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Subject: Income Tax Evasion: A Review of the Measurement
          Techniques and Some Estimates for the Developing Countries

CORRIGENDUM

Page 22 (Table 1): Delete entire reference to "France"

Pages 22 and 23 (Tables 1 and 2):

    The "source" for the two tables is to read as follows:

    "Author's compilation from sources given in column 3. The
estimates reported in the table are all taken from published sources and,
in so doing, the author makes no judgment on their quality and reliability
or validity at present times. The reader is also advised to note that the
estimates in this table are not comparable to those given in the other
table because of the different concepts, measures, and approaches
used in different studies."

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Income Tax Evasion: A Review of the Measurement
Techniques and Some Estimates for the Developing Countries

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July 23, 1984

Contents

<div style="text-align: right">Page</div>

I. Introduction

Economists frequently make tax policy recommendations with a view to achieving economic objectives, and supply-side economists are no exception. In doing so, these economists frequently assume that nominal tax systems are also effective tax systems, that is, there is nil or little tax evasion and tax administration is effective enough. Nothing could be further from the truth.

Tax evasion exists wherever taxes exist. However, it is not the existence of tax evasion but the extent to which tax is evaded that causes major concern to tax policymakers and tax administrators in both the developed and the developing countries. And the extent of tax evasion is believed to be much higher in developing countries than in industrial countries.

Tax evasion is inherently difficult to measure because its illegal nature requires it to be kept secret and hidden. In addition, there are certain conceptual problems. Since economists are still exploring the techniques of measuring the unmeasurable, however, techniques to measure and to estimate tax evasion are numerous.

This paper reviews and critically evaluates techniques to measure income tax evasion and surveys and stresses the limitations of estimates of income tax evasion in developing countries. The paper also offers some explanation of the differences between estimates of income tax evasion in the developing and in the developed countries.

Section II discusses the concept and definition of tax evasion. Section III reviews its measurement techniques. Section IV examines some estimates in developing countries. Section V compares the estimates and gives possible explanations for the differences in them. Section VI is the conclusion.

II. Some Conceptual Issues

Apart from the difficulty arising from the secrecy characteristic of tax evasion, its measurement is further complicated by confusion in its concepts. This section discusses two conceptual issues giving rise to such confusion. The first issue relates to the distinction between tax evasion and tax avoidance. The second relates to the distinction between the underground economy and tax evasion.

1. Tax evasion and tax avoidance

The first issue arises from the fact that two concepts of tax evasion are used in the taxation literature. One concept is based on the legality criterion, while the other is based on the revenue pro- ductivity criterion. 1/ The first criterion makes a distinction between "tax evasion" and "tax avoidance," while the second does not. Generally, "tax evasion" refers to the act of fully escaping or reducing the amount of legal tax liability by using illegal means such as omission, fraud,

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1/ For more discussion on these two criteria, see Sharma (1979).

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or falsification. "Tax avoidance" refers to the use of tax laws in a manner that affords the taxpayer the means to pay his tax liability. As a general guideline for the distinction, it may be stated that tax evasion involves violating the tax provision, whereas tax avoidance involves taking advantage of imperfections in the law, that is, inconsistencies and gaps, giving rise to "loopholes," which the taxpayer may use to his advantage. In theory, the distinction between tax evasion and tax avoidance is obvious. In practice, the distinction is not clear cut.

The second concept of tax evasion, based on the revenue productivity criterion, makes no distinction between tax evasion and tax avoidance. According to this concept, any actions leading to a payment of tax in a smaller amount than the legal liability, determined by taking all relevant facts and truths into account, are considered tax evasion. In determining the legal tax liability this concept sets aside the problem of legal interpretation by assuming that tax laws are written in such a way that there is no room for a different interpretation. The distinction between tax evasion and tax avoidance is not made, because it is both difficult and unnecessary. The distinction is at times so difficult that tax evasion is legal only because its illegality cannot be established. It is not necessary to make such a distinction because, although the concepts of tax evasion and tax avoidance are theoretically distinct and separate, they are not independent of each other. As pointed out by Herschel (1978), while tax evasion and tax avoidance are different from the legal point of view, they have the same economic effects on government revenue, taxpayers' after-tax income, and fiscal equity. Thus, both can be considered alternative means to cope with extremely high tax rates. Moreover, significant and well-known tax avoidance could increase tax evasion, because people who are aware of the "unfairness" of the law will be motivated to engage in or to increase the extent of tax evasion.

2.   Underground economy and tax evasion

The second issue arises because two separate estimates, developed for two distinct purposes, are directly related to the measurement of tax evasion, namely, estimates of the underground economy and the estimates of tax noncompliance. Estimates of the underground economy concentrate on measuring the size of the underground economic activities by measuring income or products unaccounted for in the official gross national product (GNP) figures. Such unaccounted income is attributed to income not reported to the tax authority, and thus, tax evaded. These estimates clearly rely on the exactness of the national income or gross domestic product (GDP) concept. On the other hand, the estimates of tax noncompliance concentrate on measuring the income unreported or underreported in the tax returns and thus may or may not be accounted for in the official GNP. In the determination of the size of income unreported to the tax authorities, the exactness of the GDP concept must also be relied upon. It should be noted that both

types of estimates deal with the "unaccounted" income, although one is unaccounted for by the statistical authority and the other is unaccounted for by the tax authority.

The two concepts are closely related but are not exactly the same. Not all income included in the GNP figures is taxable and not all taxable income is included in the GNP figure. This is because the income concept for the GNP is a macro concept, while that for taxation is a micro concept. For example, in some countries a transfer payment 1/ received by an individual is considered his or her income for tax purposes and is taxable but is not considered as income for GNP calculation because such transfers do not create new goods and services. In this respect, studies of the underground economy underestimate tax evaded income. On the other hand, most tax laws provide for exemptions and relief which legally exclude income of certain types or of certain amounts from taxation. In this respect the underground economy studies overestimate tax evaded income. 2/

Nevertheless, in the absence of better estimates, estimates of the underground economy can be used as proxies for tax evasion, because all underground economic activities are generally not reported to tax authorities and are thus tax evaded. The overestimation arising from the fact that these estimates include income which is lower than the basic exemption and income which is legally exempted can be taken care of by applying the average tax rate to the estimates. 3/ The under-estimation arising from the fact that such estimates do not include unreported or underreported income derived from "on-ground" activities is a shortcoming of the estimate and should be stated explicitly so that users of the estimate will be fully aware of such a shortcoming.

III. Tax Evasion Measurement Techniques

Studies of the measurement of tax evasion have followed a number of approaches, none of which is totally satisfactory. In this section, each will be briefly described and their shortcomings commented on.

1. The monetary approach

The monetary approach to tax evasion originated from attempts to measure the size of the underground economy. Tanzi (1982) has classified the monetary approach into three variants, namely, the fixed-ratio variant, the currency-denomination variant, and the currency-equation variant.

1/ Such as social security receipts, pensions, dividend income, alimony, and gifts.
2/ For more discussion on the conceptual issues concerning the estimate of underground economy see OECD (1982).
3/ This is done in Tanzi (1982).

The fixed-ratio variant assumes that there is a monetary ratio 1/ that, except for the effect of the underground economy, would have remained constant over time, and that there was a "golden" period in the past when no underground economy existed. The basic procedures of this variant are to select the golden period and to estimate the monetary ratio for that period. Then the ratio is used to find the excess money in circulation in the period of interest. This excess money is presumed to be used to fuel the activities of the underground economy. By making assumptions about the income velocity of the money, the estimate of the underground economy is made.

Gutmann (1977) and Feige (1979) use this variant of the monetary approach to estimate the size of the underground economy of the United States. Gutmann arrives at an estimate of US$176 billion for underground GNP in the United States in 1976 (10.24 percent of GNP), while Feige's estimate for the same year is US$225 billion (13.10 percent of GNP). Gupta and Gupta (1982) also use this approach to estimate the underground economy in India. They obtain an estimate of 48.78 percent of official GNP in 1978/79.

The fixed-ratio variant is subject to the criticisms that there is no obvious reason why the monetary ratio should remain constant over long periods, and that the results are sensitive to the choice of the initial period. In fact, there are at least three reasons for the money ratio to increase over time. First, as pointed out by Tanzi (1980), because the U.S. dollar is an international currency, the demand for U.S. currency will increase not only in accordance with the increase in domestic demand but also in accordance with the increase in foreign demand. Because of the international role of the U.S. dollar, there is little point in relating dollars in circulation throughout the world to domestic activities in the United States. Second, as pointed out by Henry (1983), the increase in the ratio of currency to demand deposits, as used by Gutmann, was due mainly to the slow growth in the demand deposits, which is the denominator of the ratio, rather than to the rapid growth in the currency, which is the numerator of the ratio. Such slow growth is because of the increase in the menu of short-term securities and because of improved corporate cash management. Third, as pointed out by Acharya (1983) in his comments on the Gupta and Gupta (1982) study, the ratio of transactions to income may be increased because the increase in the monetization of the economy has brought about the increase in the density of interindustrial transactions, which in turn increases currency transactions. The fixed-ratio variant

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1/ Such as the ratio of currency to demand deposit for Gutmann (1977) or the ratio of the fraction $\frac{MV}{GNP}$ to income, for Feige (1979), where

M = money supply (currency plus demand deposit), V = transaction velocity of money, and GNP = gross national product.

also assumes that the velocity of money in the underground economy is the same as in the legal economy and that the currency turns over at the same rate as demand deposits. Such assumptions are criticized by Henry as well as by Acharya and by the OECD for being unrealistic. 1/ Furthermore, evidence from major industrial countries other than the United States indicates that the currency ratio is falling over time. If Gutmann's approach is applied to such countries, it leads one to conclude that countries such as Italy, France, and the Netherlands, have experienced large contractions in their underground economies. Moreover, Acharya reports that, since the currency to deposit ratio has been falling steadily in India since 1950, application of the Gutmann approach yields nonsense results, such as a negative black economy in many of the years.

The currency-denomination variant assumes that the underground economy is associated mainly with the use of bills of certain denominations. The analysis of the change in the amount of bills in such denominations enables one to estimate the size of the underground economy.

Henry (1983) uses this approach to estimate the size of the underground economy in the United States. He finds that the excess stock of large denominations ($50 bills or larger) held by the public for the purpose loosely described as "tax evasion" was somewhere between $8 billion and $16 billion (0.6 to 1.2 percent of GNP) in 1973. The corresponding estimate for the tax evaded income was between $25 billion to $50 billion.

As pointed out by Tanzi (1982), the currency-denomination variant is subject to two criticisms. First, with real growth and a relatively high rate of inflation, large bills do not appear to be as large as they once were and their holding can be expected to increase. Second, large U.S. bills are used for transactions and for store of values in foreign countries, therefore, the increase can also be due to an increase in foreign holdings of such bills.

The currency-equation variant assumes that underground economic activities are the direct consequence of high taxes and that currency

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1/ Isachsen et al. (1982) argue that because the currency held for the purpose of evading tax cannot be spent too openly on purchases of real or financial assets, they are hoarded to a larger extent than usual. Thus, the velocity of money in the hidden economy should be lower than in the regular economy. On the other hand, because of the larger service component of the hidden economy, it is more integrated and requires fewer intermediate transactions to produce a given value of output, which implies higher velocity. On balance, it is not clear whether the velocity in the hidden economy is higher or lower than in the regular economy.

is used mainly for carrying out such transactions or for storing wealth
resulting from such transactions. The basic idea is to specify a demand
for currency equation in such a way that it will allow one to infer the
effect of tax changes on that demand. This variant was developed by
Tanzi (1980) in his estimation of the underground economy in the United
States. Tanzi specifies the demand for the currency equation as:

$$\ln C/M_2 = a_0 + a_1\ln T + a_2\ln WS/NI + a_3\ln R + a_4\ln Y + \varepsilon$$

where C = currency holding

M_2 = money

T = the average income tax rate

$\dfrac{WS}{NI}$ = the ratio of wages and salaries in national income

R = the rate of interest paid on time deposits, and

Y = real per capita income.

The equation is estimated and $\hat{c}$, the estimated currency holding,
and $\hat{\tilde{c}}$, the estimated currency holding when the tax variable is zero,
are calculated. The difference between $\hat{c}$ and $\hat{\tilde{c}}$ is the estimate of
how much currency holding is tax induced. In other words, the differ-
ence indicates the amount of currency people hold, in excess of normal
use, in their attempt to evade the taxes. Tanzi calls this difference
the "illegal money." Now, the difference between M_1 and illegal money,
$\left[M_1 - (\hat{c} - \hat{\tilde{c}})\right]$, is the "legal money." The income velocity of money is
derived by dividing GNP by legal money. It is assumed that the velocity
of illegal money is equal to the velocity of legal money. Thus, the
size of the underground economy is obtained by multiplying illegal money
by the velocity of money. After this size is determined, the income
tax evasion is derived by assuming that the incomes in the underground
economy would have been taxed at the same average rate as income in
the regular economy. Tanzi arrives at an estimate of $11.12 billion
(0.42 percent of GNP) for tax evasion in the United States in 1980.

However, this estimate, as noted by Tanzi, is only part of the
total tax evasion because it takes account of only tax evasion that is
associated with currency use and with the underground economy, and it
does not take account of many forms of tax evasion which have nothing
to do with currency usage or with underground economic activities such
as claiming nonexistent exemptions and exaggerating deductions. Tanzi
also notes that his estimate does not include income from criminal

activities. 1/ Moreover, it does not include noncriminal income which is illegal but not induced by high taxes, such as income of an illegal alien. This is because Tanzi's estimate of tax evasion is derived from the high-tax-induced excess holding of currency. Any tax evasion not motivated by high tax burden is not covered by his estimate.

2. The physical input approach

The basic idea of this approach is to assume that there is a stable relationship between some physical input of production and national output. Such input is usually widely used throughout the economy and its aggregate output and consumption data are reliable. The procedure is to identify such a stable relationship making due allowance for changes in technology and output mix. Then the relationship is used to estimate the size of economic activities. This estimated size is then compared with reported GNP. The difference is attributed to the unaccounted economy.

Gupta and Mehta (1982) use this approach to estimate the under-reported national income of India. They assume that there is a stable relationship between electric power and national output except for changes in output-mix and technology. They specify the following equations:

$$a = IN_t / TY_t \tag{1}$$

$$b_t = \frac{TY_t}{RY_t} \tag{2}$$

where IN_t = gross electricity generation in million KWH

RY_t = GDP at factor cost (reported GDP)

TY_t = total value added in the economy.

Equations (1) and (2) imply that

$$IN_t = ab_t RY_t = \beta_t RY_t \tag{3}$$

where $\beta_t = ab_t$.

In order to account for changes in technology and output-mix, Gupta and Mehta introduce two proxy variables T_t and IP_t, which are time

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1/ Tanzi explains that it is not clear to what extent such income represents a loss to tax authorities because such income would be dramatically reduced (a) if the income earner were caught and jailed or forced to get a legal job, (b) if he gave up his activities because of improved law enforcement, or (c) if such criminal activities were legalized.

trend and the ratio of gross value added in the secondary sector to
gross value added in the primary sector of the economy, respectively.
Their estimating equation is then,

$$IN_t = \alpha + \beta_t RY_t + \gamma_1 IT_t + \gamma_2 IP_t. \tag{4}$$

Gupta and Mehta recognize that the value of β_t can change over
time because of the underlying change in b_t and they experimented with
alternative functional form of β_t such as $\beta_t = \beta_0 + \beta_{1t} + \beta_{2t}$. On the
basis of their equation, they estimate that the underreported economy
for India is 19.8 percent of reported GDP in 1978/79.

Gupta and Mehta's study has a number of deficiencies both in the
estimation and in the variable choice. 1/ Apart from such deficiencies,
the physical input approach suffers from the criticism that it is based
on the assumption that there is a fixed relationship between power con-
sumption and national output. Such an assumption is difficult to justify.
For example, in the case of electricity, national output can be increased
in a number of ways without increasing electricity input. The service
sector, such as trade, can expand substantially without change in the
demand for electricity. The agricultural sector can also do the same.
Moreover, electricity is not just an intermediate product, but is a
final consumption good as well. Thus, change in the utilization of
electricity as consumer goods can affect the relationship between the
electricity used and the reported GDP without signifying an increase
in the unaccounted economy at all. Furthermore, conservation measures
can also have effects on electricity consumption. Such measures have
no relation with the unaccounted economy.

3.   The labor market approach

This approach originated in Italy where the official rate of
labor force participation has decreased drastically since the late
1950s, while the unofficial surveys have estimated such a rate to be
much higher than the official ones. The discrepancy in the rate of
labor force participation suggests that a sizable number of Italians
find their gainful employment in activities not reported to the author-
ities. The procedure of this approach is to estimate the unaccounted
employment and the average value added per worker. Then the unaccounted
economy is estimated on the basis of unaccounted employment figures
and the average productivity of labor.

Contini (1981) uses this approach to estimate the unaccounted
economy in Italy. He arrives at an estimate of 14-20 percent of GNP
in 1977. O'Neill (1983) also uses this approach to estimate the under-
ground economy in the United States. He arrives at an estimate of the
"unmeasured underground economy" of 7.5 percent of official GNP in 1981.

1/   For a critique of this study, see Acharya (1983).

The main shortcoming of this approach is that it accounts for income from labor only and does not account for unaccounted income from capital. Moreover, the estimate depends crucially on the assumptions made concerning the labor productivity in the accounted and unaccounted economies.

4. The gap approach

The gap approach has a long history in tax noncompliance measurement. The basic idea of this approach is to compare income reported in the tax returns and income in the national income accounts. For the comparison to be meaningful, the data constituting the national income statistics must be derived from sources other than, and independent of, the income tax authorities. The procedure is to subtract the deductible exemptions and allowances from the personal income of the national income accounts. After subtraction, the income is compared with the total income reported in the income tax returns. The difference is the "gap" which is presumed to be the evaded income.

Kurtz and Pechman (1982) 1/ use this approach to estimate the Adjusted Gross Income (AGI) gap and multiply the gap by an average effective tax rate of 20 percent, arriving at a tax gap estimate of $20 billion for 1978 in the United States. The gap approach is also used to estimate tax noncompliance in Argentina in 1959, in India in 1956, and in Kenya in 1978, details of which will be discussed later in the paper.

There are at least three major difficulties in using the gap approach. The first difficulty is that in a number of countries national income accounts are derived from tax data. Second, the personal income concept of the national income account includes all income accrued to persons whether it is large or small, taxable or nontaxable, while income reported on the tax return is only income which is taxable and is greater than the basic exemption. Thus, part of the "gap" may be due not to evasion or noncompliance but to income not liable to reporting and not subject to tax. Third, some items are included in taxable income but not in personal income, for example, some kind of capital gains. There are also differences in the treatment of depreciation. These differences make the two numbers noncomparable.

5. The legal tax potential approach

Unlike the first four approaches, the legal tax potential approach does not estimate tax evaded income but estimates the amount of evaded tax instead. This approach takes it for granted that the official national income figure is correct and is a good basis for income tax calculation. The evaded tax is defined as the difference between the

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1/ Kurtz and Pechman (1982) as reported in Henry (1983).

legal and the realized tax potentials. The former is the amount of tax
revenue which would have been raised if all taxpayers had paid the
amount of tax for which they were legally liable. The latter is the
amount of tax actually collected. The procedure estimates the legal
tax potential by making adjustment in the official estimate of the
national income, taking account of the exemptions, allowances, and
deductions so that such income is comparable with the taxable base.
Then an assumption of the distribution of income is made, relying on
the official surveys of the household income or expenditure. The
legal tax potential is obtained by applying the tax rates on income
in each bracket. Then the realized tax is subtracted from the legal
tax potential, obtaining the amount of tax evaded. This approach is
used by Lerche (1980) in his study of the efficiency of taxation in
Indonesia, the details of which will be discussed later in the paper.

There are three shortcomings of the legal tax potential approach.
First, because it takes for granted that the official estimate of the
national income is correct, it does not measure the tax evaded income
not accounted for in the official GNP. Second, the approach is a
measurement of tax noncompliance rather than tax evasion. This is not
only because the approach does not make a distinction between tax
evasion and tax avoidance, but also because taxes uncollected because
of inefficiency in tax administration as well as of taxpayer ignorance
are also included in the amount measured. Moreover, the fact that the
legal tax potential is compared with the actual tax collected rather
than with the amount of tax assessed implies that the estimate includes
the amount of revenue loss at the stage of collection. Thus, even
though the true amount of income is declared and proper tax is assessed,
if such an assessed amount is not collected, it is still considered as
evasion. Third, the estimate depends heavily on the assumption
concerning the distribution of income which is based on the household
survey, whose reliability is questionable.

6. The survey approach

The basic idea of the survey approach is to obtain information on
the income of the taxpayers through a survey which is a source different
from and independent of the tax returns. The survey income is then
compared with the reported income in the returns, thereby estimating
tax noncompliance. The weak points of this approach are that it is
subject to sample bias, sample error, and the problem of reliability
of the data.

Like the gap approach, this approach also has a long history in the
measurement of tax evasion. As far back as 1958, Harold Groves (1958)
conducted an empirical study of income tax compliance for the purpose
of ascertaining through a territorial and sectoral income approach
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Specifically, Groves studied noncompliance in rental income, farm income, and interest and dividends. He conducted his survey in a city in Wisconsin and concentrated specifically on the payers of income. For rental income, the interviewers were 1,129 renters of residential buildings. The amount of rent paid by these renters was matched with the income tax returns of the landlords. It was found that gross rent reported on tax returns was between 80 and 81 percent of rent paid by the renters, which means that the evasion rate was 19 to 20 percent. After taking account of the overreporting expenditures claimed by the landlords, the reported net rent was only 50.74 percent of "actual net rent," which meant that almost half of net rental income was under-reported. Groves also estimated tax compliance (rather than income compliance) and arrived at an estimated tax compliance ratio of 47 percent for rental income. The reduction of the compliance ratio from nearly 51 percent for the net rental income to a 47 percent tax compliance ratio was because the net income not reported was assumed to be added on top of the reported income, thus subject to higher marginal tax rates than the reported income.

For farm income, Groves' procedure was to rely mainly on data on payments to farmers by processors and shippers, for example, dairy processors and tobacco processing agencies. He found that the gross income compliance rate was 81.8 percent, net income compliance rate was 69 percent, and tax compliance was 64.6 percent. For dividend and interest Groves also relied on the data provided by the payers rather than the income recipients. He found that the income compliance rates were 96 percent for dividends and 82 to 86 percent for mortgages and notes. He explained that this impressively high rate of compliance was accounted for on the grounds that the payment of dividends (above $100) were regularly covered and processed in the state by information at the source and that his study on interest was fragmentary and omitted certain types of interest less amenable to administrative inspection.

Mork (1975) used data from a survey conducted by the Institute of Applied Social Research, Oslo, for the Norwegian Occupational Life History Study to analyze tax evasion. However, Mork was interested in the factors affecting tax evasion rather than the measurement of tax evasion. Nevertheless, Mork's study was a good example of using data from a survey conducted for purposes other than taxation as a basis for the analysis of tax evasion. This practice should improve the reliability of the survey data somewhat because the respondent does not have to fear that his response will be used against him in connection with his tax returns. Mork would have estimated the tax compliance ratio, had he had the interest, because sufficient data were available in his study.

Isachsen et al. (1982) used the survey approach to estimate income from unreported work for Norway for 1979. Their method was to ask the respondents to answer questionnaires concerning the hidden labor market. Their idea was to obtain information on both the demand and the supply

sides of the hidden labor market. They asked questions concerning, for example, the number of hours the respondents worked in the hidden labor market (if they were in the market on the supply-side) and the amount of money the respondents spent for work in the market if they were in the market on the demand side. Based on market prices and information on the supply of unregistered labor services, they estimated that the size of the hidden labor market in Sweden in 1979 was SKr 5.5 billion, or 2.3 percent of GNP compared to their macro estimate based on the monetary approach of 6.3 percent of GNP. The macro estimate was larger because it included hidden nonlabor income as well as hidden labor income.

Hansson (1982) reported that a number of surveys on the underground economy have been conducted in Sweden. In one survey, the design was to question two groups of subjects, namely, the members of an organization of small firms and a sample of citizens. The members of the organization were asked whether the firm experienced competition from people working in the underground economy. The sample citizens were asked whether they had done a job in the underground economy without receipt and whether they had paid somebody to get a job done in the underground economy without receipt. Their results showed that 48 percent of the firms experienced competition from underground workers, 14 percent of the sample citizens had done a job in the underground economy, and 19 percent had paid somebody to get a job done in the underground economy. The proportions of firms experiencing competition from the underground economy varied from sector to sector: 75 percent in construction, 55 percent in services, 47 percent in small-scale production and repair services, 39 percent in trade, and 22 percent in industry. Hansson et al. did not make an estimate of the total size of the underground economy from this sectoral survey approach but they arrived at an estimate, based on the monetary approach, of 3-7 percent of GNP.

The survey approach was also used by the Musgrave Reform Commission to measure tax compliance in Colombia in 1971, the details of which will be discussed in Section IV.

7. The constant tax ratio approach

The basic idea of this approach is to take the tax to GDP ratio of a "representative" year and to apply this ratio to the GDP of the year under study to arrive at an estimated tax for that year. Such a representative year is the year in which tax evasion is felt to be minimal. The difference between the estimated tax and the actual tax is the evaded tax.

This is not the measurement of total tax evasion but rather a measurement of additional tax evasion and the deterioration of tax administration. Further, the crucial assumption of this approach is a constant tax/GDP ratio. This assumption is acceptable if there is no

significant change in the tax rate structure and in the GDP structure.
If the tax rates were increased, then this approach would underestimate
tax evasion and vice versa. If the GDP structure is changed in such a
way that tax is increased without an increase in the tax rate, then the
approach will tend to underestimate tax evasion, and vice versa. More-
over, the result is sensitive to the selection of a representative year.
Assuming that there is no significant change in the tax structure and
in the GDP structure, if the selected representative year has a high
tax to GDP ratio then the approach tends to give a relatively large
estimate of tax evasion but the estimate will be closer to the actual
size of tax evasion and vice versa. This approach is good as a tool
to detect the deterioration in tax administration. It is a powerful
argument in showing that there is a substantial decline in tax adminis-
trative efficiency when there is a decrease in tax collection.

This approach has been used to measure tax evasion in Uganda in
1980, the details of which will be discussed later in this paper.

8. Information gathered through special amnesty

In the approaches discussed above, tax evasion is estimated
indirectly through information from sources other than the tax returns.
Under this approach and the next two approaches, the measurement of
tax evasion is made using information extracted directly from the tax
returns. In some countries, for example, in Argentina, India, and
Thailand, special tax amnesties have been offered more than once in
recent history. Under this special amnesty, taxpayers are induced to
declare their actual income in exchange for the condonation of fines
and penalties, and, in some cases, for a special low tax rate. For
these countries, it is possible to measure the size of tax evasion
through examination of tax returns filed during the amnesty period, if
proper arrangements have been made and statistics have been recorded.

As reported in Herschel (1978), this was done in Argentina in 1961,
when the Government had offered special amnesty to tax evaders in order
to give them the possibility of regulating their situation vis-à-vis
the tax authorities. To qualify for the special amnesty, taxpayers had
to present a special declaration of their net wealth as of December 31,
1961. The difference between this new declaration of net wealth and
the usual balance presented for the income tax by the same date was
considered capitalization of income. Then estimated consumption expen-
diture was added to the accumulated income to get net income before
consumption. It was found that evaded income was 36 percent of the
income declared.

As noted by Herschel, this approach measures only part of the
income evaded, because despite the benign condition, there are still
taxpayers who preferred not to make use of the amnesty. Herschel gives
two reasons for not using the amnesty: first, even if the amnesty

conditions are extremely favorable, once the taxpayer has registered
with the tax authorities, a regular tax has to be paid which was still
considered too burdensome; second, because amnesties are offered more
than once, some taxpayers still think that they can take a risk for
some time longer in expectation of a new amnesty at a later date.

9.   The Tax Compliance Management Program (TCMP)

The Tax Compliance Management Program (TCMP) 1/ is a program
designed to measure tax compliance in the United States through detailed
audits of tax returns. The TCMP has been developed by the U.S. Internal
Revenue Service (IRS) in 1961 and audits under the TCMP have been con-
ducted every two or three years since then. Although under the program,
audits are also performed for corporate, estate, nonprofit, and partner-
ship returns, our interest here is only in the audits of individual
income tax returns. Unlike regular field audits, TCMP audits are
detailed line-by-line audits performed by experienced examiners on a
nationwide stratified random sample, typically with a sample size of
50,000 taxpayers. Samples are drawn from a population of taxpayers who
have filed tax returns and are stratified by reported income classes.
Those who file lower reported income have a lower chance of being
selected for audits because there are many of them. However, these
returns of low reported income have a higher weight when the evaded
income is extrapolated back to the total population. From the TCMP
audits, the amount of tax, for which the taxpayers will be liable if
they comply "exactly" with the tax laws, is determined. And from the
amounts, a ratio called Voluntary Compliance Level (VCL), is calculated.
The VCL is the ratio of self-assessed taxes as a fraction of the total
taxes determined by the TCMP. It is found that the VCL was 93.5 percent
in 1963, increased to 94.5 percent in 1965, and dropped continuously
to 91.5 percent in 1979. 2/ Considering the VCL by income type, the
wage income had the highest score of VCL (99 percent) and shared only
3 percent of the total unreported income discovered. This finding
supports the notion that most of the noncompliance arises from the
nonwage sector. In terms of the absolute amount, underreported income
was found to be $39 billion in 1976 and $70 billion to $80 billion in
1979. These amounts are much smaller than Tanzi's estimates. The major
weak point of the TCMP compliance estimate is that the TCMP samples are
drawn only from the population of tax returns filed and do not include
the nonfilers. Thus, those who do not file returns, whether their
income derives from legal or illegal activities, are out of the TCMP
consideration entirely. The exclusion of the nonfilers is the major
reason for the small amount of nonreported income estimated by the
TCMP. Moreover, because the TCMP estimate is derived from sample data,
the estimates are subject to the usual sampling bias and errors.

1/   For more discussion of TCMP see United States, IRS (1977).
2/   Henry (1983), exhibit 21.

10. The TCMP-PLUS approach

Criticized for not including the nonfilers in the TCMP, the IRS attempted to improve its tax compliance measure. Partly in response to criticism that it was not taking the underground economy seriously, the IRS conducted a new study on tax compliance and produced a new measure of tax compliance in 1979 (United States, IRS, 1979) by supplementing TCMP data with other evidence. This new estimate relied mainly on the TCMP, the Exact Match File, and the estimate of income from illegal sources. The 1973 TCMP was used for extrapolating underreported income forward to 1976 with the help of the growth rate of the reported income observed in the interim. The Exact Match File was the joint product of the IRS and the Social Security Administration (SSA). It was basically the matching of the 50,000 IRS tax returns with the records of the SSA to search for evidence of nonfilers' incomes. For the estimate of income from illegal sources, the IRS relied heavily on information from law enforcement agencies like the Federal Bureau of Investigation and the Drug Enforcement Agency. The IRS estimated that unreported income in 1976 based on this study was in the range of $100 to $135 billion. The total amount of tax owed on this unreported income was $19 billion. Compared with the earlier TCMP estimate, this new figure represented a substantial change in the IRS's official view of tax noncompliance.

IV. Some Estimates of Tax Evasion in Developing Countries

Studies on tax evasion measurements for the developing countries are relatively scarce. However, to shed some light on the extent of tax evasion in such countries, this section will review studies directly or indirectly related to such measurements. Some of these studies use relatively more sophisticated methods of investigation which can be classified into one of the approaches discussed in Section III. However, other studies use relatively less sophisticated methods of investigation and cannot be classified into any of the approaches discussed in Section III. This is because the methods that they used were either no more than informed guesses or were not known. Such studies are included in the review because they give some idea about the extent of tax evasion in the developing countries.

1. Indonesia

Lerche (1980) examined the efficiency and equity of Indonesia's tax system using the legal tax potential approach. Although the data used were for 1969/70 and 1974/75, Lerche said that there is no evidence to indicate that the situation had changed greatly. Lerche found that the ratio of legal total tax potential to GDP was absurdly high: 44 percent in 1969/70 and 20 percent in 1974/75. He noted that these figures, fairly high by developing country standards, were still an understatement because the GDP figure included the greatly enlarged oil

income in that year while the estimate of the tax potential excluded oil taxes. However, realized taxes were extraordinarily low: 14 percent of potential in 1969/70 and 28 percent of potential in 1974/75. For personal income tax, the proportions of the realized tax in the potential tax were even lower: they were 6 percent in 1969/70 and 16 percent in 1974/75. For corporate income tax (excluding oil and MPO) 1/ the proportions were 7 percent in 1969/70 and 24 percent in 1974/75. This implied that tax evasion is between 84 to 94 percent of legal tax potential for personal income tax and 76 to 93 percent of legal tax potential for corporate income tax. Lerche attributed these high evasion rates to the legal tax liabilities that were too high to be enforceable even by an efficient tax administration, the shortcomings of tax apparatus, and the low tax compliance levels, which were so low that there was frequent active taxpayer resistance.

To shed more light on tax compliance, Lerche considered the "tax-payer's gap," defined as the differences among three concepts of tax-payers, namely the potential, the registered, and the effective tax-payers. A potential taxpayer is everyone who according to the law is liable to pay tax. A registered taxpayer is everyone who is in the books of the tax authority, active or inactive. An effective taxpayer is a taxpayer who pays some tax some time, though not necessarily all tax liabilities. Lerche found that in 1974/75 the ratio of registered income taxpayer to population was 0.5 percent for the nation and 0.7 percent for Jakarta. These registered taxpayers were only 7 percent of potential taxpayers. The effective taxpayers were 50 percent of registered taxpayers and only 3.5 percent of potential taxpayers. For corporate income tax, only 39 percent of companies registered with the authority were effective taxpayers. Companies not paying tax (although they were liable) included both state enterprises and private companies. More than half of the 800 state enterprises failed to pay their taxes. Lerche reported that the low proportion of effective taxpayers was partly attributable to few taxpayers meeting their obligation because it was widely known that their neighbors did not register and were for some reason "untouchable."

1/ MPO are initials taken from Indonesian words, "Menghitung Pajak Orang" which mean computing another person's tax and depositing the amount due with the Treasury. The rate is 2 percent of import value. There are also specific rates such as Rp 38 per US$ for imports, Rp 10 per US$ for exports, Rp 25 per US$ for exports of timber, etc. Institutions or persons which may be appointed as tax collectors in the MPO system are foreign exchange banks for importers and exporters, state treasuries and state enterprises for suppliers/contractors receiving payment from them, big industries/manufacturers for their buyers, etc.

On collection, Lerche cited an earlier study of Indonesian tax performance which suggested that, in the 1950s, only half of what was assessed was actually collected, and that in the 1960s the proportion of income tax collected fell below 15 percent of the amount assessed. For the early 1970s, such proportions were only marginally better. For example, for income tax on self-employed, they ranged from 10 to 40 percent, depending on the regions.

Investigating the relationship between the tax rate and tax yields, Lerche found that there was a negative relationship between tax rates and tax yields, that is, a lower tax rate corresponded to a higher tax yield. Particularly, Lerche noted that in 1974/75 the income tax rate was lower than in 1969/70 1/. However, the income tax yield was higher in 1974/75 than in 1969/70 even after adjustment for inflation had been made on the tax base. Despite the reduced tax rates, the tax yields rose much more rapidly than the increase in the tax base could reasonably explain. Lerche presumed that the explanation lay in the improved tax enforcement.

2.   Argentina

As reported in Herschel (1978), a study of tax evasion by nonwage earners in Argentina in 1959, using the gap approach, found that declared income was 21.5 percent of taxable gross income that was calculated from the national income accounts. In terms of net income, the declared income was only 16 percent of net taxable income. This meant that evaded income was 78.5 percent of gross income and 84 percent of net taxable income. Moreover, among the 1.6 million persons belonging to the category of nonwage earners, only 29.7 percent were taxpayers. It was also found that as a percentage of each class of potential tax, tax evasion was highest in the middle-income group. However, if one considered the absolute amount rather than the percentage, the greatest evasion was concentrated in the higher income brackets.

For wage income, it was found that the average compliance rate was 57 percent, which means that tax evasion was about 43 percent. Herschel noted that this result indicated that even a withholding tax system was not proof against evasion. Evasion of one tax easily led to evasion of another. In this case, in order to escape discovery by the tax authorities, small and medium-sized firms that did not pay income tax on their own profits also evaded taxes for which they should function as agent.

1/   Between 1969/70 and 1974/75, average household income rose by 65 percent but income tax exemption limits were raised by 300 percent. At the same time, income tax brackets were widened and progression of tax rates were reduced from 20-60 percent to 10-50 percent.

Another study on tax evasion in Argentina, using information gathered through a special amnesty, found that the tax evasion coefficient was 36 percent in the period 1956 to 1961. Such a coefficient was defined as the ratio of evaded income to income declared in the tax declarations. The large discrepancy in the estimates of these two studies was due mainly to the approaches that they took. As noted earlier, the tax amnesty approach captured only income voluntarily declared by the taxpayers at the time of the amnesty, which was only part of the total evaded income, while the gap approach captured all the evaded income.

3. India

Among the developing countries, India is the richest in studies of tax evasion and the underground economy. As far back as 1956, Kaldor (1956), in his well-known report on Indian tax reform, using the gap approach, estimated that the amount of income tax loss through tax evasion was between Rs 2,000 million and Rs 3,000 million in 1954/55. The Direct Taxes Enquiry Committee (India, Ministry of Finance, 1971), following Kaldor's approach, estimated that income tax evaded during 1968/69 was of the order of Rs 4,700 million. This amount was one-third of the estimated concealed income of Rs 14,000 million for that year. A more recent estimate using the gap approach was performed by Chopra (1982), who obtained an estimate of unaccounted income of 11.4 percent of GNP in 1976/77. Following Feige (1979), Gupta and Gupta (1982) used the fixed-ratio variance of the monetary approach to estimate a time-series of the black economy in India. They obtained an estimate of Rs 46,867 crore, or 48.78 percent of GNP in 1978/79. This estimate was high and was criticized by Acharya (1983) as improbable. Acharya argued that a careful scrutiny of the national accounts indicated that about half of the officially measured GNP in 1978/79 was in sectors such as agriculture, public administration and defense, electricity, gas and water supply, banking and insurance, and railways, in which the incidence of the unreported economy was generally believed to be negligible. It followed that virtually all of the Rs 46,867 crore of unreported income estimated for 1978/79 by Gupta and Gupta had to be in the remaining sectors. This in turn implied that those responsible for constructing India's official national accounts managed to account for only about a half of total value added in the sectors where the black economy is believed to flourish; such an implication was very unlikely.

Gupta and Mehta (1982), using the physical input approach, estimated that the unaccounted economy was 19.8 percent of GDP in 1978/79. Although this estimate suffered from a number of criticisms concerning the methodology used, as discussed in Section III, it was not in itself improbable.

Two points emerge from reviewing the estimates for India. First, the unaccounted economy in India is large both in absolute value and in relation to the officially estimated GNP. Second, the estimates vary widely across the studies. Such wide variation is due partly to differences in the definition, but mainly to the differences in methodologies used. This confirms that the development of the measurement techniques is still in an early stage.

4. Colombia

Herschel (1971) conducted a survey study of tax evasion in Colombia in 1968 for the Musgrave Reform Commission. This survey was aimed at studying tax evasion of small businesses, especially commerce and professions. The survey used the yellow pages of the telephone book as a guideline for sampling and covered 2,000 small businesses corresponding to 27 different activities. The survey asked questions about gross income, net income, taxable income, net wealth, and personal automobiles. Herschel also compared his survey data with the income estimated for an employment and unemployment survey made by the University of Los Andes. He reported that analysis of his survey data indicated that nonreporting and underreporting were quite substantial in many activities. Specifically, he found that nonreporting was 24 percent for jewelry stores, 37 percent for beauty parlors, 36 percent for restaurants, 22 percent for clothing manufacturers, and 33 percent for shoe stores. He also found that underreporting of income was 95 percent of income from the survey for lawyers, 76 percent for dentists, 32 percent for engineers, and 28 percent for physicians.

Herschel's approach is a survey approach, one which is conducted particularly for tax evasion studies. Unlike Groves' study, Herschel's does not have the benefit of asking questions from the payers of income rather than the recipients of the income because his study is not designed to do so. Being part of a survey conducted particularly for the tax evasion study, Herschel's data are less reliable in relation to the amount of income underreported but are fully reliable in the case of nonreporting. This is because, knowing that the survey is conducted particularly for the tax evasion study, the respondents may not give their true income for fear that their responses may be used against them in connection with their taxpaying practice. It should be noted that Herschel's estimate is a sectoral estimate directed toward small businesses only. It is not an attempt to measure the overall income tax evasion of the economy.

5. Turkey

Ozmucur and Cinar (1978), using the legal tax potential approach in their study on Turkish income tax potential and tax revenue in 1974, reported that income tax collections were 42.17 percent of tax

potential for total income tax. This meant that tax evasion was 57.83 percent. For nonsalary income, tax collection was only 20.06 percent of tax potential. This meant that, for nonsalary income, tax evasion was as high as 79.94 percent.

6. Kenya

A tentative estimate using the gap approach made in an unpublished paper indicated that Kenya's income tax seemed to have been evaded in 1974/75 by an amount close to 30 percent of potentially taxable income. Further, it was reported that both agricultural and nonagricultural incomes evaded the income tax with the evasion of the agricultural incomes relatively larger than the nonagricultural incomes. It was also found that both wage and nonwage income evaded tax with the evasion of the nonwage income marginally larger than that of the wage income.

7. Uganda

Using the constant tax ratio approach, a tentative estimate of tax evasion in Uganda made in an unpublished paper indicated that in 1978/79, 54 percent of tax revenues were lost because of (additional) evasion and noncollection. Further, sectoral estimates indicated that (additional) tax evasion was 54 percent for income tax, and 81 percent for internal consumption taxes. The paper noted that these were conservative estimates, and the estimates would have been higher if any year earlier than 1975/76 had been used as a base year.

8. Bolivia

Oldman and Holland (1971) reported that in Bolivia, the ratio of declared income to actual income, for income from rent, interest, and profits, increased from 31 percent in 1964 to 42 percent in 1966. This meant that evaded income was in the range of 58 percent to 69 percent of actual income. Oldman and Holland also noted that, for the self-employed, the extent of tax evasion was higher than this.

9. Chile

Gold (1966) reported that in Chile in 1964 only 9 percent of the population were listed as taxpayers and the ratio of declared income to actual income was only 35 percent. This meant that the evaded income was 65 percent of actual income.

10. Nigeria

Taylor (1967), in his study of the relationship between income tax administration and income tax policy in Nigeria, cited Orewa's report

that complete evaders ranged from 70 percent to 51 percent, depending on the districts. Partial evasion, where taxpayers escaped part of their tax through underreporting of income, was also widespread. The problems of compliance and enforcement in Nigeria were so pervasive that it was not unusual for 80 to 90 percent of taxpayers in a district to be assessed on a minimum taxable income of £50 (currency used prior to 1973).

Other than these direct measurements of income tax evasion, the extent of evasion of income tax in developing countries could also be inferred from the available evidence of evasion of indirect taxes. For example, Due (1970) reported that sales tax evasion was estimated to be greater than 60 percent in countries like India, the Philippines, and Chile. Key (1965) also reported that sales tax evasion in Chile was between 60 percent to 80 percent of actual yields. Generally, sales tax is easier to administer than income tax and tax evasion tends to be higher for income tax than for sales tax.

V. Comparison of the Estimates and Possible Explanations of the Difference in the Estimates

1. Comparison of the estimates

For comparison of the extent of tax evasion in industrial and developing countries, estimates are presented in Tables 1 and 2. Table 1 shows the estimates of black income as a percentage of GNP for industrial countries. Black income is defined as income from illegal sources, that is unreportable to tax authorities plus income from legal sources that fails to be reported in tax returns. Table 2 shows the various estimates of tax evasion in developing countries. The estimates in the two tables are not comparable because of the differences in the definitions and in the bases on which the percentages are computed. Moreover, they should not be taken as final or exact measurements of tax evasion in their respective countries because they are very crude. However, the estimates of tax evasion in the developing countries appear much higher than those of the industrial countries. The possible sources of such large differences in the estimates are as follows.

2. Possible explanations for differences in estimates

a. The data

It is well known that data in the developing countries are incomplete and are not reliable. Such data used as raw material for the estimation may give rise to extraordinary results. Because the estimates are expressed as percentages of GNP, the differences in the estimates may arise from the reliability not only of the tax data, but also of the GNP data.

Table 1. Estimates of Black Income in Industrial Countries 1/

Country	Black Income as Percent of GNP	Notes and References	Methods of Estimation
Australia	10.00	Underground economy as percentage of GNP in 1978/79 (Tucker, 1980).	Fixed-ratio variant of the monetary approach.
Canada	4.8-7.2	Irregular economy as percentage of GNP in 1976 (Mirus and Smith, 1981).	Currency-equation variant of the monetary approach.
Denmark	6.00	Black economy as percentage of GNP (as reported in Sandesara, 1983).	n.a.
France	33.00	The figure is the percentage of income failed to be reported to tax authorities (Kolm, 1973).	n.a.
Italy	14.0-20.0	Underground economy as percentage of GNP in 1977 (Contini, 1981).	Labor market approach.
Norway	2.3, 6.3	Hidden economy as percentage of GNP in 1979 and 1978, respectively (Isachsen et al., in Tanzi, 1982).	Labor market approach.
Sweden	3.0-7.0	Underground economy as percentage of GDP (Hansson, 1982).	Monetary approach.
United Kingdom	3.00	Black economy as percentage of GNP in 1977 (Macafee, 1980).	Survey approach.
United States	6.07	Tanzi's estimate of underground economy as percentage of GNP in 1980 (Tanzi, 1980).	Currency-equation variant of the monetary approach.

Source: Author's compilation based on sources given in column 3.

1/ "Black income" refers to income from illegal sources plus income from legal sources not declared in the tax returns.

Table 2. Estimates of Tax Evasion in Developing Countries

Country	Percentage	Notes and References	Methods of Estimation
Argentina	78.5	Evaded income as percentage of gross income (for nonwage earners only) in 1959 (Herschel, 1978).	Gap approach.
Bolivia	58.0	Evaded income as percentage of actual income for income from rent, interest, and profits in 1966 (Oldman and Holland, 1971).	n.a.
Colombia	28.0-95.0	Reported income as percentage of income from the survey for lawyers, dentists, engineers, and physicians only (Herschel, 1971).	Survey approach.
Chile	65.0	Evaded income as percentage of actual income in 1964 (Gold, 1966).	n.a.
India	5.0-50.0	Black economy as percentage of GNP, various years (Acharya, 1983).	Various approaches.
Indonesia	80.0	Average of income tax evasion as percentage of legal potential tax in 1974/75 (Lerche, 1980).	Legal tax potential approach.
Kenya	30.0	Reported income as percentage of potentially taxable income in 1974/75 (unpublished paper).	Gap approach.
Turkey	57.83	Income tax evasion as percentage of legal tax potential in 1974 (Ozmucur and Cinar, 1978).	Legal tax potential approach.
Uganda	54.0	Additional income tax evasion as percentage of potential tax (unpublished paper).	Constant tax ratio approach.

Source: Author's calculation based on sources given in column 3.

b. **The definition**

As discussed in Section III, the definitions of tax evasion used
in different studies are different. Differences in the definitions
can give rise to the difference in the estimates.

c. **The methodology**

As discussed in Section III, all methods of estimation used have
shortcomings. Since different studies used different methods, the
methods used may be one of the sources of the differences in the
estimates.

d. **The period estimated**

The periods used are different. The estimates shown in Tables 1
and 2 are not cross-sectional estimates of the same time period, but
they are estimates for different countries with different time periods.
Thus, the differences in the estimates may also arise from the time
period differences.

e. **The extent of tax evasion**

The difference in the estimates may well indicate that the extent
of tax evasion in the developing countries is actually higher than in
the developed countries.

At least five factors can be the source of the difference in the
estimates. The difference in the extent of tax evasion is only one of
them. Moreover, all these factors can result in either an underestimation
or an overestimation with unknown probability. Thus, the estimates
should be interpreted with caution, and this is where an educated guess
plays a role. The question is whether estimates substantially differ
because the extent of tax evasion in developing countries is higher
than in the developed countries or whether other factors are at play.

Considering the fact that the differences in the estimates for
developing countries and for developed countries are so large (compare
the estimates for the developing countries as a group to those for the
developed countries as a group), one is inclined to believe that the
extent of tax evasion in the former countries is higher than that in
the latter countries.

Three reasons can be given in support of such a belief. First,
investigation of nontax factors affecting tax evasion, such as the
degree of price control, the extent of government regulation, the
discrepancy between the salaries of public servants and the level of
income required for a reasonable standard of living, the level of
education of the taxpayer, and the stage of development of the economy,

indicates that the developing country environment is more inducive to tax evasion than that of the developed countries. 1/ Second, it is well known that income tax administration in developing countries is often inadequate as compared with that in developed countries. Finally, experiences of tax administrators, tax advisors, and tax policy experts suggest that the environment is less conducive for properly administering tax laws. For example, a popular argument used by the tax administrators of developing countries against the application of jail sentences to tax evaders is that "We cannot put the whole country in jail." 2/

Sandesara (1983), in his discussion on the size of the black economy in India, stated that

"....black money operations appear to be far more widespread in India (than in other countries). The number of deals and the number of parties involved in them, relative to the respective sizes of the economies, both seem to be larger, although the average amount involved per deal may be smaller in India than in others. There are innumerable stories from Indians and foreigners who have dealings in India and abroad of how common the fiddling of accounts and corruption, sometimes for unbelievably small amounts, is in India as compared to many an advanced country." (p. 16)

Tanzi (1983) noted that "The problem of erosion, though more serious in developing countries, is not limited to them." 3/ Erosion of tax bases here means reduction in the tax base from both the legal actions (tax holidays, personal exemptions, etc.) and illegal actions (evasion, smuggling). Arthur Lewis expressed the opinion in the mid-1960s that "the direct taxes on individuals (in Nigeria) can be doubled by better administration, reducing evasion, even without increasing in rates." 4/ All these are evidence of widespread tax evasion in the developing countries.

VI. Conclusion

This paper has reviewed the variety of measurement techniques of income tax evasion and the estimates of income tax evasion for some developing countries. The techniques reviewed are the monetary, the physical input, the labor market, the gap, the legal tax potential, the survey, the constant tax ratio, the use of special amnesty, the

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1/ For a discussion of factors affecting tax evasion, see Richupan (1984).
2/ Oldman (1965), p. 117.
3/ Tanzi (1983), p. 6, footnote 1.
4/ Quoted in Taylor (1975), p. 528.

TCMP, and the TCMP-PLUS approaches. The paper has shown that none of these techniques are totally satisfactory in estimating tax evasion, indicating that further research efforts are needed for the development of better techniques.

Despite the availability of the numerous techniques to measure tax evasion, studies on tax evasion in developing countries continue to be scarce. However, a review of available estimates suggests that tax evasion is more widely practiced and exists to a higher degree in developing countries than in industrial countries. This leads one to raise serious doubts as to the effectiveness of using tax policy as a primary instrument of achieving multiple economic goals in developing countries.

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