very hard, it is less likely that he will catch a violation. The net effect on the tax collector's incentives are thus ambiguous.

The important points made by Mookherje and Png (1995) are: First, the implementation of such auditing contracts is very sensitive to strategic behaviour from all the parties involved (see also Khalil and Lawarree, 1995). Second, a pure wage solution for auditors has its limitations in reducing corruption. The reward to the auditor detecting fraud must match the potential bribe from the tax collector.

General's office. Semboja (1995:13) reports that in Kilosa DC the audit section has not yet been established. However, through a regional arrangement, councils in the region share an internal auditor who is stationed in Morogoro Municipal council, but he has not been in Kilosa "since the beginning of the year due to poor health". The external Auditor General's office, on the other hand, is generally understaffed. The efficiency and effectiveness of monitoring and auditing devices may vary between councils, but the Kilosa case probably reflects the situation in many councils.

7 The impacts of the bureaucratic structure on the incidence of corruption

In this section we consider how the bureaucratic structure of local governments in Tanzania may itself affect the incidence of corruption. Within the stylised principal-agent model discussed in previous sections, we assumed one principal represented by the top level of the local government (or the tax authority), whose objective was to raise a given amount of tax revenue while keeping the social cost of raising revenue at a minimum level (see section 3 above).[23] In other words, we assume a highly principled principal who is representing the public interest (Klitgaard, 1988). Implicitly, we thus assume that the principal is committed to systemic reform, improvements in tax collection efficiency and greater integrity in the local tax administration. Do these assumptions reflect reality?

The local governance structure in Tanzania is relatively complex, organised in a four layer hierarchy: villages - wards - council - central government.[24] In addition, aid organisations are heavily involved in district development programmes in some councils, for instance in Kilosa DC, and have significant influence there. In this agency structure, who is the principal with respect to local government revenue mobilisation? Most likely, the situation is characterised by several (multiple) principal's who simultaneously and non-cooperatively try to influence the revenue target and, thus, the actions of the tax collector (the agent). We therefore need to take into consideration (at least) the following "principals" (tentatively):[25]

1. *The management of the council* (i.e., the administrative leadership/District Executive Director) whose objective may be to generate enough tax revenues to pay the council's wage bill and allowances. This may be a minimum performance requirement from the central government, but are, in general, far below the revenue potential (see section 2).

2. *Local politicians* whose objective may be to achieve sitting allowances and to get re-elected. Politicians may say they want an efficient tax administration, - but only to the point at which voters begin complaining that they are being harassed (Wilson, 1989:174). An observation made by Semboja and Therkildsen (unpublished) is that in election years there has been a drop in tax revenues. They relate this drop to politicians preaching "voluntary tax payment" and instructing tax collectors "not to harassing" taxpayers. In Semboja (1995:2), this revenue shortfall is illustrated for Kilosa DC with reference to the 1990 election campaign.

3. *Aid organisations* whose objective may be to maximise tax revenues, since this may be used as a quantitative indicator of the performance of the councils they are involved in.

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[23] Alternatively, the principal's objective could be to maximise tax revenues subject to the constraints laid by the tax law.

[24] In rural councils, below the village level a new structure has been put in place named "kitongoji" ("nabolag"). In urban councils, a sub-level called "mtaa" ("rode") is established below the wards (Naustdalslid and Aasen, 1995:89-90).

[25] In general, there are two main sources of financing local governments. First, central government (CG-)funding which finances the recurrent activities in primary education, rural roads, water supply, health and salaries for staff in the grade LGGS2 and above. The CG also often funds some investment activities. The second source is own funds, which often is limited to recurrent financing of activities which do not receive CG funds. Rarely are own funds used to finance investment activities. A third source in some councils is external financing in the form of donor programmes, which mainly finance investment activities (see, e.g., Semboja and Therkildsen, 1992; Semboja, 1995).

4. *The central government* whose objective seems to be unclear with respect to local governments. However, the short term objective (or requirement) may be that local governments should be able to finance their wage and allowance bills. The long term objective may be to maximise tax revenues subject to the tax code.

If the description above reflects the situation in local governments, the principals may fail to collude and coordinate their strategies, either because they do not observe the same variables, or because they cannot commit to make the side-payments to each other that are needed to distribute the surplus among them that makes it optimal for each principal to adhere to the cooperative strategy.[26]

Wilson (1989) has demonstrated and emphasised the importance of such a "common agency " in the U.S. political context. He argues that various managerial and regulatory agencies of the government, even though the letter of the law places each of them under one authority (the Congress or the President), are in practice subject to continuous pressure from other political forces (for instance, other branches of government including the courts, the media, and interest groups, including in this last the bureaucrats in the very agencies. Wilson argues that the effect of the common agency is to reduce the power of incentive schemes provided to the agent.

Dixit (1995) presents a formal model which shows how the simultaneous existence of multiple principals can result in severe weakening of incentives for an agent.[27] The intuition is that each principal tries to free ride on the incentives provided by the others. The more risk averse the agent, the lower power of the incentive scheme. Thus the incentive scheme in equilibrium with n-principals has, roughly speaking, only (1/n)-th the power of the second-best scheme that would be offered by one truly unified principal.[28] This may explain the extensive incentive problems observed in common agencies such as federal governments, the UN and EU.[29]

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[26] Wilson (1989) has demonstrated and emphasised the importance of such a "common agency " in the U.S. political context. He argues that various managerial and regulatory agencies of the government, even though the letter of the law places each of them under one authority (the Congress or the President), are in practice subject to continuous pressure from other political forces (for instance, other branches of government including the courts, the media, and interest groups, including in this last the bureaucrats in the very agencies. Wilson argues that the effect of the common agency is to reduce the power of incentive schemes provided to the agent.

[27] In the model, the principals play Nash against each other but Stackelberg against their common agent (i.e., the tax collector).

[28] The outcome in the model is: the equilibrium with n principals is the same as if there is just one hypothetical principal with an objective function which is the sum of all the separate principal's objectives, but the agent's risk aversion is multiplied n-fold. Thus, Dixit's model lends support to the observation of Wilson (1989) concerning the nature of incentives in government bureaucracies.

[29] Empirically, it may prove difficult to test the importance of multiple principals in the context of local governments in Tanzania. However, by identifying the "principals" involved in setting the target(s) for revenue mobilisation, we may get an indication on the severity of this problem. In addition, this approach may also contribute in explaining why corruption (and collusion) are more pervasive in some organisations than others. There is a general perception of corruption in public services in Tanzania (Corruption Committee, 1996:7). Rent surveys and anecdotal evidence indicate that the tax administration is particularly riddled by corruption.

8 Variations in corruption and evasion levels

The principal-agent-client approach presented above may contribute to explaining some of the fundamental incentive problems which arise due to asymmetric information and uncertainty. However, it has (at least) two limitations: First, in situations where the tax bases, the tax system and auditing devices are apparently similar, as is the case in many councils in Tanzania, how do we explain the observed variations in corruption and evasion rates between tax bases and between areas within councils, and between councils?

Second, regarding taxpayers, the actual levels of audit and penalty rates are set at such low levels or are almost non-existent, that, following the standard approach we would expect that most taxpayers would evade if they pursued their self-interests in a rational (consistent) manner, because of the low probability of being detected and penalised. It seems that while the odds are heavily in favour of evaders getting away with it, surprisingly many taxpayers behave honestly. It therefore appears that there is some discrepancy between the way in which people actually decide to pay their taxes and the models that have been used by economists to explain this behaviour. Therefore, the relevant question to ask in some contexts seems to be "Why do people pay taxes?", and not "Why do people cheat?".[30]

In this section, we will explore two theoretical approaches to explaining these phenomena; first *multiple equilibria models*, and second, a model which focuses on the impact of social interaction on the taxpayer's (or collector's) *perception of the probability of being detected.*

8.1 Multiple equilibria models

The basic idea when variation in corruption or evasion levels has been explained by economists is simple and straightforward (see Andvig and Moene, 1990; and Cowell, 1990): The expected profitability (or utility) of engaging in a fraudulent transaction compared to not engaging in it hinges upon the number of other people doing it. In other words, the compliance of each depends on the compliance of others.[31]

8.1.1 Corruption and multiple equilibria

The general idea of multiple corruption equilibria is illustrated in figure 8.1.[32]

The number of corrupt tax collectors is measured from left to right along the horizontal axis of the diagram. The utility of the net value of the transaction is measured in monetary units along the vertical axis. Non-economic variables such as feeling of guilt, fear of loss of reputation (stigma) or actual punishment, are incorporated into the tax collector's utility function (see Andvig, 1993:240). Each point along the horizontal axis indicates a given distribution of officials between corrupt and non-corrupt category. The two lines Co and No then describe the cardinal utility of a (potential) corrupt, respectively non-corrupt collector for all possible allocations of the remaining ones between the two categories. The way the figure is drawn assumes that corruption has negative welfare consequences in the sense that

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[30] Current research on tax evasion also increasingly focuses on the issue of explaining taxpayer compliance behaviour. Slemrod (1992), for example, is entirely devoted to this question.

[31] In principle, this can be interpreted as a *collective action problem*, in the way that the individual's decision is dependent on the actions of others.

[32] This figure is often referred to as a Schelling diagram (Schelling, 1973:388).

everybody is better off in A than in C (although corruption may increase welfare in a restricted area of corruption levels).

Figure 8.1. Corruption equilibria
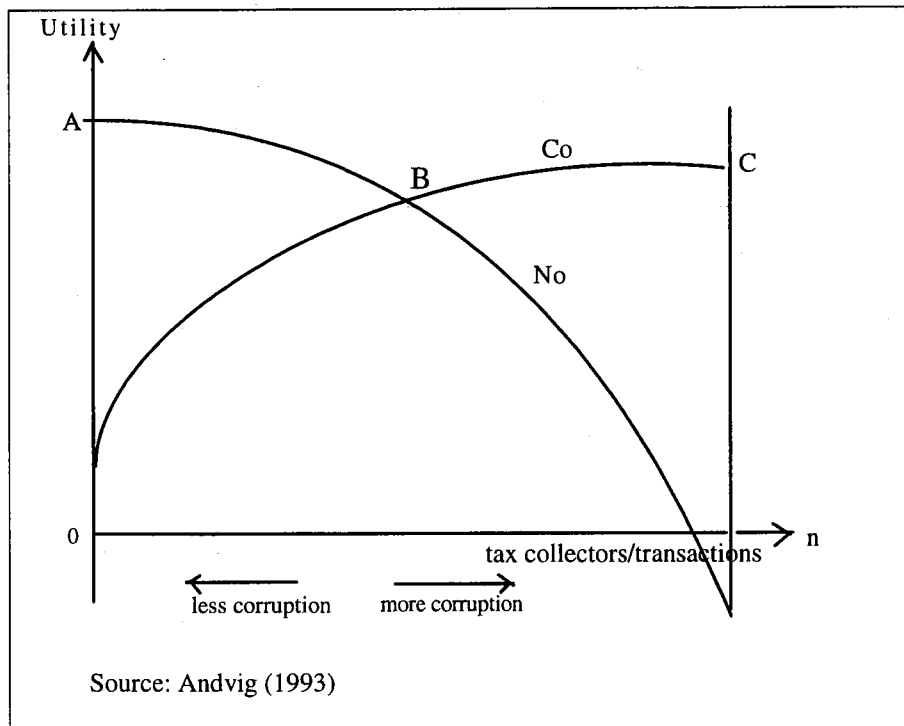
The No curve is falling throughout the whole area, reflecting the utility-level of a completely honest tax collector in a tax administration with increasing corruption.

The utility of the potential corrupt tax collector (Co) increases throughout the whole area.[33] There are at least three arguments supporting this:

(i) Eventual internalised moral feelings of guilt by fraudulent behaviour decrease as the number of corrupt tax officials increases.

(ii) When many others are involved in corruption, the loss of reputation (stigma) for each collector when discovered, is likely to decrease.

(iii) When many others are corrupt, this lowers the probability of being revealed, due to the fact that the capacity of internal and external investigation units may be strained.

There are three equilibrium points: A, B and C. A and C are stable while B is an unstable equilibrium point. At A all are non-corrupt and will prefer to stay that way since their utility levels are above that of any tax collector who tries the corrupt option. Hence, the tax administration will stay in the "clean" position. At B, any given tax collector is indifferent

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[33] Andvig (1993) presents a Co-curve with a turning-point ("Laffer-type" curve). This might also reflect the situation in tax administration: As the number of corrupt tax collectors is rising, corruption becomes less scarce and bribe-paying taxpayers may only be willing to pay a lesser bribe for a given corrupt favour (see Andvig, 1993:242). However, figure 8.1 reflects the points we want to make.

between the corrupt and the non-corrupt strategy, but if one more person is corrupt, then it will pay to become corrupt. If only one less person is corrupt, he will choose to become non-corrupt too, and we see that B is unstable (Andvig, 1993:242). Thus, if the tax administration starts out with higher corruption levels (for some historical reason), it will move towards the stable high equilibrium level at point C. However, if it starts off with a lower level than B it will end up at point A.

This theoretical approach may thus contribute in explaining several observed phenomena of corruption:

- We may observe widely different levels of corruption with the same set of preferences, the same tax system, monitoring and auditing mechanisms, etc..
- Small changes may have large impacts if the tax administration starts out at points close to B:
  (a) If a short-lived, but strong anti-corruption campaign is able to move the tax administration from C and beyond B the administration will drive through on its own momentum to A.
  (b) If B is close to A, small shocks may be sufficient to make the administration slide down into a high corruption level trap. Therefore, although the tax administration may be close to a "clean" point, one should still take corruption seriously.

8.1.2 Evasion and multiple equilibria

The influence of other taxpayers' behaviour on the individual's (non-)compliance decision is discussed on Cowell (1990). Cowell refers to social conscience and stigma: Evasion becomes less soul-bearing the more other people do it. He introduces the aggregate amount of evasion in the society (or the size of the underground economy), into the individual's utility function.

The individual's objective (utility) function is represented with $V(e, E)$ where e is the individual's concealed income (amount of evasion), and E is the aggregate level of evasion in society. Social conscience and stigma are incorporated into the measure of utility.[34] Clearly the utility function will also depend on the individual's income (y) and the tax enforcement parameters (i.e., the probability that tax evasion will be detected and punished, the penalty rate, the tax rate, and the individual's characteristics such as risk aversion, taste for public goods, etc.). Appropriate specification of the cardinal utility function may then enable us to capture the phenomenon of social interaction as a feature of the evasion equilibria (Cowell, 1990:109). To simplify the presentation we assume that e is a dichotomous variable that may be equal to either 0 or y. For each of these two values, $V(e, E)$ is sketched as a function of E.

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[34] Anecdotal evidence indicates that, at least in some areas in Tanzania, tax evasion is considered as a way of "beating the government". If this is the case, stigma may be attached to tax payment (not evasion), i.e., the inverse situation compared to the one discussed in Cowell's model. This is consistent with Lewis (1982) who focuses on psychological motives of tax evasion. Lewis argues that governments perceived to be failing in their duties command less loyalty by their citizens, decreasing the stigma of being branded a tax cheat.

Figure 8.2. Evasion equilibria

Source: Cowell (1990)
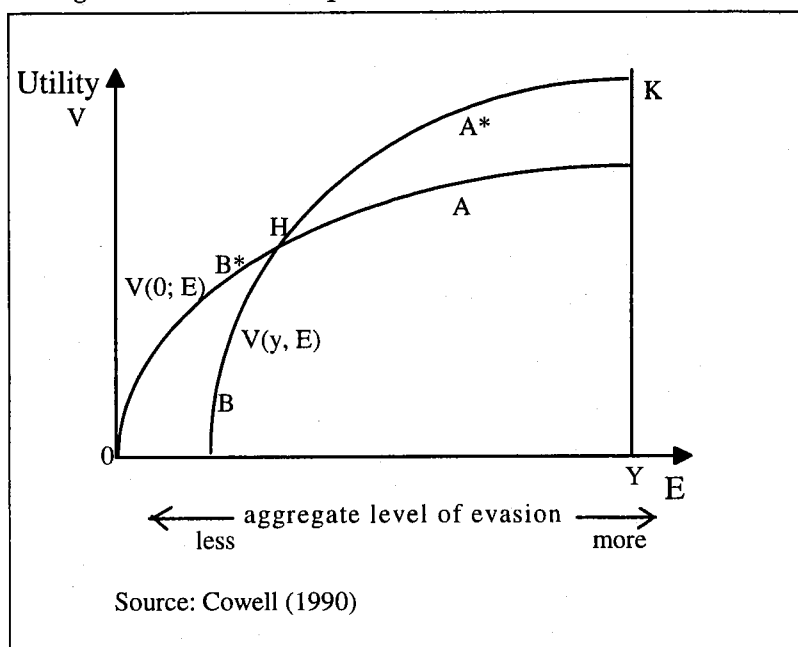
The main points of the model are illustrated in figure 8.2. The individual taxpayer's utility, in monetary units, is measured along the vertical axis. The horizontal axis represents the aggregate level of tax evasion in society. If people tend to feel bad about evasion in the light of their perception of other people's perception of themselves, we may have that $\frac{\partial V(e,0)}{\partial e} < 0$ (i.e., a small increase in the individual's tax evasion in a situation with zero (or very small) aggregate tax evasion in society ($E \approx 0$), will *reduce* the taxpayer's utility). For the same reason, a small increase in the individual's evasion, in a situation where aggregate evasion is increasing ($\frac{de}{dE} > 0$), will *increase* the taxpayer's utility, i.e., $\frac{\partial V(e,E)}{\partial e} > 0$. Further, a small increase in the aggregate evasion level, in a situation where both e and E are positive, will *increase* the taxpayer's utility, i.e., $\frac{\partial V(e,E)}{\partial E} > 0$. In line with the assumptions, V(0, E) and V(y, E) are both upward-sloping. At first V(0, E) lies above V(y, E), and then lies above below for large E.

First, imagine the situation of a person who is completely honest in an economy where there is a huge amount of evasion. He is at a point such as A in figure 8.2. Clearly A is not an equilibrium for him, since at this value of *E* he finds that

V(y, E) > V(0, E): His utility will increase if he switches e from *0* to *y* so that he attains point A*.

Second, consider the situation in an economy where *E* is in fact quite small. An increase in utility is achieved by switching from B (on the *e = y* schedule) to B* (on the *e = 0*) schedule, i.e., *V(0, E) > V(y, E)*.

Since *e* is restricted to be a dichotomous variable, it is clear that the locus that gives optimal e as a function of E is made up of segments of the two schedules, as shown by the kinked curve OB*HA*K. At the crossover point H the individual has no incentive to switch his evasion in either direction. H does not, however, represent a stable equilibrium for the economy as a whole. In a homogenous population, everybody is either at point 0

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(economy-wide honesty), or at point K (total defiance of the tax authority). Moreover, small perturbations will not shift other taxpayers away from 0 or K once either of these equilibria has been attained. The weight of social convention ensures stability. In an economy with heterogeneous taxpayers, we will not expect such extreme outcomes, although we do expect to find similar clumping behaviour in equilibrium (because the evasion of others acts as an externality).

In the same way as the corruption model presented above, this evasion model may contribute in explaining observed phenomena on tax evasion: For instance, the variations in tax evasion levels between areas in councils and between councils, in spite of very similar tax systems, monitoring mechanisms, etc..

It may be problematic to test empirically the relevance of the multiple equilibria models discussed above. However, the purpose of the ongoing anti-corruption (and anti-evasion) campaign in Tanzania is to shift the administrative equilibrium from high- to low-corruption equilibrium. During the presidential election campaign in 1995, Benjamin Mkaba made the following statement: *The Government I will form after the elections shall have no excuse at all and will not hesitate to take stern actions in all places where there is corruption.* By comparing the situation before and after the campaign we may be able to say something empirically qualified about the situation. However, if the theory is to be empirically substantiated, we must show that the campaign has lasting effects. This requires a more long-term follow up.

8.2 The taxpayer's perceived probability of detection

Both theoretical and empirical evidence indicate that a key ingredient in an individual's choice of whether or not to evade taxes is her perceived probability of punishment.[35] For the probability of detection, the message from the theoretical results is that an increase in the probability of detection is a deterrent to tax evasion (see, e.g., Richupan, 1987).[36] Surveys and experimental studies suggests that a high probability of detection is more of a deterrent than heavy penalties.[37] However, in Tanzania (as in many other developing countries) the actual levels of audit and penalty rates are set at such low levels or are almost non-existent, that, following the standard approach we would expect that most taxpayers would evade, because of the low probability of being detected and penalised (see section 4.).[38]

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[35] This evidence focuses on the decision to evade, not on the decision on how much to evade.

[36] The tax evasion literature generally assumes that the probability of detection is an exogenous given parameter to the individual (usually interpreted as a parameter controlled by the government, i.e., reflecting the resources the tax authority puts into auditing the taxpayers). Further, it typically assumes that all individuals have identical and exogenously given perceptions and that these are the same as reality. This assumption means that individual taxpayers are as well informed as the tax authority about the probability of being audited and convicted (see section 3.1).

[37] See Kinsey's (1984) review of the literature. This contrasts Christiansen (1980) findings. In a theoretical model he discusses the relative effectiveness of the penalty rate (fine) and the probability of detection as deterrents of tax evasion, and finds that the fine is the more efficient deterrent.

[38] Koskela (1983) is one of the few theoretical studies which assumes an endogenously determined probability of detection. However, also in Koskela's model the taxpayer's perceived probability is identical with the actual probability. Klepper and Nagin (1989a:2) provide an empirical study of the nature of taxpayer perceptions concerning detection risk and penalties and the effect of these perceptions on behaviour using data from the U.S. Internal Revenue Service.

Some explanations for this observed compliance behaviour have been suggested. One argument stems from the theoretical work of Machina (1983) and Kahneman and Tversky (1979). Using different approaches they argue that individuals either can show great sensitivity to or can overweight low probabilities. Overweighing of low probabilities, i.e., an individual's perceived probability is higher than the real probability may therefore provide an additional explanation for high compliance. If taxpayers give more weight to the probability of an audit than they ought to relative to the standard evasion model, then compliance will be greater than the level suggested by that model.[39] However, this approach does not explain what factors influence individual's perceptions of the probability of detection. Neither, does it explain why compliance behaviour seems to differ markedly between groups within the population (Groenland and van Veldhoven, 1983; Witte and Woodbury, 1985), as well as between countries (see, e.g., Richupan, 1987; and Bird, 1992). Obviously some of these differences can be accounted for by differences in opportunities. For example, employees paying their taxes through a tax withholding system have lesser opportunities to evade than the self-employed. The self-employed have a much greater opportunity to hide income than persons whose income is subject to tax withholding.[40] However, taxpayers also seem to take into account the "climate" within the community or the groups to which they belong. Whether other members of the community are known to evade appears also to exert strong influence on individual decisions (see, e.g., Porcano, 1988).[41]

Descriptive work and surveys often provide the most vivid evidence on the importance of social interactions in motivating (non)compliance behaviour. One of the most consistent findings in survey research about taxpayer attitudes and behaviours is that those who report compliance believe that their peers and friends (and taxpayers in general) comply, whereas those who report cheating believe that others cheat (see Yankelovich, Skelly and White, 1984). This is consistent with studies which have found that evaders and participants in the underground economy perceive lower probability of detection than others (e.g., Vogel, 1974; Grasmick and Scott, 1982), while people generally overestimate the chance of being audited. Benjamini and Maital (1985) has produced a model in which taxpayers' decisions to evade are interdependent. This model clearly shows that the growth of the black economy weakens the rule of tax law and increases tax evasion.

There are also findings which indicate that an individual's perceived probability of detection (p_p) changes over time. Spicer and Lundstedt (1976:300) found that age was an important background variable explaining tax resistance. Increasing age appeared to be related to lower tax resistance. Klepper and Nagin (1989b) found that age and the itemisation of deductions were associated with perceiving lower probabilities of detection overall. In an

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[39] There is evidence from numerous areas, e.g. such as flood and earthquake insurance, which indicates that individuals do not always behave in a manner consistent with expected utility theory. See Machina (1987) for a detailed discussion of this literature.

[40] Many survey studies reveal that greater opportunity for tax evasion is associated with admitted tax evasion and it has been reported as the most important explanatory factor in many investigations (Slemrod, 1985; Witte and Woodbury, 1985). Experimental studies carried out in several countries also suggest that opportunity for tax evasion does have a causal role (Robben et al., 1991).

[41] Cowell (1990/1992) formulates this as "no tax evader is an island entirely of itself". The importance of social interactions in forming tastes and actions has long been stressed by sociologists and social psychologists. These argues that attitudes, perceptions and learning are affected by one's peers, family and social institutions. Thus, receptivity to committing tax evasion is probably influenced by social interactions in much the same way as other forms of behaviour (Snavely, 1990).

experimental study, Friedland, Maital and Rutenberg (1978) found that women evaded more often than men but evaded lower amounts and that purchasers of lottery tickets, presumed to be less risk averse, were no more likely to evade than non-purchasers but evaded greater amounts when they did evade.

Thus, evidence suggest that the perceptions of beliefs about the honesty of others and perceptions of sanctions from the government probably play an important role in compliance behaviour. Persons who know friends and family members who cheat on taxes are more likely to cheat themselves, than individuals who have no such acquaintances. Furthermore, it has been found that interpersonal networks act to reduce an individual's fear of governmental sanctions (Mason, 1987).[42]

There is a clear need to examine the determinants of the individual's subjective p_p and the impact that an endogenous determination of p_p might have on the aggregate tax compliance behaviour. This is important in economic analyses since an individual with a lower p_p will have a higher propensity for non-compliance.[43] Thus, an individual's perceived probability of detection p_p is an endogenous outcome of the nature of the information available to him. This information is generated within the economy. However, since the relevant information is limited and the primary information source to an individual is his "vicinity" (i.e., himself and his acquaintances, relatives, friends, neighbours, etc.), the individual cannot get accurate information on this. In addition, the information concerning past values of p_r is an imperfect predictor of the current value of the probability of detection because the information is local, limited and stochastic and also because the values of p_r may be changing for a variety of reasons, including institutional strengthening and capacity building.

An individual's perceptions, thus obtained, will determine, in combination with his opportunities, his current choice of whether or not to be a tax evader. These choices, aggregated across individuals, yield the proportion of people in the population or societal group who are evading taxes, i.e., the tax evasion rate. The current tax evasion rates in different societal groups may thus affect the current actual probabilities of being detected. The reason is that for any given public expenditure on tax auditing, a higher tax evasion rate leads to fewer resources being spent on auditing each evader, which then lowers the p_r's. The current values of the actual probability (p_r) and the current tax evasion rates, in turn, influence future perceptions, choices and tax evasion rates. Thus, these dynamic relationships indicate how the aggregate tax evasion level may evolve over time, how the parameters of the economy might affect these rates, why tax evasion rates might differ across societal groups, and how a change in the degree of inter-group segregation might affect different groups' tax evasion rates.

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[42] On the other hand, social relationships may also help deter evasion. Individuals can be dissuaded from engaging in evasion out of fear of social sanctions obtained should their action be discovered and revealed publicly (Grasmick and Green, 1980; Grasmick and Scott, 1982).

[43] This discussion is inspired by Sah (1990). With reference to crime in the United States, Sah examines theoretically how criminality may evolve over time, and why crime participation rates may differ between different societal groups even when they face similar economic fundamentals.

9 Policy implications for fighting tax evasion and corruption (tentative)

It is of course difficult to read strong policy implications from the rather abstract analysis discussed above. Nevertheless, the principal-agent-client framework which we have used as our starting point suggests several (tentative) solutions with regards to fighting fiscal corruption and evasion. In general, we may expect that tax collectors with an inclination to behave dishonestly will do so with even greater ease when they enjoy conferred monopoly power over taxpayers that can be exercised without challenge, a high degree of discretion, and limited accountability to the principal (Klitgaard, 1988). By the same token, the taxpayers (client) may be willing to pay bribes to reduce their tax liabilities. In real life the principal (local government or treasury) cannot tell how much of the outcomes of tax collection it observes are due to the tax collector's (agent's) activities on his behalf. After all, the collector has incentives to mislead the principal into thinking he is working only on productive activities, never on corrupt ones.

Klitgaard (1988:74) suggests a cluster of five policy measures available to the principal in fighting fiscal corruption and tax evasion, all of which rest on the assumption that the principal's objective is to reduce corruption and improve tax collection. These measures might also be relevant to consider in the Tanzanian context:

1. The principal can focus on selection criteria for staff that emphasise honesty as well as competence.
2. The principal can change the disposition of rewards and penalties facing both the tax collector and the taxpayer.
3. The principal can invest in information and systems of technology which increase the likelihood that fraudulent activities will be detected and punished.
4. The principal can institute administrative and organisational reforms that will reduce the agent's discretionary authority.
5. The principal can adopt measures and programmes designed to modify the agent's attitudes toward fraudulent behaviour over time.

The list of areas of action includes both short- and long-term policy measures. Changing the composition of staff, reforming the organisation, and conditioning attitudes toward corruption are longer-term objectives. On the other hand, altering rewards and penalties, raising the probability of detection, and introducing administrative modifications all contain elements that could be considered for relatively quick action.

The previous analysis has, however, pointed out that it may be dangerous to draw conclusions from models which treat the individual taxpayer (tax collector) as someone whose decisions are taken in splendid isolation. In a world of interacting taxpayers (collectors), gradualist anti-evasion (anti-corruption) policies may be extremely ineffective if an "everyone evades" ("everyone is corrupt") norm has become established in the society. The more widespread the knowledge that others are not paying their share (or behaving dishonestly), the more one may expect non-compliance to increase. Thus, publicity indicating extensive evasion (corruption) may have effects contrary to what is intended. If it becomes evident that the government either is not effective in its application of sanctions or is practising favouritism toward special interests, one will expect non-compliance to increase.

One means available to the government for promoting "voluntary" tax compliance may then be to coordinate the populace by providing information and assurances that others are in fact cooperating. Most importantly, the government must coordinate sanctions in such a way that the potentially compliant taxpayers' are convinced that sanctions can and will be directed at the others. Even when people prefer to behave honestly, they still require assurances that others are also complying. Otherwise they will feel "cheated" and may reconsider their own willingness to contribute (Levi, 1988).

The successful implementation of such efforts requires political commitment and administrative capacity (Morrissey, 1995). The present rather complex bureaucratic structure in local governments in Tanzania, where several principals independently try to influence the target of local revenue mobilisation and, thus, the actions of tax collectors, may undermine political commitment (as well as the administrative capacity). However, a first step in establishing commitment, is to analyse the extent and characteristics of various kinds of fiscal corruption and evasion, and assess their costs to society.

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