IMF WORKING PAPER

WP/93/ 21

INTERNATIONAL MONETARY FUND

Fiscal Affairs Department

A Primer on Tax Evasion

Prepared by Vito Tanzi and Parthasarathi Shome*

March 1993

Abstract

Tax evasion is universal. It depends on the economic and tax structures, types of income, and social attitudes. The theory of tax evasion has limitations since it depends solely on the attitude toward risk with full information regarding the tax administration's behavior. Methodologies for estimating tax evasion include predominantly estimating the underground economy, and comparing taxes declared with potential tax revenue calculated from national accounts. Actions in addressing tax evasion include use of withholding, presumptive and minimum taxes, selective auditing, penalties, and cross checks between taxes.

JEL Classification Number:
H26

---

* The opinions expressed in the paper are those of the authors and not necessarily those of the International Monetary Fund.

Contents

Summary

Tax evasion is a universal phenomenon that has existed for thousands of years. It occurs in such forms as the nondeclaration or underreporting of income, sales or wealth; overreporting of deductible expenses; smuggling activities; or any number of other ways. Opportunities to evade taxes vary according to the type of income earner (professionals and independent contractors versus wage earners); structure of the economy (agriculture and commerce versus industry, or large enterprises and establishments versus small shops and operators); and structure of the tax system (number of taxes, level of tax rates, dependent versus nondependent income sources, accounting concepts of tax liabilities, withheld final taxes versus a global tax structure based on declarations).

Although tax evasion has received little attention in the post-Second World War literature on public finance, it has recently been resurrected as a control instrument for reducing the fiscal deficit. It is also receiving more attention as a result of an increasing concern about underground economic activities and their ramifications for economic policies.

The theory of tax evasion has many limitations since it is heavily dependent on assumptions about the attitude toward risk and on knowledge of the probability of detection (with full applicability of the penalty laws). In reality, tax evasion may be influenced by many other factors. The probability of detection is kept confidential by the tax administration. Also, the penalties may not be fully applied if tax evasion is widespread.

Various countries have recently attempted to develop methods that will help them estimate tax evasion. These include estimating the size of the underground economy or the amount of cash held in the economy and comparing the value of a particular tax declared to the tax administration, with potential revenue from that tax calculated on the basis of the national accounts and the input-output matrix. The latter method, currently being used by selected country authorities, has been often used and refined by IMF tax missions.

Countries vary widely in the share of resources they allocate to tax administration and in the share of those resources in total tax collection. Tax administration plays an important role in determining the level of tax evasion. A tax administration, like an efficient firm, given its budget, should maximize output--that is, tax revenue--while ensuring equitable treatment of taxpayers and minimizing compliance costs. Among the instruments a tax administration has at its disposal to address evasion are withholding; presumptive and minimum taxes; selective auditing; penalties and sanctions; and controls that allow for cross checks between, for example, the value-added tax (VAT) and customs information or the VAT and income tax.

I. Introduction

Tax evasion is a universal phenomenon. It takes place in all societies, in all social classes, in all professions, in all industries, in all religions, and in virtually all economic systems. Two thousand five hundred years ago, Plato was already writing about this phenomenon and on the Ducal Palace of Venice built many centuries ago there is a stone with a hole in it, through which people who knew about tax evaders could inform the Republic about the culprits. The only surprise is how little attention this phenomenon had received in some places and especially in the United States until recent years. For example, there is no reference to it in the index to Richard Goode's (1964) classic Individual Income Tax; none in Richard Musgrave's (1959) The Theory of Public Finance; and none in Joseph Pechman's (1966) Federal Tax Policy. These authors either did not think that tax evasion was important or opted to ignore it.

In recent years, however, there has been growing attention paid to this phenomenon. In the United States the attention to it may have started with a somewhat political view that the problem of the rising fiscal deficit could be solved by reducing the so-called "tax gap" rather than by raising tax rates or cutting public spending. 1/ Because of its policy of reducing tax rates and its inability to reduce public spending, the Reagan administration promoted the idea that the fiscal deficit could be reduced by reducing or eliminating the tax gap. In other countries, the concern for tax evasion was in part prompted by a growing preoccupation with horizontal equity. The realization that people with similar incomes often ended up paying very different taxes because of different possibilities of tax evasion, led many governments to worry about the implications of tax evasion. Also, a growing concern about underground economic activities and how these affected economic policies, and the realization that the underground economy was often the other face of tax evasion, led in the 1980s to increasing attention being paid to tax evasion. 2/ This is certainly true of Latin America where the authorities, after introducing major tax policy reforms, have demonstrated increasing interest in the measurement and diminution of tax evasion in both income taxes and consumption taxes. 3/

1/ The tax gap is the measure of tax evasion that emerges from comparing taxable income declared to tax authorities with taxable income calculated from other and presumably more accurate sources.

2/ Scholars have often made a distinction between tax evasion and tax avoidance. In theory tax evasion implies violation of the law whereas tax avoidance implies the taking advantage of ambiguities in the law to reduce the tax burden. This distinction, however, is not always easy and in fact in some countries, such as India, the courts have considered tax avoidance with the intention of evading taxation as tax evasion.

3/ Several requests by Latin American countries for IMF technical assistance have had the objective of measuring tax evasion.

In what follows, Section II surveys some of the sources of tax evasion and recounts how economists have attempted to provide a theoretical underpinning to them. It also discusses some of the limitations of this theoretical literature. Section III reviews the role of tax administration and sanctions in limiting tax evasion, and mentions, briefly, the relation between society at large and tax evasion. Section IV provides some concluding remarks. They are followed by an appendix that lists some of the methodologies developed for estimating tax evasion.

II. Theoretical Underpinnings for Causes and Effects

1. Sources and implications of tax evasion

Tax evasion comes in different forms. It comes, for example, through the nondeclaration of income; through the underreporting of income, sales, or wealth; through the overreporting of deductible expenses; through smuggling activities; and through many other forms. In fact, the variety of tax evasion is truly remarkable, and one finds always new ways by which taxpayers attempt to reduce their tax burden. 1/ Many authors have reviewed these matters including Sisson (1981) and Richupan (1987), among IMF studies, and more recently, Cowell (1990), and Webley et al. (1991). Evidence of empirical findings are often of a confidential nature, as they are the work of technical assistance to countries or of the technical staff of Ministries of Finance.

The opportunity for tax evasion varies between sectors, and this may lead to social turmoil. In Italy, for example, salaried workers have demonstrated in large numbers in the streets to call for reduction in tax evasion by independent professionals and other groups. Activities in which tax evasion is easier are those of independent contractors; of professionals such as doctors, lawyers, architects, etc.; and of those who engage in agricultural activities. There is increasing evidence that enterprises that operate in different countries can also reduce their tax burden through the judicious use of transfer pricing. 2/

Tax evasion has much to do with the structure of the economy. The more atomized is production, the more likely it is that tax evasion will flourish. A country where much production takes place in large enterprises or establishments is unlikely to have a lot of tax evasion. However, a country where much economic activity takes place in small shops, in small

---

1/ In recent years new developments in industrial organization and in technology have introduced totally new ways of evading taxes, for example, through transfer pricing and thin capitalization.

2/ During the electoral campaign, President Clinton argued that the reduction of tax evasion by multinationals could generate a lot of revenue. Recent work by the U.S. Internal Revenue Service has given some support to this view (see U.S. Treasury (1992)).

farms, and on the part of single individuals, is likely to experience a lot of evasion.

Tax evasion is also strictly connected with the structure of the tax system. It is likely to vary according to the use of different tax bases. For example, in the case of income taxes it is likely to vary between dependent and nondependent income sources; as well as between large, small, and multinational enterprises. In the case of sales taxes, it is likely to be connected with the underreporting of sales or the overreporting of purchases. In theory, at least, tax evasion is connected with the accounting concepts of tax liabilities. When a country relies on presumptive concepts of taxation, tax evasion is likely to be more limited unless there is hiding of the assets on which the presumptive estimate of the tax payment is based. The tax structure will also influence tax evasion by its number of taxes. At times governments introduce additional taxes in order to neutralize the losses connected with tax evasion associated with existing taxes. However, an increase in the number of taxes will produce inefficiencies in the tax system and will facilitate for taxpayers the search for new ways of avoiding paying taxes.

The policy implications of tax evasion would be quite different depending on whether evasion is an individual or a social phenomenon. A single tax evader in a country of honest taxpayers typifies the behavior of just that individual. However, a tax evader in a country where tax evasion is a national sport is a somewhat different phenomenon. Tax evasion has implications for the equity of the tax system, for both its horizontal and its vertical equity. It has implications for the efficiency of the tax system and even for the competitive market framework. For example, it is impossible to have pure competition when some of the sellers can evade taxes, while others cannot. In this case the former will be able to undersell the latter. Tax evasion affects the productivity of the tax system reducing the amount of revenue that could be raised given the statutory system. It affects the general attitude of citizens vis-à-vis the government, often building cynicism about the role of the public sector. Often it affects even the statutory system in the sense that the tax laws begin to anticipate the tax evasion by particular groups and try to penalize tax evasion by increasing the tax rates for those particular groups. This often results in increased horizontal inequity since not all the taxpayers in those groups behave like the average.

2. The theory of tax evasion and its limitations

Since Allingham and Sandmo (1972) wrote a classic theoretical paper on tax evasion, the problem of tax evasion, seen from the point of view of the taxpayer, has been discussed as a kind of game theory. 1/ The taxpayer is faced with the decision whether to evade or not to evade. In other words,

---

1/ There is actually a close relationship between Allingham and Sandmo's theory of tax evasion and Becker's theory of crime (1968).

the decision on whether to pay the tax becomes similar to playing a lottery where one is free to buy or not to buy a lottery ticket. For a rational individual, the choice will be made on the basis of the expectations of gains or losses associated with the decision made. The objective is to maximize the utility of the taxpayer. 1/

The benefit derived from tax evasion is related to the expected value of the money (and thus to the utility of the money) that the individual does not pay. The cost of tax evasion is connected to the probability of being caught and the consequences of this outcome. These consequences, in the Allingham and Sandmo model, are associated with fines which can considerably exceed the original tax due. But, of course, the probability that the individual will pay these fines depends on the probability of being caught and that probability can be very low.

The Allingham and Sandmo theory has some important implications for tax administration. In fact, the theory implies that tax evasion can be reduced by either increasing the penalties associated with it, or by increasing administrative expenses, assuming that this increase raises the probability that the tax evader will get caught. 2/ In an extreme interpretation of the Allingham and Sandmo theory, it has been argued that the penalties should become so high and the cost of administration so low that at the limit the tax evader who gets caught should be hanged but that the probability of being caught would approach zero.

The theoretical and especially the practical limitations to the theoretical literature have not received the attention they deserve. But some of these have been discussed by various writers. A first limitation has to do with risk aversion which may vary among individuals and may depend on the level of the taxpayer's income or wealth. In the more recent theoretical advances, the taxpayer's behavior toward tax compliance turns entirely on his attitude toward risk. For example, treating tax evasion in the context of intertemporal choice models, Banerji (1991), concludes,

> "Is there a more subtle way of enforcing compliance without such elaborate calibration--by simply increasing the risk of detection for the evader, and thereby making him or her switch from the riskier asset to the safer one of declared income? Unfortunately, this plan would work with certainty only if we were willing to assume that all possible evaders in the economy had constant

---

1/ Becker's theory assumes that individuals evaluate the expected benefits and costs of various activities including criminal activities and choose those that provide the highest income.

2/ The theory assumes a close relationship between increasing costs of administration and increasing the probability of catching tax evaders. The importance of this assumption has to be kept in mind.

> absolute risk aversion, i.e., that their willingness to take risks did not depend upon their level of income or consumption." (p. 98).

A second limitation has to do with the use of penalties which are applied to only those unfortunate fellows who get caught. In other words, there are many tax evaders who should be penalized but who do not get caught and who are, thus, not affected by those penalties. This raises the question of whether the judiciary system and the community at large will be willing to penalize fully the unlucky few individuals who get caught when many more individuals are committing the same offenses but are not being punished. Anecdotal evidence from many countries indicates that the judiciary system is unwilling to fully apply the penalties under these conditions. This means that one of the basic conclusions of the theoretical literature is unlikely to fully hold if the penalties actually implemented differ from those which are in the books.

Third, the theory assumes that the taxpayers know precisely the probability of being caught and the penalties that they will receive so that they can make the cost-benefit calculations. However, tax administrations often keep this information highly confidential so that for most, if not all, taxpayers the probability of being caught is an unknown. And the penalties may be highly uncertain. 1/

Fourth, the theory ignores costs in terms of embarrassment, loss of self-esteem and social status, etc. experienced by those who get caught. These costs vary from society to society and from individual to individual. In a society where tax evasion is condoned because of the unpopularity of the government, tax evaders may be admired and the social costs associated with tax evasion are, consequently, low or even negative. In a society where tax evasion is taboo, these costs can be very high.

Finally, many countries rely on means-testing based on declared income for determining access to many government-provided benefits such as food stamps, free health care, free education or scholarships, and so forth. Therefore, the advantages from tax evasion may far exceed those measured by the nonpayment of the tax.

3. The role of penalties and amnesties

Perhaps a few comments on the penalties themselves would be appropriate. Some of these comments have relevance for the theoretical literature on tax evasion. The higher are the penalties, the more probable it is that they will not be applied to those who get caught. If the high penalties have led to a reduction in the cost of administration, this would have reduced the probability of detection and thus the number of cases

---

1/ In some cases they may be so delayed in time that they lose their deterrence effect.

requiring the imposition of penalties. Many societies would feel uncomfortable about singling out and punishing particular individuals, almost by a lottery process, when many other individuals may have committed the same offenses. Second, for the penalties to be effective, they must be applied quickly. A penalty that is delayed for years, because of appeals on the part of the taxpayer, is unlikely to have the same effect as a deterrent to evasion, as one that is expected to be applied immediately. In some legal systems, as for example the Italian and Tunisian ones, it has at times been possible to postpone for many years, through appeals, the application of the penalties. 1/ The impact of penalties on tax compliance may not always be great under the circumstances described above. For example, using a model of varying attitudes toward risk and applying econometric estimation techniques to Mexican data for 1982-89, Dunn (1992), concludes:

> "large changes in the odds of being detected and the penalty for illegal evasion are required to even modestly alter compliance...a doubling of the fines for tax evasion would increase declared taxable income by about 10 percent. Similarly, a large increase in the number of audits would achieve only a modest rise in compliance." (p. 14).

Of course, in the pre-penalty period, the appeal may be successful or a tax amnesty may come along. 2/ Appeals mechanisms and tax amnesties bring a lot of confusion in the theory which assumes that the probability of application of the penalty and the penalty itself are known and are precisely defined. The theory is also affected by the existence of administrative corruption. If the individual who gets caught can bribe some tax officials, and if the bribe is less than the penalty, then the theory becomes ambiguous. Tax amnesties which continue to be used in some countries also have important implications for tax evasion because in many ways they encourage tax evasion at least over the longer run and, by so doing, they have an impact on the equity of the tax system, on tax revenue, on the future of the tax system, and on the tax administration. For example, using a game-theoretic approach to an economic analysis of tax amnesties, Stella (1989), concludes:

> "while in general it may be correct to impose a reduced penalty on individuals who voluntarily disclose tax evasion, short-lived amnesties of the type most frequently observed in practice are unlikely to generate significant revenue when judged against the potential danger of reducing future tax compliance." (p. i).

1/ Sometimes the taxpayers benefit from the delay due to the low interest rates charged on the taxes that were due. Some countries require an advance payment of the tax assessed after the tax evasion is discovered even when the taxpayer contests the assessment.

2/ However, appeals are not costless in terms of time, worries, and lawyers' and other fees.

Also, analyzing the sustainability of revenue intake from tax amnesty experiences in different countries, including Argentina, Colombia, and India during the 1980s, Uchitelle (1989), concludes:

> "most of the programs have not led to a widening of the overall tax base, and many have failed to produce even very large one-time revenue gains" (p. 53).

III. Tax Administration and Tax Evasion

The tax administration of a country plays an important role in the extent to which tax evasion prevails in that country. To the best of our knowledge the theory of the firm has not yet been applied to the activities of a tax administration. 1/ But, a tax administration is not very different from a firm even though it should be compared to a monopolistic firm. The tax administration has a given budget assigned to it by the state and with this budget it has the task to maximize an output, that is, tax revenue, taking into account certain important constraints. The allocation of resources within the tax administration is obviously very important for determining the output. Under optimal conditions the tax administration would not be able to increase its output by shifting resources within its various activities such as assessment, collection, auditing, etc. 2/

1. Size and targeting of administrative resources

Some of the constraints on the tax administration are imposed by tax policy, others are objectives that the tax administration needs to take into account (i.e., equitable treatment of taxpayers). How much revenue should a country allocate to the administration of taxes remains a subject that has received little attention. There is a remarkable variance among countries in both the share of resources allocated to tax administration in the national income of the country and the share of these resources in the total tax-collection by the tax administration. 3/ It should not be concluded that a low share of resources to either of those two denominators is necessarily good. In fact, a country that wanted to minimize collection costs would simply collect the taxes which are easiest to collect and collect them from the largest taxpayers. This behavior would condone a lot of tax evasion and would generate tax revenue in a way that would be far from optimal. It would also conflict with other objectives of taxation such as neutrality and equity.

A tax administration should be careful to minimize not only the explicit costs borne by itself (its collection costs) but also the costs

---

1/ But see Goode (1981).

2/ For a recent important contribution to the literature on tax administration, see Bird and Casanegra (1992).

3/ See Sandford, et al. (1989).

borne by the taxpayers and by the economy. These latter costs do not show up in the balance sheet of the administration and thus, often, tend to be ignored. These are essentially welfare costs, compliance costs, and perhaps those that could be called "good relations" costs.

2. Welfare and compliance costs

The welfare cost per dollar collected can be defined as the excess cost to society of collecting $1 of tax revenue. These are the costs that have attracted the attention of economists. These costs have been estimated by various authors for the United States, such as Ballard, Shoven, and Whalley (1985, 1985), Hansson (1987), and others. They have shown that the marginal dollar raised by the U.S. tax administration may have cost the country more than $1.50. Usher has discussed the marginal cost of taxation in the presence of tax evasion (see Usher (1986)). Clearly, the above estimates indicate that the tax system is far from optimal. These welfare costs are often imposed by the particular tax policy followed by the country. However, attempting to make the system optimal may raise other costs such as administrative and compliance costs. These latter costs have not received much attention by economists. There is still no literature that has attempted to deal with the administrative and compliance costs of trying to pursue "optimal" tax policies. However, see Slemrod (1990). However, some recent literature has been trying to assess the implications of tax evasion for optimal taxation (see Cremer and Gahvari (1993)). 1/

The compliance costs are more closely associated with the behavior of the tax administration, and are more likely to be connected with tax evasion. These compliance costs refer to the cost to the taxpayers in terms of lost time, payments to tax accountants and lawyers, trips to the tax office, and so forth, associated with a given tax payment. 2/ In some countries, and for some taxes, these compliance costs can be enormous, especially if the taxpayers have to stand in line for hours and sometimes for days, and perhaps several times a year, in order to meet their tax obligations. They are also likely to be extremely high when the tax laws are so complicated that the taxpayer has to rely on experts' advice, or in the case of enterprises, has to hire experts whose only function is to comply with the tax obligations. There have been reports from Latin American countries that even relatively small enterprises sometimes have had to establish sizable tax departments to simply find their way through the jungle of fiscal laws and regulations. When this situation prevails, the tendency to begin to evade taxes is likely to rise. There must be a direct and positive relationship between the size of tax evasion and the cost of compliance. When firms create tax departments to comply with existing tax

---

1/ This literature concludes that in the presence of tax evasion some of the standard conclusions of optimal taxation do not hold.

2/ Thus, the compliance cost per dollar paid can be defined as the excess cost to the taxpayer in terms of lost time, payments to lawyers and accountants, etc. of $1 of tax payment.

obligations, those same departments will be used to scrutinize the laws for any possible loopholes or for any ambiguity that might justify tax avoidance.

3. Public relations

Let us now turn briefly to what could be called "good relations" costs. This is essentially the public relations activity of a tax administration. This public relations activity is connected with the way in which tax administrations are organized, with the number of employees and with the use of these employees, with the level of their salaries, the quality of their working conditions, and the controls that the tax administration is able to extend on the behavior of the tax inspectors. These controls are necessary to minimize or eliminate the possibility that these inspectors, or other tax administrators, will take advantage of their positions for their own benefits. 1/

A tax administration that wants to improve taxpayer compliance and minimize tax evasion must be available to the taxpayer who needs information, forms, specific instructions, and so forth. It must show courtesy toward the taxpayers since resentment on their part is likely to lead to a lower propensity to pay taxes. It must also show punctuality in sending refunds to those who have overpaid since a taxpayer who expects to wait for years to get a refund is likely to begin to underpay.

4. Use of withholding, presumptive and minimum taxes, and cross controls

Collection systems are also important for minimizing tax evasion. There is now overwhelming evidence that evasion is minimized whenever there is withholding at source. In the United States, for example, the difference in tax evasion between independent contractors, for which there is no withholding at the source, and dependent workers, whose taxes are withheld by enterprises, is enormous. The same evidence is available on taxes on interest incomes and dividends.

Various countries have tried to minimize evasion by resorting to minimum taxes or to presumptive methods of taxation. In these presumptive methods now in use in a large number of countries, the government tries to assign a particular income to taxpayers on the basis of their standard of living, the value of the houses in which they live, the value of the cars they drive, and so forth. 2/ It also tries to estimate, for example, the

---

1/ Anecdotal reports have referred to countries where some key posts in the tax administration have been in high demand by those who took civil service exams or have even been "sold" to the highest bidders. Obviously these posts provided possibilities of high "incomes."

2/ Italy has been, perhaps, the most imaginative in the use of presumptive taxes in recent years.

value added of a company on the basis of sales statistics or other criteria (employees, floor space, etc.). The minimum income tax of a company or individual can also be based on their gross assets, a system that has been introduced, for example, in Argentina and Mexico.

Tax administrations utilize various instruments of control to limit tax evasion. For example, cross controls between the information available to the tax administration, to the social security institution, and to the customs administration, can play a very important role. The assignment of a taxpayer identification number which can be used in this cross control is extremely important since it facilitates the use of computers. Instruments of control which also play a role are: (1) the government's ability to access the accounts of individuals or companies in the banks; (2) detailed audits of taxpayers; and (3) reporting requirements by employers or by those who make payments.

5. Social ethics

Before leaving the section dealing with the role of the tax administration vis-à-vis tax evasion, it may be worthwhile to refer to another relationship, that between society at large and tax evasion. Tax evasion prospers when society condones it. In a society that does not condone tax evasion, this phenomenon will remain isolated and will concern relatively few individuals. When, however, society condones it, then the phenomenon becomes much more widespread. Citizens at large should have a responsibility in preventing tax evasion. Since tax evasion is often facilitated by the acquiescence on the part of some citizens vis-à-vis the tax-evading behavior of other citizens, laws should be passed that penalize not just the tax evaders but also those who collaborate either passively or actively in the tax-evading activities of other individuals. For example, in many countries, the tax evasion of professionals, such as doctors or of independent contractors, is facilitated by requests to their customers on the part of these individuals that payments should be made in cash or by the acceptance, on the part of those who buy the services, of invoices given by these professionals which underestimate the payment. Also the examples provided by those who govern are very important. When those who govern themselves engage in tax evasion or similar activities, they send an unmistakable signal that noncompliance with the law is acceptable.

6. Penalties

As can be anticipated from the preceding discussions, the severity of the penalties would have some impact on the extent and spread of tax evasion. Taxes may be paid in arrears without the intention to evade them especially if the interest charges are low. Usually, interest charges and pecuniary penalties are applied to any tax in arrears which does not reflect tax-evading motivation. Tax evasion or fraud, however, is a more serious matter and, at least in the tax laws, carries much heavier sanctions against it.

a. Interest on and penalties for tax arrears

Usually, the amount of interest charged on taxes paid in arrears is calculated in one of two ways: (1) either fixed percentage points above some key central bank rate or above the average of bank rates; or (2) a specified percentage per month of amount due in taxes up to a maximum amount. In some countries, additional surcharges are also applied.

Penalties on taxes paid in arrears vary depending on whether the cause is late filing of returns, failure to file returns at all, or filing incorrect returns. In the case of taxes withheld at source, penalties depend on the type of infraction. For example, penalties differ depending on whether the correct amount has been withheld or whether the amount withheld has been surrendered to the tax authorities. In all cases, repeated offenses or offenses not corrected or admitted within a specified time period are subject to higher penalties. Sanctions are often in the form of a percentage of the tax due and range between 25 percent and 100 percent; several countries also charge penalties fixed in nominal terms.

b. Sanctions for evasion or fraud

Sanctions for tax evasion and tax fraud are much more severe with higher penalties (up to 15 times the amount of the defrauded amount), possible closure of establishments for a specified time period, and/or jail sentences ranging from a few months to several years. Giving the tax administration the power to close establishments for a few days without the possibility of appeal has been an effective deterrent to tax evasion in Argentina and in other Latin American countries.

IV. Concluding Remarks

This paper has surveyed the factors that give rise to tax evasion as well as its ramifications. Tax evasion varies by sector (agriculture, industry, commerce), organization of production (small trader or business, companies), or type of economic agent (salaried, self-employed, capital owner). It is also affected by social ethics and the standards set by those that govern. Given those standards, it is further affected by the attitude toward risk of a potential taxpayer.

Tax evasion affects the horizontal and vertical equity of a tax system, as well as the efficiency of the free market in general and of its tax system in particular. It certainly affects the revenue productivity of the tax system. Unchecked or deficiently controlled tax evasion builds cynicism about the role of the public sector. It tends to complicate the tax structure as legislators begin to anticipate tax evasion through the tax legislation. The use of effective and quickly applied penalties to counter tax evasion has an impact on its extent and spread. However, their application does not necessarily imply even a second-best solution for the correction of inequities or for the efficiency of the competitive mechanism

if many tax evaders do not get caught and remain unaffected by penalties. 1/

The theoretical foundation for modeling tax evasion remains somewhat wanting. It is really too simple to be of much practical use. The theory relates the taxpayer's behavior toward tax compliance to his attitude toward risk, while ignoring other factors that influence tax evasion. The theory assumes that taxpayers know precisely the probability of being caught and the consequences of such an event; however, tax administrators often keep this information confidential and the consequences of being caught may not be fully predictable.

Estimates of tax evasion of income and consumption taxes have been selectively reported in the published literature for many countries. More information of a confidential nature exists as a result of exercises carried out by tax authorities or in the context of technical assistance by international organizations. The methodologies utilized leave much to be desired because of lack of data but, more importantly, because of what the data are able to capture. The data may only partially capture the effects of tax evasion while including the effects of other leakages (e.g., legitimately used tax incentives or deductions whose total effect may be difficult to remove). Thus, it would not be prudent to base economic policy solely on the results that emerge from these estimations.

Given their limitations, methods of estimation include the matching of information from tax declarations with either national accounts data or survey (or sample) data blown up to population levels. Because of the lack of reliability of surveys (e.g., respondents may not reveal the truth regarding tax evasion even in surveys) and because of their cost, the national accounts approach is more commonly used. If the objective is to estimate evasion of the VAT, however, a national input-output framework has to be utilized because of the VAT's method of collection at different stages of production, some of which may be exempted from the VAT base. An indirect way of estimating tax evasion has been to estimate the extent of the underground economy and, once that has been done, to estimate the taxes that should have been paid. It appears from the published literature that perhaps a third of potential tax revenue may be evaded in selected Latin American and in some Mediterranean countries. Some estimates would indicate even higher percentages. These estimates, however, must be taken with a grain of salt since they would at times imply very high tax burdens in the absence of tax evasion.

If tax evasion is so high, the role of tax administration becomes doubly important. The size of tax administration resources, the main target

---

1/ In fact, the theoretically advocated and practically followed procedure of selecting taxpayers through audits to detect tax evaders raises serious questions of equity when many other tax evaders remain undetected and unpunished.

groups (large enterprises or all taxpayers), the efficiency with which the resources are utilized (collection costs), the ease with which taxpayers can pay taxes (compliance costs), the relation between the tax administration and the taxpayer (good public relations rather than the spreading of fear), and the methods of tax collection (withholding, presumptive taxes, minimum taxes, and cross controls) all play a role in determining the level and lowering of tax evasion.

Finally, one interesting aspect of the evasion phenomenon is that it has a counterpart on the expenditure side of the budget but the counterpart has not as yet received the attention that tax evasion is receiving today. 1/ While tax evasion is the nonpayment of taxes duly owed to the government, the equivalent phenomenon on the expenditure side is the abusive receipt of government payments. In a way, one finds a parallel in a comparison between indirect taxes and consumer subsidies, one being the negative of the other. Activities connected with the illegal receipt of government expenditures may be those associated with corruption. For example, the receipt of a percentage of government contracts; the receipt of pensions not deserved, for example, by claiming disability when one is not disabled; the payment of wages to so-called "ghost workers," a phenomenon common in several developing countries; the taking of leave on the basis of fictitious illnesses; and so forth. This is the other side of the coin of tax evasion; the government loses when taxes are not paid, but it also loses when payments that should not have been made are made. Economic theory and the law should treat the two phenomena in the same way and economists should pay the same attention to both.

1/ For some discussion of this issue, see Chapter 8 of Smith (1986).

Estimating Tax Evasion

In recent years, many scholars and governments have attempted to measure the size of tax evasion in particular countries, either for specific taxes or for the whole tax system. The measurement of tax evasion is obviously fraught with difficulties. Many of these difficulties have to do with the fact that the information available is, by its very nature, limited and often unreliable. However, there is a more philosophical difficulty often not acknowledged--namely, the problem that the statutory tax system that exists in a country that has a lot of tax evasion has been "contaminated" or influenced by the existence of the tax evasion. In other words, it is not the system that would exist in the absence of tax evasion: statutory rates have often been increased to compensate for the revenue losses associated with tax evasion. 1/ But if this is true, then when one uses the current statutory rates to measure tax evasion, one exaggerates the size of the evasion, since the rates would have been lower if the evasion had not been there.

Various methods have been used to measure tax evasion. Some of these try to measure it directly, some indirectly. Among the direct methods one can identify: (1) the use of the national accounts; (2) the use of direct controls; (3) the use of household budget surveys; and (4) direct surveys of taxpayer behavior. The indirect methods are largely related to estimates of the underground economy. Once the size of the underground economy has been measured, the extent to which the existence of the underground economy has implied tax revenue losses to the government must be assessed. In other words, undeclared income or some other unreported tax base must first be measured. Subsequently, an estimation of the unpaid tax must be made.

1. National accounts method

Perhaps the commonest and most often used method for assessing the size of tax evasion is by comparing the estimate of the base of a particular tax made by the national accounts authorities and the base as reported to the tax authorities after making appropriate adjustments. An early study that attempted this technique for several industrial countries was Tanzi's (1969). A similar one for Argentine data was by Herschel (1978). The Internal Revenue Service of the United States has been following this approach routinely for the income tax; various other authorities have used it for measuring the base of the VAT and other taxes. Given that the VAT is collected at various stages of production, a careful use of information based on a sectoral input-output table would also be necessary. This was initiated by Aguirre and Shome (1988) for the case of Mexico, who developed a methodology for constructing the VAT base on a sectoral basis while

---

1/ This point was clearly recognized by Luigi Einaudi, the prominent public finance scholar who became President of Italy. Once he remarked that if all the Italian tax laws on the books were fully enforced, the Italian level of taxation would be 120 percent of national income.

allowing for differential tax rates for the VAT. It was applied by Serra (1991) for Chile, and clarified by Mackenzie (1993) on methodological issues. It has since been attempted in various unpublished technical assistance studies by IMF staff, and is being used by technical units in the Ministries of Finance, for example, in many Latin American countries.

The difference between the base as reported to the tax authorities and the base as estimated by the national accounts authorities gives an indication of unreported income. If the tax is a fully proportional one, then this unreported income automatically and directly provides an estimation of the unpaid tax. If the tax is progressive, as would be the case with income taxes, then the estimation of the unpaid tax becomes more complex since one would have to make assumptions about the effective tax rate at which the unreported tax base would have been taxed. In other words, the unreported income must be allocated among the tax brackets. It would also be necessary to reinstate, into the information based on data from income tax declarations, the various exemptions and deductions at the different tax brackets in order to make that data comparable to the national accounts data.

a. Individual income tax

In the context of the individual income tax an actual framework, for nonwage earners, may be described as follows. To the declared personal income, adjustments should be made for those components of income that are included in the concept of income in the national accounts but are deductible for tax purposes. 1/ These include personal exemptions, deductions, investment allowances, and other deductible direct taxes paid. The adjustments need to be made for individual tax brackets if the tax structure is progressive. The result of the exercise would be a series for gross taxable, declared income (by income class). A comparison with gross, taxable income from the national accounts would yield an estimate of undeclared nonwage income.

Tax evasion among wage earners is often limited because of withholding at the source and also because wages are an important cost to the enterprises. To claim this cost they need to report the wages paid. However, contrary to the obvious, there may also be some difficulties in estimating tax evasion by wage earners. Information on tax withheld by employers may not be readily available since this is not the form in which wage income is usually declared for tax purposes. It may be even more difficult to obtain this kind of information by bracket or by sector. Small- and medium-sized firms that do not pay profits taxes would also tend to underreport tax withheld on wage income or may actually withhold less than that required by law. However, the overall revenue loss from this source should not be significant due to the small firm size. In general,

---

1/ The reverse is also true for capital gains which may be in the concept of taxable income but are not in the national accounts.

estimates of tax evasion from wage earnings would be attempted through sampling techniques.

b. Corporate income tax

Similar techniques as used in the case of the individual income tax may be applied to the corporate income tax, adjusted for the kinds of deductions and incentives that apply specifically to the corporate sector. The task is not easy, however, since over and above the kind of problems discussed for the individual income tax, corporate sector tax incentives would have to be accounted for. These can be used legitimately or otherwise, making the task of adjustment difficult. One redeeming feature in the case of corporate income tax evasion is that the corporate form of business in developing countries is often primarily confined to large and/or easily identifiable firms which are under more conscious scrutiny of the tax authorities. It is common in developing countries for tax administrations to establish special units to control large taxpayers which are mainly big--and often foreign--corporations.

c. VAT

The VAT has emerged as the most important revenue earner in many countries and attempts to estimate its evasion have become relatively commonplace over the last few years. The widest VAT base is all purchasable goods in the economy, that is, GDP plus imports minus exports. Thus, again, the starting point is the national accounts. However, the estimate can be made either from the expenditure side or from the supply/production side.

The expenditure side method could be summarized as follows. To total domestic expenditure (including imports), add net private expenditure from abroad, subtract nontaxed expenditure (typically, government expenditure on wages and salaries, fixed capital formation--except private expenditure on new houses--and change in inventories), to obtain taxable expenditure. Adjust for taxes on expenditure, to obtain adjusted taxable expenditure. Further, subtract exempted expenditures (typically, the financial sector, nonprofit and social organizations, small businesses below a legally defined threshold, and gross rents paid) but add back taxable inputs and capital purchases of exempt sectors, to obtain the potential VAT base.

The VAT base calculation from the production side is quite similar, except that zero-rated exports have to be subtracted and imports added. 1/ It is more convenient to use the production side method whenever the VAT contains many exemptions by economic sectors rather than by products for final consumption. Sectoral data are more amenable to production side estimates, while exemptions specified for particular products would be more amenable to expenditure side estimates. Further, given the nature of the

---

1/ In the expenditure side method, exports are already excluded from the domestic expenditure base.

VAT, that is, collection based on stages of production, sectoral data are again more amenable to base calculations.

Using the above-mentioned methodologies, IMF staff have made some interesting inferences regarding the relationship between the VAT rate and the ratio of VAT revenue to GDP. For example, Table 1 introduces the concept of "revenue productivity ratio--the amount of revenue raised per point of the VAT rate." The last column of Table 1 indicates that the average amount of revenue per point of the VAT rate is 0.37 percent of GDP for 22 countries in the sample. A country whose ratio approaches 0.5 percent could be said to be performing at a high VAT effort.

Some economists have sharply criticized the national accounts approach on the grounds that if tax evasion is significant, the national accounts are also likely to be underestimated. Therefore, the calculation described above may become meaningless. However, these economists have failed to realize that often the information that the national accounts offices receive from the tax authorities contributes very little to the estimation of the national accounts since the national accounts authorities often rely on other methods for measuring production. For example, the agricultural sector's income is often underreported to the tax authorities because of tax evasion. However, the estimations for the national accounts are made on the basis of sampling or surveys of directly observed average productivity per acre and the average prices at which the crops are sold. 1/

2. Sampling method

The second method of estimation, the tax compliance measurement method, has been used largely by the United States. In this method, a random sample of about 55,000 taxpayers is selected from data available to the IRS and to the social security administration. This sample is subject to close scrutiny in order to detect tax evasion for the taxpayers chosen. 2/ The average tax evasion for the sample is then blown up to provide results for the whole population. The results, called the gross gap, or the tax gap, represent the unpaid income taxes on legally earned individual and corporate income. For 1987, the last year for which this information has been published, the tax gap amounted to $85 billion of which $63.5 billion was tax evasion of individuals, $21.4 billion was tax evasion of corporations, and $1.1 billion was tax evasion by nonfilers. Those who generate the data have expressed skepticism that this money could actually be collected.

1/ For a discussion of this point, see the paper by Reuter in Tanzi (1982).

2/ See Internal Revenue Service (1979). This method is different from that outlined for estimating evasion by wage earners in the previous section. The sampling method that is being described here is based on a sample selected for special scrutiny on a continuing basis, and is used in lieu of the national accounts method.

Table 1. Value-Added Tax Data Series, 1988

(Countries with single rate VATs)

Country	Actual VAT Revenue: GDP Ratio	VAT Rate	Revenue Productivity Ratio
Bolivia	2.6	10.0	0.26
Chile	8.8	16.0	0.55
Costa Rica	3.8	10.0	0.38
Denmark	9.5	22.0	0.43
Dominican Republic	1.6	6.0	0.27
Ecuador	2.5	10.0	0.25
Finland	8.4	19.1	0.44
Grenada	4.5	6.0	0.75
Guatemala	2.4	7.0	0.34
Guinea	0.6	13.6	0.05
Haiti	1.8	10.0	0.18
Indonesia	4.5	10.0	0.45
Israel	9.8	15.0	0.65
Korea	3.3	10.0	0.33
Madagascar	1.5	15.0	0.10
Mauritius	2.1	5.0	0.41
New Zealand	6.7	12.5	0.54
Norway	9.4	20.0	0.47
Panama	1.1	5.0	0.22
Peru	2.0	13.0	0.15
Taiwan	2.6	5.0	0.52
United Kingdom	6.0	15.0	0.40
Average	4.3	11.6	0.37

Source: Carlos Silvani, unpublished memorandum, Fiscal Affairs Department, IMF, September 1992.

3. Budget survey method

The third direct method relies on household budget surveys. These surveys show the relationship between the spending of families and the income declared. A family that earns its declared income and spends much more than that income can be expected to have engaged in tax evasion unless other factors, such as accumulated wealth or borrowing against future income, account for these differences. The results from this method are not very reliable and they can only provide a gross order of magnitude. The rationale behind this method has been used by the Italian authorities in the development of the redditometro, an index that established a minimum taxable income for taxpayers on the basis of external indices of wealth such as expensive cars, second houses, etc.

4. Direct taxpayer survey

A few countries, especially Nordic countries such as Sweden and Norway, have used direct surveys of taxpayers. A random sample of taxpayers is chosen and, among other questions, they are asked to describe their tax reporting behavior. 1/ This approach has been subjected to several criticisms which range from whether individuals remember how they behaved as taxpayers in years past, to whether an individual would be willing to convey accurate information about an activity which may be considered anti-social even when he/she is assured anonymity. The common belief is that tax evasion is often underestimated by these surveys even when they try to guarantee anonymity for the taxpayers.

5. Indirect methods

Indirect methods essentially relate to the quantification of the so-called underground economy, which has been attempted for various countries. The connections between this quantification and the size of the tax evasion are often ambiguous and difficult to establish, especially when taxes are progressive. For example, if those who participate in the underground economy are mostly people with very low incomes who would have paid very little taxes, then the existence of an underground economy may not imply the existence of significant tax evasion.

There is often a lot of confusion in the way people define the underground economy. In some cases, people refer to taxes not paid, in other cases they refer to the alleged underestimation of the national accounts, and often they do not specify which of these two definitions they have in mind. The problem is that, in many cases, one could have tax evasion without underestimation of the national accounts, or little or no tax evasion with underestimation of the national accounts. A further confusion comes from the fact that the attempt to evade taxes is not the

---

1/ See paper on Norway, by Isachsen, Klovland, and Strom, and paper on Sweden by Hansson in Tanzi (1982).

only cause for the existence of the underground economy, since corruption, regulations, and various forms of prohibitions, are also important factors. Despite these questions, as already indicated, the underground economy is often taken as a proxy for tax evasion.

Discussion of the various methods used for the measurement of the underground economy would require extensive elaboration. Perhaps it would suffice just to mention the methods used. 1/ The first method is the so-called expenditure and income discrepancy method, which assumes that the incomes which are hidden will show up as expenditures, so that the difference between national accounts measured from income flows and national accounts measured from consumption flows can give an indication of the size of the underground economy. This method was first applied to the United Kingdom. A second method is the employment census method, which tries to compare measured unemployment with the probable participation rate for the population in certain age classes. This method has been applied to Italy, Spain, and some other countries. Third is the physical input method, which is based on the idea that there is a predictable relationship between the use of some inputs, such as electricity, and the value of the output. Finally, there are various versions of the so-called monetary approach, an approach that associates evasion with currency or money holding. This monetary approach, developed in various forms by Guttman (1977), Feige (1979), and Tanzi (1980), has been widely used in a large number of countries to estimate the size of the underground economy. 2/ All of the above approaches have problems. It would, therefore, be prudent not to base economic policy, or even estimates of tax evasion, solely on the results that emerge from these estimations.

To conclude, there are many methods that have been used to estimate tax evasion. In recent years, IMF technical assistance missions have routinely calculated the potential yield of selected taxes using some variant of the national accounts method. Unfortunately, these results cannot be provided because of the confidentiality of the reports.

1/ These methods are discussed in Tanzi (1982).

2/ Tanzi used this method to first estimate the size of the underground economy in the United States and then to estimate tax evasion (1980 and 1983).

References

Aguirre, C.A., and P. Shome, "The Mexican Value-Added Tax: Methodology for Calculating the Base," National Tax Journal, Vol. XLI, No. 4 (December 1988), pp. 543-54.

Allingham, M.G., and A. Sandmo, "Income Tax Evasion: A Theoretical Analysis," Journal of Public Economics, Vol. 1, No. 3/4 (November 1972), pp. 323-38.

Ballard, C.L., J.B. Shoven, and J. Whalley, "The Total Welfare Cost of the United States Tax System: A General Equilibrium Approach," National Tax Journal (June 1985), pp. 125-40.

_____, "General Equilibrium Computations of the Marginal Welfare Costs of Taxes in the United States," American Economic Review (March 1985), pp. 128-38.

Banerji, A., "Tax Evasion, Enforcement, and Intertemporal Choice," Proceedings, 1991 National Tax Association Conference, Williamsburg (1991), pp. 90-100.

Becker, Gary, "Crime and Punishment: An Economic Approach," Journal of Political Economy, Vol. 76, No. 2, 1968, pp. 169-217.

Bird, Richard, and Milka Casanegra de Jantscher, editors, Improving Tax Administration in Developing Countries, (Washington: International Monetary Fund, 1992).

Cowell, F.A., Cheating the Government: The Economics of Evasion (Cambridge: M.I.T. Press, 1990).

Cremer, Helmuth, and Firouz Gahvari, " Tax Evasion and Optimal Commodity Taxation," Journal of Public Economics, 50 (1993), pp. 261-75.

Dunn, D., "Tax Compliance with Untaxed Fringe Benefits: Evidence from Mexico" (unpublished, International Monetary Fund, 1992).

Feige, Edgar L., "How Big is the Irregular Economy," Challenge, Vol. 22 (Nov/Dec., 1979), pp. 5-13.

Goode, Richard, The Individual Income Tax (Washington, D.C.: The Brookings Institution, 1964).

_____, "Some Economic Aspects of Tax Administration," IMF Staff Papers, Vol. 28 (1981), pp. 249-74.

Guttman, Peter M., "Subterranean Economy," Financial Analysts Journal, Vol. 33 (November/December 1977), pp. 26-27, 34.

Hansson, Ingemar, "The Welfare Costs of Deficit Finance," Economic Inquiry (July 1987), pp. 479-96.

Internal Revenue Service, Estimates of Income Unreported on Individual Income Tax Returns (Washington, D.C.: Government Printing Office, September 1979).

Mackenzie, G.A., "Estimating the Base of the Value-Added Tax (VAT) in Developing Countries: The Problem of Exemptions," Public Finance (forthcoming, 1993).

Musgrave, Richard, The Theory of Public Finance: A Study in Public Economy (New York: McGraw Hill, 1959).

Pechman, J.A., Federal Tax Policy (Washington, D.C.: The Brookings Institution, 1966).

Richupan, S., "Determinants of Income Tax Evasion: Role of Tax Rates, Shape of Tax Schedule, and Other Factors," in Supply-Side Tax Policy: Its Relevance to Developing Countries, ed. by V.P. Gandhi (Washington, D.C.: International Monetary Fund, 1987).

Sandford, C.T., M. Godwin, and P. Hardwick, Administrative and Compliance Costs of Taxation (Bath, England: Fiscal Publishers, 1989).

Serra, Pablo, "Estimación de la Evasión Tributaria en el Impuesto al Valor Agregado," Servicio de Impuestos Internos, Publicación No. 91/05/C, Universidad de Chile, Agosto 1991.

Sisson, C.A., "Tax Evasion: A Survey of Major Determinants and Policy Instruments of Control," IMF Departmental Memorandum, DM/81/95 (1981).

Slemrod, Joel, "Optimal Tax Systems," Journal of Economic Perspectives, Vol. 4 (Winter 1990), pp. 157-78.

Smith, Stephen, Britain's Shadow Economy (Oxford: Clarendon Press, 1986).

Stella, P., "An Economic Analysis of Tax Amnesties," IMF Working Paper, WP/89/42 (1989).

Tanzi, V., The Individual Income Tax and Economic Growth (Baltimore: The Johns Hopkins University Press, 1969). A Japanese edition is also available.

_____, "The Underground Economy in the United States: Estimates and Implications," Banca Nazionale del Lavoro, Quarterly Review, No. 135 (December 1980), pp. 427-53.

Tanzi, V., The Underground Economy in the United States and Abroad (Massachusetts: Lexington, 1982).

_____, "The Underground Economy in the United States: Annual Estimates, 1930-80," Staff Papers, International Monetary Fund (Washington), Vol. 30 (June 1983), pp. 283-305.

Uchitelle, E., "The Effectiveness of Tax Amnesty Programs in Selected Countries," Quarterly Review, Federal Reserve Bank of New York, Vol. 14, No. 3 (1989), pp. 48-53.

Usher, D., "Tax Evasion and the Marginal Cost of Public Funds," Economic Inquiry, No. 24 (1986), pp. 563-86.

U.S. Department of the Treasury, Internal Revenue Service, Report on the Application and Administration of Section 482, Washington, D.C., April 1992.

Webley, P., H. Robben, H. Elffers, and D. Hessing, Tax Evasion: An Experimental Approach (Cambridge: Cambridge University Press, 1991).