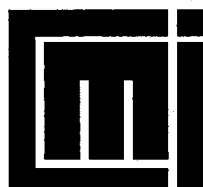


Tax evasion and corruption in local governments in Tanzania: Alternative economic approaches

Odd-Helge Fjeldstad

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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 Introduction¹

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 *Arthashastra*, 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 Sjørgard, 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 tax dodgers. 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 *Arthashastra* 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

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.

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

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*

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 she 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

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

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:

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

The taxpayer's liability if he is detected:

$$(2) \quad (T_r + F)^{18}$$

The expected net gain or loss per transaction is:

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

The taxpayer will try to evade taxes if:

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

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.

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).

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:

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

Similarly, the expected gain per transaction from corruption is:

$$(6) \quad (1-r)B$$

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

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

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

